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January 1, 1987 - June 30, 1987

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PREFACE

This is the twenty-fifth volume of issuances (1 - 997) of the Nuclear Regulatory Commission and its Atomic Safety and Licensing Appeal Boards, Atomic Safety and Licensing Boards, and Administrative Law Judges. It covers the period from January 1, 1987 to June 30, 1987.

Atomic Safety and Licensing Boards are authorized by Section 191 of the Atomic Energy Act of 1954. These Boards, comprised of three members conduct adjudicatory hearings on applications to construct and operate nuclear power plants and related facilities and issue initial decisions which, subject to internal review and appellate procedures, become the final Commission action with respect to those applications. Boards are drawn from the Atomic Safety and Licensing Board Panel comprised of lawyers, nuclear physicists and engineers, environmentalists, chemists, and economists. The Atomic Energy Commission first established Licensing Boards in 1962 and the Panel in 1967.

Beginning in 1969, the Atomic Energy Commission authorized Atomic Safety and Licensing Appeal Boards to exercise the authority and perform the review functions which would otherwise have been exercised and performed by the Commission in facility licensing proceedings. In 1972, that Commission created an Appeal Panel, from which are drawn the Appeal Boards assigned to each licensing proceeding. The functions performed by both Appeal Boards and Licensing Boards were transferred to the Nuclear Regulatory Commission by the Energy Reorganization Act of 1974. Appeal Boards represent the final level in the administrative adjudicatory process to which parties may appeal. Parties, however, are permitted to seek discretionary Commission review of certain board rulings. The Commission also may decide to review, on its own motion, various decisions or actions of Appeal Boards.

The Commission also has Administrative Law Judges appointed pursuant to the Administrative Procedure Act, who preside over proceedings as directed by the Commission.

The hardbound edition of the Nuclear Regulatory Commission Issuances is a final compilation of the monthly issuances. It includes all of the legal precedents for the agency within a six-month period. Any opinions, decisions, denials, memoranda and orders of the Commission inadvertently omitted from the monthly softbounds and any corrections submitted by the NRC legal staff to the printed softbound issuances are contained in the hardbound edition. Cross references in the text and indexes are to the NRCI page numbers which are the same as the page numbers in this publication.

Issuances are referred to as follows: Commission--CLI, Atomic Safety and Licensing Appeal Boards--ALAB, Atomic Safety and Licensing Boards--LBP, Administrative Law Judges--ALJ, Directors' Decisions--DD, and Denial of Petitions for Rulemaking--DPRM.

The summaries and headnotes preceding the opinions reported herein are not to be deemed a part of those opinions or to have any independent legal significance.

CONTENTS

Issuances of the Nuclear Regulatory Commission

ADVANCED NUCLEAR FUELS CORPORATION
(Import of South African Enriched Uranium Hexafluoride)
Docket 11003928
Order, CLI-87-6, June 12, 1987 891
BRAUNKOHLE TRANSPORT, USA
(Import of South African Enriched Uranium Hexafluoride)
Dockets 11003921, 11003922
Order, CLI-87-6, June 12, 1987 891
(Import of South African Natural Uranium Hexafluoride)
Docket 11003920
Order, CLI-87-6, June 12, 1987 891
(Import of South African Uranium Ore Concentrate)
Docket 11003919
Order, CLI-87-6, June 12, 1987 891
CAROLINA POWER & LIGHT COMPANY and NORTH CAROLINA EASTERN MUNICIPAL POWER AGENCY
(Shearon Harris Nuclear Power Plant)
Docket 50-400-OL
Order, CLI-87-1, January 9, 1987 1
COMMONWEALTH EDISON COMPANY
(Braidwood Nuclear Power Station, Units 1 and 2)
Dockets 50-456-OL, 50-457-OL
Order, CLI-87-7, June 30, 1987 ..... A-1
EDLOW INTERNATIONAL COMPANY
(Import of South African Enriched Uranium Hexafluoride)
Docket 11003931
Order, CLI-87-6, June 12, 1987 891
(Import of South African Uranium Hexafluoride)
Docket 11003930
Order, CLI-87-6, June 12, 1987 891
(Import of South African Uranium Ore Concentrate)
Docket 11003929
Order, CLI-87-6, June 12, 1987 891

LONG ISLAND LIGHTING COMPANY
(Shoreham Nuclear Power Station, Unit 1)
Docket 50-322-OL
Memorandum and Order, CLI-87-4, June 11, 1987 882
Docket 50-322-OL-3
Memorandum and Order, CLI-87-5, June 11, 1987 884
PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE, *et al.*
(Seabrook Station, Units 1 and 2)
Dockets 50-443-OL-1, 50-444-OL-1
Memorandum and Order, CLI-87-2, April 9, 1987 267
Memorandum and Order, CLI-87-3, June 11, 1987 875

Issuances of the Atomic Safety and Licensing Appeal Boards

GEORGIA POWER COMPANY, *et al.*
(Vogtle Electric Generating Plant, Units 1 and 2)
Dockets 50-424-OL, 50-425-OL
Memorandum and Order, ALAB-859, January 21, 1987 23
KERR-McGEE CHEMICAL CORPORATION
(Kress Creek Decontamination)
Docket 40-2061-SC
Memorandum and Order, ALAB-867, June 23, 1987 900
LONG ISLAND LIGHTING COMPANY
(Shoreham Nuclear Power Station, Unit 1)
Docket 50-322-OL-5
Memorandum and Order, ALAB-861, March 2, 1987 129
PHILADELPHIA ELECTRIC COMPANY
(Limerick Generating Station, Units 1 and 2)
Dockets 50-352-OL, 50-353-OL
Decision, ALAB-857, January 2, 1987 7
Decision, ALAB-863, April 17, 1987 273
PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE, *et al.*
(Seabrook Station, Units 1 and 2)
Dockets 50-443-OL, 50-444-OL
Memorandum and Order, ALAB-858, January 15, 1987 17
Memorandum and Order, ALAB-860, February 26, 1987 63
Decision, ALAB-862, March 30, 1987 144
Memorandum and Order, ALAB-864, May 1, 1987 417
Dockets 50-443-OL-1, 50-444-OL-1
Memorandum and Order, ALAB-865, May 8, 1987 430

TEXAS UTILITIES ELECTRIC COMPANY, *et al.*
(Comanche Peak Steam Electric Station, Unit 1)
Docket 50-445-CPA
Decision, ALAB-868, June 30, 1987 912
US ECOLOGY, INC.
(Sheffield, Illinois Low-Level Radioactive Waste Disposal Site)
Docket 27-39-SC
Memorandum and Order, ALAB-866, June 16, 1987 897

Issuances of the Atomic Safety and Licensing Boards

BABCOCK AND WILCOX
(Parks Township, Pennsylvania, Volume Reduction Facility)
Docket 70-364-MLA
Supplemental Decision, LBP-87-16, May 18, 1987 830
COMMONWEALTH EDISON COMPANY
(Braidwood Nuclear Power Station, Units 1 and 2)
Dockets 50-456-OL, 50-457-OL
Partial Initial Decision on Emergency Planning Issues,
LBP-87-13, May 13, 1987 449
Concluding Partial Initial Decision, LBP-87-14, May 19, 1987 461
Memorandum and Order Denying Intervenors' Motion to Admit
Late-Filed Contentions on Final Qualifications,
LBP-87-19, June 10, 1987 950
FLORIDA POWER & LIGHT COMPANY
(Turkey Point Nuclear Generating Plant, Units 3 and 4)
Dockets 50-250-OLA-1, 50-251-OLA-1
Memorandum and Order, LBP-87-21, June 23, 1987 958
FLORIDA POWER & LIGHT COMPANY, *et al.*
(St. Lucie Nuclear Power Plant, Unit 2)
Docket 50-389-OLA
Memorandum and Order, LBP-87-2, January 16, 1987 32
GENERAL PUBLIC UTILITIES NUCLEAR CORPORATION, *et al.*
(Three Mile Island Nuclear Station, Unit 1)
Dockets 50-289-OLA-1, 50-289-OLA-2
Memorandum and Order, LBP-87-6, February 27, 1987 114
INQUIRY INTO THREE MILE ISLAND UNIT 2 LEAK RATE
DATA FALSIFICATION
Docket LRP
Recommended Decision, LBP-87-15, May 21, 1987 671

MICHAEL F. DIMUN, M.D.
(Byproduct Materials License No. 37-13604-02)
Docket 30-19378-ML
Memorandum and Order, LBP-87-9, March 10, 1987 175
PACIFIC GAS AND ELECTRIC COMPANY
(Diablo Canyon Nuclear Power Plant, Units 1 and 2)
Dockets 50-275-OLA, 50-323-OLA
Memorandum and Order, LBP-87-21A, May 22, 1987 966
PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE, *et al.*
(Seabrook Station, Units 1 and 2)
Dockets 50-443-OL, 50-444-OL
Memorandum and Order, LBP-87-12, April 22, 1987 324
Dockets 50-443-OL-1, 50-444-OL-1
Memorandum and Order, LBP-87-3, February 6, 1987 71
Partial Initial Decision, LBP-87-10, March 25, 1987 177
RADIOLOGY ULTRASOUND NUCLEAR CONSULTANTS, P.A.
(Strontium-90 Applicator)
Docket 30-12688-MLA
Decision, LBP-87-4, February 9, 1987 79
SEQUOYAH FUELS CORPORATION
(Sequoyah UF_6 to UF_4 Facility)
Docket 40-8027-MLA
Decision, LBP-87-8, March 4, 1987 153
TEXAS UTILITIES ELECTRIC COMPANY, *et al.*
(Comanche Peak Steam Electric Station, Unit 1)
Docket 50-445-CPA
Memorandum and Order, LBP-87-20, June 22, 1987 953
(Comanche Peak Steam Electric Station, Units 1 and 2)
Dockets 50-445-OL, 50-446-OL
Memorandum, LBP-87-1, January 7, 1987 29
Memorandum and Order, LBP-87-18, June 1, 1987 945
TOLEDO EDISON COMPANY, *et al.*
(Davis-Besse Nuclear Power Station, Unit 1)
Docket 50-346-ML
Decision on the Disposal of Waste at Davis-Besse,
LBP-87-11, April 15, 1987 287

US ECOLOGY, INC.
(Sheffield, Illinois Low-Level Radioactive Waste Disposal Site)
Docket 27-39-SC
Memorandum and Order, LBP-87-5, February 20, 1987 98
VERMONT YANKEE NUCLEAR POWER CORPORATION
(Vermont Yankee Nuclear Power Station)
Docket 50-271-OLA
Memorandum and Order, LBP-87-7, February 27, 1987 116
Prehearing Conference Order, LBP-87-17, May 26, 1987 838

Issuances of the Administrative Law Judges

ADVANCED MEDICAL SYSTEMS, INC.
(One Factory Row, Geneva, Ohio 44041)
Docket 30-16055-SP
Memorandum and Order Following First Prehearing Conference, ALJ-87-1, January 14, 1987 39
Memorandum and Order Concerning NRC Staff's Motion for Stay of Proceeding, ALJ-87-4, May 4, 1987 865
GENERAL PUBLIC UTILITIES NUCLEAR CORPORATION
(Three Mile Island Nuclear Station, Unit 1)
Docket 50-289-CH
Initial Decision, ALJ-87-3, April 2, 1987 345
(Three Mile Island Nuclear Station, Unit 2)
Docket 50-320
Memorandum and Order Ruling on Department of Labor Motion to Quash Subpoena, ALJ-87-5, June 22, 1987 973
HURLEY MEDICAL CENTER
(One Hurley Plaza, Flint, Michigan)
Dockets 30-01993, 70-1396
Initial Decision, ALJ-87-2, March 3, 1987 219

Issuances of Directors' Decisions

ARIZONA PUBLIC SERVICE COMPANY, *et al.*
(Palo Verde Nuclear Generating Station, Units 1, 2, and 3)
Dockets 50-528, 50-529, 50-530
Director's Decision, DD-87-11, June 22, 1987 994

BABCOCK & WILCOX
(Parks Township, Pennsylvania Facility)
Docket 70-364
Director's Decision, DD-87-5, March 13, 1987 260
CAROLINA POWER & LIGHT COMPANY and NORTH CAROLINA EASTERN MUNICIPAL POWER AGENCY
(Shearon Harris Nuclear Power Plant)
Docket 50-400
Director's Decision, DD-87-6, April 2, 1987 387
CHEM-NUCLEAR SYSTEMS, INC.
(Midwest Facility)
Docket 30-18618
Director's Decision, DD-87-8, April 30, 1987 410
COMMONWEALTH EDISON COMPANY (AND ALL LIGHT-WATER REACTORS)
(Zion Station, Unit 1)
(Byron Nuclear Power Station, Unit 1)
(LaSalle County Station, Unit 1)
Dockets 50-295, 50-373, STN 50-454
Director's Decision, DD-87-2, February 10, 1987 121
GENERAL PUBLIC UTILITIES NUCLEAR CORPORATION
(Three Mile Island Nuclear Station, Units 1 and 2)
Dockets 50-289, 50-320
Director's Decision, DD-87-3, March 6, 1987 245
PORTLAND GENERAL ELECTRIC COMPANY, *et al.*
(Trojan Nuclear Plant)
Docket 50-344
Director's Decision, DD-87-4, March 5, 1987 253
SEQUOYAH FUELS CORPORATION
(Gore, Oklahoma Facility)
Docket 40-8027
Director's Decision, DD-87-7, April 21, 1987 402
SOUTHERN CALIFORNIA EDISON COMPANY, *et al.*
(San Onofre Nuclear Generating Station, Units 1, 2, and 3)
Dockets 50-206, 50-361, 50-362
Director's Decision, DD-87-1, January 29, 1987 43
TEXAS UTILITIES ELECTRIC COMPANY, *et al.*
(Comanche Peak Steam Electric Station, Units 1 and 2)
Dockets 50-445, 50-446
Director's Decision, DD-87-10, June 25, 1987 989

VIRGINIA POWER COMPANY
(Surry Nuclear Power Station, Units 1 and 2)
Dockets 50-280, 50-281
Director's Decision, DD-87-9, June 5, 1987 981

Issuance of Denial of Petition for Rulemaking

PUBLIC CITIZEN
Docket PRM-50-41
Denial of Petition for Rulemaking, DPRM-87-1, January 14, 1987 49

Indexes

Case Name Index I-1
Legal Citations Index I-5
Cases I-5
Regulations I-19
Statutes I-31
Others I-33
Subject Index I-35
Facility Index I-51

Cite as 25 NRC 1 (1987) CLI-87-1

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Lando W. Zech, Jr., Chairman
Thomas M. Roberts
James K. Asselstine
Frederick M. Bernthal
Kenneth M. Carr

In the matter of Docket No. 50-400-OL

CAROLINA POWER & LIGHT
COMPANY and
NORTH CAROLINA EASTERN
MUNICIPAL POWER AGENCY
(Shearon Harris Nuclear Power
Plant) January 9, 1987

The Commission authorizes issuance of a full-power license by the NRC Staff for the Shearon Harris nuclear facility based on (1) Commission review of contested safety-related contentions resolved in the remaining Licensing Board partial initial decision not administratively finalized through Commission appellate review; and (2) issues not contested before the Licensing Board but raised in intervenors' effectiveness comments, at various public meeting presentations, and in a pending § 2.206 petition, all of which were resolved in favor of facility operation.

NRC: IMMEDIATE EFFECTIVENESS REVIEW

To provide grounds for a delay of the effectiveness of a Licensing Board decision authorizing issuance of a full-power license, an intervenor's concerns regarding a contested issue, such as management competence, must challenge the Board's substantive conclusions regarding the issue. Comments that are no

more than speculation about the integrity of a member of the agency's Staff responsible for the oversight of utility management competence are not sufficient.

NRC: IMMEDIATE EFFECTIVENESS REVIEW

The Commission's determination to authorize facility operation, reached as a result of its immediate effectiveness review of contested issues addressed in a Licensing Board partial initial decision that subsequently was affirmed by the Appeal Board, does not foreclose a party from filing a petition for Commission review of the merits of the Appeal Board's decision. *See* 10 C.F.R. § 2.764(g).

NRC: IMMEDIATE EFFECTIVENESS REVIEW

Issues intervenors seek to raise outside of the formal adjudicatory proceeding that have been resolved either in Licensing Board, Appeal Board, or Commission rulings on contested matters, or through the Staff's analysis of § 2.206 petitions, did not provide a basis for delaying the Commission's authorization to the Director of Nuclear Reactor Regulation to issue a full-power operating license.

ORDER

On April 28, 1986, the Atomic Safety and Licensing Board conducting the operating license adjudicatory proceeding for the Shearon Harris Nuclear Power Plant issued its fourth and final partial initial decision ("PID"). In concluding that decision, the Licensing Board declared that it had resolved all contested issues in favor of applicants Carolina Power and Light Company ("CP&L") and North Carolina Eastern Municipal Power Agency and, accordingly, the Director of Nuclear Reactor Regulation ("NRR") was authorized, upon making the findings required under 10 C.F.R. § 50.57(a), to issue a full-power operating license to the applicants. LBP-86-11, 23 NRC 294, 408-09 (1986). Consistent with 10 C.F.R. § 2.764(f), after conducting a review of those parts of the Licensing Board's decision that have not yet become final under the agency's adjudicatory appellate process and after consideration of intervenors' June 1986 effectiveness comments and the various presentations made at a public meeting on January 8, 1987, the Commission has determined that the Licensing Board's decision should become effective and that the Director, NRR, is authorized to issue a full-power operating license.

In four extensive PIDs the Licensing Board resolved all contested issues in applicants' favor; each of these decisions subsequently was affirmed by the

Atomic Safety and Licensing Appeal Board.[1] The Appeal Board determinations relative to the first, third, and fourth PIDs, after undergoing Commission review in accordance with 10 C.F.R. § 2.786, have become final. The Appeal Board's December 31, 1986 decision in ALAB-856 affirming the second PID on safety issues currently is before the Commission for review in accordance with § 2.786 and has not yet become final. As a result, the only contested matters pending before us for our effectiveness review under § 2.764(f) are those issues addressed in the second PID.

The Licensing Board's second PID principally concerned safety-related contentions involving management competence and hardware matters. Noting that significant management problems had been identified during the Shearon Harris construction permit proceeding in 1979 and had continued through 1982, the Licensing Board nonetheless concluded that there since had been a consistent sustained improvement in applicant CP&L's management performance that effectively relieved any previous concerns about management.[2] The Licensing Board also found no basis for intervenor concern about the adequacy of thermoluminescent dosimeters ("TLDs") to protect worker health and safety. According to the Licensing Board, the TLDs used by CP&L and CP&L's quality assurance program for controlling TLD processing errors both are adequate. Further resolved in CP&L's favor were intervenor challenges to a number of different aspects of the Shearon Harris environmental qualification program. Finally, the Licensing Board found no evidence to support intervenor assertions that concrete was placed inadequately during the construction of the Shearon Harris containment building. The Appeal Board affirmed the Licensing Board's determination on all counts.

In effectiveness comments filed June 9, 1986, intervenors Wells Eddleman, the Conservation Council of North Carolina, the Chapel Hill Anti-Nuclear Group Effort, and the Kudzu Alliance raised a number of different issues as asserted grounds for denying immediate effectiveness to the Licensing Board's decisions. Similarly, those intervenors, along with Richard Wilson, the Coalition for Alternatives to Shearon Harris ("CASH"), and the North Carolina Attorney General's Office, presented a number of concerns at the Commission's January

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[1] The first PID concerning environmental issues was issued in February 1985. LBP-85-5, 21 NRC 410 (1985). It was affirmed by the Appeal Board in May 1986. ALAB-837, 23 NRC 525 (1986). A second PID resolving certain safety issues was issued in August 1985, LBP-85-28, 22 NRC 232 (1985); Appeal Board affirmance occurred in December 1986, ALAB-856, 24 NRC 802 (1986). The third PID concerning safety and emergency planning matters was issued in December 1985, LBP-85-49, 22 NRC 899 (1985), and was affirmed by the Appeal Board in August 1986, ALAB-843, 24 NRC 200 (1986). The fourth and final PID, which dealt with contentions concerning drug use at the facility and the adequacy of nighttime emergency notification, was issued in April 1986. LBP-86-11, 23 NRC 294 (1986). The Appeal Board affirmed this decision in October 1986. ALAB-852, 24 NRC 532 (1986).

[2] Although CP&L and the North Carolina Eastern Municipal Power Agency are both applicants for an operating license for the Shearon Harris facility, CP&L has exclusive responsibility for construction, operation, and maintenance of the plant.

8, 1987 public meeting that they declared provided grounds for delaying effectiveness and licensing authorization. Only in the June 1986 effectiveness comments was any serious attempt made to address an issue — the question of management competence — that was contested in the second PID.

In their June 1986 effectiveness comments, intervenors do not challenge the Licensing Board's substantive conclusions regarding the competence of CP&L's management, but instead attack the integrity of former NRC Staff member Paul Bemis. Mr. Bemis, who prior to his departure from NRC had principal responsibility for regulatory oversight of the CP&L management improvement program that was instituted to correct its management deficiencies, served as the principal NRC Staff witness at the hearing on management competence. Intervenors declare that Mr. Bemis' responsibility to "insur[e] that the Applicants were doing better" created a "conflict" that would cause him to overlook utility management shortcomings in order to deliver favorable reports that would boost his standing in the agency. Yet, to reach this conclusion, intervenors totally mischaracterize the nature of Mr. Bemis' responsibilities, which were to oversee and report on CP&L's progress, not to "insure" improvement of its performance. Further, even though Mr. Bemis was cross-examined extensively at the hearing by intervenors, we are not aware of, and intervenors have not provided any citation to, any testimony that raises any question about Mr. Bemis' objectivity in his observations of CP&L.

It thus is apparent that this intervenor concern is wholly speculative and does not provide a ground for delay of the effectiveness of the Licensing Board's initial decision authorizing the Director to issue a full-power operating license. Moreover, the Commission's review of all other contested issues addressed in the Licensing Board's second PID and the Appeal Board's decision affirming the Licensing Board's conclusions reveals no basis for delaying the effectiveness of the Licensing Board's decision.[3]

As to those matters raised in the June 1986 effectiveness comments and the January 1987 presentations that do not involve the contested issues in the second PID, they also fail to provide a basis for delaying effectiveness of the Licensing Board's decision. Many of these concerns were resolved previously in the Licensing Board, Appeal Board, or Commission rulings on contested matters (including various motions to admit late contentions or to reopen and the Commission's ruling on the hearing requests relative to applicants' request for an exemption from the requirement of a full-scale emergency planning drill 1 year before full-power licensing, CLI-86-24, 24 NRC 769 (1986)) or in the NRC Staff's decision denying a July 2, 1986 petition under 10

[3] Our conclusions regarding the second PID in the context of this effectiveness decision should not be read to foreclose any petition for review under 10 C.F.R. § 2.786 of the Appeal Board's decision in ALAB-856. *See* 10 C.F.R. § 2.764(g).

C.F.R. § 2.206 to initiate an enforcement proceeding, DD-86-15, 24 NRC 618 (1986). Others were addressed fully by the NRC Staff, the North Carolina Office of Emergency Management, or applicant CP&L in the presentations at the January 8 meeting. Nonetheless, we do find it appropriate to comment in some detail on one of these concerns.

Presently pending with the NRC Staff is a petition under § 2.206 to modify, suspend, or revoke the Shearon Harris construction permit. In this petition intervenors Wells Eddleman and CASH contend that this enforcement action is appropriate because (1) there are major deficiencies in the applicants' quality assurance ("QA") program with respect to electrical cable and components; (2) two recent complaints brought to the United States Department of Labor by former workers at the Shearon Harris site indicate CP&L lacks the requisite character and technical capability to operate the facility; and (3) allegations of a confidential informant about falsification of documentation, substitution of materials, improper inspections, and improper construction assertedly show there are additional major deficiencies in the CP&L QA program. Although the NRC Staff has not yet issued a written decision relative to these allegations, at the Commission's public meeting on January 8, 1987, Staff representatives described in detail the Staff's actions to investigate and ascertain the safety significance of these allegations. At the meeting the Staff indicated that, on the basis of its investigations relating to these matters, it had concluded that the allegations do not establish any substantial deficiency in applicants' QA program or in its integrity or technical capability that presents a concern about safe facility operations. We find this assessment well supported by the Staff's oral explanation of the status of the Staff action relative to the pending § 2.206 petition, and thus conclude that the matters raised in the § 2.206 petition do not appear to have substantial safety significance or otherwise provide a basis for delaying full-power license issuance.

Accordingly, for the reasons given above, pursuant to 10 C.F.R. § 2.764(f)(2), the Commission finds that the Licensing Board's decision resolving all contested

issues should become immediately effective and the Director, NRR, is authorized to issue the full-power license for the Shearon Harris facility.[4]

It is so ORDERED.

For the Commission

SAMUEL J. CHILK
Secretary of the Commission

Dated at Washington, D.C.,
this 9th day of January 1987.

[4] Less than 1 hour before the Commission's January 8, 1987 meeting, a motion was filed by the Conservation Council of North Carolina, Wells Eddleman, and the Coalition for Alternatives to Shearon Harris requesting the Commission to refrain from making any decision to approve the Director's issuance of a license. Events have rendered that request moot.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Christine N. Kohl, Chairman
Gary J. Edles
Howard A. Wilber

In the Matter of

Docket Nos. 50-352-OL
50-353-OL

PHILADELPHIA ELECTRIC
COMPANY
(Limerick Generating Station,
Units 1 and 2)

January 2, 1987

The Appeal Board affirms, subject to certain confirmatory action by the applicant, the Licensing Board's supplement to its third partial initial decision, LBP-86-32, 24 NRC 459 (1986), which concerned the adequacy of the number of bus drivers available to evacuate children in two specified school districts in the event of an emergency at the Limerick facility.

RULES OF PRACTICE: AFFIDAVITS

Any factual information provided to the boards should be in affidavit form.

EMERGENCY PLANS: CONTENT (IMPLEMENTING PROCEDURES)

"Implementing procedures" that supplement emergency plans with details likely to change, such as telephone numbers, are not required for a "reasonable

assurance" finding. *Louisiana Power and Light Co.* (Waterford Steam Electric Station, Unit 3), ALAB-732, 17 NRC 1076, 1106-07 (1983).

EMERGENCY PLANNING: REQUIREMENTS

Whether a solution for an emergency planning deficiency can be characterized as "permanent" or "interim" is not important. What *is* important from a regulatory and legal standpoint is whether "there is reasonable assurance that adequate protective measures [e.g., evacuation] can and will be taken in the event of a radiological emergency." 10 C.F.R. § 50.47(a)(1). *See also* 10 C.F.R. § 50.47(b)(10).

RULES OF PRACTICE: REOPENING OF RECORD

To reopen a record, certain criteria must be satisfied. *See* 51 Fed. Reg. 19,535, 19,539 (1986) (to be codified as 10 C.F.R. § 2.734).

RULES OF PRACTICE: BURDEN OF PROOF

While an applicant has the ultimate burden of proving reasonable assurance, it is not obliged to prove and reprove essentially unchallenged factual elements of its case.

EMERGENCY PLANS: CONTENT

Under 10 C.F.R. Part 50, Appendix E, § IV, emergency response plans "shall contain information needed to demonstrate compliance with the standards described in § 50.47(b)."

EMERGENCY PLANS: CONTENT (CHANGES)

10 C.F.R. § 50.54(q) requires a licensee to "follow and maintain in effect emergency plans which meet the standards in § 50.47(b) of this part and the requirements in Appendix E to this part." Changes to an emergency plan that would decrease its effectiveness are permitted only pursuant to prior NRC approval.

EMERGENCY PLANS: CONTENT

An applicant's commitment to satisfy, through special provisions, the emergency planning standards in 10 C.F.R. § 50.47(b) and 10 C.F.R. Part 50, Appendix E, must be formally included in the pertinent emergency plans.

EMERGENCY PLANS: CONTENT

Important emergency planning information must be readily available in the plans themselves to decisionmakers. ALAB-845, 24 NRC 220, 248-49 (1986).

LICENSING BOARDS: RESOLUTION OF ISSUES

Licensing boards must "'confront the facts'" and "'articulate in reasonable detail the basis' for the course of action chosen"; they are not obliged, however, to refer specifically to every proposed finding. *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-422, 6 NRC 33, 41 (1977), *aff'd*, CLI-78-1, 7 NRC 1, *aff'd, New England Coalition on Nuclear Pollution v. NRC*, 582 F.2d 87 (1st Cir. 1978).

RULES OF PRACTICE: APPELLATE REVIEW

Appeal boards may confine their review to "substantial assertions of Licensing Board error." *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), ALAB-832, 23 NRC 135, 143, *review pending*, CLI-86-11, 23 NRC 577, 579 (1986).

APPEARANCES

David Stone and **Maureen Mulligan,** Pottstown, Pennsylvania, for intervenor Limerick Ecology Action, Inc.

Troy B. Conner, Jr., Robert M. Rader, and **Nils N. Nichols,** Washington, D.C., for applicant Philadelphia Electric Company.

Benjamin H. Vogler for the Nuclear Regulatory Commission staff.

DECISION

In ALAB-836, 23 NRC 479 (1986), we affirmed virtually all of the Licensing Board's third partial initial decision in this operating license proceeding, concerning the offsite emergency plan for the Limerick nuclear facility. As a result of arguments raised on appeal by intervenor Limerick Ecology Action, Inc. (LEA), however, we reversed the Board's finding of reasonable assurance of an adequate number of school bus drivers willing and available to assist in

an emergency evacuation of two specified school districts within the Limerick emergency planning zone (EPZ), (Spring-Ford and Owen J. Roberts), and we remanded for further action on this one limited issue. *Id.* at 515-20.[1]

In response to this action, applicant Philadelphia Electric Company (PECo) proposed to have approximately 200 of its employees — after proper training and licensing — drive these school buses in the event of an emergency at Limerick. The Licensing Board held two days of hearing on PECo's proposal, where witnesses from PECo, the Commonwealth of Pennsylvania, the affected counties and school districts, and the Federal Emergency Management Agency (FEMA) appeared. Based on their testimony favorable to PECo's proposal, the Board found "reasonable assurance that, in the event of a radiological emergency at the Limerick Generating Station, there will be an adequate number of bus drivers to effectuate an evacuation of the Owen J. Roberts and Spring-Ford Area School Districts." LBP-86-32, 24 NRC 459, 471 (1986). Indeed, with the additional complement of PECo's 200 employees, there will be four to five times as many drivers as are needed to satisfy the driver shortage in the two school districts. *Id.* at 465-66.

LEA again appeals, while PECo and the NRC staff seek affirmance of LBP-86-32. As explained below, we direct PECo to take certain confirmatory action but otherwise conclude that LEA's appeal is without merit.

A. The Licensing Board's decision thoroughly discusses the major elements of PECo's volunteer driver pool and we need not repeat that discussion here. *See id.* at 464-71. LEA does not appear to challenge directly the Board's findings themselves. Rather, its principal argument is that some means is necessary to ensure that PECo actually fulfills its commitment to provide volunteer bus driver employees to participate in an emergency evacuation. To this end, LEA has proposed that the Director of the NRC's Office of Nuclear Reactor Regulation and FEMA "verify the immediate and ongoing compliance" with five suggested license conditions. LEA Brief in Support of Appeal (October 20, 1986) at 16. The record, however, does not support the imposition of these conditions.

The first condition would require all 200 PECo volunteers to be trained, licensed, and "enrolled" by name, address, and telephone number with the appropriate county emergency office prior to the beginning of the fall 1986 school term. *See id.* at 3, 8, 16.[2] When the hearing closed on August 22, 58 volunteers had already been trained and licensed, and another 45 were scheduled for the test (on August 25) that is the prerequisite for obtaining a school bus driver's license in Pennsylvania. LBP-86-32, 24 NRC at 467. As LEA acknowledges, the particular relief sought by this license condition is essentially

[1] The Commission declined review of ALAB-836 on July 24, 1986.

[2] The Owen J. Roberts School District is located in Chester County and the Spring-Ford Area School District is in Montgomery County.

now moot because school reopened a few days before the Licensing Board issued its decision. LEA Brief at 1, 2, 3.[3] In any event, according to PECo, its "volunteer bus driver pool now consists of 234 fully trained, qualified and licensed drivers." Licensee's Brief, *supra* note 3, at 5.[4]

As for LEA's proposal that the volunteer drivers be "enrolled" with the county emergency offices — i.e., that their names, addresses, and telephone numbers be maintained on file — this exceeds the scope of the very limited issue we remanded in ALAB-836. The additional proceedings before the Licensing Board were to focus solely on the number of school bus drivers willing and available to serve the two districts involved; the overall logistics of driver mobilization was not intended to be at issue. ALAB-836, 23 NRC at 520. Further, as PECo points out, drivers from other sources serving these and other school districts need not be enrolled with the county organizations. Moreover, if a need for the PECo volunteers arises, the counties' basic plan is to contact PECo, not the individual drivers. This is not unlike the manner in which the primary sources of drivers for school districts throughout the EPZ are to be mobilized. *See* Licensee's Brief at 14-15. *See also Louisiana Power and Light Co.* (Waterford Steam Electric Station, Unit 3), ALAB-732, 17 NRC 1076, 1106-07 (1983) ("implementing procedures" that supplement emergency plans with details likely to change, such as telephone numbers, are not required for "reasonable assurance" finding).

A second license condition proposed by LEA is designed to assure that there will be a sufficient number of school buses available at the pertinent marshaling areas for the PECo volunteers to drive. *See* LEA Brief at 15, 16. In a similar vein, LEA also argues essentially that specific individuals should be given specific advance assignments. *Id.* at 13. But again, these issues concern bus and driver mobilization and thus exceed the scope of our narrowly circumscribed remand in ALAB-836.[5] Nonetheless, the Licensing Board found in the decision here on appeal that the counties are responsible for transporting any needed volunteer drivers to bus locations and that, as a practical matter, PECo would facilitate this activity. LBP-86-32, 24 NRC at 468. *See also* Licensee's Brief at 20-22 & n.50. LEA has given us no cause to doubt the efficacy of this plan. Thus, even

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[3] PECo points out that LEA could have sought, but did not seek, a stay of the Licensing Board's decision. Licensee's Brief (November 21, 1986) at 4 n.8. Nor did LEA seek suspension of PECo's operating license pending disposition of this appeal.

[4] While we have no cause to doubt this representation in PECo's brief, the number of trained and licensed drivers is factual information that should have been provided in affidavit form. We therefore direct PECo to supply such an affidavit to us and the parties within 10 days of the service date of this decision.

[5] It is worth noting that in ALAB-836, we expressly affirmed the Licensing Board's earlier finding that a sufficient number of *vehicles* would be available to effect a "one-lift" school evacuation. 23 NRC at 512-15. In addition, the procedures for assigning buses and drivers generally were also previously addressed by the Licensing Board. *See* LBP-85-14, 21 NRC 1219, 1275-76, 1322 (1985). LEA did not challenge this in its earlier appeal and is foreclosed from doing so now.

if this matter were encompassed within the remanded issue, there is no basis for the requested license condition.

LEA also complains that there is no "permanent solution" for the driver availability problem identified in ALAB-836. LEA Brief at 9. It therefore proposes a third license condition that would require the counties and school districts to pursue "conventional and local options" rather than the "less reliable utility provided ones." *Id.* at 16. LEA's reasoning, however, is flawed in several respects. First, LEA points to nothing in the record to support its suggestion that the pool of PECo drivers will not be reliable. Further, the characterization of PECo's driver pool as "permanent" or "interim" is not important. What *is* important from a regulatory and legal standpoint is whether "there is reasonable assurance that adequate protective measures [e.g., evacuation] can and will be taken in the event of a radiological emergency." 10 C.F.R. § 50.47(a)(1). *See also* 10 C.F.R. § 50.47(b)(10). The Licensing Board thoroughly discussed the evidence adduced on remand and found the necessary reasonable assurance. That finding is based in part on PECo's commitment to supply additional properly trained and licensed school bus drivers from the ranks of its own employees as long as necessary. *See* LBP-86-32, 24 NRC at 468-70. *See also infra* pp. 13-14. LEA has failed to cast doubt on either the Board's findings or the underlying evidence. Finally, emergency planning officials from both Montgomery and Chester Counties are already pursuing other sources of buses and drivers — the stated purpose of LEA's proposed license condition. *See* LBP-86-32, 24 NRC at 470-71.

Our decision in ALAB-836 to remand the school bus driver availability issue was based largely on the results of driver surveys in the Owen J. Roberts and Spring-Ford Area School Districts. We found that these "surveys raise[d] a legitimate question whether there is reasonable assurance that an adequate number of drivers would respond in an emergency" and that the Licensing Board had not given the survey results adequate weight. ALAB-836, 23 NRC at 518-19, 517. The last two license conditions proposed by LEA would require that new surveys be conducted to ascertain the current unmet driver needs of not only the Spring-Ford Area and Owen J. Roberts School Districts, but also other unspecified districts as well. LEA Brief at 12, 16.

Clearly, as to these other school districts, LEA's proposal exceeds the scope of our remand and therefore this appeal. Inasmuch as we previously affirmed the Licensing Board's favorable findings as to the number of drivers available for other districts throughout the EPZ (ALAB-836, 23 NRC at 519 n.72), LEA essentially seeks reopening of the record on this score. But LEA has failed to supply any basis whatsoever for our revisiting, through the imposition of a license condition or otherwise, the issue of driver availability in school districts other than Owen J. Roberts and Spring-Ford. *See* 51 Fed. Reg. 19,535, 19,539

(1986) (to be codified as 10 C.F.R. § 2.734) (criteria required for reopening a record).

LEA likewise has not shown a need for new driver surveys in these latter two districts. The potential need for additional drivers to help in evacuating schools in the Owen J. Roberts and Spring-Ford Area Districts was explored at the hearing on remand. *See* LBP-86-32, 24 NRC at 465-66. LEA had the opportunity to discredit the older surveys on which the witnesses relied, but did not do so. LEA merely asserts a need for more current information, without providing a colorable reason to question the accuracy of the unmet driver needs reflected in the existing survey results. While PECo has the ultimate burden of proving reasonable assurance, it is not obliged to prove and reprove essentially unchallenged factual elements of its case. In any event, even assuming new surveys were conducted and results significantly more negative than before were obtained, the number of drivers available from PECo's volunteer pool is almost twice the *total* number of drivers needed for the two involved school districts. *Compare supra* p. 11, with ALAB-836, 23 NRC at 517 n.67, 518 n.70. Thus, given the substantial size of the PECo driver pool, new surveys would serve no real purpose.[6] *But see infra* note 7.

LEA has thus failed to establish a need for any of the license conditions it has proposed. Its skepticism about whether PECo will follow through on its commitment by maintaining, as long as necessary, the volunteer driver pool is not warranted on the basis of the record here. But while we need not impose the specific license conditions LEA seeks, other action is justified. Under 10 C.F.R. Part 50, Appendix E, § IV, emergency response plans "shall contain information needed to demonstrate compliance with the standards described in § 50.47(b)." PECo now meets the regulatory standard pertinent to school evacuation (10 C.F.R. § 50.47(b)(10)) through its commitment to complement existing school bus driver resources with its own trained and licensed personnel. The NRC staff contends that no license condition to make this commitment binding is necessary because 10 C.F.R. § 50.54(q) requires a licensee to "follow and maintain in effect emergency plans which meet the standards in § 50.47(b) of this part and the requirements in Appendix E to this part." Changes to an emergency plan that would decrease its effectiveness are permitted only pursuant to prior NRC approval. Response of the NRC Staff (December 4, 1986) at 8-9. It would therefore appear that, unless PECo's commitment to supply school bus drivers is reflected in its emergency plan, the plan is not in full compliance with NRC regulations, and the commitment is not enforceable. It is unclear on this record whether PECo's commitment has, in fact, been formally included in the emergency plan. Accordingly, we direct PECo to take promptly whatever action

[6] LEA's objection to the inclusion of PECo volunteers in a general pool of drivers available to meet unexpected needs elsewhere (LEA Brief at 7, 12) is similarly unfounded, in view of the number of volunteer drivers available.

is necessary and appropriate to incorporate its provisions for supplying backup bus drivers into its emergency plan, as well as those of the affected jurisdictions, and to notify us and the parties when this is accomplished. *See also* ALAB-845, 24 NRC 220, 248-49 (1986) (noting the need for important emergency planning information to be readily available in the plans themselves to decisionmakers).[7]

B. LEA also argues that the Licensing Board erred in limiting the testimony of Drs. Roy C. Claypool and William Welliver, Superintendents of the Owen J. Roberts and Spring-Ford Area School Districts, respectively. In particular, LEA claims that it sought to question these witnesses about the extent of their emergency planning responsibilities, but was precluded from doing so. LEA also objects to the Licensing Board's findings that the "early dismissal" plan of the Owen J. Roberts School District is not relevant to the remanded issue of bus driver availability. LEA Brief at 10-11. *See* LBP-86-32, 24 NRC at 469.

We have reviewed LEA's questioning of the Superintendents and do not agree that it was improperly limited. *See* Tr. 21,310-43. Indeed, the Licensing Board initially allowed LEA a certain amount of leeway in its examination of these witnesses. But the Board properly defined the issue we remanded in ALAB-836 — i.e., the adequacy of the number of drivers available to help evacuate students in the two specified school districts in the event of an emergency at Limerick — and limited the testimony in accordance with the scope of this issue and the witnesses' expertise. *See* Tr. 21,329-37. Moreover, the Board accurately portrayed the witnesses' favorable testimony as based on assurances they had received from others. *See* LBP-86-32, 24 NRC at 469. As for the Board's findings with regard to the Owen J. Roberts early dismissal plan, LEA's point is not clearly articulated. We agree with the Licensing Board, however, that this matter is not directly relevant here, inasmuch as the early dismissal plan is intended for use prior to any official emergency evacuation order.

C. Lastly, LEA raises several claims of an essentially procedural nature. It complains that the Licensing Board did not answer specific arguments put forth in LEA's proposed findings of fact and conclusions of law, particularly the five-part license condition offered by LEA. LEA Brief at 4. Licensing boards must "'confront the facts'" and "'articulate in reasonable detail the basis' for the course of action chosen;" they are not obliged, however, to refer specifically to every proposed finding *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-422, 6 NRC 33, 41 (1977), *aff'd*, CLI-78-1, 7 NRC 1, *aff'd, New England Coalition on Nuclear Pollution v. NRC*, 582 F.2d

[7] It is not necessary for the emergency plan to specify the size of the pool of backup drivers to be provided by PECo. PECo's only obligation is to meet whatever needs arise in the two affected districts. Obviously, to fulfill this commitment, PECo will have to monitor the status of these needs periodically to assure that its volunteer driver pool is adequate in case of emergency.

87 (1st Cir. 1978).[8] Our review of LBP-86-32 and LEA's appellate arguments discloses no significant deficiency in the Licensing Board's decision. The Board addressed the parties' principal arguments and noted that it "considered all the evidence" and "the entire record." LBP-86-32, 24 NRC at 472. Although the Board did not specifically discuss LEA's proposed license conditions, we have shown here that none of these conditions is warranted. Thus, this omission from the Board's decision is, at worst, harmless error.

LEA also suggests that the Licensing Board Chairman was not fair and objective, citing Tr. 21,242-43, 21,262, 21,342-43, 21,348-49, and Board finding #30 (LBP-86-32, 24 NRC at 470). LEA Brief at 14. The referenced portions of the record and decision, however, do not support LEA's characterization or reflect any bias by the Chairman. *See also* ALAB-845, 24 NRC at 250 n.31.

Finally, LEA objects to the Licensing Board's inclusion in its decision of a discussion of "Additional Sources of Bus Drivers." *See* LBP-86-32, 24 NRC at 470-71. LEA contends, among other things, that certain of the Board's findings exceed the scope of the remanded issue, and that some findings reflect views previously rejected in ALAB-836. LEA Brief at 13-14. We are inclined to agree with LEA, at least as to the latter point. *See, e.g.*, ALAB-836, 23 NRC at 516, 519 n.73. On the other hand, the criticized Licensing Board findings merely recount testimony given at this stage of the case and are not essential to the Board's decision.[9] Hence, LEA's argument is without merit.

The Licensing Board's supplement to its third partial initial decision on offsite emergency planning (LBP-86-32) is *affirmed*, subject to PECo's (1) confirmation of the current number of trained and licensed drivers in its volunteer pool, and (2) inclusion in the pertinent emergency plans of its commitment to maintain this driver pool as long as necessary.

It is so ORDERED.

FOR THE APPEAL BOARD

Eleanor E. Hagins
Secretary to the
Appeal Board

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[8] Similarly, appeal boards may confine their review to "substantial assertions of Licensing Board error." *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), ALAB-832, 23 NRC 135, 143, *review pending*, CLI-86-11, 23 NRC 577, 579 (1986).

[9] We note, however, that Board findings #33 and #34 concern Chester County's continuing efforts to increase its driver pool from other sources (LBP-86-32, 24 NRC at 470-71) — the very action sought by one of LEA's proposed license conditions. *See supra* p. 12.

Mr. Edles, concurring:

I join in this decision except in a minor respect. In my view, LEA's proposal that the volunteer drivers be enrolled with the respective counties does not stray beyond the matter we earlier remanded for further consideration. But I believe that the plan to have the counties contact PECo directly, coupled with the requirement we impose that the PECo commitment to supply drivers be formally incorporated into the emergency plans, is more than sufficient to ensure the safety of the schoolchildren. Thus, I agree with my colleagues that there is no need for LEA's proposed license condition.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Alan S. Rosenthal, Chairman
Gary J. Edles
Howard A. Wilber

In the Matter of

Docket Nos. 50-443-OL
50-444-OL
(Offsite Emergency Planning)

PUBLIC SERVICE COMPANY
OF NEW HAMPSHIRE, *et al.*
(Seabrook Station, Units 1
and 2)

January 5, 1987

In this operating license proceeding, the Appeal Board denies intervenors' motion for an immediate stay of proceedings leading to hearings on the State of New Hampshire's Radiological Emergency Response Plan.

RULES OF PRACTICE: INTERLOCUTORY APPEALS (DIRECTED CERTIFICATION

Appeal board will only entertain a motion for directed certification of a licensing board scheduling order where the complaining party can show that the schedule deprives it of its right to procedural due process. *Houston Lighting & Power Co.* (South Texas Project, Units 1 and 2), ALAB-637, 13 NRC 367, 370-71 (1981).

DUE PROCESS: SIMULTANEOUS HEARINGS

Licensing Board decision to conduct simultaneous proceedings does not necessarily deprive an intervenor of its right to a fair hearing.

RULES OF PRACTICE: INTERLOCUTORY APPEALS

The provisions of 10 C.F.R. 2.788 governing requests to stay the effectiveness of a decision or action pending filing of and a decision on an appeal or petition for review are not applicable to requests for interlocutory review of a licensing board scheduling order.

APPEAL BOARDS: STAY AUTHORITY

An appeal board's stay authority is not limited to circumstances in which 10 C.F.R. 2.788 comes into play but may be exercised pursuant to the appeal board's general supervisory authority over licensing board proceedings. *See generally Philadelphia Electric Co.* (Limerick Generating Station, Unit 1), ALAB-835, 23 NRC 267, 270 (1986).

RULES OF PRACTICE: INTERLOCUTORY APPEALS

Mere commitment of resources to a hearing that may later turn out to have been unnecessary does not justify interlocutory review of a licensing board scheduling order.

RULES OF PRACTICE: MOTIONS (MODIFICATION OF HEARING SCHEDULE)

Requests for modification of the hearing schedule should be directed in the first instance to the licensing board. *Cf. Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-338, 4 NRC 10, 12 (1976).

APPEARANCES

Donald S. Bronstein and **Carol S. Sneider,** Boston, Massachusetts, for intervenors Francis X. Bellotti, Attorney General of the Commonwealth of Massachusetts, *et al.*

Thomas G. Dignan, Jr., R.K. Gad, III, and **Kathryn A. Selleck,** Boston, Massachusetts, for the applicants Public Service Company of New Hampshire, *et al.*

Sherwin E. Turk for the Nuclear Regulatory Commission staff.

MEMORANDUM AND ORDER

We have before us a motion filed by Massachusetts Attorney General Francis X. Bellotti on behalf of the Commonwealth, the Towns of Hampton, New Hampshire, and Amesbury, Massachusetts, the Seacoast Anti-Pollution League, and the New England Coalition on Nuclear Pollution (intervenors), seeking an immediate stay of all proceedings leading to hearings on the New Hampshire Radiological Emergency Response Plan in this operating license proceeding.[1] The motion is similar to one filed earlier with the Licensing Board but contains a request that we direct that Board to certify the stay question to us for decision. The applicants and the NRC staff oppose the motion.

Because both motions were directed to the timing of proceedings before the Licensing Board, we deferred our consideration temporarily to accord that Board an opportunity to address the request filed with it.[2] Although the Licensing Board has not explicitly acted on the intervenors' request, it has now issued an order deferring prehearing activity for about a month and thus effectively granting the request in part.[3] For the reasons that follow, we deny the intervenors' motion without prejudice to submittal of a new request if future developments warrant.

A. On December 4, 1986, the Licensing Board issued an order establishing the schedule for litigation of the New Hampshire plan. The Board announced its intent to rule on pending contentions by January 16, 1987. Discovery would follow and hearings were scheduled to commence on or after April 27, 1987.

On December 18, however, the applicants filed a petition pursuant to 10 C.F.R. 2.758 and 50.47(c) requesting that the 10-mile plume exposure pathway emergency planning zone (EPZ) for the Seabrook Station be reduced to one mile.[4] And, on December 23, the Board directed that responses to the applicants' petition be submitted by January 27, 1987.

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[1] *See* Intervenors' Joint Motion for Immediate Stay of ASLB Proceedings (December 30, 1986) (hereafter, Intervenors' Motion).

[2] Appeal Board Order of January 8, 1987 (unpublished).

[3] Licensing Board Memorandum and Order of January 9, 1987 (unpublished).

[4] Commission regulations designate two regions to be used for emergency planning purposes. One is the "plume exposure pathway emergency planning zone," often referred to as the "plume EPZ" or "EPZ." This is the geographic area surrounding the plant in which the risk of exposure of members of the public to radioactivity would be greatest in the event of an accident. Various actions to protect the public must be developed for the

(Continued)

After the submission of the petition but before the scheduling of responses to it, the intervenors filed simultaneous requests with the Commission and the Licensing Board seeking to stay all proceedings on the New Hampshire plan. The request filed with the Commission was rejected by the NRC's Secretary, who advised the intervenors to file any such request with us. They did so on December 30.[5] They assert, among other things, that the hearing schedule allows insufficient time to prepare for litigation on the plan. They point out, in addition, that action on the applicants' pending petition could render the current New Hampshire plan moot. Further, they claim that the simultaneous litigation of the New Hampshire plan and the applicants' petition would be unduly burdensome. For these reasons, they maintain that litigation regarding the New Hampshire plan should await the disposition of the petition.

B. The Commission's Rules of Practice prohibit appeals from interlocutory licensing board rulings of the type involved here.[6] Thus, the intervenors' motion constitutes a request that we exercise our discretionary authority to review the Board's ruling by way of directed certification.[7] We employ such power, however, only when a licensing board's action either (a) threatens the party adversely affected with immediate and serious irreparable harm which could not be remedied by a later appeal, or (b) affects the basic structure of the

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EPZ. Ordinarily, the EPZ has a radius of about 10 miles but its exact size and configuration may vary depending on demography, topography, or local emergency response needs and capabilities. *See* 10 C.F.R. 50.47(b)(10), and (c)(2).

[5] At about the same time, most of the intervenors filed with the Licensing Board requests that it reconsider its directive that responses to the applicants' petition be submitted by January 27. The Board denied those requests. Licensing Board Memorandum and Order of January 7, 1987 (unpublished). In doing so, however, it noted that if "any party cannot complete its response by January 27, then that party [shall] provide [to the Board by that date] its partially completed response and advise the Board of a reasonable date certain on which its written response can be completed." *Id.* at 3.

The intervenors also filed a request with the Commission that the Chief Administrative Judge of the Atomic Safety and Licensing Board Panel be appointed to decide, in the Licensing Board's stead, all issues presented by the petition to reduce the size of the EPZ. Intervenors' Joint Petition for Appointment of Administrative Judge and Request for Hearing (December 22, 1986). Following its transmission to him by the Secretary of the Commission for consideration and disposition, the Chief Administrative Judge denied the request. Memorandum and Order of December 31, 1986 (unpublished).

[6] *See* 10 C.F.R. 2.730(f).

[7] *See* 10 C.F.R. 2.718(i), 2.785(b)(1); *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-271, 1 NRC 478, 482-83 (1975).

The NRC staff treated the intervenors' motion as a request for a stay pursuant to 10 C.F.R. 2.788. In terms, however, that section is applicable only to endeavors to obtain "a stay of the effectiveness of [a] decision or action pending filing of and a decision on an appeal or petition for review." Here, no appealable Licensing Board decision or action is involved. Rather, the intervenors are seeking interlocutory review of a scheduling order. Accordingly, as indicated in the text, they are in essence calling upon us to invoke our directed certification authority and must meet the standards for the exercise of that authority.

The foregoing does not mean, of course, that our stay authority is necessarily limited to circumstances in which section 2.788 comes into play. Although we need not explore the matter here, there well may be occasions on which the grant of stay relief will be appropriate in the exercise of our general supervisory authority over licensing board proceedings. *See generally Philadelphia Electric Co.* (Limerick Generating Station, Unit 1), ALAB-835, 23 NRC 267, 270 (1986).

proceeding in a pervasive or unusual manner.[8] Where a scheduling order is involved, that standard ordinarily requires a showing that the schedule deprives the complaining party of its right to procedural due process.[9]

There has been no showing here that the Licensing Board's decision to move forward on both fronts simultaneously necessarily will deprive the intervenors of their right to a fair hearing. Although the intervenors tell us that the hearing schedule allows insufficient time to prepare for litigation of the New Hampshire plan, they do not specify, let alone document, those elements of the schedule with which they cannot satisfactorily comply.[10] Nor do they substantiate their assertion that the schedule is unreasonable. In this connection, it is noteworthy that their request filed with the Commission and the Licensing Board (attached as Exhibit 1 to the motion filed with us) claimed that litigation of the various issues raised by the contentions directed to the New Hampshire plan "would require a substantial allocation of Intervenors' resources to fully and properly prepare these issues for final hearing"[11] but did not challenge the reasonableness of the schedule.

In any event, as noted above, the Licensing Board has now modified its earlier schedule and, in effect, granted the intervenors' request in part by announcing a brief deferral of prehearing activity in connection with litigation of the New Hampshire plan. The stated purpose of this deferral is "to permit the parties an unencumbered period to respond" to the petition to reduce the size of the EPZ.[12] And, in response to filings by several parties, including the intervenors, it also indicated a willingness to accept incomplete responses to the applicants' petition, provided the parties advise the Board by January 27 of the date on which their written responses likely will be completed. *See supra* note 5. At present we cannot say that simultaneous litigation, if it occurs, will necessarily be so onerous as to deprive the intervenors of the fair hearing to which they are entitled.

To be sure, the upcoming litigation over the New Hampshire plan will be rendered largely academic if the Commission ultimately decides to reduce the radius of the EPZ from ten miles to one. But a mere commitment of resources to a hearing that may later turn out to have been unnecessary does not justify

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[8] *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-405, 5 NRC 1190, 1192 (1977).

[9] *Houston Lighting & Power Co.* (South Texas Project, Units 1 and 2), ALAB-637, 13 NRC 367, 370-71 (1981).

[10] We note, by way of contrast, that the Attorney General's December 30 request that the Licensing Board reconsider its ruling requiring responses to the applicants' petition to be filed by January 27 was accompanied by affidavits attempting to portray the difficulties attendant upon compliance with that Licensing Board schedule.

[11] Intervenors' Motion, Exhibit 1, at 3.

[12] Licensing Board Order of January 9, 1987, at 1. The Board deferred from January 16, 1987 to February 13, 1987, the issuance of its order ruling on contentions and starting the clock running for discovery. All other dates are correspondingly deferred, with the hearing now scheduled to begin no earlier than May 28, 1987.

interlocutory review of a Licensing Board order.[13] Moreover, it is far from inevitable that the hearing will prove to be unnecessary. It is possible that the applicants' proposal to reduce the size of the EPZ will be rejected. If so, litigation regarding the New Hampshire plan will be required. In such circumstances, deferral of that litigation could seriously delay final resolution of issues surrounding the plan.

The intervenors' motion is *denied without prejudice* to the submittal of a new request at a later date should due process considerations so dictate.[14]

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

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[13] *Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), ALAB-675, 15 NRC 1105, 1113-14 (1982).

[14] Any further request for modification of the hearing schedule should be directed first to the Licensing Board. *Cf. Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-338, 4 NRC 10, 12 (1976). And if that Board were to deny it, our review, of course, could be obtained only by directed certification. *See supra* pp. 19-20.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Gary J. Edles, Chairman
Christine N. Kohl
Howard A. Wilber

In the Matter of **Docket Nos. 50-424-OL**
50-425-OL

GEORGIA POWER COMPANY, *et al.*
(Vogtle Electric Generating
Plant, Units 1 and 2) **January 21, 1987**

The Appeal Board rules, in response to the oral request of the Director of the Office of Nuclear Reactor Regulation, that a license condition imposed by the Licensing Board with regard to a matter over which that Board no longer had jurisdiction was null and void and therefore did not preclude issuance of a low-power operating license.

LICENSING BOARD: JURISDICTION

Under NRC case law, once the Licensing Board issues a decision in which it disposes of a particular issue on the merits and a notice of appeal from that decision is filed, the Licensing Board no longer has jurisdiction to act further with regard to that issue. *See Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit No. 1), ALAB-699, 16 NRC 1324, 1327 (1982). Jurisdiction over that matter rests with the Appeal Board.

LICENSING BOARD: JURISDICTION (IMPACT OF ABSENCE)

A license condition imposed by a licensing board with regard to a matter over which that board has lost jurisdiction is null and void.

OPERATING LICENSE: LOW-POWER LICENSE
(RESPONSIBILITY OF STAFF)

The Director of the Office of Nuclear Reactor Regulation may issue a low-power operating license on the basis of a licensing board decision or decisions authorizing the issuance of an operating license. 10 C.F.R. §§ 2.764(b), 2.764(f)(1)(i).

APPEAL BOARDS: SUA SPONTE REVIEW

Appeal Boards have long established authority to review sua sponte the entirety of licensing board decisions, even where no appeal has been taken. *See Offshore Power Systems* (Manufacturing License for Floating Nuclear Power Plants), ALAB-689, 16 NRC 887, 890, *aff'd on other grounds*, CLI-82-37, 16 NRC 16[illegible] (1982).

APPEAL BOARDS: SUA SPONTE REVIEW

Appeal board sua sponte review authority can include the imposition of license conditions. *See, e.g., Sacramento Municipal Utility District* (Rancho Seco Nuclear Generating Station), ALAB-746, 18 NRC 749 (1983).

TECHNICAL ISSUES DISCUSSED

Polymers
Dose rate effects.

MEMORANDUM AND ORDER

In an order issued January 16, 1987, we ruled that a license condition imposed by the Licensing Board in its concluding partial initial decision, LBP-86-41, 24 NRC 901, 928 (1986), was not a bar to the issuance of a low-power operating license for the Vogtle facility by the Director of the NRC's Office of Nuclear Reactor Regulation (NRR). The basis of our ruling was that the Licensing Board lacked authority to impose this condition, rendering it null and void. We now explain that ruling.

BACKGROUND

In 1984, the Licensing Board admitted contention 10.1, proffered jointly by intervenors Campaign for a Prosperous Georgia (CPG) and Georgians Against Nuclear Energy (GANE). Relying on a report from the Sandia National Laboratories, this "environmental qualification" contention alleged that certain safety-related equipment at Vogtle contained polymers that might experience greater degradation from lower dose rates of radiation than would be expected based on testing at higher dose rates. (This is termed a "dose rate effect.") *See* LBP-84-35, 20 NRC 887, 903 (1984). After hearing substantial uncontroverted testimony on contention 10.1, the Board ultimately concluded that it was without merit. Specifically, the Board found that

> polymer materials destined for use in safety-related [Vogtle] applications have acceptably passed an adequate environmental qualification program. Additional assurance as to the adequacy of these polymers will derive from an operational surveillance program to be implemented by Applicants.

LBP-86-28, 24 NRC 263, 293 (1986).

GANE filed a notice of appeal from LBP-86-28 on September 8, 1986.[1] By letter ten days later, applicants advised both us and the Licensing Board (as well as the parties) of newly discovered information regarding contention 10.1. The polymer that showed discernible dose rate effects in the Sandia study is a member of a group of polymers designated as XLPO and, in particular, is a co-polymer of ethylene and vinyl acetate (EVA). At the hearing before the Licensing Board, applicants' witnesses testified that EVA was not used in any safety-related equipment at Vogtle. Applicants have now learned that XLPO insulation of certain instrumentation cable at Vogtle contains a polymer classified as EVA. Applicants state that they will identify which cable is affected and will subject it to the surveillance program already established and required for safety-related equipment. Applicants also express the view that, in any event, the Sandia conclusions about dose rate effects do not prevent XLPO insulation from performing its intended electrical function. Letter from David R. Lewis to Gary J. Edles, et al. (September 18, 1986). No party commented on applicants' letter. In fact, in its subsequent brief on appeal, GANE expressly eschewed any appeal in connection with contention 10.1. GANE Appeal Brief (October 8, 1986) at 16.

The Licensing Board later issued its concluding decision, LBP-86-41, on the one remaining issue pending before it (contention 10.5, concerning the envi-

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[1] We dismissed CPG's appeal, finding that CPG had voluntarily withdrawn from this proceeding, thereby forfeiting its appeal rights. ALAB-851, 24 NRC 529 (1986).

ronmental qualification of solenoid valves used at Vogtle). Although contention 10.1 was unrelated to the subject of LBP-86-41, the Licensing Board took note of the applicants' September 18 letter and its earlier conclusion in LBP-86-28 about this contention. It then added:

> As a condition precedent to the issuance of any operating licenses, it would first have to be initially determined by *appropriate authority* that the changed information contained in Applicants' letter of September 18, 1986, pertaining to XLPO insulation that contains vinyl acetate, does not lead to a conclusion that is inconsistent with that of this Board on Contention 10.1.

LBP-86-41, 24 NRC at 904, 928 (emphasis added).

In a January 14, 1987, letter to the Appeal Board's Secretary, counsel for the NRC staff submitted an affidavit containing the results of the staff's review of the information disclosed in the applicants' September 18 letter. The staff concluded that the information does not change its earlier favorable evaluation of the safety-related equipment and corresponding maintenance and surveillance program at Vogtle. The staff also concluded that the license condition imposed by the Licensing Board was thus satisfied, and it suggested that the Director of NRR was the "appropriate authority" to make this determination. Letter from Bernard M. Bordenick to C. Jean Shoemaker (January 14, 1987) and Enclosure. In a letter sent the next day, the Licensing Board Chairman advised staff counsel that the purpose of the license condition imposed by the Licensing Board was "to resolve the matter of the changed information prior to licensing." The letter also stated the Licensing Board's intention "to make known that at the time we set the condition we did not know who the appropriate authority may be and we still do not know, for it depends on the course the proceeding will take." The letter implied, however, that the "appropriate authority" was other than the Director of NRR, perhaps "the Appeal Board or the Commission itself." Letter from Morton B. Margulies to Bernard M. Bordenick (January 15, 1987). Staff counsel replied to Judge Margulies on January 16, 1987, expressing the view that the NRR Director was indeed the appropriate authority to rule on any remaining matters concerning contention 10.1. Staff counsel argued that this contention was "no longer in litigation" because no appeal or motion to reopen was pending on the matter. Letter from Bernard M. Bordenick to Morton B. Margulies (January 16, 1987).

Late in the afternoon of January 16, however, the Director of NRR asked us by telephone to clarify his authority in light of the flurry of correspondence described above. We responded with our January 16 order

DISCUSSION

Under NRC case law, once the Licensing Board issued the partial initial decision in which it disposed of contention 10.1 and a notice of appeal from that decision was filed, the Licensing Board no longer had jurisdiction to act further with regard to that issue. *See Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit No. 1), ALAB-699, 16 NRC 1324, 1327 (1982). Jurisdiction over the matter raised by applicants' September 18, 1986, letter rests with us. When the Licensing Board issued its concluding partial initial decision on an unrelated issue some months later, it had no authority to impose a license condition in connection with a previously decided matter.[2] Inasmuch as the condition is therefore void, the Licensing Board's two partial initial decisions must be read without the condition. In that light, together they provide the authorization necessary for the Director of NRR to issue a low-power operating license for the Vogtle facility. *See* 10 C.F.R. §§ 2.764(b), 2.764(f)(1)(i).

But in so ruling, we do not fully endorse the staff's position that only NRR has oversight of the matters here at issue. As noted, jurisdiction over the subjects addressed in the Licensing Board's first partial initial decision — and thus the matter raised in applicants' September 18 letter — lies with us. To be sure, contention 10.1 has not been pursued before us on appeal or in any motion to reopen or for a stay of licensing action. The staff overlooks, however, our long established authority to review sua sponte the entirety of licensing board decisions, even where no appeal has been taken. *See Offshore Power Systems* (Manufacturing License for Floating Nuclear Power Plants), ALAB-689, 16 NRC 887, 890, *aff'd on other grounds*, CLI-82-37, 16 NRC 1691 (1982). This authority can include the imposition of license conditions as well. *See, e.g., Sacramento Municipal Utility District* (Rancho Seco Nuclear Generating Station), ALAB-746, 18 NRC 749 (1983).

It is fully our intention to review the disposition of contention 10.1 (including the related correspondence subsequent to the Licensing Board's decision on this issue) on the merits, pursuant to our sua sponte appellate review authority, and at the same time we take up GANE's appeal on other matters. In the meantime, our preliminary review of the record on contention 10.1 and the newly discovered information discloses no basis for withdrawing or altering the authorization for the issuance of a low-power operating license.

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[2] We suggest no disagreement of the Licensing Board's action, however. As the Board Chairman's letter to staff counsel noted, its purpose was to bring attention to an important matter and see that it was resolved prior to any licensing action. It is only the vehicle by which the Board expressed its concern — the imposition of a license condition — that was inappropriate in the circumstances here.

Our order of January 16, 1987, as explained here, is *reaffirmed*.
It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Peter B. Bloch, Chairman
Dr. Kenneth A. McCollom
Dr. Walter H. Jordan

In the Matter of **Docket Nos. 50-445-OL**
50-446-OL
(ASLBP No. 79-430-06-OL)

TEXAS UTILITIES ELECTRIC COMPANY, *et al.*
(Comanche Peak Steam Electric Station, Units 1 and 2)

January 7, 1987

The Board requested additional information concerning the adequacy of a reinspection program that relies in part on sampling that is designed to detect an error rate of at least 5% at the 95% level of confidence. The Board seeks to learn the basis for concluding that a plant with just less than a 5% error rate has attained an adequate level of safety. It inquires into how that rate compares to what might be expected from conscientious implementation of the quality assurance requirements of 10 C.F.R. Part 50, Appendix B, and how such an error rate impacts on fault-tree analysis of the reliability of the AFWS.

TECHNICAL ISSUES DISCUSSED

Sampling, reinspection by;
Fault-tree analysis, effect of construction errors on;
Construction errors, rate to be expected.

MEMORANDUM
(Adequacy of Record: Errors and Sampling)

As the case has progressed, the Board has continued to consider the relationship between the requirements of Appendix B and the acceptability of the Comanche Peak Response Team's (CPRT's) alternative approach, consisting of inspection of samples of hardware. In this Memorandum, we set forth concerns that we have determined ought to be addressed in the interest of an adequate record.

We understand that the sampling process employed by the CPRT is to provide a screen for detection of the existence of deficiencies within a given population. However, we have not seen an adequate justification for a 95/5 (or 95/95) sampling program as the screen for all systems. Although Texas Utilities Electric Company, *et al.* (Applicants) have said that they do not rely entirely on the inspection of samples, we do not understand how the CPRT's other work[1] improves the level of assurance of the program of reinspection by sampling. For example there may be areas of the plant or types of hardware for which Applicants will rely entirely on reinspection through sampling.[2]

This reliance on the reinspection of samples may affect one of the post TMI-2 requirements: the "[p]erformance of a simplified AFWS reliability analysis that uses event-tree and fault-tree logic techniques to determine the potential for AFWS failure under various loss-of-main-feedwater-transient requirements."[3] It appears to us that reliance on the CPRT reinspection program could require a revision to the required analyses.

We are interested in the relationship between the 95/5 sampling program and the level of safety achieved at nuclear plants by properly certified, trained, and supervised craft personnel and by an appropriate quality assurance/quality control program (QA/QC), which would catch and reduce errors made by craft.[4]

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[1] *See* Applicants' Memorandum in Response to Board Memorandum (Statistical Inferences from CPRT Sampling), January 31, 1986, at 17. We do not find precisely the same kind of statement in Applicants' Response to Board Concerns [Concerns Response], December 1, 1986, so we are not sure whether Applicants continue to rely on the same reasoning concerning not relying entirely on a sampling program. Furthermore, we note that the use of two .95/.05 screens may have some effect on the level of confidence or level of error of the sampling program; and Applicants may wish to discuss the effect of double sampling to assist us to understand this research tool better. Concerns Response at 6-7.

[2] To the extent that the CPRT credibly confirms the reliability of all or part of the QA/QC program, this would of course enhance the credibility of findings that portions of the plant are adequate for safety because they pass the CPRT's sampling screen. The difficulty we foresee, concerning the need to rely on the sampling program, is most relevant should the CPRT discredit substantial portions of QA/QC or should the evidence about the QA/QC program be equivocal.

[3] Safety Evaluation Report, NUREG-0797, July 1981, at 22-38.

[4] We do not entirely accept the argument that "[i]f a population passes the 95/95 sample screen, . . . the population of items is free from programmatic deficiencies." Applicants' Memorandum in Response to Board's Memorandum, January 31, 1986, at 9. All we would conclude from a population passing the 95/95 sample screen is that it is probably free from programmatic deficiencies *that result in an error rate of 5% or more*. The question this raises is whether that is adequate assurance of safety.

We recognize that errors are expected. But what level of errors is expected? What level do coders anticipate? What effect does the error level have on probability risk assessments?

We are not setting any particular time deadline for a response, but we are interested in reading the response we will receive. Intervenors may respond within a month of Applicants' filing. Staff may respond with all deliberate speed.

FOR THE ATOMIC SAFETY
AND LICENSING BOARD

Peter B. Bloch, Chairman
ADMINISTRATIVE JUDGE

Walter H. Jordan (by PBB)
ADMINISTRATIVE JUDGE

Kenneth A. McCollom (by PBB)
ADMINISTRATIVE JUDGE

Bethesda, Maryland

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Charles Bechhoefer, Chairman
Gustave A. Linenberger, Jr.
Richard F. Cole

In the Matter of

Docket No. 50-389-OLA
(ASLBP No. 87-544-01-LA)
(Spent Fuel Transfer Amendment)

FLORIDA POWER & LIGHT
COMPANY, *et al.*
(St. Lucie Nuclear Power Plant,
Unit No. 2)

January 16, 1987

The Licensing Board dismisses, for lack of standing, the only hearing request in an operating license amendment proceeding and, accordingly, terminates the proceeding.

RULES OF PRACTICE: INTERVENTION PETITION

Under 10 C.F.R. § 2.714(a), an intervention petition must set forth with particularity the petitioner's interest in the proceeding, how that interest may be affected by the results of the proceeding, and the specific aspect(s) of the proceeding as to which the petitioner wishes to intervene.

RULES OF PRACTICE: INTERVENTION (INTEREST)

Residence more than 100 miles from a reactor site is not sufficient to establish a petitioner's interest in a proceeding.

RULES OF PRACTICE: STANDING

A statement of a citizen's right or a civic duty to participate in a proceeding constitutes a generalized grievance shared in substantially equal measure by all or a large class of citizens and does not result in distinct and palpable harm sufficient to support a petitioner's standing.

RULES OF PRACTICE: DISCRETIONARY INTERVENTION

A petitioner who fails to meet the standing requirements of 10 C.F.R. § 2.714(a) could be permitted to intervene as a matter of discretion, assuming he met the standards established by the Commission for such discretionary intervention. In particular, a petitioner would have to demonstrate how his participation would assist in developing a sound record in the proceeding.

RULES OF PRACTICE: SCOPE OF INFORMATION REQUIRED FOR LICENSING

Where the spent fuel pools of two facilities are to be shared, the requirements of General Design Criterion 5 become applicable. They must be analyzed by an applicant and evaluated by the NRC Staff.

RULES OF PRACTICE: OPERATING LICENSE AMENDMENTS

In the absence of a hearing on an operating license amendment, the Staff is not required to make the "no serious hazards consideration" finding of 10 C.F.R. § 50.92(c). *See* 10 C.F.R. § 50.91.

MEMORANDUM AND ORDER
(Dismissing Hearing Request)

This proceeding involves the proposed amendment of Facility Operating License NPF-16, for the St. Lucie Plant, Unit 2, to permit the transfer of spent fuel from the St. Lucie Plant, Unit 1 spent fuel pool to the Unit 2 spent fuel pool. The Applicants for the amendment are Florida Power and Light Co., Orlando Utilities Commission of the City of Orlando, Florida, and Florida Municipal Power Agency (Applicants). The St. Lucie units are each pressurized water reactors located on Hutchinson Island in St. Lucie County, Florida. The fuel handling buildings of the two units, between which spent fuel would be transported, are approximately 300 feet apart.

1. As set forth in our Memorandum and Order (Regarding Request for Hearing), dated December 9, 1986 (unpublished), a timely request for a hearing was filed by John Paskavitch. That request, however, was "patently deficient." It was a one-sentence request which identified neither Mr. Paskavitch's interest in the proceeding nor the specific aspect(s) of the subject matter of the proceeding as to which he wished to intervene.

Notwithstanding those deficiencies, and in accord with the NRC Rules of Practice, we provided Mr. Paskavitch an opportunity to amend his petition. We stated that an amended petition should set forth "*with particularity* [Mr. Paskavitch's] interest in the proceeding, how that interest may be affected by the results of the proceeding, and the specific aspect(s) of the proceeding as to which he wishes to intervene." We specifically pointed out that Mr. Paskavitch's address in South Venice, Florida, as set forth on the letterhead of his intervention petition, although not in the petition itself, would not be sufficient to establish his interest, since South Venice (on the west coast of Florida) is apparently more than 100 miles from the plant site (near the east coast of Florida). December 9, 1986 Memorandum and Order, at 2. We further stated that, absent a satisfactory amended petition, Mr. Paskavitch's hearing request would be dismissed.

On December 10, 1986, Mr. Paskavitch filed a document entitled "Petitioner's Reasons for a Request for Hearing."[1] Treating this document as a supplemental or amended hearing request, the Applicants and NRC Staff filed responses, dated January 9, 1987, and January 5, 1987, respectively. They each oppose the hearing request.

Mr. Paskavitch's supplemental request includes eight questions which he poses regarding the license amendment application. It contains no statement concerning his interest in the proceeding, other than an assertion that "a citizen has the right to intervene in the decision making process." The cover letter similarly refers to a "civic duty to help insure the safety of the United States nuclear power plant program."

In our view, Mr. Paskavitch's hearing request and supplemental request fail to satisfy the intervention requirements of 10 C.F.R. § 2.714(a). Although we express no opinion as to their relevancy to the amendment, the eight questions may be deemed adequate to establish the "aspect(s)" of the proceeding as to which Mr. Paskavitch wishes to intervene. The statement of interest, however, remains inadequate. At best, it expresses a "'generalized grievance' shared in substantially equal measure by all or a large class of citizens." That type of grievance "will not result in distinct and palpable harm sufficient to support

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[1] This document was initially filed with the Chief Administrative Judge, Atomic Safety and Licensing Board Panel, who referred it to this Board. Mr. Paskavitch also forwarded a copy of this document to the Board. Under the schedule established by our December 9 Memorandum and Order, this document was timely filed.

standing." *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit No. 1), CLI-83-25, 18 NRC 327, 333 (1983).

Although Mr. Paskavitch fails to meet the standing requirements of § 2.714(a), we nevertheless could permit him to intervene as a matter of discretion, assuming he met the standards established by the Commission for such discretionary intervention. *Portland General Electric Co.* (Pebble Springs Nuclear Plant, Units 1 and 2), CLI-76-27, 4 NRC 610, 614-17 (1976); *Three Mile Island, supra*, 18 NRC at 333. Mr. Paskavitch has not addressed the standards for discretionary intervention, just as he has failed to provide any information bearing upon his standing under § 2.714(a). In particular, he has failed to demonstrate how his participation would assist in developing a sound record in this proceeding. In these circumstances, we decline to exercise our discretion to grant intervention to Mr. Paskavitch.

Accordingly, we are dismissing Mr. Paskavitch's hearing request for lack of standing.

2. On December 16, 1986, the NRC Staff filed a response to a letter dated December 2, 1986, written by Mr. Eric Buetens, supporting Mr. Paskavitch's hearing request. (That letter was addressed to the NRC Resident Inspector at the St. Lucie plant and did not reach us until after we had received the Staff's response.) The Applicants, in responding to Mr. Paskavitch's supplemental request, indicated that they were not responding to Mr. Buetens' letter because they did not regard it as a hearing request. The Staff also did not regard Mr. Buetens' letter as a hearing request but claimed that, if considered as a hearing request, it is both inadequate and late-filed and should be denied.

We do not consider Mr. Buetens' letter to constitute a hearing request and hence take no action with regard to it. But we agree with the Staff that, if viewed as a hearing request, it is late-filed and fails to conform to the requirements of § 2.714(a).

3. On December 9, 1986, we wrote a letter to counsel for the NRC Staff and the Applicants which pointed to a potential deficiency in the matters submitted to NRC in support of the proposed amendment. Specifically, we noted that the Staff's October 1981 Safety Evaluation Report (SER) for St. Lucie Plant, Unit 2 (NUREG-0843) stated that, because there was (at the time) no sharing of the spent fuel facilities between the two St. Lucie units, the requirements of General Design Criterion (GDC) 5 were not applicable. We stated that it appeared that GDC 5 would become applicable if the proposed amendment were to be approved. We also were unaware of any analysis by the Applicants of the facility's conformance to GDC 5 and indicated that such an analysis (and evaluation by the Staff) might constitute a legal requirement for the proposed amendment, as well as a consideration to be taken into account by the Staff in making a "no significant hazards consideration" finding pursuant to 10 C.F.R. § 50.92(c).

Neither the Applicants nor the Staff have filed any response to the matters raised in our December 9, 1986 letter — indeed, we requested no such responses. We also stated in our letter that we did not intend at that time to raise the issue of the conformance of the facility to GDC 5 under our authority in 10 C.F.R. § 2.760a.

We are still of the opinion that, as a predicate to the proposed amendment, the Applicants should submit an analysis of the facility's conformance to GDC 5 and the Staff should evaluate that analysis in its SER for the amendment. We are declining, however, to raise this issue pursuant to § 2.760a. We have no basis for finding, within the terms of that section, that "a serious safety, environmental, or common defense and security matter exists." The deficiency we perceive is one of analysis and evaluation, not of safety. Moreover, we are not aware of any information which would suggest that the facility would fail to meet the requirements of GDC 5.

Nonetheless, conformance with NRC requirements is important. We leave it to the Staff to assure that the Applicants have complied with the requirements of GDC 5 in connection with this license amendment. We also note that, given our dismissal of the pending hearing request, and absent any other such request, the Staff will not be required to make the "no serious hazards consideration" finding of § 50.92(c). *See* 10 C.F.R. § 50.91.

For the foregoing reasons, it is, this 16th day of January 1987, ORDERED:

1. The hearing request of John Paskavitch, dated November 6, 1986, is *dismissed.*

2. This proceeding is *terminated.*

3. This Memorandum and Order shall become effective immediately and will constitute the final action of the Commission thirty (30) days after the date of its issuance, unless review is sought pursuant to 10 C.F.R. § 2.714a. Mr. Paskavitch may take an appeal from this Memorandum and Order to the Atomic Safety and Licensing Appeal Board, within ten (10) days after service hereof. The appeal shall be asserted by the filing of a notice of appeal and accompanying

supporting brief. Any other party may file a brief in support of or in opposition to the appeal within ten (10) days after service of the appeal.

THE ATOMIC SAFETY AND
LICENSING BOARD

Charles Bechhoefer, Chairman
ADMINISTRATIVE JUDGE

Gustave A. Linenberger, Jr.
ADMINISTRATIVE JUDGE

Richard F. Cole
ADMINISTRATIVE JUDGE

Dated at Bethesda, Maryland,
this 16th day of January 1987.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ADMINISTRATIVE LAW JUDGE

Ivan W. Smith

In the Matter of

Docket No. 30-16055-SP
(ASLBP No. 87-545-01-SP)
(BML No. 34-19089-01)
(EA 86-155)

ADVANCED MEDICAL SYSTEMS, INC.
(One Factory Row,
Geneva, Ohio 44041)

January 14, 1987

MEMORANDUM AND ORDER FOLLOWING FIRST PREHEARING CONFERENCE

Counsel for the Licensee, counsel for the NRC Staff, and I joined in an official prehearing conference by telephone on January 8, 1987. Tr. 1-57. The purpose of the conference was (1) to determine whether the issues have been joined by the pleadings contained in the record to date; (2) to provide for discovery; (3) to determine whether an expedited proceeding is appropriate; and (4) to attend to routine prehearing matters.

JOINDER OF ISSUES

The Order Suspending License and Order to Show Cause (Effective Immediately), (the Suspension Order), dated October 10, 1986, and signed by the Director of Inspection and Enforcement, is the basic charging document. On October 29, counsel for the Licensee filed an answer to the Suspension Order and requested a hearing. The Commission issued its Notice of Hearing on November 26 granting a hearing and stating that the issue before the adminis-

trative law judge will be "whether, on the basis of the matters set forth in the Order, the Order should be sustained."

On December 16, Licensee filed its answer to the Notice of Hearing, admitting certain procedural allegations, but incorporating by reference each statement and denial contained in the October 29 answer to the Suspension Order. The December 16 answer also generally denied that the Licensee violated any federal law, federal regulation, or license condition. In effect, Licensee's answer to the Notice of Hearing is a complete and adequate general denial to the charges made in the Suspension Order. The factual issues are drawn. The NRC Staff has the burden of proceeding with the evidence and the burden of sustaining its Suspension Order.

DISCOVERY

Prior to the designation of an administrative law judge, Licensee filed several discovery requests assertedly in accordance with 10 C.F.R. §§ 2.720 and 2.744. Since there was then no presiding officer to authorize such discovery, and since there were no factual issues approved for such discovery, the discovery requests had no force in the proceeding before me. During the prehearing conference on January 8, I authorized discovery, and deemed the previously filed discovery requests to be requests made under that authority as if made on January 8.

EXPEDITED PROCEEDING

On or about December 23, 1986, Licensee submitted to the Administrator of Region III a motion for "rescindment" of the Suspension Order, in accordance with the terms of that order. Order at 4. During the prehearing conference, the parties informed me that the Regional Administrator has denied the motion. The license remains suspended.

Counsel for Licensee has represented that the Suspension Order has resulted in serious economic impact on Licensee's business and that presently about half of Licensee's work force has been laid off. In any event the suspension of the license is in itself a sufficient ground for expediting this proceeding.

The NRC Staff is directed to respond to the presently outstanding discovery requests as soon as it can do so, i.e., not taking unless necessary the time periods set out in the discovery rules. The parties are directed to attempt to resolve discovery disputes by seeking prompt rulings from me, rather than following the traditional procedure of making formal written objections, motions for protective orders, and motions to compel responses to discovery.

During the prehearing conference, counsel for Licensee indicated that he would probably petition the Commission for a stay of the Regional Administrator's decision denying the motion for rescindment of the Suspension Order.* The proceeding before me, however, shall continue on an expedited basis notwithstanding the pendency of a stay petition before the Commission.

Service to and from the Licensee shall be by express mail unless a faster method (electronic transmission, for example) is available. I intend to arrange for a prehearing conference by telephone in about 2 weeks to review the status of the proceeding.

IT IS SO ORDERED.

Ivan W. Smith
Administrative Law Judge

Bethesda, Maryland
January 14, 1987

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*By letter of November 6, 1986, from the Secretary of the Commission, Samuel J. Chilk, to counsel for Licensee, Licensee was informed that "[s]hould the Regional Administrator deny such a request [to rescind the Suspension Order], the licensee may seek a stay from the Commission, pursuant to 10 C.F.R. §2.788, by submitting an appropriate motion to the Commission with supporting affidavits." Licensee's counsel at first argued that jurisdiction to stay the unfavorable decision of the Regional Director lies with me. I advised him that, unofficially and without studying the matter, I believed that the Commission has exclusive jurisdiction to consider such a petition for a stay (recognizing of course that the Regional Administrator retains jurisdiction to rescind or relax the order).

I also suggested to counsel that the licensee probably would not be prejudiced if my assessment of jurisdiction was incorrect. A portion of this discussion was incorrectly transcribed. Therefore, the following correction at Tr. 20, lines 7-11, is ordered:

> I think that you would quickly find, if you made a motion, a petition under 2.788 to the Commissioners, you would quickly find ~~that~~ *whether* that is an error and ~~that~~ *whether* it should have been sent to me. They would make that determination without delay, I am confident.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF INSPECTION AND ENFORCEMENT

James M. Taylor, Director

In the Matter of

Docket Nos. 50-206
50-361
50-362

SOUTHERN CALIFORNIA EDISON COMPANY, *et al.*
(San Onofre Nuclear Generating Station, Units 1, 2, and 3)

January 29, 1987

The Director of the Office of Inspection and Enforcement denies a petition of the City of Laguna Beach, California (Petitioner), to extend the 10-mile radius of the emergency planning zone (EPZ) for the San Onofre Nuclear Generating Station to include South Laguna and Laguna Beach.

The bases for the action requested in the petition are concerns about the lack of emergency planning for Laguna Beach, the topography of the South Orange County coastline as it relates to the transportation network, and the effect on the residents of Laguna Beach as others who live to the south drive through Laguna Beach as part of an evacuation procedure. The petition also referred to the "recent circumstances in the Soviet Union" as a basis for reconsidering the emergency planning zone issue for San Onofre.

TECHNICAL ISSUE DISCUSSED: EMERGENCY PLANNING ZONE

The current plume exposure EPZ for San Onofre is adequate, and Laguna Beach and South Laguna, which lie outside the EPZ but within the public education zone for San Onofre, are adequately addressed in the existing emergency plans for Orange County and the State of California.

TECHNICAL ISSUES DISCUSSED: EMERGENCY PLANNING REGULATIONS

Reviews performed to date of the Chernobyl accident and the Chernobyl plant design have not identified any aspects of the accident that show a clear-cut nexus to U.S. commercial nuclear power plants. At this time, it is too early to determine whether any changes to current emergency planning regulations will be required.

DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206

INTRODUCTION

By petition dated May 27, 1986, the City of Laguna Beach, California (Petitioner), requested, pursuant to 10 C.F.R. § 2.206, that the Nuclear Regulatory Commission (NRC) extend the 10-mile radius of the emergency planning zone for the San Onofre Nuclear Generating Station to include South Laguna and Laguna Beach.

The bases for the action requested in the petition are concerns about the lack of emergency planning for Laguna Beach, the topography of the South Orange County coastline as it relates to the transportation network, and the effect on the residents of Laguna Beach as others who live to the south drive through Laguna Beach as part of an evacuation procedure. The petition also referred to the "recent circumstances in the Soviet Union" as a basis for reconsidering the emergency planning zone issue for San Onofre.

Notice of receipt of the petition indicating that a final decision with respect to the requested action would be forthcoming at a later date was published in the *Federal Register* on July 23, 1986 (51 Fed. Reg. 26,484). Because the petition involved matters related to offsite emergency planning, the NRC requested the assistance of the Federal Emergency Management Agency (FEMA) in responding to the issues raised in the petition.[1] The FEMA response, dated October 21, 1986, is attached to this document (not published). In addition to the response from FEMA, the Southern California Edison Company (Edison or Licensee) provided a response to the petition. The Licensee's response of October 3, 1986, is attached also (not published).

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[1] FEMA, by Presidential directive, has been assigned the responsibility for assessing the adequacy of offsite emergency plans for the area surrounding a nuclear plant. The NRC is responsible for assessing the adequacy of onsite emergency plans and has the final licensing authority.

DISCUSSION

The size of the emergency planning zones (EPZs) for commercial nuclear power plants is established by NRC regulations. The EPZs are defined as the areas for which planning is needed to ensure that prompt and effective actions can be taken to protect the public in the event of an accident. The choice of the size of the EPZs (about 10 miles in radius for the plume exposure pathway and about 50 miles in radius for the ingestion pathway) represents a judgment on the extent of detailed planning which must be performed to ensure adequate protective action and is based on an in-depth study of the technical issues by a joint NRC/EPA Task Force.[2]

The size of the plume exposure pathway EPZ for San Onofre was litigated in the emergency planning portion of the licensing proceedings. In that portion of the proceedings, the intervenors contended that, in determining the exact size of the EPZ, emergency planning officials failed to consider specific local conditions including topography, land characteristics, population, and evacuation routes. In support of its position that the EPZ had been properly determined, the Licensee introduced an evacuation time analysis report[3] that specifically considered the effect of local topography in determining the traffic capacity of roadways designated as evacuation routes. The Licensing Board's decision, issued in May 1982, found that the boundaries of the EPZ for San Onofre were drawn in accordance with relevant local conditions and comply with the appropriate emergency planning regulations. LBP-82-39, 15 NRC 1163, 1228 (1982), *aff'd*, ALAB-717, 17 NRC 346 (1983); *see also* ALAB-680, 16 NRC 127, 132 (1982).

The FEMA and Licensee responses (Attachments 1 and 2, respectively) provide information on emergency planning for Laguna Beach and South Laguna. The California State Nuclear Power Plant Emergency Response Plan and the Orange County Incident Response Plan for San Onofre Generating Station identify a public education zone (PEZ) which is defined as that area outside and adjacent to the plume exposure pathway EPZ extending for a distance of approximately 20 miles from the plant. As described in the Orange County plan, the PEZ for San Onofre encompasses the communities of Laguna Beach, Laguna Hills, Laguna Niguel, South Laguna, El Toro, and Mission Viejo in Orange County. The PEZ was established by the State of California to ensure that the public would be informed in advance about how it would be notified of an emergency and what protective actions, if any, should be taken. The California

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[2] "Planning Basis for the Development of State and Local Government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Plants," NUREG-0396/EPA 520/1-78-015, December 1978.

[3] "Analysis of Time Required to Evacuate Transient and Permanent Population from Various Areas Within the Plume Exposure Pathway Emergency Planning Zone, San Onofre Nuclear Generating Station," by Wilbur Smith and Associates, July 1981. (This study has subsequently been updated in June 1982 and November 1985).

plan requires Edison to create a public education program for the PEZ. As part of this program, Edison annually distributes an "Emergency Information Handbook" which includes information on the levels of emergency that could arise, emergency planning for San Onofre, notification methods, and the steps the public can take to avoid or greatly reduce the potential effects of a radioactive release.

FEMA reports that the State of California Master Mutual Aid Agreement provides for support from adjacent jurisdictions and would be implemented during an emergency. Orange County would coordinate mutual aid between jurisdictions within Orange County, including the cities of Laguna Beach and South Laguna. FEMA notes that under this arrangement both communities would be protected in a radiological emergency at San Onofre. In a letter to FEMA dated September 22, 1986, the Director of the State of California Governor's Office of Emergency Services states: "The position taken by the State of California is unchanged; we feel the existing emergency planning zone around San Onofre is adequate and the residents of the City of Laguna Beach are adequately protected."

On the basis of an evaluation of emergency planning information for the State of California and Orange County, FEMA concludes that offsite radiological emergency preparedness at San Onofre for the current plume exposure EPZ is adequate to provide reasonable assurance that appropriate measures can be taken to protect the public in the event of an emergency; the level of offsite planning and preparedness provided for the cities of Laguna Beach and South Laguna in the existing emergency response plans for Orange County and the State of California is adequate; and these plans seem adaptable to supporting response activities beyond the current EPZ boundaries if it would ever be necessary to expand the response base.

The NRC is currently engaged in evaluating the consequences and implications of the accident at the Chernobyl nuclear plant in the Soviet Union, particularly as they relate to U.S. nuclear regulatory policies and practices, including emergency planning. Reviews performed to date of the accident and the Chernobyl plant design have not identified any aspects of the accident which show a clear-cut nexus to U.S. commercial nuclear power plants. NRC studies, in coordination with many other ongoing national and international activities, are receiving priority attention to either confirm that the Commission's current regulatory practices and policies are sound or to identify improvements. Any new requirements arising from these investigations, including emergency planning requirements, will be carefully evaluated by the Commission. At this time, it is too early to determine whether any changes to current emergency planning regulations will be required.

CONCLUSION

For the reasons discussed above, I find no substantial basis for taking the action requested by the petition. The NRC supports the FEMA conclusion that the current plume exposure pathway EPZ for San Onofre is adequate and that Laguna Beach and South Laguna, which lie within the public education zone for San Onofre, are adequately addressed in the existing emergency plans for Orange County and the State of California. Accordingly, the Petitioner's request for action pursuant to 10 C.F.R. § 2.206 is denied. As provided in 10 C.F.R. § 2.206(c), a copy of this Decision will be filed with the Secretary for the Commission's review.

James M. Taylor, Director
Office of Inspection and
Enforcement

Dated at Bethesda, Maryland,
this 29th day of January 1987.

[The attachments have been omitted from this publication but can be found in the NRC Public Document Room, 1717 H Street, NW, Washington, DC 20555.]

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Victor Stello, Jr.
Executive Director for Operations

In the Matter of Docket No. PRM-50-41

PUBLIC CITIZEN January 14, 1987

The Commission denies a petition for rulemaking submitted by Public Citizen. The Petitioner requests that, to comply with the mandate of the NRC Training Authorization, § 306 in the Nuclear Waste Policy Act of 1982, NRC adopt specific regulations or other regulatory guidance setting forth detailed requirements for training and fitness for duty of nuclear power plant personnel. The denial states that NRC is denying the petition, among other reasons, because it has determined that the statute does not cover fitness for duty and with respect to training that it provides NRC with flexibility to issue the regulatory guidance in the form of a policy statement.

NWPA: SECTION 306 (FITNESS FOR DUTY)

Section 306 (NRC's Training Authorization Section) of the Nuclear Waste Policy Act of 1982 (NWPA) does not cover fitness for duty. Therefore, NRC has not engaged in a rulemaking; nonetheless, the Commission has issued a policy statement on this subject.

NWPA: SECTION 306 (TRAINING AND QUALIFICATION)

Section 306 of NWPA provides NRC with flexibility to issue regulatory guidance on training and qualification in the form of a policy statement; NRC does not have to engage in a rulemaking on this subject.

DENIAL OF PETITION FOR RULEMAKING

SUMMARY

The Nuclear Regulatory Commission (NRC) is denying a petition for rulemaking filed on behalf of Public Citizen by Eric Glitzenstein, Attorney for Public Citizen, and Ken Bossong, Director, Critical Mass Energy Project (Petitioner). The Petitioner requests that, to comply with the mandate of § 306 of the Nuclear Waste Policy Act of 1982 (the NRC Training Authorization Section), NRC adopt specific regulations or other regulatory guidance setting forth detailed requirements for training and fitness for duty of nuclear power plant personnel. NRC is denying the petition, among other reasons, because it has determined that the statute does not cover fitness for duty and, with respect to training, that it provides NRC with flexibility to issue the regulatory guidance in the form of a policy statement.

DENIAL

The Commission is concerned that the Petitioner's assertions could cause misunderstandings about the Commission's policy statements on fitness for duty and on training and wishes to use this opportunity to clarify any misconceptions. The Commission will provide in full the Petitioner's arguments, the arguments of the opponents of the petition, and its own determinations so that all of the arguments are presented clearly and in order that the two policy statements and their backgrounds can be better understood.

The Petition

The Petitioner believes that NRC has failed to fulfill its statutory obligations under § 306 of the Nuclear Waste Policy Act of 1982 (NWPA) (the NRC Training Authorization Section), 42 U.S.C § 10,226, 19 Stat. 2201 at 2262-2263, Pub. L. No. 97-425, and that the statutory deadline for compliance has long since passed. The Petitioner contends that this failure results in increased danger to the health and safety of the public from inadequately trained nuclear power plant personnel. It urges NRC to adopt specific regulations or other regulatory guidance setting forth detailed requirements for training and fitness for duty of nuclear power plant personnel.

Basis for the Petition

The Petitioner bases its petition on the statutory mandate of § 306 of the NWPA which requires various NRC actions by January 7, 1984, as follows:

> SEC. 306. NUCLEAR REGULATORY COMMISSION TRAINING AUTHORIZATION. — The Nuclear Regulatory Commission is authorized and directed to promulgate regulations, or other appropriate Commission regulatory guidance, for the training and qualifications of civilian nuclear powerplant operators, supervisors, technicians and other appropriate operating personnel. Such regulations or guidance shall establish simulator training requirements for applicants for civilian nuclear power-plant operator licenses and for operator requalification programs; requirements governing NRC administration of requalification examinations; requirements for operating tests at civilian nuclear powerplant simulators, and instructional requirements for civilian nuclear power-plant licensee personnel training programs. Such regulations or other regulatory guidance shall be promulgated by the Commission within the 12-month period following enactment of this Act, and the Commission within the 12-month period following enactment of this Act shall submit a report to Congress setting forth the actions the Commission has taken with respect to fulfilling its obligations under this section.

The Petitioner contends that the Commission's March 20, 1985 Policy Statement on Training and Qualification of Nuclear Power Plant Personnel (50 Fed. Reg. 11,147) and its then-proposed, now final, Policy Statement on Fitness for Duty of Power Plant Personnel (51 Fed. Reg. 27,921 (Aug. 4, 1986)) are legally insufficient to fulfill NRC's obligations under § 306.

With respect to fitness for duty (on which NRC had not published a final policy statement when it docketed the petition on April 17, 1986), the Petitioner states "that the NRC has totally abandoned its responsibilities under section 306."

The Petitioner argues that the Commission's Training and Qualification Policy Statement does not comply with the statute in three ways. First, it asserts that the Policy Statement gives five elements of an acceptable training program that are vague and general and fail to set forth any specific standards against which compliance can be measured or enforced. Further, the Petitioner contends that because these five elements do not outline "requirements for personnel training programs" they do not comport with Congress' intent in enacting § 306.

Second, the Petitioner insists that NRC's endorsement of the Institute for Nuclear Power Operations' (INPO) accreditation programs, instead of NRC's promulgation of its own training requirements, does not comply with the statute. The Petitioner mentions in this context Senator Weicker's statement that notes "the shortcomings of relying only upon INPO or other existing institutions." *See* Cong. Rec. S15643 (Dec. 20, 1982). The Petitioner also contends that NRC's endorsement of INPO's accreditation program sacrifices public participation in the development of regulations or regulatory guidance

and public access to documents reflecting licensees' implementation of these requirements.

Finally, the Petitioner argues that the Training and Qualification Policy Statement does not allow for adequate monitoring of the effectiveness of a training program because (1) the five elements are vague and do not provide adequate standards against which to measure an individual licensee's progress or to evaluate the effectiveness of INPO's program as a whole; (2) it provides only for NRC monitoring of licensees that achieve INPO accreditation and does not provide for NRC monitoring of licensees with the most severe training problems; and (3) NRC has not retained authority to ensure prospectively that each licensee implements adequate training programs and that all achieve accreditation within a specific time.

Public Comments on the Petition and NRC Responses

NRC published in the *Federal Register* on May 12, 1986 (51 Fed. Reg. 17,361), a notice that the petition for rulemaking had been filed. Interested persons were invited to submit written comments or suggestions about the petition by July 11, 1986. NRC received twenty-one comments in response to the notice, twenty from utilities and their various representative organizations opposing the petition and a short letter from another group supporting it. The latter organization states in essence that it is concerned that NRC monitors only licensees with INPO accreditation and not those with the most severe training problems.

Fitness for Duty

With respect to fitness for duty, many of the opponents of the petition point to the words and legislative history of § 306, stating that neither mentions policies for administration of fitness-for-duty programs or broader, more generic, continuing observation programs. Several commenters indicate that the Petitioner is incorrect in stating that the Commission has abandoned its responsibilities in this area and say that apparently the Petitioner is unaware of NRC's ongoing efforts which provide guidance and direction to utilities with nuclear power programs and make rulemaking unnecessary.

The commenters note that the Commission approved a fitness-for-duty policy statement on June 25, 1986 (51 Fed. Reg. 27,921 (Aug. 4, 1986)) and that NRC guidance on this issue has existed for many years. They disclose that the Nuclear Utility Management and Resources Committee (NUMARC), an organization composed of the top officers of all utilities with nuclear power plants, proposed to NRC during the summer of 1984 a 2-year trial period for the development

and implementation of fitness-for-duty guidelines at all of their plants, to be evaluated by INPO. They indicate that in October 1984 NRC began working with the industry to evaluate this proposal and that all nuclear power reactor licensees committed to review and upgrade their programs, as necessary. Further, the industry, acting on its initiative, instituted routine INPO evaluations of each utility's implementation of a fitness-for-duty program. The commenters stress that in developing its program, each utility has used the guidelines of the Edison Electric Institute, "EEI Guide to Effective Drug and Alcohol/Fitness for Duty Policy Development," described in the Policy Statement and that NUMARC and INPO have kept the Commission apprised of the ongoing INPO evaluations in public briefings.

d Qualifications

.nments on the Petitioner's three basic contentions are provided below.

First Contention

With respect to the Petitioner's first contention that the Policy Statement provides only five vague and general elements of an acceptable training program and fails to set forth any specific standards with which compliance can be measured, monitored, and enforced, most of the commenters point out that the five elements are based upon detailed accreditation criteria developed by INPO and reviewed by NRC. They argue that the Policy Statement provides the necessary NRC guidance for the industry to implement acceptable training programs while allowing sufficient flexibility to bring about self-improvements in nuclear training programs and personnel qualifications.

One commenter notes that § 306 does not specify the degree of detail that the regulation or regulatory guidance must contain or require that detailed acceptance criteria be included. It argues, therefore, that the Petitioner's contention that the Policy Statement is vague, general, and lacks specific standards and requirements is a "subjective opinion" and is not a basis for measuring the Policy Statement against the statute.

Another commenter notes that the Policy Statement was formally issued more than a year before the petition was filed. During this period, the industry has relied heavily on the Policy Statement and has dedicated time and resources to comply with its intent; the same period in which the Petitioner apparently did nothing to challenge the NRC's decision.

The commenters generally contend that the Policy Statement and NRC's own extensive involvement in related matters, such as licensed operator requalification examinations and routine training inspections, provide for a thorough NRC

overview of training and accreditation processes. This overview includes, among other things listed in the Policy Statement, (1) NRC observation of site visits by an INPO accrediting team; (2) NRC nomination of members to the National Nuclear Accrediting Board (this board, which is composed of members from the academic community and the nuclear and other industries, awards or defers accreditation of individual utility training programs); (3) periodic accompaniment of INPO on selected plant evaluation visits; (4) NRC post-accreditation audits at utilities, in accordance with NUREG-1220 "Training Review Criteria and Procedures," July 1986, to ensure that the accreditation process is effective (the criteria are identical to the five elements in the Policy Statement and the procedures describe the systematic review process to ensure the effectiveness of each element); (5) periodic training inspections by NRC's five Regions; and (6) a training summary evaluation included as part of the NRC Systematic Assessment Report of Licensee Performance (SALP). They suggest that such close NRC monitoring indicates that the Commission is not simply endorsing INPO's accreditation programs as claimed by the Petitioner. These commenters also note that improvements obtained thus far in utility training programs provide evidence that the intent of § 306 is being met, including better focused management control, more and better training staff, and improved and expanded training facilities and equipment.

Many commenters also argue that the Policy Statement provides NRC guidance on training and qualification and the basis for NRC's oversight of the industry's programs. The Policy Statement encompasses the elements of performance-based training and provides the basis to ensure that licensees' personnel have qualifications commensurate with the performance requirements of their jobs. They contend that tasks performed vary widely and that, therefore, a rule requiring detailed training program standards would have been inappropriate. They note that NRC's own experience has shown that technical details for resolution of specific issues are best handled at an administrative level below that of rules and regulations. They cite various examples of documents that address the training issue and are in addition to INPO programs, including current Regulatory Guide 1.8, "Personnel Selection and Training"; ANSI N18.1 (1971), "Selection and Training of Nuclear Power Plant Personnel"; ANS 3.1 (1981), "Selection, Qualification, and Training of Personnel for Nuclear Power Plants"; ANS 3.5 (1985), "Nuclear Power Plant Simulators for Use in Operator Training"; and NUREG-1021, "Operator Licensing Examiner Standards," October 1983. They maintain that to attempt to impose detailed requirements through a regulation would be a needless and inappropriate burden on both licensee and NRC resources: needless, because the desired effect of improved training is already being obtained by the current system and NRC's Policy Statement, including NRC's guidance documents, industry standards, INPO accreditation, and NRC's undiminished enforcement authority; and inappropriate, because of

the many plant-specific circumstances that would cause many licensees to be affected unequally and in some cases unfairly by a generic rule.

Second Contention

With respect to the Petitioner's second contention that the Policy Statement on Training and Qualification is legally insufficient to fulfill NWPA's statutory mandate, most of the twenty commenters argue in detail that § 306 clearly provides NRC with alternatives on the best way to accomplish Congress' intent. They maintain that Congress directed the Commission in § 306 to establish instructional requirements for several categories of personnel either through a regulation or through more general guidance, leaving it to NRC to decide which option it wants to adopt. In this regard, one commenter makes detailed arguments about the legislation, showing that the legislation gave NRC a wide degree of latitude, flexibility, and discretion on the manner and scope of its compliance with the statute. Both this and another commenter declare that an interpretation of § 306 is not dependent on one statement made by one member of Congress. The commenter also argues that INPO accreditation of utility training programs would probably have been a central feature of the Commission's final rule and that, when such accreditation is completed, the Petitioner will have received the equivalent of the relief sought in the petition because accreditation would probably have taken 2 years by either the rulemaking or policy statement route.

Several commenters explain that they think that the Policy Statement, when taken together with NRC's present and proposed rules and guidance, is more than sufficient to provide the Commission with reasonable assurance that personnel at nuclear power plants will perform their jobs in a safe and competent manner to protect the public health and safety and, at the same time, permit utilities to develop and implement plant-specific training programs. One commenter stresses that the five elements contained in the Policy Statement are professionally accepted components of any training or educational pursuit and that the Commission's proposed revision to 10 C.F.R. Part 55, "Operators' Licenses," incorporates these elements.

Another commenter discusses the proposed revision to Part 55 and the three proposed regulatory guides related to Part 55: Reg. Guide 1.8, "Qualifications and Training Personnel for Nuclear Power Plants"; Reg. Guide 1.134, "Medical Evaluation of Nuclear Facility Personnel Requiring Operator Licenses"; and Reg. Guide 1.149, "Nuclear Power Plant Simulation Facilities for Use in Operator License Examinations." The commenter points out that a proposed rule was published in the *Federal Register* on November 26, 1984 (49 Fed. Reg. 46,428). It sought to clarify the regulations for the issuance of licenses to operators and senior operators; to revise the requirements and scope of written

examinations and operating tests for operators and senior operators, including a requirement for a simulation facility; to codify procedures for the administration of requalification examinations; and to describe the form and content of operator license applications. The purpose of the proposed rule and regulatory guides was to improve the safety of nuclear power plant operations by improving the operator licensing process, including examination content; to provide NRC with an improved basis for administering operator licensing examinations and conducting operating tests; and, to respond to the specific direction given by Congress in § 306, to promulgate regulations and regulatory guidance in the area of examinations. (The NRC Staff proposal for a final rule can be found in SECY-86-348, November 21, 1986.) The commenter argues that it is only through such an approach to training, one that allows differences in various circumstances, that effective training can result; indeed, an overly restrictive rule would ensure compliance, but may not give encouragement to improvements beyond the scope of the rule.

Still another contends that many utilities are already well on their way to implementing the requirements in NRC's proposed revision to Part 55, and the regulatory guidance, described above.

Many commenters argue that NRC's decision to issue the Policy Statement instead of a rule was based on a number of public meetings and interactions between the industry and NRC throughout 1984. They emphasize that industry representatives, in presentations to the Commission on proposed NRC training regulations, stated that the regulations were not in the best interests of nuclear safety and reliability and, in effect, would have undermined industry initiatives in training and accreditation under way since 1980. They explain that the industry, recognizing the importance of training and accreditation activities and drawing upon one of the principal recommendations of the Kemeny Commission on the accident at Three Mile Island, established training and accreditation as one of INPO's key programs and committed itself to upgrade training activities. They stress that NRC's Policy Statement recognizes the significant progress achieved by industry initiatives through NUMARC, INPO, and the associated National Academy for Nuclear Training in developing programs to improve nuclear utility training and personnel qualifications, and that the Policy Statement has provided the industry an opportunity to demonstrate continued progress.

Third Contention

Most of the commenters opposing the petition argue that the Petitioner is wrong on all three counts of its final contention. First, they contend that the five elements do provide a standard against which training programs can be measured when viewed in light of NRC's existing regulations and regulatory guides. Part 55, "Operators' Licenses," contains the procedures and criteria for

the issuance of licenses to and requalification programs for operators and senior operators. Currently, this part and Regulatory Guide 1.8 detail the education, experience, and training requirements for individuals to be administered examinations for operator or senior operator licenses. The training programs for these individuals are submitted to NRC for review and approval as part of an applicant's Final Safety Analysis Report (FSAR). The commenters stress that NRC also evaluates the effectiveness of licensees' training programs based on examination results of applicants for operator and senior operator licenses. This is in effect an audit of the effectiveness of licensees' programs. Further, NRC administration of a percentage of the required annual requalification examinations is an additional audit of the effectiveness of the training programs. Based on the results of these examinations, NRC may take other actions to have reasonable assurance that licensed personnel are being requalified to perform their tasks in a safe and competent manner. The commenters emphasize that, therefore, the Commission has knowledge about applicants' and licensees' training programs for operators and senior operators.

With respect to the second part of the Petitioner's final contention, several commenters argue that the Policy Statement is based, in part, on the commitment of each utility with a nuclear power plant to submit its training program to INPO for accreditation. They note that NRC is mindful about how these commitments are being met, among other ways, through its review of periodic INPO accreditation status reports and NRC briefings. One commenter emphasizes that NRC remains responsible for evaluating the implementation of improved training programs to ensure that required results are achieved, and argues that the Atomic Energy Act provides broad authority for the Commission to take prompt action should NRC determine that a facility of an NRC licensee is not operated in a manner that adequately protects the public health and safety. Others indicate that (1) the Policy Statement specifically addresses NRC's enforcement policy, (2) that the Statement does not limit NRC's authority to conduct inspections or to take appropriate enforcement actions, and (3) that there is nothing in the Policy Statement that supports the Petitioner's statements that NRC will monitor only those facilities that have achieved INPO accreditation or that NRC has retained no authority to ensure that adequate training programs exist at individual facilities. The Policy Statement's enforcement provisions state:

> Notwithstanding its Enforcement Policy in 10 C.F.R. Part 2, Appendix C, 49 Fed. Reg. 8583 (March 8, 1984), the Commission will exercise some discretion in selecting appropriate enforcement action for violations involving training in light of the NUMARC/INPO initiative. Licensees who are making reasonable efforts in developing and implementing the INPO/NUMARC programs described above will generally not be cited for violations related to these programs, provided the violations, whether or not identified by NRC, are appropriately corrected in a timely manner. However, violations which are not corrected in a timely manner, violations of any applicable reporting requirement, and any willful violation may

be subject to enforcement. Any enforcement action taken during this grace period will be taken only with Commission concurrence. In addition to required reports and inspections, information requests under 10 C.F.R. 50.54(f) may be made and enforcement meetings held to ensure understanding of corrective actions. Orders may be issued where necessary to achieve corrective actions on matters affecting plant safety. In brief, the NRC's decision to use discretion in enforcement in order to recognize industry initiatives in no way changes the NRC's ability to issue orders, call enforcement meetings or suspend licenses when a safety problem is found. Nothing in this Policy Statement shall limit the authority of the NRC to conduct inspections as deemed necessary and to take appropriate enforcement action when regulatory requirements are not met.

Finally, with respect to the third part of the Petitioner's final contention, several commenters explain that there is a timetable for utilities to obtain INPO accreditation. Utilities have committed to submitting to INPO all of their self-evaluation reports by the end of 1986. Completion of the accreditation process usually takes about 12 to 15 months after submittal of this report. In addition, these commenters point out that NRC has stated in the Policy Statement that it will revisit the entire training issue around March 20, 1987, 2 years from March 20, 1985, the effective date of the Policy Statement.

Reasons for Denial

The Commission believes that it has been responsive to Congress' mandate in § 306. The Commission has determined that § 306 does not cover fitness for duty; nonetheless, it has issued a policy statement on this topic, as mentioned above.

With respect to the training and qualifications of civilian nuclear power plant personnel, the issue raised by the Petitioner arises out of the language of § 306. That language provides for the promulgation of regulations or of other appropriate Commission regulatory guidance. The Petitioner and one commenter believe that compliance with the statute requires enactment of legally binding regulations. The nuclear industry believes that NRC acceptance of INPO's accreditation program for training and qualifications by a policy statement meets the need for regulatory guidance. Indeed, the industry argues that conversion of the voluntary effort into a compulsory regulation would be destructive of its voluntary efforts. In this connection, the House of Representatives Committee on Appropriations in reporting, on May 15, 1984, the Energy and Water Development Appropriation Bill, 1985, Report 98-755 to accompany H.R. 5653, at page 145, submitted the following view:

Reactor Training and Operations

The Committee is concerned that the NRC may inadvertently undermine the initiatives of the Institute of Nuclear Power Operations. The NRC should carefully review its activities

in the area of reactor operations and training so as not to prevent the licenses [sic] from making needed improvements. The Committee agrees with the President's Kemeny Report that prescriptive and voluminous regulations can serve as a negative factor in nuclear safety. Therefore, the Committee urges the Commission in complying with § 306 of the NWPA to develop alternatives to prescriptive regulations. The Committee does not agree with the Commission that the proposed training rule as currently formulated achieves this purpose.

Before analyzing § 306, the Commission wishes to explain how it views a policy statement and its uses. The Administrative Procedure Act (5 U.S.C. §§ 552(A)(1)(D) and (A)(2)(B)) requires an agency to publish its statements of general policy or interpretations of general applicability in the *Federal Register* for guidance to the public. One of the recommendations of the Administrative Conference of the United States is that an agency should articulate its policies through published policy statements. 1 C.F.R. § 305.71-3 (Recommendation No. 71-3). The Administrative Conference explains that a policy statement is an agency's indication of how it will exercise discretion. 1 C.F.R. § 305.76-5 (Recommendation No. 76-5). *See also* 3 Mezines, Stein & Gruff, *Administrative Law* § 15.04 (1982). A policy statement in and of itself provides guidance only and does not carry regulatory force or statutory force. A person cannot be cited for not "complying" with a policy statement *per se*. A policy statement, however, may explain how an agency interprets a statute or rule. *See Pacific Gas & Electric Co. v. Federal Power Commission*, 506 F.2d 33, 38-39 (D.C. Cir. 1974). In such cases, the agency can enforce that statute or rule in the way it states it will in that statement.

Consequently, the Commission does not rely on policy statements in lieu of regulatory requirements imposed either by rule or by license condition. The Commission has not taken enforcement action against a licensee for failure to follow the guidance given in a policy statement because policy statements are not enforceable as such. If an unsafe situation arose at a licensed facility with respect to a matter covered by a policy statement, however, the Commission could issue an order under its general Atomic Energy Act authority. Such an order could require the licensee to take remedial action and impose appropriate license conditions governing matters otherwise covered by the policy statement.

NRC would not necessarily need a specific event to trigger action related to the policy statement. It remains NRC's continued responsibility, as noted in both policy statements, to independently evaluate applicant development and licensee implementation of NRC's guidance to ensure that desired results are achieved. Nothing in any of NRC's policy statements limits NRC's authority or responsibility to follow up on operational events or its enforcement authority when regulatory requirements are not met. For instance, in the Policy Statement on Training and Qualification, the Commission explained that it will evaluate the effectiveness of utility programs by, among other ways, direct inspections

conducted by NRC's appraisal teams, resident inspectors, and inspectors from its Regional Offices. It also stated that violations of any applicable reporting requirement or instances that potentially affect plant safety will be subject to NRC's enforcement process. If the Commission suspected that a licensee were not developing or implementing adequate programs along the lines indicated in the Policy Statement, it could inspect the licensee and require information under 10 C.F.R. § 50.54(f) to determine whether the license should be modified, suspended, or revoked. Thereafter, if the Commission found that the licensee's program were indeed inadequate, it could make, for instance, a public health and safety determination under which it could order modification of the license by inserting the elements of the Policy Statement as a condition of continued operation.

Industry urged the Commission to allow the industry to demonstrate its initiative in the area of management and human resources. The Commission stated in its Policy Statement on Training and Qualification that it would evaluate its own guidance and the industry's response for a fairly short period, i.e., 2 years from its effective date. The Commission believes that it has not lost any time in the industry initiatives and that, in fact, it has gained much that it could not have achieved using its own resources. The Commission also believes that the industry could achieve more, and could achieve it better and faster, if NRC allowed it to implement its own initiative with NRC guidelines rather than through a rule imposing upon it limited, minimum standards.

The Commission believes that Congress directed NRC in § 306 to establish instructional requirements for several categories of personnel either through a regulation *or* through regulatory guidance, leaving it to NRC's discretion to decide which regulatory approach to adopt. Section 306 in effect provides that the NRC is "directed to promulgate regulations, or other appropriate Commission regulatory guidance," which "shall establish . . . instructional requirements for civilian nuclear powerplant licensee personnel training programs."

The Commission believes that "guidance" or "regulatory guidance" do not necessarily mean a mandatory, enforceable regulation, order, or license condition.

The Commission decided to withhold action on promulgating new training and qualifications regulations during a short evaluation period. During this period, NRC has been evaluating the results of the accreditation program to determine whether the industry's efforts ensure training and qualifications that meet or exceed the elements included in the Policy Statement and other Commission guidance documents. The Commission has not, however, stopped with issuance of the Policy Statement; it is in the process of issuing a revision to 10 C.F.R. Part 55 and to the three regulatory guides described above.

The Commission believes that the industry's efforts to date have been productive. NRC has increased confidence in the training process as a consequence

of the systematic analysis of job relevance of training and improved management of training due to improved job relevance and a better audit trail for the training program. The Systems Approach to Training appears to be working in the nuclear power industry. This training method is currently used in technological environments where human performance and safety concerns are very important. Noteworthy examples include the military, the NASA space program, and the field of aviation. NRC determined that its approach was consistent with that being used by INPO in training program evaluations for its accreditation process and, therefore, decided not to promulgate a rule but to issue the Policy Statement and evaluate for a short while INPO's accreditation process.

To further assess license candidates in a realistic job setting, NRC revised 10 C.F.R. Part 55 to require that operating tests be conducted not only in oral walkthroughs of the plant and in its control room but also in a simulation facility. This facility, which may include the plant, a plant-referenced simulator, or another simulation device, alone or in combination, is used to demonstrate a candidate's understanding of and ability to perform essential job tasks. The Policy Statement and NRC's revision to Part 55 enhance the NRC licensing examination process. The facility licensee's systematic analysis of the job and learning objectives phases of the Systems Approach to Training are used by NRC as a basis for developing examinations. License candidate evaluations are based, therefore, in part, upon performance standards and evaluation criteria delineated in the objectives. Once licensed, individuals participate in requalification programs that also are based in part on learning objectives derived from the Systems Approach to Training. NRC's requalification program evaluations use information developed by its licensees under the Policy Statement.

The Commission is also considering a rule on degree requirements for operating staff at nuclear power plants. Though the rule is not addressed by § 306, it is responsive to the concern about personnel qualification. In a related activity, the Commission published a Policy Statement on Engineering Expertise on Shift to ensure that adequate engineering and accident assessment expertise is provided to the shift supervisor (50 Fed. Reg. 43,621 (Oct. 28, 1985)).

CONCLUSION

In conclusion, the Commission believes that the industry's efforts to date have been productive. NRC has increased confidence in the industry's training process, because the industry is systematically analyzing job performance requirements. The Systems Approach to Training appears to be working in the nuclear power industry. This training method is currently used in technological environments where human performance and safety concerns are very important. Noteworthy examples include the military, the NASA space program, and

the field of aviation. NRC determined that its approach was consistent with that being used by INPO in training program evaluations for its accreditation process and, therefore, decided not to promulgate a rule but to issue the Policy Statement on Training and Qualification and evaluate for a short while INPO's accreditation process.

The Commission agrees that a highly prescriptive rule would have dampened the industry's enthusiasm and creativity and thereby set back its training efforts. It believes that, in light of the language of § 306, it had a choice to choose the better of two means to achieve the statutory goal and that it has been responsive to Congress' intentions. Accordingly, the Commission denies the petition.

For the Nuclear Regulatory Commission

Victor Stello, Jr.
Executive Director for Operations

Dated at Bethesda, Maryland,
this 14th day of January 1987.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Alan S. Rosenthal, Chairman
Gary J. Edles
Howard A. Wilber

In the Matter of

Docket Nos. 50-443-OL
50-444-OL
(Offsite Emergency Planning)

PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE, *et al.*
(Seabrook Station, Units 1 and 2)

February 26, 1987

The Appeal Board denies intervenors' motion for interlocutory review of a Licensing Board's scheduling order concerning the adjudication of applicant's petition for a waiver of the Commission's regulation requiring a 10-mile plume Emergency Planning Zone for the Seabrook plant.

RULES OF PRACTICE: INTERLOCUTORY APPEALS

Except as provided in the footnote to 10 C.F.R 2.758, the terms of that section do not alter the Appeal Board's usual appellate authority, including the authority to direct certification of licensing board rulings. 10 C.F.R. 2.785.

RULES OF PRACTICE: AUTHORITY OF APPEAL BOARD

10 C.F.R. 2.758 does not expressly address what role, if any, an appeal board may play while a licensing board has a section 2.758 petition before it

for consideration. But 10 C.F.R. 2.785 confers on the Appeal Boards all the authority that the Commission would possess in operating license proceedings.

RULES OF PRACTICE: AUTHORITY OF APPEAL BOARD

If the Commission desires to preclude or to limit the exercise of the Appeal Board's authority in a particular proceeding, it must — and does — say so expressly. *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), ALAB-787, 20 NRC 1097, 1100 (1984). *See also Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit No. 1), ALAB-685, 16 NRC 449, 451-52 (1982).

APPEAL BOARD: JURISDICTION

Section 2.758 reveals no Commission intent to override other elements of the Appeal Board's customary appellate jurisdiction, including its authority to direct the certification of licensing board rulings in proper circumstances. *See Carolina Power and Light Co.* (Shearon Harris Nuclear Power Plant), ALAB-837, 23 NRC 525, 546-48 (1986).

RULES OF PRACTICE: INTERLOCUTORY APPEALS

The Commission's Rules of Practice prohibit interlocutory appeals from Licensing Board scheduling rulings. Thus, a motion seeking the Appeal Board's intercession must satisfy the requirement for directed certification. ALAB-858, 25 NRC 17, 20-21 (1987).

RULES OF PRACTICE: INTERLOCUTORY APPEALS

In order to obtain discretionary interlocutory review of a Licensing Board's scheduling order, a complaining party must demonstrate that the challenged schedule deprives it of procedural due process. ALAB-858, 25 NRC at 21.

RULES OF PRACTICE: INTERLOCUTORY APPEALS

Allegations of concerns that are premature do not constitute an immediate infringement of procedural rights and do not warrant an Appeal Board's interlocutory intrusion into the Licensing Board's conduct of a proceeding.

APPEARANCES

Andrea Ferster, Washington, D.C., for intervenors New England Coalition on Nuclear Pollution, *et al.*

Thomas G. Dignan, Jr., R.K. Gad, III, Kathryn A. Selleck, and **Deborah S. Steenland,** Boston, Massachusetts, for the applicants Public Service Company of New Hampshire, *et al.*

Robert G. Perlis for the Nuclear Regulatory Commission staff.

MEMORANDUM AND ORDER

Section 2.758 of 10 C.F.R. prohibits challenges to Commission regulations in adjudicatory licensing proceedings, except upon petition for a waiver or exception showing special circumstances — i.e., that application of the regulation would not serve the purpose for which it was adopted. Such petitions are reviewed in the first instance by the licensing board presiding over the proceeding. If the board determines that the petitioning party has not made out a prima facie showing that the rule or regulation should be waived or an exception granted, it must deny the petition. The regulation then continues to apply to the proceeding. If, on the other hand, the licensing board determines that the petitioning party has made the requisite prima facie showing, it must certify that determination directly to the Commission itself.

On December 18, 1986, the applicants in this operating license proceeding filed a petition pursuant to 10 C.F.R. 2.758. The petition requests an exception to or a waiver of the Commission's regulations that require that the plume exposure pathway emergency planning zone (EPZ) for a nuclear power plant consist of an area approximately 10 miles in radius.[1] The applicants propose that the EPZ for the Seabrook Station be reduced to a one-mile radius. The two-volume petition and attachments include several analyses, numerous affidavits, and an extensive legal memorandum purporting to demonstrate that special circumstances at Seabrook, including the existence of "a double containment," obviate the need for a 10-mile EPZ.

A few days after the filing of the petition, the Licensing Board directed that any responses to it be submitted by January 27, 1987.[2] Several parties, including the NRC staff, filed requests for reconsideration of the Board's scheduling

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[1] *See* 10 C.F.R. 50.47(c)(2).

[2] Licensing Board Memorandum and Order of December 23, 1986 (unpublished).

order.[3] In an unpublished memorandum and order issued on January 7, 1987, the Board denied those requests. In that same order, the Board also put forth its understanding of what satisfies the section 2.758 requirement that a petitioning party make out a prima facie showing that the application of the rule or regulation in question would not serve the purposes for which it was adopted. Finally, the Board indicated its intent to determine if such prima facie showing had been made by reference to only the petition and the responses.[4]

The intervenors, New England Coalition on Nuclear Pollution, Commonwealth of Massachusetts, Town of Hampton, and Seacoast Anti-Pollution League, have filed a motion requesting that we review the Board's January 7 rulings. They ask us to establish a new schedule for resolution of the issues presented by the section 2.758 petition so as to provide for discovery and the presentation of testimony, and to correct the Licensing Board's erroneous construction of the "prima facie" requirement. In the alternative, the intervenors ask us to certify to the Commission the question of whether interested parties are entitled to an adjudicatory hearing on the petition. The applicants and the NRC staff oppose the requests.

Because the intervenors' motion does not satisfy the standards for interlocutory review of licensing board rulings, we deny it in all respects.

A. We are faced at the threshold with the applicants' assertion that we lack authority to entertain the motion. In this regard, they claim that an appeal board has no appellate jurisdiction at this juncture over the processing by a licensing board of a petition pursuant to 10 C.F.R. 2.758 for a waiver of or exception to the Commission's regulations. The applicants contend that the regulatory scheme embodied in section 2.758 establishes specialized procedures for handling petitions for a waiver of Commission rules and contemplates only two possibilities — denial of the petition by the Licensing Board, thus bringing the matter to a close, or certification to the Commission of a Board finding that a prima facie showing has been made. In either case, so the argument

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[3] The staff, for example, indicated that it could not

> adequately evaluate the complex technical materials on which Applicants' petition is based and take a position on whether the Applicants' petition makes a *prima facie* showing that an exception or waiver to the rules and regulations should be granted to permit [an EPZ] of one mile . . . . The Staff cannot even set out a schedule for when it will be able to complete its technical review which would enable it to take an informed position on whether the petition makes a *prima facie* case for an exception or a waiver of the regulations.

NRC Staff's Motion for Reconsideration of Licensing Board Order of December 23, 1986 (January 5, 1987) at 3.

[4] The Board has since authorized parties to supplement their initial responses by no later than February 27. *See* Licensing Board Memorandum and Order of February 3, 1987 (unpublished). It has also recently observed: "The Board has on several occasions stated that we understand and accept that final complete technical responses to Applicants' 10 C.F.R. 2.758 petition may require additional time up to twelve months. In recognition of that fact, we have provided the opportunity for the parties to give us any additional responses, including any technical responses, which they may have available by February 27, 1987." Licensing Board Memorandum and Order of February 19, 1987 at 1-2 (unpublished).

goes, the Appeal Board has no role to play.[5] The NRC staff, however, thinks otherwise. Noting that the issue "seems to be one of first impression,"[6] it maintains that the terms of the section do not alter our usual appellate authority, including our authority to direct certification of licensing board rulings, except in one respect; i.e., footnote 7 directs the Licensing Board to certify an affirmative finding regarding the prima facie showing "to the Commission notwithstanding the provisions of § 2.785."[7] We agree with the staff.

We acknowledge that section 2.758 does not expressly address what role, if any, an appeal board may play while a licensing board has a section 2.758 petition before it for consideration. But 10 C.F.R. 2.785 confers on us all the authority that the Commission would possess in operating license proceedings.[8] And we have held — without any Commission suggestion to the contrary — that our authority is constrained only when the Commission explicitly directs. As we indicated in a *Shoreham* opinion,

> if the Commission desires to preclude or to limit the exercise of . . . [our] authority in a particular . . . proceeding, it must — and does — say so expressly.[9]

The only express limitation on our authority in connection with petitions filed pursuant to section 2.758 is the requirement in footnote 7 that the Licensing Board's determination that a prima facie showing has been established be certified directly to the Commission notwithstanding the provisions of 10 C.F.R. 2.785. Hence, section 2.758 reveals no Commission intent to override other elements of our customary appellate jurisdiction, including our authority to direct the certification of licensing board rulings in proper circumstances.[10]

Given our determination that we possess the necessary authority to entertain the motion, we now turn to a consideration of whether we should exercise that authority.

B. As we recently observed in this proceeding, the Commission's Rules of Practice prohibit interlocutory appeals from, among other things, licensing

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[5] Applicants' Response to Intervenors' Joint Appeal (January 27, 1987) at 5-6 (hereafter, Applicants' Response).

[6] NRC Staff Response to Joint Appeal (February 5, 1987) at 5 (hereafter, NRC Staff Response).

[7] *Id.* at 6-7. Section 2.785 of 10 C.F.R. authorizes the establishment of appeal boards to perform the functions that would otherwise be performed by the Commission itself in licensing proceedings.

[8] The Commission has recently expanded the authority of the appeal boards to embrace all formal adjudications. *See* 52 Fed. Reg. 2993 (1987). This change in the Rules of Practice has no bearing on the issues before us.

[9] *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), ALAB-787, 20 NRC 1097, 1100 (1984). *See also Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit No. 1), ALAB-685, 16 NRC 449, 451-52 (1982).

[10] As the applicants concede, we routinely play our normal appellate role at the end of a proceeding and review licensing board determinations that a prima facie showing has not been made out. *See* Applicants' Response at 7, *citing Commonwealth Edison Co.* (Byron Nuclear Power Station, Units 1 and 2), ALAB-793, 20 NRC 1591, 1614-16 (1984). *See also Carolina Power and Light Co.* (Shearon Harris Nuclear Power Plant), ALAB-837, 23 NRC 525, 546-48 (1986).

board scheduling rulings.[11] Thus, a motion seeking our intercession with respect to such a ruling must satisfy the criteria for directed certification.[12] In order to obtain discretionary interlocutory review, a complaining party must demonstrate that the challenged schedule deprives it of procedural due process.[13]

The gist of the intervenors' argument is that the one month allowed for responses to the applicants' petition by the Licensing Board's schedule is wholly insufficient to permit an adequate reply to the host of issues surrounding the applicants' endeavor to establish a one-mile EPZ. The intervenors assume, in this regard, that they may have no other opportunity to challenge the petition and assert that they are entitled to a full evidentiary hearing on the merits of the petition. They contend:

> If no adjudicatory hearing is granted, then the inadequate and incomplete opposing affidavits — which is all the Licensing Board's schedule permits — may comprise the sole record on which the Commission must base such weighty and far-reaching questions as whether the size of the Seabrook Emergency Planning Zone could be reduced by a factor of ten.[14]

The intervenors also allege that the infringement of their rights is compounded by the Licensing Board's erroneous construction of the requirement that the applicants establish a prima facie showing in support of their petition. The Licensing Board observed:

> Although *prima facie* is not defined in 10 C.F.R. 2.758, one Licensing Board has found it "reasonable to equate *'prima facie'* showing with 'substantial' showing." *Carolina Power & Light Company and North Carolina Eastern Municipal Power Agency* (Shearon Harris Nuclear Power Plant), LBP-85-5, 21 NRC 410 (1985). We believe, however, *prima facie* to mean evidence of a sufficient nature that would cause reasonable minds to inquire further.[15]

In the intervenors' view, the Board has established an impermissibly low threshold for further Commission review of the merits of the petition.[16] In sum, the intervenors are concerned that there will be little or no screening of the

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[11] ALAB-858, 25 NRC 17, 20-21 (1987).

[12] *Ibid. See generally* 10 C.F.R. 2.718(i), 2.785(b)(1); *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-271, 1 NRC 478, 482-83 (1975). As the applicants point out, the intervenors purport to seek appellate relief pursuant to 10 C.F.R. 2.714a. A party may appeal pursuant to that section if the Licensing Board's determination denies a request for a hearing in its entirety. We agree with the applicants that section 2.714a is inapplicable to the request before us. The intervenors nevertheless assert that their request for interlocutory review also satisfies the requirements for directed certification.

[13] ALAB-858, 25 NRC at 21.

[14] Intervenors' Joint Appeal of the Licensing Board's Supplemental Memorandum and Order of January 7, 1987 (January 16, 1987) at 11 (hereafter, Intervenors' Appeal).

[15] Licensing Board Memorandum and Order of January 7, 1987 (unpublished) at 3 n.*. The Licensing Board has more recently clarified its original determination. It noted: "It was our intent to indicate to the parties that we do not view the *prima facie* standard as one requiring either the highest standard of evidentiary proof which the substantial showing approaches, or the minimum evidentiary showing at the other end of the scale." *See* Licensing Board Memorandum and Order of February 12, 1987 (unpublished) at 2.

[16] Intervenors' Appeal at 7.

petition by the Licensing Board and that the Commission may thereafter simply grant the petition on the merits without further procedures.

Were it clear that the intervenors' scenario will materialize, we might agree that their procedural rights have been impermissibly compromised. But they are prepared to accept the proposition that the Commission may properly determine at the threshold whether a prima facie showing has been established, as long as it thereafter orders an evidentiary hearing on the merits of the petition.[17] That being so, we find that the intervenors' concerns are premature and do not constitute an immediate infringement of procedural rights warranting our interlocutory intrusion into the Licensing Board's conduct of the proceeding. We likewise find no compelling reason to certify to the Commission at this stage the issue of whether the intervenors are entitled to an adjudicatory hearing on the petition.

To begin with, the Licensing Board has yet to make its determination as to whether the applicants have made out a prima facie showing for grant of the petition. The Board may conclude that no such showing has been made — thus rendering moot all of the intervenors' concerns. We have routinely declined to exercise our directed certification authority where a party's concerns were premature.[18] There is no basis for treating the intervenors' request here any differently.

We appreciate that, in contrast to the usual case, we may be unable to afford relief even if the Licensing Board erroneously determines that the applicants have made out the requisite prima facie showing. Such a determination, after all, must be certified directly to the Commission for consideration. That factor does not prompt us to inject ourselves into the proceeding at this time. It is enough that a reasonable opportunity for relief will remain open. If, as the intervenors fear, the Board were to rely on an erroneous construction of the regulations or otherwise improperly determine that the applicants have established a prima facie showing, they may raise those matters with the Commission itself.[19]

Equally important, they may at that time also present their view that an evidentiary hearing is required before the petition may be granted on the merits. In this connection, there is no basis for assuming that the Commission will simply grant the applicants' petition without according the intervenors and others an appropriate opportunity to respond or to raise due process concerns. The regulations, after all, provide that "the Commission may direct

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[17] *Id.* at 11 n.8.

[18] *See, e.g.*, ALAB-858, 25 NRC at 21; *Philadelphia Electric Co.* (Limerick Generating Station, Unit 1), ALAB-833, 23 NRC 257, 261 (1986).

[19] We construe the Licensing Board's January 7, 1987, definition of "prima facie" as preliminary. As the applicants point out, and as the Licensing Board noted in its February 12 clarifying order, we dealt with the issue in *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-653, 14 NRC 55, 72 (1981), *attached to* CLI-82-19, 16 NRC 53 (1982).

such further proceedings as it deems appropriate to aid its determination,"[20] and the staff argues that "the Commission would need to order further proceedings before it could reach a final decision on the Applicants' petition."[21] In the circumstances, we cannot find at this juncture that the intervenors' procedural rights have been or necessarily will be infringed.[22] Thus, they have failed to show that interlocutory review is warranted.

The intervenors' motion is *denied*.
It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

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[20] 10 C.F.R. 2.758(d).
[21] NRC Staff Response at 12.
[22] We intimate no position on the intervenors' claim that conventional evidentiary hearings are the only permissible procedural avenue available.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Sheldon J. Wolfe, Chairman
Emmeth A. Luebke
Jerry Harbour

In the Matter of

Docket Nos. 50-443-OL-1
50-444-OL-1
(ASLBP No. 82-471-02 OL)
(Onsite Emergency Planning
and Safety Issues)

PUBLIC SERVICE COMPANY
OF NEW HAMPSHIRE, *et al.*
(Seabrook Station, Units 1
and 2)

February 6, 1987

The Licensing Board denies the Commonwealth of Massachusetts' motion requesting that the Board admit a late-filed contention, reopen the record in the onsite emergency planning phase of this proceeding, and either refrain from issuing any decision that might authorize the issuance of an operating license for operation not in excess of 5% rated power or, if deciding to authorize the issuance of a low-power license, to condition the issuance of such a license upon the Applicants' compliance with 10 C.F.R. § 50.47(b)(5).

RULES OF PRACTICE: NONTIMELY SUBMISSION OF CONTENTIONS

In order to determine whether to grant a motion to admit a late-filed contention, the Board must consider the five factors set forth in 10 C.F.R.

§ 2.714(a)(1). With respect to the first factor, the movant must show good cause for failing to file its contention in a timely manner.

RULES OF PRACTICE: NONTIMELY SUBMISSION OF CONTENTIONS

Even if favorable to the movant, the second and fourth factors in § 2.714(a)(1) are accorded less weight than factors one, three, and five. *Commonwealth Edison Co.* (Braidwood Nuclear Power Station, Units 1 and 2), CLI-86-8, 23 NRC 241, 245 (1986); *South Carolina Electric and Gas Co.* (Virgil C. Summer Nuclear Station, Unit 1), ALAB-642, 13 NRC 881, 895 (1981).

RULES OF PRACTICE: NONTIMELY SUBMISSION OF CONTENTIONS

With respect to the third factor, the movant must identify its prospective witnesses and summarize their proposed expert testimony. *Braidwood, supra*, 23 NRC at 246-47.

RULES OF PRACTICE: NONTIMELY SUBMISSION OF CONTENTIONS

With respect to the fifth factor, the movant must show that the admission of the late-filed contention would not broaden the issues and delay the proceeding.

LICENSING BOARDS: EXPEDITION AND FAIRNESS

The Commission has directed licensing boards to see to it that the process moves along at an expeditious pace, consistent with the demands of fairness. *Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452, 453 (1981)

RULES OF PRACTICE: ADMISSIBILITY OF CONTENTIONS

Pursuant to § 2.714(a)(1), the Board may only determine whether or not to admit the late-filed contention, but may not at that time summarily dispose of the contention in light of affidavits attached to opposing responses.

RULES OF PRACTICE: NONTIMELY SUBMISSION OF CONTENTIONS

It is well established in the Commission's case law that the first factor is a crucial element in the analysis of whether a late-filed contention should be admitted. If the proponent of a contention fails to satisfy this element of the test, it must make a "compelling" showing with respect to the other four factors. *Braidwood, supra*, 23 NRC at 244; *Cincinnati Gas and Electric Co.* (William H. Zimmer Nuclear Power Station, Unit 1), LBP-83-58, 18 NRC 640, 663 (1983); *Mississippi Power and Light Co.* (Grand Gulf Nuclear Station, Units 1 and 2), ALAB-704, 16 NRC 1725 (1982).

RULES OF PRACTICE: REOPENING OF CLOSED RECORD

A motion to reopen a closed evidentiary record is governed by 10 C.F.R. § 2.734.

MEMORANDUM AND ORDER
(Denying Mass.'s Motion of January 12, 1987)

Memorandum

On January 12, 1987, the Commonwealth of Massachusetts (Mass.) filed a motion requesting that the Board admit a late-filed contention,[1] reopen the record in the onsite emergency planning phase of this proceeding, and refrain from issuing any decision that might authorize the issuance of an operating license for operation not in excess of 5% rated power. With respect to the last request, in the alternative, Mass. requests that any decision authorizing the issuance of a low-power license condition the issuance of such a license upon Applicants' compliance with 10 C.F.R. § 50.47(b)(5).[2]

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[1] The late-filed contention asserts that:

> Applicants have failed to comply with the provisions of 10 C.F.R. § 50.47(b)(5) and Part 50, Appendix E, iv, D.1 and 3, because no administrative or physical means have been established to provide early notification and clear instruction to the populace within the plume exposure pathway located within the Town of Merrimac, Massachusetts.

[2] 10 C.F.R. § 50.47 provides in pertinent part:

> (b) The onsite and, except as provided in paragraph (d) of this section, offsite emergency response plans for nuclear power reactors must meet the following standards:
>
> * * *
>
> (5) Procedures have been established for notification, by the licensee, of State and local response organizations and for notification of emergency personnel by all organizations; the contents of initial and *(Continued)*

On January 12, 1987, Applicants responded and on January 29, the Staff responded.

DISCUSSION

I. Re the Request to Admit a Late-Filed Contention

In a motion filed on June 17, 1986, Applicants, in part, had requested that our Partial Initial Decision should authorize operation of Seabrook Unit 1 up to and including 5% of rated power. Mass., including certain intervenors, filed responses in opposition. Our Memorandum and Order of July 25, 1986, LBP-86-24, 24 NRC 132, granted this part of Applicants' motion to the extent that we stated that our Partial Initial Decision would decide whether or not to issue the operating license for operation up to and including 5% of rated power. The Board closed the record on October 3, 1986,[3] the parties have filed proposed findings of fact and conclusions of law, and the Board is preparing its Partial Initial Decision.

Mass. asserts that Applicants' emergency response plans provide that the Town of Merrimac would be notified of emergencies by means of three alert and notification sirens to be situated in the town. It alleges that, during the week of January 5, 1987, via an affidavit executed by the Chairman of the Board of Selectmen of the Town of Merrimac, it learned that the sirens are not operational because they have not been hooked up electrically. The affidavit reflects that on May 22, 1986, the town told its wiring inspector not to issue a wiring permit. The affidavit also reflects that only two of the sirens have been erected but does not state when the affiant first became aware that the third siren had not been installed. However, the affidavit reflects that, on June 2, 1986, the Board of Selectmen revoked its previous action to allow Applicants to install and operate sirens and that such revocation included immediate cessation of all work on siren installations and operation.

In order to determine whether to grant Mass.'s motion to admit the late-filed contention, we must consider the five factors set forth in 10 C.F.R. § 2.714(a)(1).[4]

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followup messages to response organizations and the public has been established; and means to provide early notification and clear instruction to the populace within the plume exposure pathway Emergency Planning Zone have been established.

[3] During the hearing, the Board received evidence on onsite issues in controversy which involved the classification scheme and emergency action levels, the safety parameter display system, and the environmental qualification of electrical equipment.

[4] The five factors are:

(i) Good cause, if any, for failure to file on time.

(ii) The availability of other means whereby the petitioner's interest will be protected.

(Continued)

With respect to the first factor, Mass. urges that it could not have filed earlier because it could not have known or reasonably asserted earlier that Applicants' emergency response plans for notifying the Town of Merrimac would not be implemented. However, as of May 22, 1986, Mass. knew or should have known that the town had refused to permit the electrical hooking up of the sirens. Moreover, as of June 2, 1986, it knew or should have known that the town had ordered the immediate cessation of all work on the sirens. We agree with the Applicants that Mass. has not shown good cause for failing to file its contention in a timely manner.

With respect to the second and fourth factors, we conclude, and Applicants concede, that there are no means available to Mass. whereby it can ensure that its interest will be protected other than by the filing of this contention, and that Mass.'s interest will not be represented by existing parties since no other party had proposed such a contention before the Board. However, these two factors are accorded less weight than factors one, three, and five. *Commonwealth Edison Co.* (Braidwood Nuclear Power Station, Units 1 and 2), CLI-86-8, 23 NRC 241, 245 (1986); *South Carolina Electric and Gas Co.* (Virgil C. Summer Nuclear Station, Unit 1), ALAB-642, 13 NRC 881, 895 (1981).

With respect to the third factor, we agree with the Applicants that Mass. has failed to demonstrate that it has special expertise on the subjects that it seeks to raise. Mass. states that it can call the Chairman of the Board of Selectmen as a witness, but, after reading his affidavit, at most we conclude that he could testify only as a fact witness. Although it should have done so, Mass. did not identify other prospective witnesses and summarize their proposed expert testimony. Thus, this third factor cannot be weighed in favor of Mass. *Braidwood, supra*, 23 NRC at 246-47.

Finally, as to the fifth factor, we agree with the Applicants that the admission of the late-filed contention would broaden the issues and delay the proceeding which is *sub judice*. Indeed, Mass. "acknowledges that the admission of this contention at this very late date after the record has been closed in this [onsite] portion of these licensing proceedings will necessarily broaden and cause delay in the proceedings." Mass., however, states that "the factual issues raised by this contention could easily be decided by affidavit and therefore the entire issue could be briefed and resolved within a matter of just a couple of weeks."[5] We

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(iii) The extent to which the petitioner's participation may reasonably be expected to assist in developing a sound record.

(iv) The extent to which the petitioner's interest will be represented by existing parties.

(v) The extent to which the petitioner's participation will broaden the issue or delay the proceeding.

[5] In passing, we note that the Applicants and the Staff leap even farther than Mass. proposes. The Applicants urge that, should the Board admit the contention, the Board should grant summary disposition of the contention in light of the attached affidavit of its radiological assessment manger. The Staff did not deem it necessary to brief whether Mass. had satisfied the standards for late-filed contentions — rather, in light of the attached affidavit of its senior resident engineer, the Staff urged that it was clear that the contention's factual premise was fundamentally in error

(Continued)

are not persuaded by Mass.'s conclusional statement concerning the short turnaround time for the resolution of this matter. Mass. does not tell us whether discovery by any of the parties will be needed nor does it set forth a schedule for the filing of briefs and replies which all parties have agreed could be met. The Commission has directed licensing boards to see to it that the process moves along at an expeditious pace, consistent with the demands of fairness. *Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452, 453 (1981). We must comply with that direction.

It is well established in our case law that the first factor is a crucial element in the analysis of whether a late-filed contention should be admitted. If the proponent of a contention fails to satisfy this element of the test, it must make a "compelling" showing with respect to the other four factors. *Braidwood, supra*, 23 NRC at 244; *Cincinnati Gas and Electric Co.* (William H. Zimmer Nuclear Power Station, Unit 1), LBP-83-58, 18 NRC 640, 663 (1983); *Mississippi Power and Light Co.* (Grand Gulf Nuclear Station, Units 1 and 2), ALAB-704, 16 NRC 1725 (1982). Mass. did not make the "compelling" showing on factors three and five that was required to overcome its failure to demonstrate good cause, under the first factor, for its failure to file on time.

II. Re the Request to Reopen the Record

A motion to reopen a closed evidentiary record is governed by 10 C.F.R. § 2.734.[6] 51 Fed. Reg. 19,535, 19,539 (1986). It is obvious from our discussion above that Mass.'s motion to reopen, which relates to a contention not previously in controversy, does not satisfy the requirements for nontimely contentions in § 2.714(a)(1)(i-v). Further, while in our discretion we could consider an exceptionally grave issue even though the motion to reopen was untimely, with respect to this narrow exception in § 2.734(a)(1), the Commission, in

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and thus that the contention must be rejected. Applicants and the Staff assert that, as established in the affidavits, (1) the two sirens erected in the town have been equipped with batteries and have operated and will operate under a procedure whereby fresh batteries are put in the sirens every 2 weeks, and that (2) the third siren is not necessary because a study by Applicants' consultant confirms that the two battery-operated sirens can produce noise levels of at least 10 decibels above normal which meets the requirements of NUREG-0654. Pursuant to § 2.714(a)(1), we may only determine whether or not to admit the late-filed contention.

[6] Section 2.734 provides in pertinent part:

> (a) A motion to reopen a closed record to consider additional evidence will not be granted unless the following criteria are satisfied:
>
> (1) The motion must be timely, except that an exceptionally grave issue may be considered in the discretion of the presiding officer even if untimely presented.
>
> (2) The motion must address a significant safety or environmental issue.
>
> (3) The motion must demonstrate that a materially different result would be or would have been likely had the newly proffered evidence been considered initially.
>
> * * *
>
> (d) A motion to reopen which relates to a contention not previously in controversy among the parties must also satisfy the requirements for nontimely contentions in § 2.714(a)(1)(i-v).

its Analysis of Public Comment, stated that "[i]t must be understood that the Commission anticipates that this exception will be granted rarely and only in truly extraordinary circumstances." The circumstances here do not qualify as being "truly extraordinary" since it was the Town of Merrimac itself that caused them by being obdurate and obstructive in refusing to allow the installation of the third siren and in not permitting the electrical hookup of the sirens. Thus, the first criterion for reopening a record has not been met.

We also conclude that the second and third criteria have not been satisfied. While note 5, *supra*, indicates that we would not either admit the late-filed contention and summarily dispose of it or sim, ' reject it as being fundamentally in error, after reviewing the Staff's and t.e Applicants' affidavits for the purpose of determining whether the motion to reopen should be granted, we have decided that a significant safety issue is not involved and that a materially different result would not be or would not have been likely had the newly proffered evidence been considered initially. The Staff's affidavit, confirming that which is stated in Applicants' affidavit, satisfies us that the Staff finds Applicants' schedule acceptable in requiring the replacement of batteries in and the testing of the two sirens every 2 weeks. The Staff's affidavit also satisfies us that the noise levels of the two sirens meet regulatory requirements and that the adequacy of the siren coverage will be routinely examined as part of the emergency exercise held before full-power licensing.

III. Re the Request That the Board Refrain from Issuing a Low-Power License

In light of our rulings under Parts I and II, above, we deny the request that we refrain from issuing a decision that might authorize the issuance of an operating license for operation not in excess of 5% of rated power, and we deny the alternative request that any decision authorizing the issuance of a low-power license condition the issuance of such a license upon Applicants' compliance with § 50.47(b)(5).

Order

For the foregoing reasons, the Mass. motion of January 12, 1987, is denied. It is so ORDERED.

THE ATOMIC SAFETY AND
LICENSING BOARD

Sheldon J. Wolfe, Chairman
ADMINISTRATIVE JUDGE

Jerry Harbour
ADMINISTRATIVE JUDGE

Emmeth A. Luebke
ADMINISTRATIVE JUDGE

Dated at Bethesda, Maryland,
this 6th day of February 1987.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD PANEL

Before Administrative Judge:

Charles Bechhoefer

In the Matter of **Docket No. 30-12688-MLA**
(ASLBP No. 87-542-01-MLA)

RADIOLOGY ULTRASOUND NUCLEAR CONSULTANTS, P.A.
(Strontium-90 Applicator) **February 9, 1987**

In a materials license proceeding where the Commission authorized an informal hearing, the Presiding Officer denies an Applicant's appeal and affirms the NRC Staff's denial of a requested license amendment.

RULES OF PRACTICE: INFORMAL HEARINGS

The failure of a materials license applicant to respond to questions posed by a Presiding Officer in itself could serve as a valid basis for denying an applicant's appeal from a Staff determination to deny a license application.

RULES OF PRACTICE: INFORMAL HEARINGS

Although a hearing based solely on written submissions is the preferred method of proceeding in an informal proceeding, a Presiding Officer may also be granted discretion to entertain "oral presentations."

MATERIALS LICENSE UNDER PART 35: STANDARDS

A proposed therapeutic use of byproduct material under 10 C.F.R. Part 35 must also meet the criteria set forth by the Commission in a February 9, 1979 Statement of General Policy.

MATERIALS LICENSE UNDER PART 35: STANDARDS

Under the Commission's February 9, 1979 Statement of General Policy, a proposed therapeutic use of strontium-90 must be demonstrated to be "safe and effective." For nonroutine uses, the NRC Staff makes such a determination after consultation with the NRC Advisory Committee on the Medical Uses of Isotopes.

MATERIALS LICENSE UNDER PART 35: STANDARDS

Under the Commission's February 9, 1979 Statement of General Policy, the greater the potential hazard to a patient from byproduct material or its use by a physician, the more NRC may elect to circumscribe areas that might otherwise be regarded as within the discretion of a physician. The Policy Statement finds that the risk to patients from all therapeutic uses of radioactive drugs "is not low."

TECHNICAL ISSUE DISCUSSED

Therapeutic use of strontium-90 applicator.

DECISION

Radiology Ultrasound Nuclear Consultants, P.A. (RUNC or Applicant), a radiation-oncology clinic in Freehold, N.J., has applied for a license amendment to its existing byproduct materials license to permit it to use a strontium-90 (Sr^{90}) plaque applicator for the treatment of malignant skin lesions. The NRC Staff denied the license amendment, primarily on the grounds that RUNC had not demonstrated that the proposed treatment was "safe and effective," and that such an experimental therapy treatment should accordingly not be utilized in a private practice that lacks adequate technical support staff and peer review. RUNC has appealed. For reasons set forth below, I affirm the Staff's denial of the license amendment.

I. PROCEDURAL BACKGROUND

By letter to the Region I office of NRC, dated December 27, 1983, supplemented by a letter to the Washington, D.C. office of the NRC, dated March 6, 1984, RUNC applied to amend its existing byproduct materials license to permit the use of an Sr^{90} applicator for the treatment of skin lesions. RUNC's existing license (#29-06760-08) permits listed uses of specified quantities of certain byproduct material or reagent kits listed in 10 C.F.R. § 35.100, and storage of cobalt-60. (RUNC's President G. Anthony Doener, M.D., also has a byproduct materials license (#29-06760-07) permitting specified uses of cobalt-60.)[1]

On April 4, 1984, the NRC Staff (Region I) advised RUNC that the requested use of Sr^{90} was not currently listed among the uses approved in 10 C.F.R. Part 35, Group VI, and that, accordingly, the NRC needed additional information to evaluate the proposed use.[2] RUNC was also advised that, since the use proposed was not a scheduled usage, the request for a license would be submitted to the NRC's Advisory Committee on the [Medical] Uses of Isotopes (ACMUI) for an evaluation of the intended procedure. RUNC was also encouraged to submit supportive documentation, such as journals or publications. By letters dated May 3, 1984, and May 24, 1984, RUNC submitted additional information.

In June and July of 1984, RUNC's application and supporting documentation was submitted for review to four individuals whom the Staff described as members of the ACMUI.[3] These individuals were Melvin L. Griem, M.D., Vincent P. Collins, M.D., Edward W. Webster, Ph.D., and Peter R. Almond, Ph.D. Upon my subsequent inquiry, the Staff acknowledged that three of the individuals were members of the ACMUI but that one (Dr. Almond) was not (and is not) a member. Dr. Almond is a consultant to the NRC on brachytherapy, teletherapy, and medical physics matters.[4]

In response to the Staff's inquiry, Dr. Collins recommended that RUNC's application be granted, Dr. Webster recommended approval with some reservations, and Drs. Griem and Almond recommended disapproval.[5] Based on this mixed advice, the Staff, by letter dated November 27, 1984, sought further information concerning RUNC's proposed usage of the Sr^{90} applicator. RUNC responded by letter dated December 24, 1984, and provided further information by letters dated February 1, 1985, March 22, 1985, and April 24, 1985. On

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[1] Staff Aff. II, Attach. 3. In response to RUNC's filings and my inquiries, the Staff filed two affidavits of Dr. Joh E. Glenn, Chief of the Nuclear Materials Safety Section B, Region I, King of Prussia, PA. These affidavits, fil on December 16, 1986, and January 16, 1987, will be cited respectively as Staff Aff. I and Staff Aff. II.

[2] 10 C.F.R. § 35.100(f) Group VI (7) authorizes use of Sr^{90} applicators only "for treatment of superficial eye conditions." No other use of Sr^{90} is included in the several lists of approved uses set forth in 10 C.F.R. § 35.100. *See* further description of NRC regulatory requirements in Part II of this Decision, *infra*, pp. 83-86.

[3] Staff Aff. I, ¶ 4; transmittal letters dated 6/84 and 7/16/84.

[4] Staff Aff. II, ¶ 20.

[5] Staff Aff. I, ¶ 5.

March 4, 1985, the Staff submitted the application to the four doctors for a second review.[6] Dr. Collins again recommended approval of the application, but the three other doctors recommended disapproval.[7]

By letters dated August 29, 1985, and December 31, 1985, apparently after conversations with Region 1 personnel, RUNC provided still more information concerning its application. By letter from the Regional Administrator, Region I, dated July 25, 1986, the Staff, after reviewing the file, denied RUNC's application and advised RUNC of its right to request a hearing on the denial. RUNC did so on August 5, 1986. By Order dated October 9, 1986 (unpublished, corrected by Order dated October 21, 1986), the Commission authorized an informal hearing to consider RUNC's appeal, to be decided by a single Presiding Officer. The undersigned was appointed Presiding Officer on October 16, 1986.[8]

As set forth in my Memorandum and Order (Requesting Specification of Claims), dated October 23, 1986, LBP-86-35, 24 NRC 557, I requested the Staff to provide RUNC with certain background documents — i.e., copies of the appraisals performed by the four consultant doctors, each on two occasions — which were essential for RUNC to specify its reasons for disagreeing with the Staff's license denial.[9] I also described the manner in which RUNC should specify its claims and set time limits for RUNC to do so and the Staff to respond. At the same time, I issued a Notice of Hearing.[10] In that Notice, I invited members of the public to submit statements comparable to limited appearance statements permitted under 10 C.F.R. § 2.715(a). No one has sought to make such a statement.

The Staff provided RUNC with the appraisals on October 27, 1986. RUNC and the Staff submitted timely responses to LBP-86-35, dated November 4, 1986, and December 16, 1986, respectively. Having reviewed the responses, I determined that I needed further information and, by Memorandum and Order (Questions for Parties), dated December 23, 1986 (unpublished), I posed differing sets of questions to RUNC and the Staff. The Staff filed a timely response on January 16, 1987. RUNC has not responded to the questions directed to it. Although such failure in itself could serve as a valid basis for denying RUNC's appeal on procedural grounds, I have elected to treat the appeal on the merits. But I note that, if I were to have granted RUNC's appeal in whole or in

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[6] Transmittal Letter from Staff to Four Doctors, dated March 4, 1985, re: "Second Review of Application to Use a Strontium-90 Plaque to Treat Skin Cancer"; Staff. Aff. I, ¶ 8. It is not clear whether the consultants were provided the information submitted by RUNC on March 22, 1985, and April 24, 1985. The information in those letters, however, does not appear to be of the type that would have changed any of the opinions of the consultants.

[7] Staff Aff. I, ¶ 8. These recommendations were received by the Staff by August 1985 *Id.*

[8] 51 Fed. Reg. 37,684 (Oct. 23, 1986).

[9] The appraisals are hereafter cited as Collins Appraisals I and II, Gniem Appraisals I and II, Webster Appraisals I and II, and Almond Appraisals I and II.

[10] 51 Fed. Reg. 39,621 (Oct. 29, 1986).

part, I would have needed to be apprised of the information that I sought from RUNC.

II. REGULATORY BASIS FOR LICENSING

A. Under regulations currently in effect, which govern RUNC's application, a license for a private physician, or a clinic such as that operated by RUNC, to use an Sr^{90} plaque applicator would fall under 10 C.F.R. Part 35 ("Human Uses of Byproduct Material"). This Part includes a number of scheduled or routine uses of byproduct material (10 C.F.R. § 35.100, Groups I-VI), which can be licensed under 10 C.F.R. § 35.14 and which are subject to use requirements less stringent than those governing nonscheduled uses. However, the only scheduled use of Sr^{90} is "Strontium-90 sealed in an applicator for treatment of superficial eye conditions."[11] RUNC apparently does not wish to use the Sr^{90} applicator for this purpose.[12]

Nonscheduled uses of Sr^{90} by physicians can be licensed under either of two sections of Part 35. These sections read, in pertinent part:

> **§ 35.12 Specific licenses to individual physicians for human use of byproduct material.**
>
> (a) An application by an individual physician or groups of physicians for a specific license on Form NRC-313 for human use of byproduct material will be approved if:
>
> (1) The applicant satisfies the general requirements specified in § 30.32 of this chapter;
>
> (2) The application is for use in the applicant's practice in an office(s) outside a medical institution;
>
> (3) The applicant has access to a hospital possessing adequate facilities to hospitalize and monitor the applicant's radioactive patients whenever it is advisable; and
>
> (4) The applicant has extensive experience in the proposed use, the handling and administration of radioisotopes, and where applicable, the clinical management of radioactive patients. (The physician(s) shall furnish suitable evidence of such experience with the application. A statement from the medical isotope committee in the institution where the applicant acquired experience indicating its amount and nature, may be submitted as evidence of such experience.)
>
> * * *
>
> **§ 35.13 Specific licenses for human use of byproduct material in sealed sources.**
>
> An application for a specific license on Form NRC-313 for use of a sealed source for human use will be approved if:
>
> (a) The applicant satisfies the general requirements specified in § 30.33 of this chapter; and

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[11] 10 C.F.R. § 35.100(f)(7).

[12] Letters dated March 6, 1984, from RUNC to Washington, D.C. office of NRC, and August 19, 1985, from RUNC to Region I. *But cf.* Letter dated February 1, 1985, to Region I (discussing lesions "around the eye or involving the upper or lower eyelids"); and Letter dated March 22, 1985, from RUNC to Region I (patients with tumors in "delicate areas" such as "eyelids").

(b) The applicant or, if the application is made by an institution, the individual user: (1) Has specialized training in the therapeutic use of the radioactive device considered (teletherapy unit, beta applicator, etc.) or has experience equivalent to such training; and (2) is a physician.

The general requirements of 10 C.F.R. § 30.33, which are incorporated into both of the above sections, read in pertinent part as follows:

§ 30.33 General requirements for issuance of specific licenses.

(a) An application for a specific license will be approved if:

(1) The application is for a purpose authorized by the Act;

(2) The applicant's proposed equipment and facilities are adequate to protect health and minimize danger to life or property;

(3) The applicant is qualified by training and experience to use the material for the purpose requested in such manner as to protect health and minimize danger to life or property;

(4) The applicant satisfies any special requirements contained in Parts 32 through 35; and

* * *

(b) Upon a determination that an application meets the requirements of the Act, and the regulations of the Commission, the Commission will issue a specific license authorizing the possession and use of byproduct material (Form NRC 374, "Byproduct Material License").

B. On October 16, 1986, the NRC published in the *Federal Register* a new and fundamentally revised 10 C.F.R. Part 35, setting forth requirements and provisions for the medical use of byproduct material.[13] The revised regulations are to become effective April 1, 1987.

The revised Part 35 by its terminology eliminated the scheduled uses of byproduct material now set forth in 10 C.F.R. § 35.100. However, insofar as the single scheduled use of Sr^{90} is concerned it incorporates the identical use in § 35.400(e) ("Use of sources for brachyth... y"). The revised Part sets forth specific requirements for licensing of byproduct material for designated uses. The treatment for which RUNC seeks to use Sr^{90} is not one of those uses. Accordingly, under the new Part 35, RUNC could be eligible for its requested license only pursuant to the revised § 35.19 ("Specific exemptions"). Also, the new Part 35 incorporates the requirements of 10 C.F.R. Part 30. *See* new § 35.18(d). Therefore, as under current regulations, RUNC would be required to meet the general requirements of 10 C.F.R. § 30.33.[14]

If the new Part 35 had invoked less stringent standards for licensing than the current regulations, it would have applied such less stringent standards, using an effective date for any license of no earlier than April 1, 1987. The new Part 35, however, appears to impose more stringent standards than does the current Part

[13] 51 Fed. Reg. 36,932.

[14] *See* Staff Aff. II, ¶ 18.

35. I am accordingly giving RUNC the benefit of the less stringent regulations and considering its application under the currently effective Part 35.

C. In addition to the regulatory requirements of 10 C.F.R. Part 35, the use of an Sr^{90} applicator, as sought by RUNC, is governed by a Policy Statement issued by the Commission on February 9, 1979.[15] In summary the three-part Policy Statement provides:

> 1. The NRC will continue to regulate the medical uses of radioisotopes as necessary to provide for the radiation safety of workers and the general public.
>
> 2. The NRC will regulate the radiation safety of patients where justified by the risk to patients and where voluntary standards, or compliance with these standards, are inadequate.
>
> 3. The NRC will minimize intrusion into medical judgments affecting patients and into other areas traditionally considered to be a part of the practice of medicine.

The Commission went on to explain that "[t]he greater the potential hazard to a patient from the byproduct material or its use by a physician, the more NRC may elect to circumscribe areas that might otherwise be regarded as within the discretion of the physician." According to the Policy Statement, the NRC's goal is to ensure that radiation exposure to patients is "as low as is reasonably achievable, consistent with competent medical care and with minimal intrusion into medical judgments." To attain that goal, NRC does not exercise regulatory control in areas where there are adequate regulations by other federal or state agencies or "well administered professional standards." But the NRC also tries to achieve a "balance between adequate controls and avoidance of undue interference in medical judgments."

With respect to all therapeutic uses of radioactive drugs, such as that sought by RUNC, the NRC Policy Statement further finds that "the risk to patients is not low. The risk of tissue or organ damage (or even death) is inherent in the use of therapeutic levels of radioactive drugs." The Statement indicates that the NRC will restrict physician's uses of medical devices containing byproduct material (such as Sr^{90}) to "those procedures that NRC has determined (in consultation with its Advisory Committee on the Medical Uses of Isotopes [ACMUI]) to be *safe and effective*" (emphasis supplied). The Staff advises that it refers all proposed nonscheduled therapeutic uses of byproduct material to the ACMUI for a review of the safety and effectiveness of such use.[16]

D. In its October 9, 1986 Order authorizing the hearing requested by RUNC, the Commission determined that a formal, trial-type hearing was neither required by regulation (or statute) nor warranted under the facts of this proceeding. 4

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[15] "Regulation of the Medical Uses of Radioisotopes; Statement of General Policy," 44 Fed. Reg. 8242 (Feb. 9, 1979) (effective on publication). The Policy Statement remains applicable under the new Part 35 discussed above. 51 Fed. Reg. at 36,932, 36,933-34.

[16] Staff Aff. I, ¶¶ 3, 4; Staff Aff. II, ¶ 7.

that an informal hearing was sufficient. One attribute of such a hearing, which was mandated by the Commission Order, was the use of a single Presiding Officer (in contrast to the three-member Atomic Safety and Licensing Board traditionally used by the Commission in nuclear licensing proceedings). Another was the lack of any right of appeal (by a party) of the Presiding Officer's decision (although the Commission may review such decision *sua sponte*). Beyond that, the Presiding Officer was accorded great flexibility in the detailed procedures he could elect to use. The Commission appears to envisage a hearing based solely upon written submissions as the preferred method of proceeding, but it authorized the Presiding Officer to entertain "oral presentations" from the parties.

For that reason, I asked the parties for written submissions but also invited them to address whether oral presentations were necessary or desirable. RUNC's November 4, 1986 filing made no reference to an oral presentation; the Staff's December 16, 1986 response set forth its view that an oral presentation would serve "no useful purpose."

Had RUNC provided appropriate responses to the questions that I posed in my December 23, 1986 Memorandum and Order, there might have been unresolved factual questions for which an oral presentation would have been useful. Absent such responses, I find no subject areas where additional factual development of the record is called for. Hence, I am deciding this proceeding on the basis of the written material before me.

I turn now to the merits of RUNC's appeal.

III. OPINION AND FINDINGS

A. Description of Applicator and Intended Usage

The Sr^{90} applicator for which RUNC seeks a license is distributed by Amersham/Searle Corporation (Model SIC.L3, Product Code SIQ.23810). It has a diameter of 29.1 millimeters and an active area of 7 square centimeters; it is provided with a screw-in handle; and it produces beta radiation for local skin contact application.[17] The Sr^{90} source is a sealed source as defined by 10 C.F.R. § 30.4(r), having been so designated by NRC on January 23, 1986.[18] The

[17] Staff Aff. II, § 12; Letter from RUNC to NRC Region I office, dated May 24, 1984; *see also* Letters to NRC Washington, D.C. office, dated March 6, 1984, and to Region I, dated May 3, 1984.

[18] Staff Aff. II, § 12 and Attach. 1. At the time of RUNC's application, the source had been submitted by the manufacturer for approval and had been approved "in principle," subject to completion of paperwork. Memoranda from John E. Glenn, Reg. I, to ACMUI members, dated June 1984 and March 4, 1985, and from Patricia C. Vacca, Material Licensing Branch, NMSS, to Drs. Gnem, Collins, Webster, and Almond, dated July 16, 1984.

applicator would be used personally by G.A. Doener, M.D., President of RUNC, or under Dr. Doener's personal direct supervision.[19]

The details of the program intended to be followed by RUNC in using the Sr^{90} applicator are not entirely clear. In RUNC's March 6, 1984 application letter, Dr. Doener stated that the applicator "will be used for several patients who suffer from multiple (more than one hundred) skin cancers which require individual superficial radiotherapy." Thereafter, in responding to Staff questions, Dr. Doener stated that the "Beta Rays [from the applicator] would be needed for treatment of Kaposi Skin sarcoma and certain superficial skin carcinomas. At the present time, we have one patient with approximately 150 scattered skin carcinomas . . . [who] is waiting for the treatment with the Beta Ray applicator . . . ."[20]

In response to further Staff questions, Dr. Doener indicated a treatment plan of 6000 rads in 6 weeks (twelve applications of 500 rads each, estimated at a depth of 1 millimeter). At the surface, the dose would total 12,000 rads, whereas at 2-millimeter depth it would total 3000 rads (250 rads per treatment). Treatment would be "reserved to selected patients with multiple (10 to 100) skin lesions."[21] With respect to tumors with a depth greater than 2 millimeters, Dr. Doener explained that the tissue from 0 to 2 millimeters deep would be destroyed and that "radiation can be repeated after the lapse of two to three months in order to include then the deeper layers of the tumor . . . ." Each cancerous lesion would be surrounded by lead foil, with the configuration of the lesion cut out so that radiation would not reach uninvolved areas of the skin (except for a margin around the lesion of 2-3 millimeters).[22]

With respect to whether the treatment would be used only for patients with 10-100 skin cancers, or would additionally be used for patients with up to 150 skin cancers, I asked RUNC (or Dr. Doener) to clarify the intended usage of the Sr^{90} applicator.[23] As indicated earlier, I have received no response to my inquiry.

In analyzing the effects of Sr^{90} doses, I shall premise my evaluation on the treatment of 100 skin cancers. The Staff has estimated that RUNC's treatment plan using a surface dose rate of 6 rads per second (rad/s) would require two 4.6-hour treatments per week for 6 weeks, for those 100 lesions. It has confirmed RUNC's estimated total dosage of 12,000 rads at the surface, 6000 rads at a

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[19] Letter dated March 6, 1984, from RUNC (Dr. Doener) to NRC Washington, D.C. office.
[20] Letter from G.A. Doener, M.D., to NRC Staff, Region I, dated May 3, 1984.
[21] Letter from G.A. Doener, M.D., to NRC Staff, Region I, dated December 24, 1984.
[22] Letter from G.A. Doener, M.D., to NRC Staff, Region I, dated December 31, 1985.
[23] Memorandum and Order (Questions for Parties), dated December 23, 1986 (unpublished), Attach. A, Question 1a.

depth of 1 millimeter, 3000 rads at 2 millimeters, and 1200 rads at 3 millimeters for such a treatment plan.[24]

B. Evaluation by NRC Consultants

As noted earlier, RUNC's application was reviewed by three members of the ACMUI and one additional consultant. Their qualifications are briefly as follows:[25]

1. Dr. Vincent P. Collins, Medical Director, Houston Institute for Cancer Research, Diagnosis and Treatment, Houston, TX; member, ACMUI;
2. Dr. Melvin L. Griem, Professor and Director, Chicago Tumor Institute, University of Chicago, Chicago, IL; member ACMUI;
3. Dr. Edward W. Webster, Director, Department of Radiation Physics, Massachusetts General Hospital, Boston, MA; member, ACMUI;
4. Dr. Peter Almond, Vice Chairman of Research and Professor, University of Louisville, James Graham Brown Cancer Center, Department of Radiation Oncology, Louisville, KY; NRC consultant.

Drs. Collins and Griem are Medical Doctors; Drs. Almond and Webster are physicists.

Dr. John E. Glenn, who reviewed RUNC's application for the Staff, and who has furnished two affidavits in this proceeding, holds a Ph.D. in Experimental Nuclear Physics. He is a health physicist.[26]

The Staff's expressed reasons for denying the requested license are that (1) RUNC had not demonstrated a sufficient knowledge of beta dosimetry to justify authorizing Dr. Doener to test the Sr^{90} therapy treatment without technical support staff and peer review; and (2) the Applicant had not demonstrated its proposed use to be "safe and effective when compared to other available treatments."[27] These reasons are a composite of the views expressed by the four consultants, but they did not parallel the views of any one of them. The four consultants' views stressed differing aspects of the application record. Their conclusions were not apparently premised solely on their differing technical backgrounds. In sum:

1. Dr. Collins, one of the two medical doctors and the only consultant to recommend approval without reservations, expressed his belief (similar to that advanced by Dr. Doener) that, in view of the long-standing approval of Sr^{90}

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[24] Staff Aff. I, ¶ 12; Staff Aff. II, ¶ 28.

[25] NRC 1985 Annual Report, Appendix 2, at 205-06 (for ACMUI members); Staff Aff. II, ¶ 20 and Attach. 2 (for Dr. Almond).

[26] Staff Aff. I, ¶ 1 and attached Statement of Professional Qualifications.

[27] Staff Aff. I, ¶ 17; Staff Aff. II, ¶ 31.

applicators for lesions about the eye, extension of the usage to skin cancer should be considered safe. Dr. Collins believed that Dr. Doener's certification in Radiology and Nuclear Medicine indicated qualification to use the Sr^{90} applicator as requested by RUNC. He expressed the view that, although there are skin cancers not suitable for treatment with Sr^{90}, "the element of clinical judgment must be assumed."[28]

2. Dr. Griem, the other medical doctor, acknowledged that the Sr^{90} treatment had been used in the past by some dermatologists for certain superficial or shallow tumors, but, in general, the practice had been abandoned. He viewed use for deep-seated lesions as inappropriate. He also found incorrect certain of Dr. Doener's views on beta irradiation from an applicator (*citing* Dr. Doener's letter of May 3, 1984). Dr. Griem noted Dr. Doener's certifications in Radiology and Diagnostic Radiology, with special competence in Nuclear Medicine, but indicated (incorrectly) a lack of certification in Therapeutic Radiology.[29]

3. Dr. Webster, one of the physicists, would initially have approved the application "with some reservations" but later changed his recommendation. He noted that applicators had been used in the mid-1950's but, except for the small Sr^{90} opthalmic applicator, have not remained in use. He found the safety to be "probably adequate," although he would have preferred a longer handle and an additional protective shield. He found the applicator to be useful only for lesions with a depth of about 1 millimeter or less. In his second appraisal, which reversed his earlier qualified recommendation, he indicated that, while he could approve the application for thin lesions, he could not support use for thick lesions (greater than 1 millimeter or 1.5 millimeters), as sought by RUNC's application. Dr. Webster also cited certain conflicting or incorrect statements in RUNC's letters (one of which was the same as pointed to by Dr. Griem).[30]

4. Dr. Almond, the other physicist, initially recommended that the application not be approved on two basic grounds: he was "not convinced that Dr. Doener understands either the physics or the radiotherapy involved in Sr^{90} skin applicators." Dr. Almond pointed particularly to several conflicting statements in RUNC's application concerning the rads to be emitted and observed that the treatment for a patient with 150 skin cancers "would only be very superficial and not practical."[31] Later Dr. Almond referred to the lack of current scientific support for the use of Sr^{90} in the treatment of skin cancers, observing that the only direct reference to such use to which RUNC had referred was the promotional literature of the applicator's distributor.[32]

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[28] Collins Appraisals I and II, dated July 27, 1984, and March 18, 1985.
[29] Griem Appraisals I and II, dated July 27, 1984, and March 27, 1985.
[30] Webster Appraisals I and II, dated September 17, 1984, and July 12, 1985.
[31] Almond Appraisal I, dated July 31, 1984.
[32] Almond Appraisal II, undated, but received by Staff by August 1985. Staff Aff. ¶ 8.

C. Analysis of RUNC's Claims

Based on the record before me, I find no persuasive reason to modify or reverse the conclusion reached by the Staff on RUNC's application. I have reached this conclusion after considering the various claims set forth by RUNC in its November 4, 1986 filing. Specifically:

1. RUNC asserts that Dr. Almond, a physicist, is not qualified to assess qualifications in radiotherapy. The Commission, however, through its Policy Statement reference to the ACMUI, has by inference determined otherwise, inasmuch as the ACMUI members include physicists as well as those with differing backgrounds, such as medical doctors. Although Dr. Almond is not a member of the ACMUI, his background appears comparable to ACMUI members.[33]

The Staff's use of two medical doctors and two physicists as consultants with respect to RUNC's application is reasonable.[34] These consultants had expertise in either therapy using sealed sources or in the medical physics appropriate to radiotherapy.[35] The Staff was thus given a range of expert views encompassing the broad scope of the questions raised by the application. In that connection, I note that one of the medical doctors (Dr. Griem) never recommended approval of the application, although the other one (Dr. Collins) did so. As I explain later (*infra* p. 95), I believe that Dr. Collins overemphasized the deference to be accorded to doctors in the treatment of their patients.

In any event, the denial by the Staff was not primarily premised on a deficiency in RUNC's qualifications. As the Staff points out, Dr. Almond's opinion was founded largely on lack of effectiveness of the treatment for certain thick lesions, and Dr. Doener's apparent lack of recognition of that situation.[36]

2. RUNC also asserts — correctly — that Dr. Doener's background qualifications were misperceived by at least one of the consultants (Dr. Griem). Dr. Griem commented that Dr. Doener is not certified in therapeutic radiology[37] whereas, in fact, Dr. Doener is so certified, by the Board of Radiology of the Royal College of Physicians and Surgeons of Canada.[38]

As acknowledged by the Staff in response to my inquiry, all of the consultants were provided incomplete information concerning Dr. Doener's qualifications, although only Dr. Griem's appraisal commented on the apparent lack of certification in therapeutic radiology. The Staff advised the consultants that

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[33] I agree with the Staff (Staff Aff. II, ¶ 20) that the Policy Statement does not preclude the Staff from using consultants who are not ACMUI members.

[34] The Staff's decision letter of July 25, 1986, as well as Affidavit I, should have mentioned that one of the consultants was not an ACMUI member.

[35] Staff Aff. I, ¶ 4.

[36] *Id.* ¶ 14.

[37] Griem Appraisal II.

[38] RUNC Response of November 4, 1986, at 4, and Curriculum Vitae.

Dr. Doener is certified by the American Board of Radiology in Radiology and in Diagnostic Radiology with special competence in Nuclear Medicine.[39] It explained that it had provided only that information which was available in the *Directory of Medical Specialists*, 20th Ed. (published by Marquis Who's Who).[40] Presumably because Dr. Doener's certification in Therapeutic Radiology emanated from Canada, it was not listed in that publication.

The Staff apparently accepts certifications not only by the American Board of Radiology but also by the Canadian or British equivalents, at least for some purposes.[41] For that reason, the Staff erred in sending a qualifications description to its consultants that omitted a certification that was directly relevant to the application under review.

In the circumstances of this case, however, the error appears harmless. For the opinions of all of the consultants who recommended disapproval were not based primarily on lack of certification but, rather, the ineffectiveness of the proposed treatment and the many conflicting or incorrect statements appearing in the application.[42]

3. RUNC also comments on Dr. Almond's statement that the proposed usage is not described in modern radiotherapy text books,[43] portraying that situation as "regrettable." RUNC then opines that most radiotherapists relied on large machines handled by technicians and tended to "shy away from implantations and local applications which increase the radiation risk to the hands."[44]

I find no basis for this explanation. Rather, I note that the only literature provided to the Staff for review were parts of a 1952 paper dealing with a similar clinical application of beta radiation from phosphorus-32 (P^{32}), together with literature from the applicator's distributor.[45] One of the questions that I posed to RUNC sought to explore the comparability of beta radiation treatment from Sr^{90} and P^{32}.[46] As noted earlier, RUNC has declined to answer my questions.

The conclusion of the Staff on the question of published papers on beta radiation therapy was that

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[39] Memoranda dated 6/84, 7/16/84, and 3/4/85.

[40] Staff Aff. II, ¶ 22c.

[41] *Id.* ¶ 22b.

[42] In the future, the Staff should ensure that the qualifications statements provided to consultants include all background information relevant to the application under review of which the Staff is aware. I am assuming that Dr. Doener's November 27, 1954 certification in therapeutic radiology was known to the Staff, through RUNC's or Dr. Doener's earlier license applications. If not, Dr. Doener would have the responsibility of making known to the Staff his qualifications directly bearing upon his license application. *See* Staff Response, dated December 16, 1986, at 5.

[43] ALmond Appraisal II.

[44] RUNC November 4, 1986 Response, at 2.

[45] Staff Aff. I, ¶ 8.

[46] Memorandum and Order dated December 23, 1986, Attach. A, Question 2a.

> The lack of any literature concerning this treatment modality, even though it had been studied 30 years previously, seemed compelling evidence that the treatment had been found to be less effective than other available treatment methods.[47]

The Staff added that the one reference to the literature provided by RUNC contained the same cautions about the effectiveness of the P^{32} treatment with respect to lesions greater than 1-1.5 millimeters in depth as raised by the Staff's consultants.[48] Further, the Staff opined that a technique tried and found effective 30 years ago would not be "totally absent from the modern literature."[49]

In my view, the Staff's view on this question seems reasonable and persuasive, particularly in light of the lack of any supporting basis for RUNC's explanation for the lack of literature on beta radiation therapy. At least a modicum of peer comment on a medical technique would appear to be a *sine qua non* of a showing that a technique is "safe and effective."

4. RUNC's strongest, and potentially most persuasive claim is that, although a proposed use may not be "safe and effective" for all situations to which it may be applied, a license should not be denied in its entirety when some proposed uses are indeed "safe and effective." RUNC focuses its comment in particular on Dr. Griem's second Appraisal, but it also notes in other contexts that the therapy would be used only in "selected cases" and "only in very special locations and thin lesions.[50]

In my view, the record would appear to support a conclusion that the Sr^{90} therapy would be "safe and effective" for thin lesions of up to 1 or 1.5 millimeters in thickness, but not for lesions of a greater thickness.[51] RUNC's November 4, 1986 response had indicated that it would use the Sr^{90} applicator only in "very selected cases," in "very special locations and thin lesions."[52] For that reason, I asked RUNC to explain the methodology it would use to select lesions for Sr^{90} treatment, and whether there were methods available to establish or estimate the depth of particular lesions.[53] I asked the Staff comparable questions.[54]

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[47] Staff Aff. I, ¶ 9.

[48] *Id.* The results in the paper on using P^{32} for superficial therapy (attachment to letter from RUNC, dated February 1, 1985) were based on lesions assumed to be only 1 millimeter deep. Sr^{90} would be less effective than P^{32} below the surface, because the beta energy for P^{32} is 1.72 MeV, whereas the beta energy for Sr^{90} is only 0.54 MeV. Consequently, the penetration ability of beta particles from P^{32} is about four times that of beta particles from Sr^{90} (in water). *Radiological Health Handbook*, Public Health Service, U.S. Dept. of Health, Education and Welfare (1970), Table I, at 239, 266, and Figure on p. 122.

[49] Staff Aff. I, ¶ 13.

[50] RUNC November 4, 1986 Response, at 2, 3.

[51] *See* Webster Appraisals I and II, Griem Appraisals I and II, Collins Appraisal II.

[52] RUNC November 4, 1986 Response, at 3.

[53] Memorandum and Order dated December 23, 1986, Attach. A, Questions 1b, 1c.

[54] *Id.*, Attach. B, Questions 2, 13c.

RUNC, as noted earlier, did not answer any of my questions. The Staff acknowledged that, if uses encompassed by an application could be separated into uses that were "safe and effective" and those that were not, it could issue a license only for the "safe and effective" uses. But the Staff could not in this instance find a "practical separation" of proposed uses: "[n]o single class of malignant lesions was identified for which lesion thickness will routinely be thin and superficial."[55] Accordingly, the Staff concluded:

> Although the Staff has been advised that the Sr^{90} applicator may be effective in treating thin lesions, the Staff is unaware of any method to limit patient selection to assure only thin lesions are treated.[56]

Given the record before me, I must agree with the Staff's conclusion that there is currently no effective manner for determining the thickness of lesions. Accordingly, I have no record basis for determining criteria under which a license limited to "safe and effective" uses could be formulated.

5. Finally, RUNC has claimed that Dr. Doener understands the physics involved with the use of an Sr^{90} applicator. The Staff concluded that his erroneous or conflicting statements in his application belie that claim.[57] Further, several of the Staff consultants specifically considered these erroneous statements.[58] My question to RUNC seeking reconciliation of one of these statements with the appraisals of Drs. Griem and Webster has not been answered.[59] Accordingly, there is ample support in the record for the Staff conclusion that Dr. Doener does not have sufficient knowledge of beta dosimetry to support the requested license.

D. Other Decisional Factors

Beyond the explicit claims advanced by RUNC, there are several other factors that I am taking into account in reaching my final conclusion on RUNC's appeal. I shall detail them here.

1. The Staff evaluated RUNC's license request under 10 C.F.R. § 35.12, on the ground that RUNC already had a license under that provision and was merely seeking to amend its existing license.[60] Notwithstanding this circumstance, the request could have been, and perhaps should have been, considered under 10

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[55] Staff Aff. II, ¶ 8.
[56] *Id.*, ¶ 30.
[57] Staff Aff. I, ¶ 15; Staff Aff. II, ¶ 31.
[58] Griem Appraisal I; Almond Appraisal I; Webster Appraisal II.
[59] Memorandum and Order dated December 23, 1986, Attach. A, Question 3.
[60] Staff Aff. II, ¶ 14.

C.F.R. § 35.13, which has somewhat less stringent standards, particularly in the area of the experience and training required of licensees.

Both sections incorporate the requirements of 10 C.F.R. § 30.33, and both sections are subject to the general considerations enunciated by the Commission in its February 9, 1979 Policy Statement. The Staff denied the license for failure to meet the requirements of 10 C.F.R. § 30.33, specifically § 30.33(a)(2), as well as the "safe and effective" criterion of the policy statement. If the Staff's evaluation of RUNC's conformance to those criteria is sustainable, the failure to have considered RUNC's eligibility under 10 C.F.R. § 35.13 becomes of no consequence.

In my view, the Sr^{90} applicator is clearly "equipment," within the scope of 10 C.F.R. § 30.33(a)(2). But it is not clear to me whether the health protection and minimization of danger to life and property referenced in § 30.33(a)(2) is intended to apply to patients (rather than workers or the general public, as set forth in the first element of the Policy Statement).[61] On the other hand, the health protection referenced in 10 C.F.R. § 30.33(a)(2) might encompass the second element of the Policy Statement.[62] Although I would tend to adopt the latter interpretation, I need not do so here. For, as explained earlier, the proposed use clearly has not been demonstrated to be "safe and effective" and hence may properly be evaluated under that criterion, which the Staff did. The Staff's failure to consider the application under 10 C.F.R. § 35.13 is thus, at most, harmless error.

2. Under the Commission's February 9, 1979 Policy Statement, one of the considerations to be taken into account is the minimization of intrusion into medical judgments affecting patients. But this factor diminishes in significance as the hazard to a patient increases. The NRC attempts to achieve a balance between the minimization of intrusion goal and the adequacy of regulations of other governmental agencies or the presence of "well administered professional standards." The Staff in this proceeding has specifically found that "adequate voluntary standards for selection, treatment, and follow-up of patients do not exist."[63]

Furthermore, under the Policy Statement, the Commission has determined that the risk to patients for all therapeutic uses of radioactive drugs "is not low." Indeed, it has found that "[t]he risk of tissue or organ damage (or even death) is inherent in the use of therapeutic levels of radioactive drugs." *See* p. 85, *supra*. In this case, assuming two treatments per week of 100 lesions over the course of 6 weeks — a type of treatment program described by RUNC in its letter of December 24, 1984 — a patient would receive a skin surface

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[61] *See* p. 85, *supra*.
[62] *See id.*
[63] Decision Letter dated July 25, 1986, at 2.

dose of 12,000 rads and a dose of 6000 rads at a depth of 1.0 millimeter. These doses are large and far exceed all regulatory limits for occupational exposure to radiation. The Staff acknowledges that doses of 4000 to 6000 rads are both used and required to treat malignancies. But at depths of 2 millimeters and 3 millimeters, the 6-week doses would total only 3000 rads and 1200 rads, respectively, too small a dose to be likely effective.[64]

Given the high dose rate to which patients would be exposed, it was appropriate for the Staff to give less weight to the minimization of intrusion into medical judgments. In that regard, I believe that Dr. Collins, the only one of the Staff's consultants to recommend unqualified approval of the license application, gave undue weight in the circumstances to the deference to be accorded physician's judgments. He underemphasized the effectiveness criterion which the Policy Statement also recognizes, despite the fact that he recognized the lack of effectiveness of Sr^{90} for certain treatments.[65] In that connection, although RUNC had indicated that Dr. Doener would confine treatments to thin lesions, RUNC has described a treatment method for thick lesions — i.e., multiple treatments of the same area.[66] Needless to say, a patient receiving such treatment would be exposed to well over 12,000 rads of radiation, over a several-month period. In these circumstances, given the failure of RUNC to specify any meaningful criteria for selecting the lesions for which the Sr^{90} applicator would be used, it was reasonable for the Staff to have given less weight to the deference factor and greater weight to the effectiveness standard.

3. The Staff expressed its opinion that RUNC's proposed use of the Sr^{90} applicator should be regarded as experimental and subject to continuing professional oversight, peer review by appropriate Human Use Committees and a medical physics staff in a research setting.[67] I agree. Given the fact that at least some proposed uses have not been demonstrated to be "safe and effective," there would have to be at least some oversight mechanism to assure appropriate use. Such mechanisms do not exist routinely in a physician's office and have not been shown to be present here. Indeed, even under RUNC's or Dr. Doener's existing licenses, there have been a significant number of violations, as well as deviations from reporting requirements.[68]

In its decision letter, the Staff suggested that, if RUNC believes its treatment modality deserves a clinical trial, it should consider becoming affiliated with an institution that is licensed by the NRC to conduct original research with Sr^{90} on humans. If RUNC (or Dr. Doener) were to receive approval as an authorized user

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[64] Staff Aff. II, ¶ 28.
[65] Collins Appraisal II.
[66] Letter from RUNC to Region I, dated December 31, 1985.
[67] Staff Aff. II, ¶ 30.
[68] *Id.* ¶ 26.

at such an institution, it or he could pursue the mode of radiotherapy requested by RUNC, in accordance with the institution's approved protocol.[69] This advice seems well founded.

IV. CONCLUSIONS OF LAW

1. The use proposed by RUNC of an Sr^{90} applicator is not one of the usages specified in 10 C.F.R. § 35.100 and hence cannot be licensed under 10 C.F.R § 35.14.

2. The use proposed [illegible] C of an Sr^{90} applicator has not been demonstrated to be "safe and effective," within the meaning of the Nuclear Regulatory Commission's Statement of General Policy on the Regulation of the Medical Uses of Radioisotopes (44 Fed. Reg. 8242 (Feb. 9, 1979)). Accordingly, the requested license fails to meet the requirements of 10 C.F.R. § 30.33(a) and 10 C.F.R. § 35.12 or § 35.13.

V. ORDER

For the reasons stated, and based on the foregoing opinion, findings of fact, conclusions of law, and the entire record, it is, this 9th day of February 1987, ORDERED:

1. The decision of the NRC Regional Administrator, dated July 25, 1986, is hereby *affirmed*.

2. The license amendment application of Radiology Ultrasound Nuclear Consultants, P.A., dated December 27, 1983, and March 6, 1984, and as thereafter supplemented, is hereby *denied*.

3. In accordance with the Commission's Order dated October 9, 1986, this Decision will become final agency action thirty (30) days after the date of issuance unless the Commission, on its own motion, undertakes a review

[69] Decision Letter dated July 25, 1986, at 2.

of the Decision. No petition for review by a party will be entertained by the Commission.

PRESIDING OFFICER

Charles Bechhoefer
ADMINISTRATIVE JUDGE

Dated at Bethesda, Maryland,
this 9th day of February 1987.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

B. Paul Cotter, Jr., Chairman
Dr. Jerry R. Kline
Dr. Emmeth A. Luebke

In the Matter of **Docket No. 27-39-SC**
(ASLBP No. 78-374-01-OT)

U.S. ECOLOGY, INC.
(Sheffield, Illinois Low-Level
Radioactive Waste Disposal Site) **February 20, 1987**

In this Memorandum and Order, the Licensing Board denies Licensee's Motion for Summary Judgment as to the issues of "possession" of buried waste and the right of the Licensee to unilaterally terminate its license without action by the Commission.

MATERIALS LICENSES: WASTE DISPOSAL

The issue of whether a licensee possesses buried nuclear waste is not dispositive of its responsibilities with respect to that waste. The concept of "possession" as it relates to source, byproduct, or special nuclear material in this case pertains only to the critical mass limitation defined in 10 C.F.R. § 150.11(b).

MATERIALS LICENSES: WASTE DISPOSAL

A licensee's responsibility for nuclear waste does not terminate with the burial of the waste.

MATERIALS LICENSES: WASTE DISPOSAL

License language subjecting the licensee to "all other applicable rules, regulations, orders of the Atomic Energy Commission now or hereafter in effect" was intended to bind the licensee to the type of site stabilization and closure requirements ultimately promulgated in 10 C.F.R. Part 61.

LICENSE: DEFINITION

A license is a grant by the Nuclear Regulatory Commission "of the right to engage in conduct that would be improper without such a grant." That right carries with it specified obligations set out in the form of regulations, official guidance, and orders.

MEMORANDUM AND ORDER
(Ruling on Motions for Summary Disposition)

These cross-motions for summary disposition concern two issues of law fundamental to the outcome of this proceeding to determine responsibility for buried low-level radioactive waste at a Bureau County, Illinois repository ("Sheffield"). The original license relating to the Sheffield repository was issued by the Nuclear Regulatory Commission (NRC) in 1964. The principal parties to the dispute are the Licensee or Applicant, U.S. Ecology, Inc.,[1] the State of Illinois, and the Nuclear Regulatory Commission Staff.[2] To decide the motions before us, we must determine the relative authority and responsibilities of the three parties.

The two issues to be decided herein have been framed as follows:

1. Whether the Applicant "possesses" the source byproduct, or special nuclear material at the Sheffield site.

2. Whether Neco can unilaterally terminate License No. 13-10042-01 for activities at Sheffield without affirmative action by the Commission.

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[1] The original license, granted to California Nuclear, Inc., on July 15, 1964, to transport was amended to authorize burial at the Sheffield facility on December 2, 1966. Illinois Exh. 2. Two years later on March 25, 1968, the license was transferred to Nuclear Engineering Co., Inc., which subsequently changed its name to U.S. Ecology, Inc. Illinois Exh. 2. Because the license transfer and name change have no bearing on the issues at hand the licensee during the entire period will be referred to as "U.S. Ecology."

[2] The proceeding has had other parties, but all had withdrawn or become inactive by the time the motions at issue were filed.

U.S. Ecology answers the first question in the negative and the second in the affirmative. The NRC Staff and the State take the contrary view. The facts of the case are essentially undisputed.

I. HISTORY OF THE CASE

In 1964 the NRC's predecessor, the Atomic Energy Commission, issued the license in question to U.S. Ecology's predecessor to receive, process, and transport radioactive waste to authorized land burial sites for disposal. Illinois Exh. 2. Radioactive waste burial at Sheffield was authorized by Amendment No. 7 to the license in December 1966. Burial activities were subject to the Act, implementing regulations entitled "Standards for Protection Against Radiation," 10 C.F.R. Part 20 (1964), and "*all other applicable rules, regulations, orders of the Atomic Energy Commission now or hereafter in effect . . .*" Illinois Exh. 2 (emphasis added).

Some 3 months prior to issuance of Amendment No. 7 in 1966, U.S. Ecology's predecessor had entered into a 99-year lease with the State of Illinois for 20 acres at the Sheffield site to be used for the burial activities to be authorized by the license amendment. Under article IV of the lease, the corporation paid the state $50.00 per year as rent. Article V of the lease incorporated by reference "all requirements of the Atomic Energy Commission" and applicable Illinois laws and rules "*as the same are promulgated and amended from time to time.*" Illinois Exh. 3, Lease (emphasis added).

Article VII of the lease contained a clause that provided as follows:

> *Perpetual Maintenance Fund*
>
> The Corporation understands that the storage and burial of radioactive waste requires [*sic*] perpetual surveillance and maintenance, and so long as it occupies the premises, the Corporation will undertake all surveillance and maintenance as described in Exhibit "B" and as required by all applicable laws, regulations, or licensing for the protection of the public health and safety. The Corporation further understands that if for any reason at any time the Corporation should default or fail to comply with the terms of its license, or for any reason withdraw from the premises, the State would be required to assume surveillance and maintenance obligations and pay the surveillance and maintenance costs.
>
> The Corporation therefore covenants and agrees to pay to the State annually the sum of five cents for each cubic foot of radioactive waste for which burial or storage charges have been made during the preceeding [*sic*] year. In order for the State to determine the proper payments of the Corporation, the State shall have access to and a right to examine any directly pertinent books, documents, papers, accounts and records of the Corporation involving operation on the leased premises. Said right shall continue for three years after the termination of this Lease.

In 1968, some 2 years later, the license was transferred to U.S. Ecology's predecessor in name which then filed an application to renew the license and expand the site which had begun to fill up. U.S. Ecology continued its operations at Sheffield under NRC Staff supervision. In December 1976, the State and U.S. Ecology's predecessor entered into an agreement that amended the existing lease agreement to increase the cubic foot perpetual maintenance fee.

A Licensing Board was established in December 1977 to consider U.S. Ecology's application to renew the license and expand the site. 42 Fed. Reg. 61,522 (1977). Three months later, U.S. Ecology notified the Board, the State, and the NRC Director of Nuclear Materials and Safeguards that it was withdrawing its application to expand the site and terminating its license. The Director denied the Licensee's authority to so act unilaterally and ordered it to continue carrying out its obligations under the license to protect the public health and safety. On appeal the Commission sustained the Director's action and issued a Notice of Hearing directing that a Licensing Board resolve the conflicting claims of authority. *Nuclear Engineering Co.* (Sheffield, Illinois Low-Level Radioactive Waste Disposal Site), CLI-79-6, 9 NRC 673 (1979); U.S. Ecology Brief at 2.

Following a June 1980 prehearing conference, the Licensing Board specified three issues to be heard, the first two of which are the subject of these motions. *U.S. Ecology, Inc.* (Sheffield, Illinois Low-Level Radioactive Waste Disposal Site), "Prehearing Conference Order and Order Setting Time for Discovery" (September 9, 1980) (unpublished). Thereafter, the proceeding was effectively suspended at the request of the parties while they sought to complete studies necessary to fashioning an appropriate site-specific remedy for the buried waste and to reach a negotiated resolution of the dispute. Although all activities at the site (other than maintenance) ceased in 1978, neither negotiated settlement effort had borne fruit by August 1986. At that time the Board ordered the parties, while continuing settlement negotiations, to address the two issues first described above by motions for summary disposition. All relevant filings were received by November 28, 1986.

II. APPLICABLE LAW

As enacted in 1954, the Atomic Energy Act did not expressly define "nuclear waste" or address the issue of its ultimate disposition. Rather, it classified nuclear materials into three general categories: byproduct, source, and special nuclear. 42 U.S.C. §2014 (1984). However, since all waste products fell in varying proportions into one or more of these categories, regulation of the possession and transfer of nuclear waste came within the purview of the Atomic Energy Commission.

Through the 1950's, waste disposal was accomplished primarily through "burial" at sea, or return of material to AEC facilities — principally the Oak Ridge National Laboratory. By the end of the decade, "large solid waste volumes and repeated requests for land burial services [had] become an increasing administrative and operational burden to Oak Ridge." *Hearings on Industrial Radioactive Waste Disposal*, 86th Cong., 1st Sess. 2514 (1959) (statement of H.L. Price); U.S. Ecology Exh. 3; Illinois Exh. 1. In addition, the costs of sea disposal presented "a serious economic problem" for licensees on the east coast because of the long distances waste had to be transported in order to reach suitable ocean depths. *Ibid.* The need for accessible, regional land disposal sites was recognized. *See* U.S. Ecology Exh. 4.

Then in 1959, a proposal was made to authorize commercial land burial. U.S. Ecology Exh. 7. One of the issues to be resolved was ownership of the sites. *Id.* at 12. Ultimately, land ownership for such sites was limited to state and federal governments. 10 C.F.R. § 20.302(b) (1961). The first land burial license was issued to U.S. Ecology in 1961 for a site in Beatty, Nevada. U.S. Ecology Exh. 12.

In the republication of its regulations effective January 1, 1961, the Commission's principal requirements for waste disposal appeared in 10 C.F.R. §§ 20.301 *et seq.* The disposal of limited quantities of waste by release into sewerage systems (§ 20.303) and by licensee burial in soil (§ 20.304) was authorized generally. Disposal of greater quantities of material or disposal by methods not specifically authorized required an application for a license under § 20.302. Applications were required to describe the material to be disposed of and the manner and conditions of disposal; to analyze and evaluate the site characteristics; and to define the procedures to be observed to minimize the risk of unexpected or hazardous exposures.

In general, licensees were permitted by § 20.301 of the regulations to dispose of licensed material only (a) by transfer to an authorized recipient; (b) by a method authorized generally; or (c) by a method authorized pursuant to § 20.302. There is nothing in the history of the regulations to suggest that the Commission viewed any one of these means as less final than any other with respect to the licensee carrying out the disposal.

Though it is clear that the movement toward land disposal of waste was impelled by economic rather than safety considerations (*see generally*, U.S. Ecology Exhs. 3 and 4), the Commission did recognize one significant distinction between the two methods: the need for long-term monitoring of land disposal sites. Prior to 1960, applications for commercial land disposal of waste had been denied "basically because of the inability of applicants to assume long-term maintenance and control of the burial site." U.S. Ecology Exh. 4 at 7. As a solution to this problem, the Commission in 1961 amended 10 C.F.R. § 20.302 to preclude applications for waste disposal on privately owned land.

The brief Statement of Considerations accompanying the 1961 amendment indicates that the Commission drew a clear distinction between the commercial waste disposal operator and the disposal site owner. 26 Fed. Reg. 352 (1961). The former was expected, or at least suspected, to eventually leave the scene; the latter, for public health and safety reasons could not be allowed to depart. It is difficult to see how the requirement for federal or state ownership of disposal sites could have been viewed as a solution to this problem unless the Commission anticipated government assumption of responsibility for site maintenance and monitoring after the withdrawal of the license. However, the conditions for that withdrawal were not expressly defined by regulation until the adoption of 10 C.F.R. Part 61 over 20 years later.

On October 25, 1978, the Commission published an Advance Notice of Proposed Rulemaking concerned with the development of specific regulations to govern the disposal of low-level radioactive wastes. 43 Fed. Reg. 49,811 (1978). Among the subjects covered was the establishment of procedures for the final closure of land disposal sites. A final rule incorporating what is now 10 C.F.R. Part 61 was published on December 27, 1982, and took effect January 26, 1983. 47 Fed. Reg. 57,446 (1983). The applicability of the provisions of Part 61 to licenses in effect on that date was to be "determined on a case-by-case basis." 10 C.F.R. § 61.1(a) (1986).

III. THE POSSESSION ISSUE

When the NRC licenses a private company to perform specific activities such as receipt, possession, transport, storage, or disposal of low-level radioactive waste, the company incurs obligations to protect the public health and safety. Those obligations, described in the Atomic Energy Act and implementing regulations, are imposed primarily through the grant of the license to undertake the activities specified. Each license specifies with particularity the kinds and amounts of nuclear waste a private company may possess. U.S. Ecology argues that it is well established as a matter of law "that burial of low-level waste in accordance with license requirements finally disposes of the waste such that it is no longer 'possessed' by the licensee." Brief at 4. Therefore, Licensee concludes that it has no continuing obligation under its license to protect the public health and safety with respect to such waste. The crux of Licensee's argument denying any remaining obligation with respect to waste buried at Sheffield is the meaning of the term "possess" in its license.

In support of its argument, Licensee cites a 1979 memorandum from the Chief of the Low-Level Waste Branch which disputed a draft legal position that buried waste continued to be "possessed" by this Licensee. The Branch Chief argued that the proposed legal position was at odds with historical practice and

would create a conflict with the possession limits imposed on licensees since the possession limits did not include buried waste. Licensee further supports its position with a 1964 memorandum by the NRC General Counsel stating, *inter alia:*

> special nuclear material which has been disposed of by land burial is no longer "possessed or used" by the burial ground operator within the meaning of those terms as set forth in § 150.11(b).

U.S. Ecology Exh. 2 at 3. Section 150.11(b) dealt with the cumulative quantity of nuclear material that a licensee was permitted to possess. The limitation on possession was intended as a control to prevent commercially licensed organizations from possessing enough nuclear material to form a critical mass.[3] The General Counsel concluded:

> Consequently, only those amounts of special nuclear material which are unburied need be taken into account in determining whether or not a burial ground operator is in possession of an amount sufficient to form a critical mass.

Licensee buttresses its argument by asserting that the Commission always considered sea burial of waste as final disposition and viewed land disposal in the same way. Licensee cites a 1959 letter from the Acting Chief of the Licensing Branch to U.S. Ecology stating that:

> When disposals are made at sea, and the material is no longer in your possession, you should reduce your physical possession inventory accordingly.

U.S. Ecology Exh. 5. Licensee concludes that "the Commission has always deemed 'possession' of licensed material to cease upon 'final disposal' " by land burial or sea disposal. Brief at 20. Licensee cites other memoranda in support of its contention that burial of waste at sea terminated licensee possession and that the Commission always treated land and sea burial as equivalent. U.S. Ecology Exhs. 7, 8, 9, and 10.

U.S. Ecology asserts that the regulatory scheme further supports its position, citing 10 C.F.R. § 20.302, "Method for obtaining approval of proposed disposal procedures." Licensee argues that subsection (b), concerning safety of disposal at sea, reflects the Commission view that disposal was permanent and final. Brief at 16-20. U.S. Ecology then points to the 1980 Statement of Considerations eliminating § 20.304 permitting burial of small quantities of radioactive mate-

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[3] The regulations in 10 C.F.R. Part 150 implement the authority granted the Commission by § 274(b) of the Atomic Energy Act to transfer certain regulatory responsibilities to "agreement states." Section 274(b)(4) provides that Commission authority may be discontinued in such states with respect to special nuclear materials "in quantities not sufficient to form a critical mass." 42 U.S.C. § 2021 (1984).

rial. Licensee quotes the Statement of Considerations that the deletion "would not require any action concerning material already buried under the present provisions of § 20.304." 43 Fed. Reg. 56,677 (1978). Additional documents are cited in support of the proposition that the amount of nuclear material that can be possessed by licensees is limited; thus the term "possess" applies only to stored materials, not buried materials. U.S. Ecology Exhs. 13, 16, 17, and 18.

U.S. Ecology also asserts that Illinois law and the Sheffield lease issued by the State further confirm U.S. Ecology's interpretation of "possess." Section 6 of the Illinois Radioacuve Wastes Act provides in part:

> All rights, title and interest in, of and to any radioactive waste materials accepted by the Department of Nuclear Safety for permanent storage at such facilities, shall upon acceptance become the property of the state . . . .

Ill. Ann. Stat. S.H.A. ch. 111.5, 230.6 (Smith Hurd 1980). Licensee concludes that because the State must have title, U.S. Ecology could not possess the buried material. Licensee finds corroboration of its argument that the State possesses buried waste in art. V, § H, of the Sheffield lease. Section H incorporated the statutory language and provided that title to all waste transferred to the State when the waste arrived at the Sheffield receiving dock. Licensee argues that because the lease was reviewed and approved by the AEC, the AEC concurred in the view that the State took title to the waste even prior to burial. Thus, the argument goes, U.S. Ecology could not possess buried waste, the title to which passed to the State even before burial.

The State of Illinois strongly disagrees with Licensee's position, basing its arguments on language in the 1966 license amendment authorizing U.S. Ecology to bury waste at the Sheffield site, the absence of an NRC license authorizing the State to "possess" the waste, the absence of any evidence that the State has "accepted" the waste pursuant to its Radioactive Wastes Act, and the argument that relocation of nuclear waste from storage to land burial does not terminate the Licensee's possession under the Atomic Energy Act. Illinois Brief at 9-15.

The NRC Staff agrees with the State of Illinois. Staff argues that all nuclear materials including the waste in question must be under an NRC license unless subject to an agreement state license, noting that Illinois is not at this time an agreement state under the Atomic Energy Act. Nor does the waste material in question fall under any exemption from an NRC license. Consequently, the Staff argues that U.S. Ecology is the only licensee for the buried waste in question and thus is obligated to observe "Commission regulations, license conditions, and orders to protect the public health and safety . . ." or be subject to enforcement proceedings and penalties. Staff also points to the regulatory scheme that prohibits transfer, assignment, or disposition of a license without approval of the Commission. Thus, Staff concludes that "possession of licensed material may not

be transferred except to authorized persons . . . ," citing 10 C.F.R. §§ 30.41(c), 40.51(c), 70.42(c); *Rochester Gas and Electric Corp.* (Sterling Power Project, Nuclear Unit No. 1), ALAB-507, 8 NRC 551 (1978); and *Nuclear Advisors, Inc.*, 2 AEC 196 (1962), 2 AEC 254 (1963). Staff Brief at 6-7.

Therefore, the Staff asserts that burial is immaterial because licensed waste remains the responsibility of the licensee until transferred in accordance with law and regulations. Ultimately, Staff argues that only the NRC could determine when responsibility for licensed materials ends. Staff dismisses the memorandum of the Low-Level Waste Branch Chief as without authority not only because the legal question was not within his purview, but also because, Staff avers, his position was contrary to the view of the Commission then and now.

In addition, Staff finds that the 1964 General Counsel's memorandum does not support U.S. Ecology's position because the memorandum did not address the possession issue but rather addressed the Part 150 limitation on critical mass. Staff argues that the General Counsel simply found that buried materials were not included in materials possessed for the purpose of Part 150 limits. The Staff finds its conclusion supported by both the Statement of Considerations and a 1965 amendment to § 150.11(b) and the language in § 61.16(b)(1). Staff Brief at 10-11.

Staff disputes U.S. Ecology's argument that land and sea burial are identical. Staff finds Commission treatment of land and sea burial different, pointing to an evolving policy described in part in the Statement of Considerations for § 20.302(b), 36 Fed. Reg. 23,138 (Dec. 4, 1971). That statement pointed to NRC concerns about ocean dumping and the need for continued NRC control and review. Staff also finds U.S. Ecology's § 20.304 argument unfounded, asserting that the Staff has never taken the position that disposition under § 20.304 relieved the Licensee of its obligations under the license. Staff Brief at 13.

Similarly, Staff distinguishes between ownership and possession with respect to Licensee's argument under the Illinois Radioactive Wastes Act. Staff renews its argument that a specific license is required to possess nuclear material, that Illinois does not have such a license, and, thus even if the State holds title to the material buried at Sheffield, it does not possess it because it does not have a specific license to do so. Staff Brief at 13-15.

IV. THE UNILATERAL TERMINATION ISSUE

U.S. Ecology asserts that it had the right to unilaterally terminate its license primarily because that was its expectation at the time it entered into the operation of the Sheffield disposal site. The Commission, it asserts, had always accepted nonrenewal as a sufficient indication of termination, and the agency had no regulations or other fixed procedures for the review, approval, or conditioning of

licensee withdrawals. Since neither the license itself nor any Commission regulations expressly precluded unilateral, unconditional termination, U.S. Ecology's assertion of that right was effective.

NRC Staff counters that the Commission had in fact begun to scrutinize terminated materials licenses well before U.S. Ecology's attempted termination of its license. The point of this, presumably, is to show that the Licensee's expectation as to its "decommissioning" obligations had, or should have changed. However, the only example given by the Staff of an actual application for termination of such a license pertains to a materials storage and processing facility, not a disposal site. Staff Brief at 17. Similarly, U.S. Ecology's example of apparent Commission acquiescence in a license expiration also pertained only to nondisposal activities. U.S. Ecology Brief at 34; Staff Brief at 18.

U.S. Ecology recognizes that its assertion of a right to unilateral termination of its license leaves an important question as to who should now be held responsible for long-term surveillance of the Sheffield site. It contends that that responsibility now devolves upon the State of Illinois because, essentially, that is the result that all of the parties contemplated when the site was established and the license originally issued.

U.S. Ecology notes the Commission's reluctance to license land disposal facilities prior to 1960 because of the inability of private applicants to give adequate assurance of long-term maintenance of disposal sites, and its amendment of its regulations to require that such facilities be established only on government land. U.S. Ecology Brief at 46-51. It points out that the Sheffield site was not approved until the Commission had received the requisite assurances from the State of Illinois that it would assume responsibility for long-term maintenance and surveillance in the event of Licensee's termination of operations; and the existence of these assurances was repeatedly referred to in subsequent Commission documents pertaining to Sheffield. Finally, U.S. Ecology cites its lease with Illinois which provided in part:

> [I]f for any reason at any time the Corporation should default or fail to comply with the terms of its license, or for any reason withdraw from the premises, the State would be required to assume surveillance and maintenance obligations.

U.S. Ecology Brief at 73; Illinois Exh. 3, art. VIII. Illinois points out that this lease provision is contained in an article dealing with the establishment of a perpetual maintenance fund, the purpose of which was to assure the availability of funds to pay for long-term site maintenance in the event of the Licensee's inability or refusal to do so. It is a sort of insurance policy, not, the State argues, an authorization for Licensee abandonment of its responsibilities.

Illinois also denies that the expectations of the parties with respect to their mutual obligations concerning Sheffield were inalterably fixed from the outset. It notes that the express terms of the license render the Licensee subject to "all other applicable rules, regulations, orders of the Atomic Energy Commission now or hereafter in effect." Illinois Exh. 2. Land disposal of radioactive waste was a new and potentially hazardous activity requiring regulatory flexibility to adapt requirements to evolving knowledge. Illinois Brief at 28. Thus, the Licensee knew or should have known that changes in the conditions of its waste disposal operations were likely.

Finally, the Staff argues that whether or not Illinois wants to assume responsibility for the Sheffield site, the Licensee cannot unilaterally transfer that burden. To do so would, the Staff asserts, constitute either a transfer of a license or of licensed materials (the buried waste) to an unlicensed recipient in violation of Commission regulations. Staff Brief at 21.

V. DECISION

A. Possession Issue

In its possession argument, U.S. Ecology relies on 10 C.F.R. § 150.11(b). The purpose of that section was to determine whether private organizations in an agreement state possessed a sufficient quantity of radioactive waste to form a critical mass. U.S. Ecology attempts to use § 150.11(b) to terminate its obligations with respect to the waste activity it was licensed to perform. It is clear that both the General Counsel and the Chief of the Low-Level Waste Branch were concerned with the critical mass issue. In essence they concluded that radioactive waste that had been separated from stored radioactive waste and disposed of in burial should not, as a practical matter, be included in the total quantity of radioactive waste at a given site *for the purpose of determining whether a critical mass was present.* In that limited context, U.S. Ecology is correct in that it did not possess buried waste for the purposes of critical mass calculations.

However, it is equally clear that U.S. Ecology's responsibility for radioactive waste delivered to its Sheffield site did not terminate at the surface of the earth. Two principal facts buttress that conclusion. The first is the language in the original license providing that it was subject to "all other applicable rules, regulations, and orders of the Atomic Energy Commission *now or hereafter in effect* . . . ." That language, which first appeared in the 1964 license, was repeated verbatim in the 1966 Amendment No. 7 authorizing burial activities and was, at the least, incorporated by reference in all subsequent amendments up until the time that U.S. Ecology announced its unilateral termination of the

license in 1978. Thus U.S. Ecology and its predecessors were on notice from the outset and were reminded repeatedly with each license amendment that burial activities would be subject to any changes in the regulations. Consequently, the 1978 proposal to enact Part 61 establishing criteria for closing burial sites that took effect in January 1983 could not have been unanticipated. The better view is that the parties to the license (NRC and U.S. Ecology) expressly anticipated new regulatory requirements and provided for them in the license.

Secondly, Amendment No. 7, in addition to making burial activity subject to NRC rules, regulations, and orders contains specific provisions concerning how radioactive waste was to be buried. Illinois Exh. 2, Amendment No. 7, ¶¶ 11 and 12. Those burial specifications provided that buried packages of special nuclear material should be surrounded by "a minimum of 8 inches of earth in all directions from any other packages containing nuclear mater[ial]." Paragraph 12 of the Amendment discussed testing of water samples for concentrations of radioactive material "to determine whether or not the increase [in such concentrations] is due to the land burial operations" and directed the Licensee to notify the Director, Division of Licensing, within 30 days of any such finding. Those conditions were repeated in Amendment No. 8. Amendment No. 9 added two more provisions, one concerning trench excavations relative to the water table and another concerning mounds for the completed burial trenches. Amendment No. 10 authorized the burial of a steel bottle of tritium. Amendment No. 11 dated January 6, 1977, restricted the burial of transuranic waste "in concentrations greater than 10 nanocuries per gram." Buried waste was subject to ongoing monitoring and maintenance, a responsibility U.S. Ecology anticipated in its application to expand the facility. *See, e.g.*, Safety Analysis Report for Sheffield Low-Level Radioactive Waste Disposal Facility, ¶¶ 3.4.2.4.1.D, 3.4.2.4.3.C, and 3.5.5. Clearly, burial activities were subject to the continuing addition of new requirements.

A July 13, 1967 memorandum by the Materials License Division casts further light on the expectations of the parties concerning burial. That memorandum provided at page 5 that "[i]t is not expected that once the packages are in the ground that they will maintain their integrity and will provide protection against loss of contents." Illinois Exh. 4.[4] It is clear from the memorandum that burial

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[4] The pertinent portion of the Memorandum provided:

> California Nuclear, Inc. [U.S. Ecology's predecessor] will bury packaged waste as received from customers or in packages prepared by the licensee. It is not expected that once the packages are in the ground that they will maintain their integrity and will provide protection against loss of contents. The packages containing radioactive wastes provide ease of handling and prevent spread of radioactive material during burial operations. Burial operations will be carried out in open pits or trenches. These trenches will be dug by standard earthmoving equipment so that they will be approximately 300 to 500 feet long, 20 to 40 feet wide, and 20 to 25 feet deep. Backfilling operations will normally be conducted at the end of each day's operations to minimize the dose rate to operating personnel and to minimize possible spread of contamination to the environment. Earth will be mounded over the top layer of packages in a trench so
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> *(Continued)*

operations were an ongoing activity which not only needed to be secured by the Licensee by a 6-foot chain link fence topped with barbed wire, but also required ongoing maintenance of buried materials. It should be noted that that same memorandum provided that "[t]he primary purpose of [ownership of the site] is to assure the necessary long-term control of such land in the event the licensee is unable, for any reason, to maintain the operation." We do not read that language to authorize the Licensee to unilaterally abandon its obligation to the buried material. Rather, the language contemplates the longer-term responsibility of the State, the duration of whose existence can clearly be anticipated to be considerably longer than the duration of the existence of a private enterprise.

The foregoing recitation of license terms and conditions and the nature of the Licensee's burial activities clearly describes an ongoing and active responsibility for buried materials. That responsibility remains regardless of whether the possession argument were to be resolved in favor of U.S. Ecology, but the possession argument cannot be so resolved because the term as used in all the documents cited by U.S. Ecology fundamentally relates to the long-established Commission policy against having a commercial entity, or for that matter a state, possess an amount of radioactive waste materials sufficient to form a critical mass without the appropriate NRC license.

Accordingly, we hold in answer to the first issue posed by these motions for summary disposition that U.S. Ecology, Inc., has a continuing responsibility under its license for radioactive waste materials buried at the Sheffield site and that the concept of "possession," as it relates to source, byproduct, or special nuclear material in this case, relates only to the 10 C.F.R. § 150.11(b) critical mass limitation.

B. Termination Issue

A license is a grant by a governmental agency, in this instance the Nuclear Regulatory Commission, "of the right to engage in conduct that would be improper without such a grant." 4 Mezines, Stein, Gruff, *Administrative Law* § 41.01 (1985). That right carries with it specified obligations set out in the form of regulations, official guidance, and orders. It is clear from the Atomic Energy Act itself that both the grant and the termination of rights and obligations under a license was subject to the overriding concern for the public health and safety.

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that there will be a minimum of 4 feet of earth at the center and 3 feet of earth at the edges. The mounding provides a measure of protection against infiltration of water into the trench. Concrete monuments will be erected at each end of a filled trench. A metal plate will be placed on each monument which will specify the total activity of byproduct, source, and special nuclear material contained in the trench at the time of burial and the date on which the monuments were erected. The burial area will be surrounded by a 6 foot cyclone-type fence topped with barbed wire to prevent unauthorized entry. The fenced area and buildings within the area will be locked at all times when work is not being performed.

While it is clear with respect to materials licenses that the Commission's policies have been evolving over the life of the U.S. Ecology license, it is equally clear that the Commission has never permitted a licensee to terminate its license unilaterally where continuing health and safety concerns remained. Thus, the examples cited by U.S. Ecology of the termination of a license to store and possess nuclear materials without further activity is inapposite to the situation presented by buried radioactive waste. In those instances, no threat to the public health and safety remained. The absence of regulations or fixed procedures for approval or conditioning of such license termination is not controlling because in those early years review and approval was conducted by the Staff in the ordinary course of business on a case-by-case basis. The NRC's focus during the period was primarily on opening, not closing, burial sites. However, it is eminently clear that the medium in which the waste was being buried, land, was a complex of elements and factors constantly subject to change. Thus, NRC and U.S. Ecology were aware from the outset that buried waste would require not only ongoing monitoring but ultimately final stabilization in the ground consonant with current technology at the time of site closure. Clearly, the Commission did not and could not permit storage licensees to leave radioactive materials unattended and simply walk away.

Similarly, the record is also clear that a license was required before any "person" could obtain and retain custody of radioactive materials. We find compelling the argument of Illinois and the Staff that the State of Illinois has never been granted a license for any kind of radioactive materials.

It is equally clear that the statutory scheme requiring state ownership of radioactive waste burial grounds was not intended to resolve near-term obligations to stabilize such sites, but rather was intended to provide an ultimately responsible institution over hundreds of years after a burial site had been closed and the commercial entity had departed. Thus, U.S. Ecology's argument that Illinois had title to radioactive waste from the time of its arrival at Sheffield is not persuasive. Although not saying so in so many words, the statutory scheme clearly distinguishes between title to, and custody of, radioactive waste. The obligations at issue in this dispute relate to custody, not to title.

Nor do we find that the Illinois statute or the lease language operated to make the State of Illinois a guarantor for U.S. Ecology's burial obligation under its license with the Nuclear Regulatory Commission. At most the language might be thought to make Illinois an indemnitor with all of its rights against U.S. Ecology preserved.

Similarly, we do not find that the perpetual maintenance fund was intended to serve as a liquidated damages clause. The State's view of the purpose of the fund better fits the overall statutory scheme, namely, that the fund was intended to be used to defray perpetual maintenance costs after the terms and conditions of the site closure had been satisfied by the Licensee. To conclude otherwise

again would be to render the State a guarantor of U.S. Ecology's licensing obligations, a reading for which we can find no support.

Finally, we are persuaded that the license language itself in Amendment No. 7 subjecting U.S. Ecology to "all other applicable rules, regulations, orders of the Atomic Energy Commission now or hereafter in effect" was intended to bind U.S. Ecology to the site stabilization and closure requirements ultimately set out in Part 61. It was clear in the period of the late 1950's and early 1960's, when land burial was first authorized, that a new solution to one of the problems of a new technology was just beginning to be addressed. It is also clear that the solution would be of an evolutionary nature. Thus, the parties included language in the license that specifically contemplated future changes to regulations governing disposal of radioactive waste. Such language was congruent with the federal government's fundamental responsibility to protect the public health and safety.

Consequently, with respect to the second issue to be decided, we find no support for the proposition that U.S. Ecology can unilaterally terminate License No. 13-10012-1 for activities at Sheffield without affirmative action by the Commission, and we hold that U.S. Ecology cannot so terminate its license.

VI. NEED FOR HEARING

The conclusions of this decision were communicated to all parties by telephone conference call on February 20, 1987. All parties indicated their belief that the board should now set for hearing the issue of the conditions to be imposed on U.S. Ecology for closure of the Sheffield site before it can terminate its license. March 24, 1987, was agreed to by all parties as the date for commencement of the hearing. The board understands that settlement negotiations on the remaining issue are continuing and that the prospects for settlement seem favorable. While we encourage the parties to continue these negotiations, we conclude that a schedule for hearing should be set to resolve the remaining issue if the negotiations for any reason do not succeed.

VII. ORDER

For all the foregoing reasons and upon consideration of the entire record in this matter, it is, this 20th day of February 1987, ORDERED:

1. That the Motion by U.S. Ecology, Inc., for Summary Disposition is denied;

2. That the parties are directed to file prefiled testimony and proposed findings of fact and conclusions of law to be received by the Board and the parties on or before March 16, 1987; and

3. That the hearing in the captioned matter, preceded by a site visit on March 23, 1987, shall commence on March 24, 1987, at a time and place to be determined.

THE ATOMIC SAFETY AND
LICENSING BOARD

B. Paul Cotter, Jr. Chairman
ADMINISTRATIVE JUDGE

Dr. Jerry R. Kline
ADMINISTRATIVE JUDGE

Dr. Emmeth A. Luebke
ADMINISTRATIVE JUDGE

Dated at Bethesda, Maryland,
this 20th day of February 1986.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Sheldon J. Wolfe, Chairman
Frederick J. Shon
Dr. Oscar H. Paris

In the Matter of

Docket Nos. 50-289-OLA-1
50-289-OLA-2
(Steam Generator
Plugging Criteria)

GENERAL PUBLIC UTILITIES
NUCLEAR CORPORATION, *et al.*
(Three Mile Island Nuclear
Station, Unit 1)

February 27, 1987

The Licensing Board grants Licensee's motion for termination of proceedings with respect to Technical Specification Change Requests 148 and 153.

OPERATING LICENSE AMENDMENTS: TERMINATION OF PROCEEDINGS

Absent objections, the Board grants the motion to terminate proceedings.

MEMORANDUM AND ORDER

(Granting Licensee's Motion for Termination of Proceedings)

MEMORANDUM

On November 5, 1985, Licensee had filed with the NRC Staff Technical Specification Change Request (TSCR) 148 wherein approval was sought to

maintain the 40% throughwall limit on the secondary side of steam generator tubes but to replace the 40% limit on the primary side of tubes with a sliding scale which would go from 40% to 70% throughwall depending on the size of the defect. On February 4, 1986, Licensee had filed TSCR 153 which in substance sought approval to change the repair criteria to allow the Licensee not to repair tubes under certain circumstances, if a tube had a defect up to 50% tube wall penetration.

Ultimately, Three Mile Island Alert, Inc., was granted leave to intervene, the Commonwealth of Pennsylvania was granted leave to participate as an interested State, the two cases were consolidated, and a hearing was scheduled. On April 18, 1986, upon a determination of no significant hazards consideration, the Staff granted TSCR 153 by issuance of Amendment No. 116 to Facility Operating License No. DPR-50. 51 Fed. Reg. 16,411 (May 2, 1986); *see also* 51 Fed. Reg. 7157 (Feb. 28, 1986). The authorization conferred by that amendment was temporary and has since expired. By letter dated December 23, 1986, the Staff notified the Licensee that TSCR 148 had been denied. The Notice of Denial, 52 Fed. Reg. 478 (Jan. 6, 1987), specified that Licensee could demand a hearing with respect to the denial on or before February 5, 1987. Licensee did not demand such a hearing.

On February 10, 1987, Licensee filed a motion for termination of proceedings.

ORDER

Absent objections, Licensee's motion for termination of proceedings is granted.

FOR THE ATOMIC SAFETY AND
LICENSING BOARD

Sheldon J. Wolfe, Chairman
ADMINISTRATIVE JUDGE

Dated at Bethesda, Maryland,
this 27th day of February 1987.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Charles Bechhoefer, Chairman
Glenn O. Bright
Dr. James H. Carpenter

In the Matter of

Docket No. 50-271-OLA
(ASLBP No. 87-547-02-LA)

VERMONT YANKEE NUCLEAR
POWER CORPORATION
(Vermont Yankee Nuclear Power
Station)

February 27, 1987

In a spent fuel pool expansion proceeding which is to be subject to the hybrid hearing procedures in 10 C.F.R. Part 2, Subpart K, the Licensing Board considers the standing to intervene of various petitioners and establishes schedules for further filings and for a prehearing conference.

RULES OF PRACTICE: INTERVENTION

Intervention rules are the same for hearings involving hybrid procedures as for other proceedings. A petitioner for intervention must demonstrate standing; the specific aspect(s) of the subject matter of the proceeding as to which the petitioner wishes to intervene; and, prior to the first prehearing conference, at least one valid contention.

RULES OF PRACTICE: INTERVENTION (STANDING)

An organization can establish standing either as an organization or as a representative of one or more of its members whose interests may be affected. Residence of at least one member in close proximity to the facility, standing alone,

would establish such representative standing. To do so, the organization must provide the name and address and representation authorization from at least one member with a sufficient interest in the proceeding.

RULES OF PRACTICE: INTERVENTION (DISCRETIONARY)

Although a licensing board may grant intervention as a matter of discretion, it need not consider doing so where a party has not addressed the criteria governing discretionary intervention.

MEMORANDUM AND ORDER

(Schedules for Further Filings and for Prehearing Conference)

Pending before this Board are requests for a hearing and petitions for leave to intervene in a proposed expansion of the spent fuel pool of the Vermont Yankee Nuclear Power Station, a facility located in Vernon, Vermont, approximately 5 miles south of Brattleboro, Vermont. Petitioners are the New England Coalition on Nuclear Pollution (NECNP), the State of Vermont, and Attorney General James M. Shannon, on behalf of the Commonwealth of Massachusetts (Massachusetts). Responses to each of the petitions have been filed by Vermont Yankee Nuclear Power Corp. (Applicant) and by the NRC Staff.

All three petitioners seek intervention as parties under 10 C.F.R. § 2.714. In addition, Massachusetts also seeks to participate as an "interested State" under 10 C.F.R. § 2.715(c).

The notice of opportunity for hearing in this proceeding was originally published on June 18, 1986, and required that intervention petitions be submitted by July 18, 1986 (51 Fed. Reg. 22,226-27, 22,245-46). No one sought intervention, although NECNP did file certain comments on July 21, 1986 (apparently supplemented by filings dated September 19, 1986, and November 19, 1986). On December 31, 1986, however, the Commission renoticed this proceeding, on the ground that the original notice, due to oversight, had omitted any notice of the applicability of the hybrid hearing procedures set forth in 10 C.F.R. Part 2, Subpart K (51 Fed. Reg. 47,324). The new notice permitted intervention requests to be filed by January 30, 1987, but conditioned their timeliness on a petitioner's invocation of the hybrid procedures. (Normally the hybrid procedures could only be invoked by a party, but the Commission's revised notice permitted petitioners to do so.) The three petitions before us were filed on January 29 or 30, 1987, and each has invoked the hybrid procedures. They are thus all timely.

Under governing intervention rules, which are the same for hearings involving hybrid procedures as for other proceedings, a petitioner for intervention as a party must demonstrate standing — i.e., that its "interest may be affected by the results of the proceeding" — and the specific aspect(s) of the subject matter of the proceeding as to which the petitioner wishes to intervene (10 C.F.R. § 2.714(a)). In addition, prior to the first prehearing conference, a petitioner must set forth at least one valid contention (10 C.F.R. § 2.714(b)).

Both the Applicant and Staff agree that Vermont and Massachusetts have standing to intervene pursuant to 10 C.F.R. § 2.714. We agree. In addition, as the Staff observes, Massachusetts would qualify to participate as an "interested State" under 10 C.F.R. § 2.715(c). Subject to the submission by each of at least one acceptable contention, we are prepared to admit Vermont and Massachusetts as parties. In addition, subject to the admission of at least one contention sponsored by any petitioner, we will permit Massachusetts to participate as an "interested State" on matters not encompassed by any of its accepted contentions.

NECNP could establish standing to participate either as an organization or as a representative of one or more members. To establish organizational standing, NECNP would have to demonstrate that it (as an organization) will be injured and that the injury is not a generalized grievance shared in substantially equal measure by all or a large class of citizens. *Transnuclear, Inc.* (Ten Applications for Low-Enriched Uranium Exports to EURATOM Member Nations), CLI-77-24, 6 NRC 525, 531 (1977); *Portland General Electric Co.* (Pebble Springs Nuclear Plant, Units 1 and 2), CLI-76-27, 4 NRC 610, 613-14 (1976). NECNP has not sought to establish this type of organizational standing.

In addition, an organization such as NECNP may also establish standing as the representative of members who themselves have an interest that may be affected. *Houston Lighting and Power Co.* (South Texas Project, Units 1 and 2), ALAB-549, 9 NRC 644, 646-47 (1979); *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-322, 3 NRC 328, 330 (1976). Residence of at least one member in close proximity to a facility, standing alone, would establish such an interest. *Virginia Electric and Power Co.* (North Anna Power Station, Units 1 and 2), ALAB-522, 9 NRC 54, 56 (1979). NECNP is apparently seeking to establish its standing through representation of the interests of one or more of its members.

To follow this route, a petitioner must identify at least one member (by name and address) whose interest may be affected and provide some concrete indication that the member has authorized the organization to represent him or her in the proceeding. *Houston Lighting and Power Co.* (Allens Creek Nuclear Generating Station, Unit 1), ALAB-535, 9 NRC 377, 393-97 (1979). NECNP has pointed out that approximately 100 of its 450 members live in the Brattleboro-Putney Vermont area (apparently within approximately 30-35 miles of the facility), that over 50 of them live within 10 miles of the facility, and that the

health and safety of these members in particular would be jeopardized by the requested amendment. But NECNP has failed to provide the name and address of any of these members or authorization for NECNP to represent them in this proceeding.

Although the interest and authorization of one or more of these members would likely be sufficient to establish standing under the criteria set forth in *North Anna*, ALAB-522, *supra*, we cannot admit NECNP as a party unless it provides the name, address, and authorization of at least one member with a sufficient interest in the proceeding.[1] At the present time, NECNP may amend its petition without leave of the Board (10 C.F.R. § 2.714(a)(3)), and the Staff recommends that we provide NECNP with an opportunity to do so. As set forth below, we are providing NECNP that opportunity and setting forth a schedule for it to do so.[2]

In addition to establishing its standing, a petitioner for intervention must set forth the aspect(s) of the proceeding in which it wishes to intervene. All three petitioners have done so, and the Applicant and Staff offer no objection to our finding those statements to be sufficient. We find at least one of the aspects set forth by each petitioner to be within the proper scope of this proceeding and that all of the petitioners have fulfilled this portion of the Commission's intervention requirements.

In sum, Vermont and Massachusetts have established the standing and "aspects" requirements, and NECNP has also satisfied the "aspects" requirement. NECNP need fulfill only one additional requirement to perfect its standing. All petitioners must submit at least one adequate contention to participate as parties. Accordingly, we are providing for a prehearing conference and establishing dates for the filing of contentions, further information concerning NECNP's standing, and responses by the Applicant and Staff.

Based on the foregoing, it is, this 27th day of February 1987, ORDERED:

1. Petitioners for intervention must file (mail) their contentions by Monday, March 30, 1987.

2. NECNP must file (mail) additional information concerning its standing by the same date (Monday, March 30, 1987).

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[1] Authorization may perhaps be inferred from the nature of the organization, but NECNP has thus far not provided sufficient information to support such a determination. *Allens Creek*, ALAB-535, *supra*, 9 NRC at 396.

[2] Although we have authority to grant intervention as a matter of discretion, NECNP has not addressed the criteria under which we could consider its intervention under that authority. *See Pebble Springs*, *supra*, CLI-76-27, 4 NRC at 616; *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), CLI-83-25, 18 NRC 327, 333 (1983); *Florida Power & Light Co.* (St. Lucie Nuclear Power Plant, Unit 2), LBP-87-2, 25 NRC 32 (1987).

3. The Applicant is requested, at its earliest convenience, but no later than March 30, 1987, to provide each Board member with a copy of the application letter, dated April 25, 1986, together with any updating information concerning the application that has been filed with the NRC.

4. The Applicant and Staff are invited to respond to the above filings of petitioners. Such responses must be filed so that they are *in our hands* (as well as the hands of the petitioners) by Monday, April 13, 1987.

5. A prehearing conference is hereby scheduled for Tuesday, April 21, 1987 (commencing at 9:30 a.m.), and, to the extent necessary, Wednesday, April 22, 1987 (commencing at 9:00 a.m.). The conference will be held at the U.S. District Court, Post Office and Courthouse Building, 204 Main St., Brattleboro, VT.

6. The Board will hear oral limited appearance statements (*see* 10 C.F.R. § 2.715(a)) from 9:00-10:00 a.m. on Wednesday, April 22, 1987 (or such lesser time as is necessary to accommodate speakers who are present). If necessary, the Board will schedule other oral limited appearance sessions later in the proceeding.

7. The Board desires a tour of the spent fuel pool of the facility, including equipment utilized in cooling the facility, accompanied by representatives of any petitioners (or parties) who wish to attend. The Board calls upon the Applicant to arrange such a tour for either Thursday morning, April 23, 1987, or (if time permits) the afternoon of Wednesday, April 22. (After receipt of proposed contentions, we will have a better understanding of the time the conference will require.)

FOR THE ATOMIC SAFETY AND
LICENSING BOARD

Charles Bechhoefer, Chairman
ADMINISTRATIVE JUDGE

Dated at Bethesda, Maryland,
this 27th day of February 1987.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR REACTOR REGULATION

Harold R. Denton, Director

In the Matter of

Docket Nos. 50-295
50-373
STN 50-454

COMMONWEALTH EDISON COMPANY
(Zion Station, Unit 1)
(Byron Nuclear Power Station, Unit 1)
(LaSalle County Station, Unit 1)
AND ALL LIGHT-WATER REACTORS

February 10, 1987

The Director, Office of Nuclear Reactor Regulation, denies an emergency relief petition dated August 13, 1986, and sponsored by a number of individuals.

The petition sought suspension of the operating licenses for the Zion Station Unit 1, LaSalle County Station Unit 1, and Byron Nuclear Power Station Unit 1 facilities of the Commonwealth Edison Company (CECO) and other similarly situated facilities due to alleged inadequacies in containment integrated leak rate test (CILRT) practices. It was alleged that the testing was at variance with the Commission's requirements for a CILRT, specifically 10 C.F.R. Part 50, Appendix J. It was alleged that there were deficiencies in computer programs used during the testing and that certain data were improperly replaced by other data, allegedly in violation of the Commission's requirements.

The Director determined that the allegations raised in the petition concerning the application of certain CECO computer programs to containment leak rate testing at CECO facilities were unsubstantiated. Rather, based upon CILRTs conducted by CECO for its LaSalle, Zion, and Byron facilities, and the independent review and oversight of these tests conducted by NRC inspectors, these facilities and others similarly situated conform to the Commission's requirements with respect to containment leak rate testing.

DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206

INTRODUCTION

An emergency relief petition dated August 13, 1986, sponsored by a number of individuals (Petitioners) was submitted to my office pursuant to 10 C.F.R. § 2.206. The petition sought suspension of the operating licenses for the Zion Station Unit 1, LaSalle County Station Unit 1, and Byron Nuclear Power Station Unit 1 facilities of the Commonwealth Edison Company (CECO) and other similarly situated facilities due to alleged inadequacies in containment integrated leak rate test (CILRT) practices. It was alleged that the testing was at variance with the Commission's requirements for a CILRT, specifically 10 C.F.R. Part 50, Appendix J. It was alleged that there were deficiencies in computer programs used during the testing and that certain data were improperly replaced by other data, allegedly in violation of the Commission's requirements.

I acknowledged receipt of the petition in my letter to certain Petitioners dated October 22, 1986. In that letter, I also addressed the Petitioners' request for emergency action. I declined to take any immediate action with respect to the facilities referenced in the petition based upon the close monitoring of CILRTs at commercial nuclear facilities by NRC inspectors and the confirmatory calculations that are routinely performed by the NRC with respect to these tests. With respect to the facilities referenced in the petition, I noted that NRC inspection reports had been issued describing the CILRTs that have been performed and, based upon this NRC surveillance of the testing, I saw no need to take any emergency action as requested in the petition. I noted that the NRC Staff would continue to review the petition and that I would issue a formal decision with regard to it in the reasonably near future. My Decision in this matter follows.

DISCUSSION

The petition contains a number of issues with respect to containment integrated leak rate testing. The issues may be broadly placed into three categories: (1) allegations regarding the general methodology associated with CILRTs, (2) allegations concerning the validity of certain CILRTs performed at the Zion Station Unit 1 in 1982 and 1984, and (3) allegations related to certain computer programs employed by CECO in conducting CILRTs for Zion, LaSalle, and Byron units.

I have had the opportunity to examine and evaluate allegations in the first two categories in responding to previous petitions pursuant to § 2.206.[1]

In DD-84-6, *supra*, I addressed allegations that there were serious errors, defects, and loopholes in the industry standards that provide detailed measures for performing the CILRT required by 10 C.F.R. Part 50, Appendix J.[2] The specific alleged defects that I addressed in that decision included:

(1) the equation used to calculate containment air mass at any given time is wrong;
(2) the final calculated leakage rate may be "fudged" in a variety of ways to presumably yield an invalid leak rate; and
(3) there are "loose" requirements for the permanent archiving of raw test data and other data essential for test evaluation.

In concluding in that decision that these so-called defects did not call into question the adequacy of the Commission's regulations with regard to CILRTs, I considered the claims of Zinovy Reytblatt which were offered in support of the petitions discussed in that decision. I note this fact since Z. Reytblatt is a cosponsor of the same allegations put forth in this latest petition pursuant to § 2.206. *See* Exhibit A to the Reytblatt affidavit attached to the instant petition. In sum, after considering the allegations raised in the earlier petitions including the claims of Z. Reytblatt, I concluded that current regulations regarding CILRTs of commercial nuclear facilities provided reasonable assurance that the public health and safety were adequately protected. As the claims in the current petition with respect to containment integrated leak rate testing methodology are essentially repetitive of those I have already considered, I do not intend to discuss them further.

With respect to the second category of allegations, specifically those dealing with the adequacy of a CILRT performed at the Zion nuclear facility, I have considered the adequacy of containment leak rate testing for the Zion facility in two Director's Decisions, specifically DD-85-2 and DD-85-10, *supra*. In DD-85-2, I noted that Regional inspection activities undertaken as a result of the Petitioner's allegations in that matter, which were also supported by an affidavit of Z. Reytblatt, identified deficiencies in the CILRT performed for the Zion nuclear facility in 1981 and 1983. As a consequence, CECO shut down the Zion facility and performed a valid CILRT, which was witnessed by Region III inspectors.

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[1] Previous decisions that I have issued regarding the adequacy of containment integrated leak rate testing in general, and, more specifically, with regard to certain facilities of Commonwealth Edison Company include: *Commonwealth Edison Co.* (LaSalle County Station, Units 1 and 2), DD-84-6, 19 NRC 891 (1984); *Commonwealth Edison Co.* (Zion Station, Unit 1), DD-85-2, 21 NRC 270 (1985); *Commonwealth Edison Co.* (Zion Station, Unit 1), DD-85-10, 22 NRC 143 (1985).

[2] The industry standards are specifically the American Nuclear Society (ANS) Standard N45.4-1972, "Leakage Rate Testing of Containment Structures for Nuclear Reactors," and the American National Standards Institute (ANSI)/ANS Standard 56.8-1981, "Containment System Leakage Testing Requirements."

On March 6, 1985, Z. Reytblatt himself submitted a petition to my office pursuant to § 2.206 regarding CILRTs. New issues raised in that petition concerned alleged inadequacies in certain software used by licensees to conduct CILRTs. Reytblatt suggested that such software might have been used with respect to Zion Unit 1 leak rate testing. The Petitioner also made allegations concerning the validity of the verification test performed for the July 1984 Zion CILRT.

In DD-85-10, the NRC determined that the software identified by Petitioner had never been used for the CILRT for Zion. With respect to the Petitioner's concerns regarding the July 1984 Zion Unit 1 CILRT, the Staff reviewed the Petitioner's concerns and concluded that, contrary to the assertions of the Petitioner, an appropriate test was conducted. With respect to the Petitioner's claims that an invalid verification test was conducted, NRC inspectors reviewed the circumstances of the verification test and concluded that the test did confirm the acceptability of the CILRT performed for Zion Unit 1. Thus, concerns raised in this most recent petition with respect to the methodology employed for the Zion CILRT have already received NRC consideration and I do not intend to discuss them further in this Decision.[3]

The remaining allegations of the instant petition specifically allege that there were deficiencies in the computer programs used during integrated leak rate testing at the CECO nuclear power plants in that certain test data were improperly replaced by other data. An affidavit from Z. Reytblatt (Associate Professor at the Illinois Institute of Technology) submitted with the petition in support of the allegation purports to show that subroutines of CECO computer programs can replace actual test data with other data, and that such manipulations have taken place in violation of the Commission's CILRT requirements, as confirmed by actual computer output. A letter from J. Kenevan (Associate Professor at the Illinois Institute of Technology) is also submitted in support of the petition.

The letter from J. Kenevan, dated July 7, 1986, addresses the data storage properties of a computer code which apparently was used by CECO in the conduct of the CILRT at the Byron Station. The letter observes that two program options, namely, "EDIT DATA" and "DELETE DATA FILE," when invoked, result in modification of the data saved, and that with regard to the latter option,

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[3] The petition also makes reference to a public meeting held on October 17, 1985, at the NRC's Region III offices. The October 17, 1985 meeting was held in an attempt to engage Z. Reytblatt in a constructive technical review of his comments as he had requested. the petition and specifically the affidavit of Reytblatt and its Exhibit D appear to suggest that the NRC represented at this meeting that a technical review would be conducted and that review never occurred. Such a suggestion is incorrect. At that meeting, as Exhibit D correctly reflects, the NRC Staff represented that it would study the entire record of the meeting and would correspond with Z. Reytblatt. This in fact occurred. On November 18, 1985, Mr. Robert Bernaro of the NRC Staff corresponded with Z. Reytblatt and provided him with the Staff's assessment of the October 17, 1985 meeting. To the extent the petition asserts that the NRC Staff did not review the matters raised at the October 17, 1985 meeting and did not so inform Z. Reytblatt, those assertions are incorrect.

the program leaves no record that data have been deleted. Although J. Kenevan's brief statement is probably a factual assessment of the program capability, it also expresses what one would intuitively expect a data-gathering computer program to offer in the way of options. Nevertheless, in the context of the petition, as discussed more fully below, the implication is that the program options are provided for the express purpose of malicious falsification of the test record. On the contrary, the subject options are a necessary part of the program; they literally permit the compilation of bona fide test data. Thus, the Kenevan letter does not substantiate the allegations in the petition.

The affidavit of Z. Reytblatt alleges that the CECO computer programs contain options (specifically an option called "ERASE" or "WIPE") to permit test data to be manipulated, and attempts to show, with the aid of test data, that inappropriate data manipulation in fact occurred. The affidavit includes two exhibits (B and C) which contain background information to support statements made in the body of the affidavit.

The affidavit claims, in part, that the CECO computer programs contain an option that permits the discarding of data at the whim of the testing group, leaves no record that data were deleted, and places no limitations on the use of this option. Exhibit B of the affidavit is referenced to support this claim. Exhibit B consists of excerpted pages from a CECO program, which identifies the existence of an option (called "WIPE") that supposedly permits such data manipulation.[4]

All of the CECO programs contain an option of the type referred to above. Such an option has legitimate uses. The option may be used to purge erroneous data from storage, i.e., sensor data that may have become garbled in transmission to storage memory. The option may also be used to clear the storage memory prior to the start of an actual test, and to facilitate the performance of parameter studies using archived data. The petition is incorrect in stating that the program leaves no record that data were deleted. The fact that data have been deleted can be readily ascertained by examining the time intervals between data sets. The time at which a data set is obtained is not altered by the "WIPE" option. Therefore, since data are acquired at prescribed, uniform intervals, missing data sets are easily detected. With respect to Petitioners' claim that there are no limitations on the use of this option, it should be noted that current regulations are silent on the matter of the degree of data rejection. Thus, the Petitioners are

[4] The Petitioners also used the "WIPE" option issue to claim that the data for the 1983 Zion Unit 1 CILRT were fraudulently manipulated to obtain a negative leak rate. A negative leak rate, per se, is not indicative of a fraudulently conducted test, or a failed test. Rather, if the leak rate fluctuates around the zero mark it is indicative of the exceptional leaktightness of the containment, and reflects the statistical nature of the test data. Even though the Zion Unit 1 measured leak rate was slightly negative, test acceptance is based on the upper 95% confidence limit, which was a positive value. This leak rate value was more that a factor of 10 lower that the maximum allowable leak rate, which is itself set at 75% of the design leak rate.

incorrect when they claim that current regulations do not allow discarding more than 5% of the test data.

There are instances when data may be properly discarded.[5] Exhibit B contains a comment statement that addresses the provision in the code for dealing with bad sensor values within a subvolume. Data rejection is necessary when a malfunctioning sensor/channel is found. If, for example, a temperature sensor in a subvolume fails and is locked out, the remaining sensors are used to determine the average dry-bulb temperature of that subvolume. In the extreme, if there are no temperature sensors remaining in a subvolume that are functional, then the average temperature of an adjoining subvolume is used. This will, then, necessitate adjusting the calculational procedure programmed into the code at the start of the test when all instrument channels were considered to be functioning properly to exclude the data from channels found unreliable. Alternatively, the test may be interrupted to reestablish an effective instrumentation system. Whatever the course of action taken by a licensee is, it must be justifiable to NRC inspectors.

The treatment of test data in the manner described above is based on accepted engineering practice. The fact that a containment subvolume weighting coefficient could exceed 0.1, which the Petitioners claim is unacceptable, is not in violation of the requirements of Appendix J to 10 C.F.R. Part 50, or ANSI N45.4-1972. The regulations do not prescribe leak testing practices to this level of detail. Rather, the regulations emphasize the importance of stable containment test conditions; with appropriate stabilization, test results are relatively insensitive to wide variations in the magnitude of the weight coefficients. This has been shown to be the case in the October 17, 1985 meeting attended by Z. Reytblatt.

The Petitioners further charge that CECO computer programs can be manipulated to reinstate previously discarded data. Exhibit C of the Reytblatt affidavit is provided to demonstrate that this has been done. Exhibit C presents data sets from the July 1984 Zion Unit 1 CILRT which purportedly show that the readings from a "malfunctioning" sensor are suddenly declared valid. The Petitioners, however, errantly assumed that these data sets constituted bona fide data. On the contrary, they represent pretest data obtained during the preparatory stages of the test. In fact, as the data clearly show, the containment was not yet pressurized for the test. These data sets, then, were obtained when the containment and the data acquisition system were being prepared for the test. Furthermore, the

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[5] The Reytblatt affidavit contains unclear allegations concerning the rejection of CILRT data. The industry standard (ANSI/ANS 56.8-1981), which Z. Reytblatt is apparently referring to, provides guidance on the rejection of containment air mass data and raw data on the functionally dependent parameters, and prescribes that the rejection of data should be documented. Adherence to this standard is not a regulatory requirement. Nevertheless, based on Staff review of the CILRTs referred to by Z. Reytblatt, the utility's testing practices relative to data rejection are in keeping with this guidance.

data sets show a sensor being returned to service in the data acquisition system which is compatible with pretest activities. Consequently, Exhibit C does not support a claim that CILRT test data have been improperly manipulated.

The Reytblatt affidavit makes numerous assertions of impropriety which appear to evolve from an imprecise understanding of the functions of certain options typically provided for data control in leak test computer codes, a misinterpretation on the information appearing on printouts of data sets and a misunderstanding of regulatory requirements and industry guidelines. In any event, while the Staff does not review and approve computer codes used in the industry for the leak rate testing of containment structures, as noted above, NRC inspectors carefully scrutinize all aspects of such testing and obtain raw test data for analysis to independently assess the acceptability of leak rate test results. This has been done for each of the facilities identified by the Petitioners. NRC inspectors have observed CILRTs conducted by CECO and analyzed test data, and have found no evidence of wrongdoing on the part of CECO. The Staff concludes, therefore, that the Petitioners' claims have no technical or safety merit.

With respect to the technical assertions raised in this petition and which were discussed above, the allegations raised in the petition concerning the application of certain CECO computer programs to containment leak rate testing at CECO facilities are unsubstantiated. Rather, based upon CILRTs conducted by CECO for its LaSalle, Zion, and Byron facilities, and the independent review and oversight of these tests conducted by NRC inspectors, these facilities conform to the Commission's requirements with respect to containment leak rate testing.

CONCLUSION

Based upon the insubstantial nature of the technical assertions made by the Petitioners, the relief requested by the Petitioners based upon these assertions is denied. Specifically, I decline to require any further CILRTs at commercial nuclear power reactor facilities, nor is it necessary to shut down any facilities, or to undertake any studies and reviews such as those requested by Petitioners. Finally, with respect to the Petitioners' request that records from CECO CILRTs, including raw data and computer programs, be made public documents, I have addressed this issue in previous Director's Decisions where the same relief had been requested.[6] I decline such relief now for the same reasons as were stated there.

For the reasons stated in this Decision, the Petitioners' request for action pursuant to § 2.206 has been denied. As provided by 10 C.F.R. § 2.206(c), a

[6] DD-84-6, *supra*, 19 NRC at 895-96; DD-85-2, *supra*, 21 NRC at 272-73.

copy of this Decision will be filed with the Secretary for the Commission's review.

Harold R. Denton, Director
Office of Nuclear Reactor
Regulation

Dated at Bethesda, Maryland,
this 10th day of February 1987.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Alan S. Rosenthal, Chairman
Gary J. Edles
Howard A. Wilber

In the Matter of

Docket No. 50-322-OL-5
(EP Exercise)

LONG ISLAND LIGHTING
COMPANY
(Shoreham Nuclear Power Station,
Unit 1)

March 2, 1987

The Appeal Board denies a request by the Federal Emergency Management Agency (FEMA), a non-party to this operating license proceeding, for interlocutory review of portions of a Licensing Board order admitting for litigation two contentions challenging the adequacy of a completed exercise of the applicant's emergency response plan for the Shoreham facility.

RULES OF PRACTICE: NON-PARTY PARTICIPATION

It is well-settled that a non-party has the right to take an immediate appeal from an order granting discovery against it. This is attributable to the fact that, with regard to a non-party, such an order has the requisite degree of finality (i.e., is not deemed interlocutory). *See Commonwealth Edison Co.* (Zion Station, Units 1 and 2), ALAB-116, 6 AEC 258 (1973).

RULES OF PRACTICE: NON-PARTY PARTICIPATION

Some non-parties to NRC licensing proceedings — i.e., states and other governmental bodies participating in the proceeding by virtue of 10 C.F.R. 2.715(c) — possess broad appellate rights. FEMA's role, however, in NRC proceedings is *sui generis*. Whether it is entitled to the same appellate rights as enjoyed by State and local governments invoking section 2.715(c) is thus an open and difficult question.

RULES OF PRACTICE: INTERLOCUTORY APPEALS

The general policy of the Commission does not favor the singling out of an issue for appellate examination during the continued pendency of the trial proceeding in which that issue came to the fore. *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-271, 1 NRC 478, 483 (1975).

RULES OF PRACTICE: DIRECTED CERTIFICATION

Directed certification will be granted by an Appeal Board only where the ruling below either: (1) threatened the party adversely affected by it with immediate and serious irreparable impact which, as a practical matter, could not be alleviated by later appeal or (2) affected the basic structure of the proceeding in a pervasive or unusual manner. *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-405, 5 NRC 1190, 1192 (1977).

RULES OF PRACTICE: INTERLOCUTORY APPEALS

The basic structure of an ongoing adjudication is not changed simply because the admission of a contention results from a licensing board ruling that is important or novel, or may conflict with case law, policy or Commission regulations. *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), ALAB-791, 20 NRC 1579, 1583 (1984); *Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), ALAB-675, 15 NRC 1105, 1112-13 (1982). Similarly, the mere fact that additional issues must be litigated does not alter the basic structure of the proceeding in a pervasive or unusual way so as to justify interlocutory review of a licensing board decision. *Arizona Public Service Co.* (Palo Verde Nuclear Generating Station, Units 2 and 3), ALAB-742, 18 NRC 380, 384 (1983); *Virginia Electric and Power Co.* (North Anna Power Station, Units 1 and 2), ALAB-741, 18 NRC 371, 378 (1983).

RULES OF PRACTICE: INTERLOCUTORY APPEAL

The single exception to the general proscription against interlocutory appeals is provided by 10 C.F.R. 2.714a. Under that section, a party may appeal from the acceptance or rejection of contention(s) at the threshold if, but only if, such acceptance or rejection controlled the Licensing Board's disposition of the petition for intervention advancing the contention(s). 10 C.F.R. 2.714a.

RULES OF PRACTICE: INTERLOCUTORY APPEAL (IRREPARABLE INJURY)

The concept of irreparable injury as developed by the courts contemplates that the injury must be both certain and great, and must be actual and not theoretical. *Washington Metropolitan Area Transit Comm'n v. Holiday Tours, Inc.*, 559 F.2d 841, 843 n.3 (D.C. Cir. 1977).

RULES OF PRACTICE: INTERLOCUTORY APPEAL (IRREPARABLE INJURY)

Mere litigation expense, even substantial and unrecoupable cost, does not constitute irreparable injury. *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), CLI-84-17, 20 NRC 801, 804 (1984), *quoting Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-395, 5 NRC 772, 779 (1977), *quoting Renegotiation Board v. Bannercraft*, 415 U.S. 1, 24 (1974).

APPEARANCES

William R. Cumming, Washington, D.C., for the Federal Emergency Management Agency.

Donald P. Irwin, Richmond, Virginia, for the applicant Long Island Lighting Company.

Karla J. Letsche, Washington, D.C. (with whom **Martin Bradley Ashare,** Hauppauge, New York, **Herbert H. Brown** and **Lawrence Coe Lanpher,** Washington, D.C., **Fabian G. Palomino,** Albany, New York, and **Stephen B. Latham,** Riverhead, New York, were on the brief) for the intervenors Suffolk County, New York, *et al.*

Edwin J. Reis (**Mary E. Wagner** on the brief) for the Nuclear Regulatory Commission staff.

MEMORANDUM AND ORDER

Before us is the petition of the Federal Emergency Management Agency (FEMA) for leave to appeal from portions of the Licensing Board's December 11, 1986 memorandum and order in the emergency planning exercise phase of this operating license proceeding involving the Shoreham nuclear facility.[1] Specifically, FEMA seeks interlocutory review of the reaffirmation in that order of the Board's prior acceptance for litigation of Contentions Ex 15 and 16, which had been advanced by intervenors, Suffolk County, New York, *et al.*[2]

In essence, these contentions assert that the February 13, 1986 exercise concerned with the emergency response plan of the applicant Long Island Lighting Company (LILCO) "could not and did not yield valid or meaningful results" respecting LILCO's ability to implement the plan.[3] According to the contentions, the exercise "did not include demonstrations or evaluations" of either "major portions" of the plan or the "emergency response capabilities of many persons and entities relied upon to implement" the plan.[4] As a consequence, the contentions aver, the exercise results did not provide a basis for a finding of "reasonable assurance" that adequate protective measures can and will be taken in the event of a radiological emergency at Shoreham.[5]

FEMA maintains that the admission of the contentions to the proceeding was foreclosed by an earlier Commission decision in this proceeding[6] and, further, that it will be irreparably harmed unless the contentions are excluded at this juncture. LILCO endorses FEMA's claim of Licensing Board error and urges us to rectify it. The intervenors insist that we lack jurisdiction to entertain the petition because FEMA is not a party to the proceeding; that, in any event, the well-established standards for interlocutory appellate review are not met here; and, finally, that Contentions Ex 15 and 16 were correctly accepted for litigation. For its part, the NRC staff urges us to undertake an examination of the merits of the controversy and to affirm the Licensing Board's admission of the contentions.

For the reasons stated below, we deny the petition.

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[1] *See* LBP-86-38A, 24 NRC 819.

[2] The FEMA petition also requested a stay of the December 11 order insofar as it permitted discovery concerning Contentions Ex 15 and 16. We denied that request in a January 5, 1987 order (unpublished).

[3] Suffolk County, State of New York, and Town of Southampton Memorandum Transmitting Exercise Contentions (August 1, 1986) at 16-31.

[4] *Id.* at 16, 25. In contrast to all other emergency response plans examined to date, both the offsite and onsite portions of this plan were developed and tested without the participation of state and local officials. *See* ALAB-818, 22 NRC 651, 659 (1985).

[5] *See* 10 C.F.R. 50.47(a)(1).

[6] *See* CLI-86-11, 23 NRC 577 (1986).

A. As the intervenors stress, FEMA was not admitted to this proceeding as a party.[7] But it does not perforce follow that FEMA lacks the standing to mount an appellate challenge to the admission of Contentions Ex 15 and 16. To the contrary, the matter is in considerable doubt.

In its brief to us, FEMA rested its claim of entitlement to seek appellate review upon the fact that, three years ago, we entertained on the merits its appeal from a Licensing Board order requiring it to release to Suffolk County certain agency documents concerning FEMA's emergency preparedness determinations for the Shoreham facility.[8] But that action is not controlling here. For, as we explained in a subsequent opinion in this proceeding, its foundation was the settled principle that a non-party has the right to take an immediate appeal from an order granting discovery against it.[9] In this instance, FEMA does not challenge a discovery order but, rather, is endeavoring to narrow the scope of the proceeding by the elimination of certain contentions admitted by the Licensing Board.[10] Nothing in any prior decision of the Commission or an appeal board directly supports the proposition that a non-party may pursue such a course.

By the same token, however, it is clear that at least some non-parties to NRC licensing proceedings do possess broad appellate rights — i.e., states and other governmental bodies participating in the proceeding by virtue of 10 C.F.R. 2.715(c).[11] FEMA, of course, is not such a participant. Rather, its role in our proceedings appears to be *sui generis:* insofar as we are aware, FEMA's responsibilities and privileges under its Memorandum of Understanding[12] are markedly different from those possessed by any other agency or organization. Whether it is entitled to the same appellate rights as enjoyed by state and local governments invoking section 2.715(c) is thus an open and difficult question.

Fortunately, in the circumstances of this case, it is unnecessary for us to resolve the question. For this much is plain: whatever may be its scope, FEMA's right to obtain interlocutory appellate review of an order concerned

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[7] FEMA participates in NRC proceedings pursuant to a Memorandum of Understanding (MOU) between itself and this Commission. The latest version of the MOU was signed in April 1985 and published at 50 Fed. Reg. 15,485 (1985). It provides, *inter alia*, that FEMA will appear in NRC licensing proceedings as part of the presentation of the NRC staff. Although its counsel "will normally present FEMA witnesses and be permitted, at the discretion of the NRC licensing board, to cross-examine the witnesses of parties other than the NRC witnesses, on matters involving FEMA findings and determinations, policies and operations," the MOU explicitly states that "FEMA is not a party to NRC proceedings." *Id.* at 15,487.

[8] *See* ALAB-773, 19 NRC 1333 (1984).

[9] ALAB-780, 20 NRC 378, 380-81 (1984) (*citing Commonwealth Edison Co.* (Zion Station, Units 1 and 2), ALAB-116, 6 AEC 258 (1973), and noting that the same right exists in federal judicial practice).

[10] To be sure, FEMA did ask us to stay discovery on Contentions Ex 15 and 16 pending the outcome of its petition. But as earlier noted (*supra* note 2), the stay request was denied. In this connection, it is our understanding, based on information provided at oral argument, that discovery on the contentions has now been completed. *See* App. Tr. 15-16.

[11] *See Gulf States Utilities Co.* (River Bend Station, Units 1 and 2), ALAB-317, 3 NRC 175, 176-80 (1976).

[12] *See supra* note 7.

with the issues to be litigated in the proceeding cannot exceed that enjoyed by the entities having acknowledged full-party status — i.e., the applicant, the intervenors, and the NRC staff.[13] As will be seen, on a showing akin to that made by FEMA in its appellate papers and at oral argument, none of those parties would satisfy the standard for obtaining at this juncture appellate review of the interlocutory order that FEMA would have us overturn. This being so, irrespective of how one may view FEMA's status in the proceeding, its petition must fail.

B.1. As we long ago observed, "[t]he general policy of the Commission does not favor the singling out of an issue for appellate examination during the continued pendency of the trial proceeding in which that issue came to the fore."[14] In the fulfillment of this policy, the Rules of Practice (with a limited exception not available to FEMA here) explicitly proscribe interlocutory appeals from Licensing Board orders.[15]

To be sure, this proscription does not preclude a party from requesting that we exercise our discretion, conferred by the directed certification provisions in the Rules of Practice,[16] to undertake an interlocutory review of a particular ruling below.[17] Because of our obligation to give effect to Commission policy respecting such reviews, however, we have granted directed certification only in the most extraordinary circumstances. More specifically, as stated in the *Marble Hill* proceeding:

> Almost without exception in recent times, we have undertaken discretionary interlocutory review only where the ruling below either (1) threatened the party adversely affected by it with immediate and serious irreparable impact which, as a practical matter, could not be alleviated by a later appeal or (2) affected the basic structure of the proceeding in a pervasive or unusual manner.[18]

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[13] It is true that, as previously noted, a non-party (but not a party) may take an immediate appeal from a discovery order. This is attributable, however, to the fact that, as to the non-party, such an order has the requisite degree of finality (i.e., is not deemed interlocutory). *See Zion*, 6 AEC at 258.

[14] *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-271, 1 NRC 478, 483 (1975). We additionally took note of the fact that a similar policy governs federal judicial proceedings. *Id.* at 483 n.11.

[15] 10 C.F.R. 2.730(f). The exception is found in 10 C.F.R. 2.714a, discussed *infra* pp. 135-36.

[16] *See* 10 C.F.R. 2.718(i).

[17] *See Seabrook*, 1 NRC at 482-83.

[18] *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-405, 5 NRC 1190, 1192 (1977). *See also Arizona Public Service Co.* (Palo Verde Nuclear Generating Station, Units 2 and 3), ALAB-742, 18 NRC 380, 383-84 (1983) ("interlocutory appellate review of licensing board orders is disfavored and will be undertaken as a discretionary matter only in the most compelling circumstances."). *Accord South Carolina Electric and Gas Co.* (Virgil C. Summer Nuclear Station, Unit 1), ALAB-663, 14 NRC 1140, 1162 (1981); *Houston Lighting & Power Co.* (South Texas Project, Units 1 and 2), ALAB-637, 13 NRC 367, 370 (1981); *Houston Lighting & Power Co.* (Allens Creek Nuclear Generating Station, Unit No. 1), ALAB-635, 13 NRC 309, 310 (1981); *Pennsylvania Power and Light Co.* (Susquehanna Steam Electric Station, Units 1 and 2), ALAB-593, 11 NRC 761 (1980); *Public Service Electric and Gas Co.* (Salem Nuclear Generating Station, Unit

(Continued)

Given that the injection of one or more additional issues into an ongoing case seldom has a pervasive or unusual effect on the basic structure of a proceeding, we have traditionally declined to review on an interlocutory basis rulings that simply admit another contention.[19] The basic structure of an ongoing adjudication is not changed simply because the admission of a contention results from a licensing board ruling that is important or novel,[20] or may conflict with case law, policy, or Commission regulations.[21] Similarly, the mere fact that additional issues must be litigated does not alter the basic structure of the proceeding in a pervasive or unusual way so as to justify interlocutory review of a licensing board decision.[22]

Just last June, we reemphasized these considerations in the context of the endeavor of the Attorney General of Massachusetts to obtain interlocutory appellate review of the rejection of a contention that he had submitted in the *Seabrook* proceeding. Although noting our doubt that the Licensing Board had correctly rejected the contention, we determined that it nonetheless did "not appear that the strict standards for the grant of discretionary interlocutory review are met here." This was because:

> We employ our directed certification authority only where a licensing board ruling either threatens the party adversely affected by it with immediate and serious irreparable impact that, as a practical matter, could not be alleviated by a later appeal, or affects the basic structure of the proceeding in a pervasive or unusual manner. Neither test ordinarily is satisfied where a licensing board simply admits or rejects particular issues for consideration in a case.[23]

It need be added on this score only that any relaxation of the *Marble Hill* directed certification standard at this late date to accommodate the FEMA challenge now before us would appear to clash with the purpose behind 10 C.F.R. 2.714a. That section provides the single exception to the general

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1), ALAB-588, 11 NRC 533, 536 (1980); *Puget Sound Power and Light Co.* (Skagit Nuclear Power Project, Units 1 and 2), ALAB-572, 10 NRC 693, 694 (1979); *Offshore Power Systems* (Floating Nuclear Power Plants), ALAB-517, 9 NRC 8, 11 (1979).

[19] *See, e.g., Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), ALAB-706, 16 NRC 1754 (1982). *Cf. Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), ALAB-687, 16 NRC 460, 464-65 (1982), *rev'd in part on other grounds*, CLI-83-19, 17 NRC 1041 (1983).

[20] *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), ALAB-791, 20 NRC 1579, 1583 (1984).

[21] *Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), ALAB-675, 15 NRC 1105, 1112-13 (1982). *See also Pennsylvania Power & Light Co.* (Susquehanna Steam Electric Station, Units 1 and 2), ALAB-641, 13 NRC 550, 552 (1981) (directed certification denied despite allegations that the Licensing Board's ruling was "in the teeth of the Commission's regulations and the Administrative Procedure Act" and "may have erroneously expanded the issues to be tried").

[22] *Palo Verde*, 18 NRC at 384; *Virginia Electric and Power Co.* (North Anna Power Station, Units 1 and 2), ALAB-741, 18 NRC 371, 378 (1983).

[23] *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-838, 23 NRC 585, 592 (1986), (*citing* (in addition to *Marble Hill*) *Project Management Corp.* (Clinch River Breeder Reactor Plant), ALAB-330, 3 NRC 613, 615, *rev'd on other grounds*, CLI-76-13, 4 NRC 67 (1976)).

proscription against interlocutory appeals. Under the express provisions of the section, a party may appeal from the acceptance or rejection of contention(s) at the threshold if, but only if, such acceptance or rejection controlled the Licensing Board's disposition of the petition for intervention advancing the contention(s). Thus, for example, a would-be intervenor may appeal immediately the rejection of *all* of its contentions and the resultant denial of its petition.[24] (Should, however, at least one of its contentions be accepted and its petition is granted, an interlocutory appeal will not lie.[25]) Conversely, in circumstances where an intervention petition is granted on the strength of the acceptance of one or more of the contentions set forth therein, another party to the proceeding may appeal at once if its claim is that all of the contentions should have been rejected and the petition therefore denied.[26]

Had it so desired, the Commission could have conferred a broader entitlement to obtain interlocutory review of threshold Licensing Board action on contentions. More particularly, it could have authorized an interlocutory appeal from the acceptance or rejection of *any* contention, whether or not the Licensing Board's ruling affected the grant or denial of the intervention petition. That that alternative was not adopted provides room for a reasonable inference that the Commission was persuaded that, where the grant or denial of intervention is not in issue, absent exceptional circumstances the appellate review of Licensing Board action on the admission of particular contentions should await the rendition of an initial decision.

2. In light of the foregoing, the FEMA petition might well have been a fit candidate for summary denial. We were deterred from pursuing that course, however, by the representation in the petition that, unless the admission of Contentions Ex 15 and 16 were overturned at this time, "FEMA's ongoing exercise program [would] be irreparably harmed."[27] Although nothing in that filing adequately supported such a sweeping claim, we nonetheless could not dismiss it lightly. If, in fact, a sister federal agency was being threatened with immediate and serious irreparable programmatic injury because of Licensing Board action, our intercession might indeed be compelled.

Accordingly, we decided to take the unusual step of calendaring the FEMA petition for oral argument. And its counsel was orally requested in advance of the argument to be prepared to particularize the irreparable programmatic harm that

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[24] *See* 10 C.F.R. 2.714a(b).

[25] *See, e.g., Puget Sound Power and Light Co.* (Skagit/Hanford Nuclear Power Project, Units 1 and 2), ALAB-712, 17 NRC 81 (1983).

[26] *See* 10 C.F.R. 2.714a(c).

[27] FEMA Petition for Leave to Appeal, etc. (December 31, 1986) at 11.

FEMA assertedly would suffer unless Contentions Ex 15 and 16 were excluded from the proceeding at this time.[28]

a. In response to that request, we were told by counsel at the oral argument that, as a consequence of the admission of Contentions Ex 15 and 16, FEMA would have to reallocate its limited resources from currently operating facilities to non-operating plants.[29] When pressed to develop this proposition, however, counsel conceded that discovery (in the form of document production and the taking of the depositions of FEMA witnesses) would be completed on the following day (i.e., February 6).[30] He further acknowledged that FEMA did not intend to present at the evidentiary hearing witnesses other than those individuals earlier designated by FEMA and already deposed.[31] According to counsel, FEMA's concern about the expenditure of resources was rooted in the amount of time that its witnesses might be required to spend at the hearing:

> MR. CUMMING [FEMA Counsel]: . . . If the Board were able to represent that FEMA [would be] on and off the stand in three days with respect to the other parties' interest in our witness, that might [present a different situation]. But we believe that in fact because of Contentions [Ex] 15 and 16 we will have a substantially more lengthy proceeding, our witnesses will be on the stand far longer than three days, and in fact perhaps even months.
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> * * * *
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> JUDGE EDLES: And if we get these two contentions out of there they will not be on for months; is that what you're telling me?
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> MR. CUMMING: I would say it substantially confines the scope of the proceeding to what we did on the day of the exercise and not what we did not do and why we did not do it.[32]

This falls far short of the showing required to support a claim of threatened irreparable injury. To begin with, as the Court of Appeals for the District of Columbia Circuit has pointed out, "[a]lthough the concept of irreparable harm does not readily lend itself to definition, the courts have developed several well known and indisputable principles to guide them in the determination of whether this requirement has been met." One of those principles is that "the injury must be both certain and great; it must be actual and not theoretical." And implicit in that principle is

> the further requirement that the movant substantiate the claim that irreparable injury is "likely" to occur. *See Washington Metropolitan Area Tra sit Comm'n v. Holiday Tours, Inc.*, 559 F.2d [841, 843] n.3 [D.C. Cir. 1977]. Bare allegations of what is likely to occur are of no value since the court must decide whether the harm will *in fact* occur. The movant must

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[28] As a general rule, petitions for interlocutory review are acted upon without oral argument. If the petitioner's papers do not themselves establish that the *Marble Hill* standard is met, that is usually the end of the matter.
[29] App. Tr. 12-13.
[30] App. Tr. 15-16.
[31] App. Tr. 17.
[32] App. Tr. 17-18.

> provide proof that the harm has occurred in the past and is likely to occur again, or proof indicating that the harm is certain to occur in the near future. Further, the movant must show that the alleged harm will directly result from the action which the movant seeks to enjoin.[33]

Manifestly, no such proof has been provided by FEMA here. To the contrary, nothing more than rank speculation undergirds its counsel's assertion that the addition of the two contentions will cause its witnesses to "be on the stand far longer than three days, and in fact perhaps even months."

Further, it is equally well-settled — both in the courts and in our practice — that " '[m]ere litigation expense, even substantial and unrecoupable cost, does not constitute irreparable injury.' "[34] Even had FEMA established the requisite degree of probability that its witnesses would be required to devote a protracted period of time to the hearing on Contentions Ex 15 and 16, its irreparable injury claim would have been torpedoed by this principle. For nothing put before us lends credence to its counsel's insistence that, unless relieved of the obligation to provide testimony at the hearing on Contentions Ex 15 and 16, FEMA will be required to divert resources from currently operating facilities to non-operating plants. In this connection, we were told at oral argument by intervenors' counsel, without contradiction, that only one of the three identified FEMA witnesses is employed by that agency (the other two being contractor employees).[35] We were additionally informed that the FEMA employee has been transferred out of the radiological emergency preparedness program and will serve as a witness in this proceeding on a detail.[36] In light of these apparent facts, it is difficult to see any possible basis for a conclusion that FEMA would be threatened with irreparable programmatic injury if its counsel's prognostication respecting the length of the hearing on Contentions Ex 15 and 16 were to turn out to be correct. Be that as it may, it was FEMA's obligation to demonstrate, rather than simply to allege, that

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[33] *Wisconsin Gas Co. v. FERC*, 758 F.2d 669, 674 (D.C. Cir. 1985). That decision involved an endeavor to stay the operation and effect of certain orders issued by the Federal Energy Regulatory Commission. One of the criteria for the grant of such relief is, of course, a showing by the movant that, in the absence of a stay, it likely will be irreparably harmed. *Virginia Petroleum Jobbers Ass'n v. FPC*, 259 F.2d 921, 925 (D.C. Cir. 1958). The Commission's Rules of Practice governing stay applications also adopt this criterion (as well as the others set forth in *Virginia Petroleum Jobbers*). *See* 10 C.F.R. 2.788(e). Thus, most of the judicial and Commission jurisprudence in the area of irreparable injury has been developed in connection with stay applications. That consideration does not, however, affect the application of the jurisprudence here: i.e., there is no reason to import a different and unfamiliar concept of irreparable injury where the question is the entitlement to interlocutory appellate review rather than to a stay *pendente lite*.

[34] *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), CLI-84-17, 20 NRC 801, 804 (1984) (*quoting* our decision in *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-395, 5 NRC 772, 779 (1977), which in turn quoted *Renegotiation Board v. Bannercraft*, 415 U.S. 1, 24 (1974)). *See also Toledo Edison Co.* (Davis-Besse Nuclear Power Station, Units 1, 2 and 3), ALAB-385, 5 NRC 621, 628 (1977) (*quoting Virginia Petroleum Jobbers*, 259 F.2d at 925, to the effect that "[m]ere injuries, however substantial, in terms of money, time and energy" do not constitute irreparable harm for the purposes of obtaining stay relief).

[35] App. Tr. 57.

[36] *Ibid.*

more is here involved than the necessity to incur costs that would be avoided if its witnesses were not called upon to testify on the contentions in issue.

b. FEMA's counsel also maintained at oral argument that the litigation of Contentions Ex 15 and 16 would irreparably damage his agency's credibility "with respect to the public's understanding of its role in emergency planning," as well as "significantly" affect "the credibility of the reasonable assurance we give to the Commission when we in fact sign off on the dotted line, so to speak, with respect to either a plan or an exercise."[37] We are unpersuaded that this is so.

It appears to us, as it does to the intervenors and the staff, that Contentions Ex 15 and 16 present this question: whether the exercise conducted with respect to the LILCO emergency response plan (1) substantially met the regulatory requirements for a full-participation exercise, and (2) was sufficient to enable its results to serve as a basis for a finding of reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency.[38] If the contentions remain in the proceeding, the FEMA witnesses undoubtedly will be called upon to address the question. It most likely also will be addressed by witnesses for the intervenors (and very possibly in the testimony sponsored by other parties).

In its initial decision, the Licensing Board will render its findings on the question, which will then be subject to several levels of appellate review. The final result of that review may or may not correspond with FEMA's articulated position. Even if its thinking is not ultimately accepted, however, it scarcely follows that FEMA's credibility would be irreparably harmed. Whenever there is a conflict in expert testimony, the views of at least one expert necessarily will be rejected. If such rejection were enough of itself to destroy credibility, the world would be heavily populated with discredited experts. More important, as previously noted, the Commission's regulations plainly allow FEMA's views on the sufficiency of an emergency response plan to be challenged by interested parties.[39] Inasmuch as that type of challenge seemingly is not deemed a serious

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[37] App. Tr. 15.

[38] *See* NRC Staff Response to FEMA Petition for Leave to Appeal, etc. (January 20, 1987) at 17; App. Tr. 63-64, 81-82. In this connection, we reject FEMA's interpretation of CLI-86-11, the Commission memorandum and order calling for the initiation of a Licensing Board hearing in connection with the LILCO emergency plan exercise. More particularly, we do not agree with FEMA that the Commission's directive that the Board examine the "results" of the exercise forecloses any review of the scope or design of the exercise itself.

Such a reading of CLI-86-11 would effectively confer upon FEMA and the NRC staff, which jointly decide the elements to be tested, the unreviewable authority to determine that their sampling of observable elements of the LILCO plan was sufficient to satisfy Commission regulations. While FEMA's professional judgment as to what elements should be tested at the pre-license stage is entitled to substantial deference, the Commission's regulations plainly accord interested parties an opportunity to rebut FEMA's views on questions concerning the "adequacy and implementation capability" of the plan. *See* 10 C.F.R. 50.47(a)(2). And the determination of whether the LILCO plan, including the exercise, satisfies the Commission's regulatory requirements rests squarely and exclusively in the hands of the Commission.

[39] *See supra* note 38.

threat to FEMA's credibility, why should a similar challenge to FEMA's conclusions regarding the sufficiency of an emergency response plan exercise be considered such a threat? We can think of no reason and FEMA supplied none.[40]

3. One further matter need be addressed. In its appellate papers, FEMA asked that, should we decline to conduct an interlocutory review of the acceptance of Contentions Ex 15 and 16, the question of the propriety of that acceptance be certified by us to the Commission. We decline to do so. The Commission has at least implicitly approved the *Marble Hill* standard for directed certification and our rigorous application of that standard over the years in the furtherance of the Commission's own policy against interlocutory appeals. In addition, none of the doctrines we have invoked in concluding that the standard is not met in the circumstances of the present case can be considered either novel or controversial. This being so, we could not accede to FEMA's alternative request without implying a belief that the Commission is likely to depart from long-established principles that have enjoyed its explicit or tacit endorsement. Needless to say, we entertain no such belief.

Treated as a request for directed certification under 10 C.F.R. 2.718(i), the FEMA petition for leave to appeal from the Licensing Board's acceptance of Contentions Ex 15 and 16 is *denied*. FEMA's alternative request that the ruling below be certified to the Commission is likewise *denied*.[41]

It is so ORDERED.

FOR THE APPEAL BOARD

Barbara A. Tompkins
Secretary to the
Appeal Board

Mr. Edles, Concurring:

I join in the Board's conclusion that there is no reason to take up FEMA's appeal from the Licensing Board's admission of Contentions Ex 15 and 16 or to certify the issue to the Commission. FEMA is a critical partner in determining

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[40] There was some hint in counsel's argument that FEMA might regard the requirement that it respond to Contentions Ex 15 and 16 (i.e., explain its position on the sufficiency of the exercise) as per se bringing its credibility into question. Suffice it to say that we are at a loss to understand how that could be so.

[41] Because they believe that interlocutory review is inappropriate here, Messrs. Rosenthal and Wilber do not reach the merits of the controversy. Nothing beyond that consideration should be inferred from the fact that they have not joined in the views expressed in Mr. Edles's concurring opinion.

the adequacy of emergency plans and a special participant in Commission proceedings. Like my colleagues, I do not dismiss lightly its assertion of immediate and serious irreparable programmatic injury as a consequence of the Licensing Board's action. But I join fully in our determination that, despite every opportunity to do so, FEMA has simply failed to demonstrate that it is likely to be harmed if the contentions are litigated. I would add, however, that the Licensing Board properly admitted the contentions.

Section IV of Appendix E to 10 C.F.R. Part 50, requires that "[a] full participation exercise which tests as much of the licensee, State and local emergency plans as is reasonably achievable without mandatory public participation" be conducted "within 1 year before the issuance of the first operating license for full power and prior to operation above 5% of rated power . . . and shall include participation by each State and local government within the plume exposure pathway EPZ and each State within the ingestion exposure pathway EPZ."[1] As the Commission explained in CLI-86-11, a review of the exercise results is designed to reveal if there are any deficiencies in the LILCO plan that would preclude a finding of reasonable assurance that adequate protective measures can and will be taken in the event of an emergency.[2] The Commission authorized the admission of contentions

> which satisfy the specificity and other requirements of 10 C.F.R. 2.714 by (1) pleading that the exercise demonstrated fundamental flaws in LILCO's plan, and (2) by providing bases for the contentions which, if shown to be true, would demonstrate a fundamental flaw in the plan.[3]

The two contentions admitted by the Licensing Board allege essentially that the Shoreham exercise did not satisfy Commission regulatory requirements. I have no doubt that a failure to satisfy those requirements — such as a demonstrated failure to conduct a full participation exercise in accord with Appendix E to Part 50 — would constitute a fundamental flaw in the LILCO plan that could bear on a Commission determination that there is reasonable assurance that adequate protective measures can and will be taken in the event of an emergency. While the Commission has some degree of flexibility in establishing the scope of the exercise adjudication, the intervenors would appear to be entitled at least to raise allegations that the exercise failed in a substantial manner to

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[1] The Commission has recently proposed to relax the timing requirement for a full participation exercise prior to issuance of a full-power operating license to allow such exercise to be held within two years before issuance of the license. *See* 51 Fed. Reg. 43,369 (1986).

[2] 23 NRC at 581.

[3] *Ibid.*

demonstrate compliance with critical aspects of the Commission's emergency planning regulations.[4]

It seems clear to me, moreover, that the two contentions are not intended to focus on generic aspects of FEMA's exercise review program. To the contrary, as FEMA readily concedes, the Commission is "the arbiter of its own regulatory process" and "FEMA cannot speak to the issue of what is a 'full participation' exercise under NRC regulations."[5] As the staff aptly observes,

> the choice of the particular elements to be tested is committed to the FEMA officials designing the exercise . . . . [B]ut the sampling must be broad enough to give reasonable assurance that the emergency plans can be implemented . . . To the extent that the Licensing Board will be looking at the scope of the exercise, it is not to determine whether better exercises could be developed but solely to test whether this exercise was sufficient so that the results . . . could form a basis for a finding that there is reasonable assurance that adequate protective measures can and will be taken.[6]

FEMA appears concerned that the Licensing Board may, in due course, "second-guess" its design of the Shoreham exercise, i.e., the Board may conclude that the exercise was insufficient to demonstrate that the LILCO plan will work. The contention stage of the proceeding is far too early to address that problem. If, as FEMA and the staff seemingly believe, the record, once developed, will reveal that the exercise fully satisfies all NRC requirements, that will be the end of the matter. If the Board determines that the LILCO plan is inadequate in a way that implicates the design of the exercise itself, however, some potential admittedly may arise for a conflict between LILCO's need to comply with the Commission's regulatory requirements, on the one hand, and FEMA's unquestioned authority to administer its exercise review program, on the other. The Commission can address that issue if and when it arises.[7]

In any event, I fail to see how the Licensing Board's actions simply admitting the contentions will adversely affect FEMA's design of emergency planning exercises or its exercise review program. FEMA asserts that the Licensing Board may not unilaterally require it to modify its current approach. I agree. Any alteration in the current exercise review approach would seemingly require inter-

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[4] *See Union of Concerned Scientists v. NRC*, 735 F.2d 1437, 1444-48 (D.C. Cir. 1984). In this connection, the court was seemingly prepared to endorse the Commission's distinction "that the exercise is only relevant to its licensing decision to the extent it indicates that emergency preparedness plans are fundamentally flawed, and is not relevant as to minor or ad hoc problems occurring on the exercise day." *Id.* at 1448.

[5] FEMA Petition at 3.

[6] NRC Staff Response to FEMA Petition for Leave to Appeal, etc. (January 20, 1987) at 17. In this connection, I join fully in our conclusion that the Commission's directive in CLI-86-11 that the Licensing Board examine the "results" of the exercise must be read to authorize the Board to look at the scope or design of the exercise to some degree.

[7] The intervenors are only entitled to litigate matters that are material to the Commission's licensing decision. Plainly not every emergency planning element need be evaluated, and nothing in our opinion should be construed as deciding that discrete emergency planning elements are or are not material.

agency consultation and, perhaps, modification of the current Memorandum of Understanding. That Memorandum provides in pertinent part:

> C. *Preparation for and Evaluation of Joint Exercises.* FEMA and NRC will cooperate in determining exercise requirements for licensees, State and local governments. They will also jointly observe and evaluate exercises. NRC and FEMA will institute procedures to enhance the review of the objectives and scenarios for joint exercises. This review is to assure that both the onsite considerations of NRC and the offsite considerations of FEMA are adequately addressed and integrated in a manner that will provide for a technically sound exercise upon which an assessment of preparedness capabilities can be based.[8]

While the Licensing Board, in assessing LILCO's compliance with applicable NRC regulations, may find at the end of the case that the features selected by FEMA for testing are insufficient to allow LILCO to demonstrate compliance with the Commission's regulations (whether it will do so, of course, is pure speculation at this stage), it cannot direct any changes in FEMA's program. Only FEMA and the Commission, acting together, can bring about such changes. Thus, nothing that the Licensing Board has done — or, indeed, could do — can unilaterally injure FEMA's administration of its emergency exercise program.[9]

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[8] 50 Fed. Reg. 15,485, 15,487 (1985).

[9] I appreciate the applicant's dilemma in being required to follow an exercise design established by FEMA (with NRC staff approval) that may turn out to be insufficient to permit compliance with NRC regulations. But surely the solution to that dilemma cannot lie in simply foreclosing intervenors at the threshold from attempting to demonstrate that the LILCO plan does not meet applicable Commission regulations.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Alan S. Rosenthal, Chairman
Gary J. Edles
Howard A. Wilber

In the Matter of

Docket Nos. 50-443-OL
50-444-OL
(Offsite Emergency Planning)

PUBLIC SERVICE COMPANY OF
NEW HAMPSHIRE, *et al.*
(Seabrook Station, Units 1
and 2)

March 30, 1987

The Appeal Board affirms a Licensing Board order denying a United States Senator's petition for leave to participate in this operating licensing proceeding as a representative of an "interested state" pursuant to 10 C.F.R. § 2.715(c). The Appeal Board, however, allows the Senator's participation in the proceeding as an *amicus curiae*.

RULES OF PRACTICE: LIMITED APPEARANCE STATEMENTS

Persons making limited appearances are not parties to the proceeding and have no participational rights in it beyond the offering of a written or oral statement. Further, that statement is not part of the official record of the proceeding.

RULES OF PRACTICE: INTERVENTION BY A STATE

10 C.F.R. 2.715(c) was promulgated to carry out the congressional directive that, in the furtherance of cooperation between the Commission and the states, an opportunity be provided to the representatives of interested states to participate in the adjudication of license applications. It is reasonable to assume that the legislative contemplation was that the concerned state, and not the NRC, would make the decision respecting who is to serve as its spokesman.

RULES OF PRACTICE: INTERVENTION

In contrast to a representative of a governmental body who desires to participate without party status under the aegis of 10 C.F.R. 2.715(c), a person seeking leave to intervene must (whether a private citizen or a public official) provide the Licensing Board with a list of the contentions he or she wishes to litigate, together with a statement of the basis for them. 10 C.F.R. 2.714(b).

RULES OF PRACTICE: BRIEF (*AMICUS CURIAE*)

The Commission's Rules of Practice explicitly refer only to the seeking of leave to file a brief *amicus curiae* before an Appeal Board or the Commission. But this consideration does not perforce preclude the granting of leave in appropriate circumstances to file briefs or memoranda *amicus curiae* on issues of law or fact that still remain for Licensing Board disposition.

RULES OF PRACTICE: BRIEFS (*AMICUS CURIAE*)

There is no real difference between an appellate brief *amicus curiae* and a brief or other submission presented to a trial tribunal that is confined to a discussion of (1) legal issues that have been presented to that tribunal by the parties; and (2) factual issues covered in evidentiary hearings. The crucial factor is that, regardless of where it files its brief, an *amicus curiae* necessarily takes the proceeding as it finds it.

RULES OF PRACTICE: BRIEF (*AMICUS CURIAE*)

An *amicus curiae* does not have the right to appeal adverse decisions.

APPEARANCES

United States Senator Gordon J. Humphrey, Washington, D.C., appellant *pro se*.

George Dana Bisbee, Concord, New Hampshire, for the State of New Hampshire.

Thomas G. Dignan, Jr., R.K. Gad, III, and **Kathryn A. Selleck,** Boston, Massachusetts, for the applicants Public Service Company of New Hampshire, *et al.*

Sherwin E. Turk for the Nuclear Regulatory Commission staff.

DECISION

A. Before us is the appeal of United States Senator Gordon J. Humphrey of New Hampshire from the Licensing Board's February 11, 1987 memorandum and order (unpublished) in the offsite emergency planning phase of this operating license proceeding involving the Seabrook nuclear facility. In that order, the Board denied the Senator's petition for leave to participate in the proceeding under the provisions of 10 C.F.R. 2.715(c) as the representative of an "interested State" (i.e., New Hampshire).[1] The basis of the denial was that section 2.715(c) "contemplates that a government *unit* of a State, county, municipality or agency will be provided a forum for expression of concerns" and that the Attorney General of New Hampshire is participating in the proceeding under the section "as an agency of and on behalf of the State" and, as such, represents its interest.[2] In this connection, the Board noted that the section does not confer status upon an individual simply because he or she holds office in one of the governmental units named in it (i.e., state, county, municipality or an agency thereof).[3]

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[1] Section 2.715 is concerned generally with participation in NRC proceedings "by a person not a party." Subsection (c) provides as follows:

> The presiding officer will afford representatives of an interested State, county, municipality, and/or agencies thereof, a reasonable opportunity to participate and to introduce evidence, interrogate witnesses, and advise the Commission without requiring the representative to take a position with respect to the issue. Such participants may also file proposed findings and exceptions pursuant to §§ 2.754 and 2.762 and petitions for review by the Commission pursuant to § 2.786. The presiding officer may require such representative to indicate with reasonable specificity, in advance of the hearing, the subject matters on which he desires to participate.

[2] February 11, 1987 memorandum and order at 4, 5 (emphasis in original).

[3] *Id.* at 5.

In his appellate papers, Senator Humphrey does not dispute that the Attorney General is participating in the proceeding as a representative of New Hampshire. But the Senator insists that, with regard to a particular "interested State," section 2.715(c) envisions "the participation of a multitude of representatives holding diverse views."[4] On this score, he stresses that the scope of his representation of New Hampshire in the United States Senate extends beyond "[v]ote casting and committee activity" and embraces the protection of the "interests of his state as to all matters, particularly those relating to the federal government, within the scope of his authority and influence, whether or not they appear to be or are affected by federal legislation."[5] We are also reminded that the Senator and the Attorney General have different "jurisdictional responsibilities," and that the former, "as the State's highest representative to federal office, can represent the State's interest from a different vantage point than can the Attorney General."[6] Thus, the Senator concludes, his participation would appropriately supplement that of the Attorney General and "effectively maximize the protection of New Hampshire's interest."[7]

New Hampshire, the applicants, and the NRC staff have responded to the appeal. In his brief on behalf of the state, the Attorney General informs us that, under the statutory and common law of New Hampshire, he is the "chief legal officer" of the state and serves as the "exclusive representative of the state as a government entity in civil matters such as [this] proceeding."[8] The Attorney General therefore is of the view that, given prior Licensing Board decisions, the Senator would not appear to qualify as a "representative of an interested State" for section 2.715(c) purposes. Nonetheless, the Attorney General does not oppose the Senator's "participation in this proceeding in his official capacity on behalf of his constituents under Section 2.715(c) if the Appeal Board so allows, or under [10 C.F.R.] 2.714(a)."[9]

The applicants urge affirmance of the result below on the ground that section 2.715(c) "does not contemplate state representation in Nuclear Regulatory Commission proceedings by a member of Congress."[10] They add, however, that they "do not oppose the Senator's participation in the proceedings by way

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[4] U.S. Senator Gordon J. Humphrey Brief in Support of Appeal (February 27, 1987) at 5.

[5] *Id.* at 4.

[6] *Id.* at 6-7.

[7] *Id.* at 5-6, 7.

[8] Brief of the State of New Hampshire in Response to Appeal of U.S. Senator Gordon J. Humphrey (March 13, 1987) at 3, 5.

[9] *Id.* at 6. Section 2.714(a) is the provision in the Rules of Practice governing petitions for leave to intervene as a full party. Any such petition at this late date would be untimely and could be granted only on a favorable balancing of the factors specified in that section.

[10] Applicants' Response to Petition of U.S. Senator Gordon J. Humphrey (March 16, 1987) at 2.

of a late-filed petition to intervene or a limited appearance."[11] For its part, the staff similarly maintains that section 2.715(c) was not intended to provide participational rights to members of Congress and, consequently, the Senator's petition was correctly denied.

B. We affirm the Licensing Board's disposition of the matter. For reasons that will appear, however, the Board should nevertheless allow the Senator to present orally or in writing, as appropriate, his views as *amicus curiae* on any legal or factual issue presented by the pleadings of the parties or the evidentiary record.

1. For present purposes, we need not consider whether, as Senator Humphrey urges, the Rules of Practice permit more than one individual or entity to participate in an NRC licensing proceeding as a representative of a particular interested state. Nor is it necessary to decide whether, as the applicants and staff assert, in no circumstances can a member of Congress qualify as such a representative. For, no matter how those questions might be answered, the required result would be the same.

As previously noted, the Attorney General of New Hampshire has informed us that, under the law of that state, he has the exclusive authority to represent the state in this proceeding. We accept, as we must, that advice. Assuredly, in the absence of a controlling contrary judicial precedent, it would be unseemly at best for a federal agency to take issue with the interpretation given by the chief legal officer of a state to the law of that jurisdiction. In this instance, no party has directed our attention to a New Hampshire judicial decision bringing the Attorney General's interpretation into possible question.

We are equally persuaded that considerations of comity dictate that we defer to New Hampshire law on the matter of what person or persons should be deemed to speak for the state in our licensing proceedings. Section 2.715(c) was promulgated to carry out the congressional directive that, in the furtherance of cooperation between the Commission and the states, an opportunity be provided to the representatives of interested states to participate in the adjudication of license applications.[12] It is reasonable to assume that the legislative contemplation was that the concerned state, and not this agency, would make the decision

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[11] *Id.* at 3. The limited appearance procedure is set forth in 10 C.F.R. 2.715(a). *See also* section III(b) of Appendix A to 10 C.F.R. Part 2. Persons making limited appearances are not parties to the proceeding and have no participational rights in it beyond the offering of a written or oral statement. Further, that statement is not part of the official record of the proceeding. In the circumstances, we think it unlikely that the Senator might be satisfied with the opportunity to make a limited appearance, and therefore we reject the applicants' suggestion to that effect.

[12] *See* subsection l. of section 274 of the Atomic Energy Act of 1954, as amended, 42 U.S.C. 2021(l). The purpose of section 274, entitled "Cooperation with States," is set forth in subsection a. That purpose includes the recognition of the "interests of the States in the peaceful uses of atomic energy."

Although both the statute and, as initially promulgated, section 2.715(c) referred only to a representative of an interested state, the latter was amended in 1978 to encompass representatives of counties, municipalities and governmental agencies having an interest. *See* 43 Fed. Reg. 17,798, 17,802 (1978).

respecting who is to serve as its spokesman. Be that as it may, however, it scarcely would fulfill the stated objective of state-Commission cooperation if the NRC were to place the mantle of state representative upon the shoulders of an individual who is precluded by the law of the state from wearing it. Indeed, there appears to be no conceivable basis on which a licensing board could accept the views of an individual in such a category as reflecting the official position of a state on the issue(s) in controversy.[13]

2. The short of the matter thus is that New Hampshire law (as presented to us without contradiction by the Attorney General) stands in the way of Senator Humphrey's participation in this proceeding as a representative of New Hampshire within the meaning of section 2.715(c). Nonetheless, we have not overlooked the Senator's observation that, by virtue of his office, he is called upon to represent the interests of his constituents, the citizens of New Hampshire, on all matters relating to the federal government. In this regard, it is likely that, even though not the official spokesman for the state, the Senator could supply a perspective that would materially aid the Licensing Board's deliberations on the weighty and complex offsite emergency planning issues that the Board must resolve. How this objective might be accomplished remains the question.

As we have seen, the Attorney General and the applicants have expressly stated that they do not oppose the Senator's participation in the proceeding on some basis, even though he does not strictly qualify as a representative of the state.[14] But their suggestion that the Senator might now intervene as a party to the proceeding appears flawed. In contrast to a representative of a governmental body who desires to participate without party status under the aegis of section 2.715(c), a person seeking leave to intervene must (whether a private citizen or a public official) provide the Licensing Board with a list of the contentions he or she wishes to litigate, together with a statement of the basis for them.[15] We have been given no reason to believe that Senator Humphrey might be inclined to put forward any specific contention(s), which would necessitate his direct and ongoing involvement in so much of the evidentiary hearing as might be devoted to the contention(s).

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[13] In *Consolidated Edison Co. of New York* (Indian Point, Unit 2), LBP-82-25, 15 NRC 715, 718-19 (1982), the Licensing Board admitted the New York Attorney General to that special proceeding as a representative of the state within the meaning of section 2.715(c) despite the claim of the licensee that New York law vested that responsibility in the New York State Energy Office. There is some language in the Board's opinion that might be taken to imply a belief that state law is not controlling on the question of who is to be deemed a state representative for section 2.715(c) purposes. But in actuality (and correctly), the *Indian Point* result rested on the fact (noted by the Board) that the licensee's interpretation of the relevant New York law was not shared by the Attorney General. Moreover, as the Board also noted, section 2.715(c) now authorizes the separate admission of representatives of the state and of an agency thereof (such as the State Energy Office). *See supra* note 1.

[14] The staff's brief is silent on that score.

[15] 10 C.F.R. 2.714(b). In the absence of the assertion of at least one acceptable contention, intervention must be denied. *Ibid.*

What that leaves for examination is the Senator's possible participation in the proceeding as an *amicus curiae*. To be sure, there is no provision in the Rules of Practice specifically authorizing such participation on the Licensing Board level. The Rules explicitly refer only to the seeking of leave to file a brief *amicus curiae* (and perhaps to take part in oral argument) before an appeal board or the Commission.[16] But this consideration does not perforce preclude the granting of leave in appropriate circumstances to file briefs or memoranda *amicus curiae* (or to present oral argument) on issues of law or fact that still remain for Licensing Board disposition.

One rarely, if ever, encounters participation *amicus curiae* in the actual trial of factual issues in an evidentiary hearing — i.e., an *amicus curiae* customarily does not present witnesses of his or her own or cross-examine the witnesses of the parties. This may well explain why, in focusing upon participation amicus curiae, the Commission thought solely of proceedings on the appellate level. But there is no real difference between an appellate brief *amicus curiae* and a brief or other submission presented to a trial tribunal that is confined to a discussion of (1) legal issues that have been presented to that tribunal by the parties; and (2) factual issues covered in the evidentiary hearing. The crucial factor is that, regardless of where it files its brief, an *amicus curiae* necessarily takes the proceeding as it finds it. An *amicus curiae* can neither inject new issues into a proceeding nor alter the content of the record developed by the parties.[17]

In light of the foregoing considerations, we find no insuperable barrier to allowing the Senator the same measure of participation *amicus curiae* before the Licensing Board as he would be free to seek were the proceeding now before us or the Commission on the merits of the emergency planning issues in controversy. Although granting such relief may be unusual in our proceedings, it is no more so than the course recently pursued by the Commission in connection with a staff briefing on a draft proposed rule in the area of emergency response planning. As the Commission Chairman noted at the outset of the briefing:

> Ordinarily we do not have public participation on the deliberative process until the Commission has decided to issue a proposed rule for public comment. However, in this case the Commission has made an exception to hear from those governors and members of Congress who have requested the opportunity to present their views on the Staff proposal to the Commission directly.[18]

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[16] *See* 10 C.F.R. 2.715(d).

[17] Indeed, it appears that participation *amicus curiae* on the basis discussed in the text is not an uncommon feature of federal district court practice. *See, e.g., Yo v. Pagano*, 606 F. Supp. 1566, 1567-69 (D.N.J. 1985); *American Federation of Labor v. Kahn*, 472 F. Supp. 88, 91 & n.4 (D.D.C. 1979).

[18] Transcript of Briefing on Consideration of Proposed Emergency Planning Rule Changes (Public Meeting) (February 24, 1987) at 3.

The Commission obviously thought that the public officials in question might have something worthwhile to contribute at that early stage of its deliberative process on the proposed rule (i.e., before the draft was put out for public comment). Similarly, we think that Senator Humphrey might make a worthwhile contribution at this early stage of the deliberative process on the offsite emergency planning issues in connection with the Seabrook facility (i.e., before those issues reach the appellate level).

Accordingly, we authorize Senator Humphrey, if he so desires, to participate *amicus curiae* in the proceedings before the Licensing Board to the extent of the submission of his views, orally or in writing as appropriate, on any legal or factual issue presented by the pleadings of the parties or the evidentiary record. The Licensing Board may impose such conditions on the timing of the Senator's presentation as might be reasonable and necessary to avoid undue delay in the disposition of the issues in controversy and to ensure fairness to the parties.

An *amicus curiae* does not have the right to appeal an adverse decision. Should any aggrieved party take a permissible appeal to this Board from a Licensing Board decision, however, the Senator may file a brief *amicus curiae* restricted to the issues raised by the appellant.[19]

The denial of Senator Humphrey's 10 C.F.R. 2.715(c) petition is *affirmed*. The Licensing Board is to allow the Senator to participate as an *amicus curiae* in accordance with the terms of this decision.

It is so ORDERED.

FOR THE APPEAL BOARD

Barbara A. Tompkins
Secretary to the
Appeal Board

Mr. Rosenthal, Concurring:

Although joining fully in the Board's opinion, I am constrained to record my belief that there are two separate and distinct reasons for not taking very seriously the suggestion of the Attorney General and the applicants that, if

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[19] Any such brief must be filed within the time allowed to the party whose position the brief supports. *See* 10 C.F.R. 2.715(d).

denied participation under 10 C.F.R. 2.715(c), the Senator might be allowed to intervene as a party under 10 C.F.R. 2.714(a). One of those reasons is noted in the opinion: the Senator has provided no cause to believe that he would be inclined in any circumstance to assume the significant burdens associated with a section 2.714(a) intervention. The other, not similarly developed in the opinion, is perhaps of even greater moment.

An intervention petition at this juncture would be extremely tardy. Consequently, as the Board's opinion observes in passing (note 9), in order to enter the proceeding now as a party under section 2.714(a) the Senator would have to satisfy the Licensing Board that, on a balancing of the five factors set forth in the Rules of Practice, the tardiness should be excused.[1] Whether the Senator could overcome this hurdle at such a late stage of the proceeding is problematic. This is true despite the fact that it appears from their briefs that neither the Attorney General nor the applicants would urge the Licensing Board to reject the Senator's intervention petition on lateness grounds. For it is settled that, even if all of the existing parties to a proceeding (or section 2.715(c) non-party participants) choose to waive the tardiness of an intervention petition, the Licensing Board must nevertheless review the petition in light of the five factors. If a weighing and balancing of those factors so dictates, the Board must deny the petition on its own initiative.[2]

Thus, even should our surmise respecting the Senator's inclination turn out to have been wrong, the required conclusion will likely remain the same: if the Senator is now to participate at all in this proceeding, it almost certainly must be in the capacity of an *amicus curiae*. I agree with my colleagues that allowing such participation on the basis outlined in the Board's opinion is both permissible and sensible.

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[1] Those factors, found in 10 C.F.R. 2.714(a)(1), are:

(i) Good cause, if any, for failure to file on time.

(ii) The availability of other means whereby the petitioner's interest will be protected.

(iii) The extent to which the petitioner's participation may reasonably be expected to assist in developing a sound record.

(iv) The extent to which the petitioner's interest will be represented by existing parties.

(v) The extent to which the petitioner's participation will broaden the issues or delay the proceeding.

Insofar as the application of the factors is concerned, section 2.714 draws no distinction between private citizens and public officials. To the contrary, the same standards govern the acceptance of *all* late intervention petitions, no matter who might be their sponsor.

[2] *See Boston Edison Co.* (Pilgrim Nuclear Power Station), ALAB-816, 22 NRC 461, 466 (1985).

Cite as 25 NRC 153 (1987) LBP-87-8

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before Administrative Judge:

John H Frye, III

In the Matter of **Docket No. 40-8027-MLA**
(ASLBP No. 85-513-03-ML)

SEQUOYAH FUELS CORPORATION
(Sequoyah UF_6 to UF_4 Facility) **March 4, 1987**

After considering numerous filings and conducting a 3-day oral hearing, the Presiding Officer authorizes the issuance of a license amendment permitting the operation of a facility to convert depleted uranium hexafluoride to depleted uranium tetrafluoride at the Applicant's Gore, Oklahoma plant. This authorization is subject to four conditions: first, in order to ensure that the automatic telephone emergency notification system will function properly, the Applicant is to verify that all residences within a 2-mile radius of the facility have telephones and make provisions acceptable to Staff to notify any that do not; second, the Applicant is to verify that all telephone numbers listed in its emergency response plan are accurate at each major exercise of the plan; third, the Applicant is to maintain the level of staffing outlined in its testimony presented at the hearing and to promptly report any changes in the duties of those individuals to Staff; and fourth, Applicant's President and its General Manager are each to spend at least one full workday each month at the facility while it is in operation.

DECISION
(Authorizing Operation)

INTRODUCTION

This proceeding began on July 24, 1985, when the Nuclear Regulatory Commission issued an Order instituting an informal adjudication to consider

an application filed by Sequoyah Fuels Corporation (SFC), a subsidiary of Kerr-McGee Corporation. This application requests authority to operate a facility to convert depleted uranium hexafluoride (UF_6) to depleted uranium tetrafluoride (UF_4) (hereinafter referred to as "the facility"). The application takes the form of a request for an amendment to SFC's existing license which authorizes it to produce UF_6 from yellowcake at its Gore, Oklahoma plant. This UF_6 is shipped to Department of Energy enrichment facilities for further processing and eventual use as fuel in nuclear power plants. A byproduct of the enrichment process is depleted UF_6.

The depleted UF_4 that SFC wishes to produce will be shipped to Aerojet Heavy Metals Company where it will be further processed for use in penetrator munitions by the Department of the Army. Depleted UF_4 is useful in these munitions because of its density. No nuclear reaction is involved in this application. (*See* SFC's October 16, 1985 Response to Petitions at 15-17.)

The Commission acted following receipt of petitions requesting a hearing on the application from Native Americans for a Clean Environment (NACE), the Cherokee Nation (Cherokee), and Citizens' Action for a Safe Environment (CASE). Pursuant to the Commission's Order, on August 8, I issued a Memorandum and Order that afforded NACE, Cherokee, and CASE an opportunity to supplement their petitions, invited additional petitions to intervene, and set out the procedure to be followed in considering the application. Several petitions were filed in response. Subsequently, the petitions of NACE and Ms. Jesse Deer in Water, CASE, Mr. Ed Henshaw, the Arkansas Peace Center (APC), the Town of Gore, the Oklahoma State Department of Health (OSDH), and the National Water Center (NWC) were granted. The petition of Cherokee was dismissed at its request. The petitions of Aerojet Heavy Metals Company and the Muskogee County Client Council were denied. (*See* unpublished Memoranda and Orders of September 26 and November 5, 1985.) The acceptable complaints stated in the petitions and an agenda for a hearing were set out in the November 5 Memorandum and Order. The hearing was scheduled for December 17 and 18, 1985, and subsequently rescheduled for January 7 and 8, 1986. (*See* unpublished December 2, 1985 Memorandum and Order.)

On January 4, 1986, an accident occurred at the UF_6 production plant. A UF_6 cylinder had been overfilled. In an effort to remove the excess material from the cylinder, SFC employees reheated it in a steam chest. This caused the cylinder to rupture, releasing a massive amount of UF_6. One employee died as a result of exposure to hydrogen fluoride, a hydrolysis product of UF_6, and several others were injured. About 130 individuals who were off site at the time of the accident were screened for uranium contamination. Much of the plant and some areas off site were contaminated with fluoride and uranium. (*See* Staff's SER Related to Restart, October 14, 1986, at 1.) The hearing was postponed.

In the January 7, 1986 Memorandum and Order (unpublished) postponing the hearing, I requested SFC's and Staff's conclusions with regard to the implications of the accident for the facility and their reports on the circumstances of the accident. I indicated that intervenors would be afforded an opportunity to respond following receipt of these reports. The chronology of events following January 7 is set out below.

March 31 — Staff served NUREG-1179 concerning the circumstances of the accident.

April 3 — Staff served NUREG-1189 concerning the public health effects of the accident.

April 11 — The Carlisle Area Residents Association (CARA), a group composed of individuals residing within 2.5 miles of the plant, was admitted as a party in the absence of objection.

May 7 — Environmental Action was admitted as a party in the absence of objection. In a second Memorandum and Order of that date, intervening parties were afforded 30 days following the last of the reports on the accident to be filed by SFC or Staff to state additional complaints based on the implications of the accident, and any party wishing to request additional procedures was directed to do so by June 4.

May 22 — Ms. Barbara Synar was admitted as a party in the absence of objection.

June 9 — I wrote counsel for SFC and Staff inquiring when their reports on the implications of the accident for the facility might be expected.

June 27 — Memorandum and Order (unpublished) issued scheduling a prehearing conference and a hearing for August to consider the matters set down for hearing in the November 5 Memorandum and Order plus any acceptable complaints based on new information. This schedule contemplated that an opportunity to file new complaints based on information contained in the forthcoming reports on the implications of the accident would be preserved, but that the hearing on matters already properly raised need not await the completion of that step.

-- SFC issued its report on the implications of the accident.

July 3 — I recommended that the Commission adopt formal procedures under Subpart G of Part 2 for the completion of this proceeding.

July 23 — Memorandum and Order (unpublished) issued postponing the August prehearing and hearing at the request of APC and EA and in light of the fact that responses from SFC and Staff to the July 3 recommendation precluded a Commission decision on the July 3 recommendation prior to September.

July 25 — Staff issued NUREG-1198, the "lessons learned" report emanating from the accident.

September 4 — Memorandum and Order (unpublished) issued denying the petition to intervene filed by Citizens in Support of SFC.

October 3 — CLI-86-17, 24 NRC 489, issued rejecting the July 3 recommendation to institute formal procedures.

October 10 — Memorandum and Order (unpublished) issued ruling on new complaints and revising the topics to be addressed at the hearing.

October 27 — Prehearing conference scheduled for November 20 in Sallisaw, Oklahoma.

November 14 — Staff issued its report on the implications of the accident.

November 25 — Prehearing Conference Order issued setting schedule for the filing of new complaints based on the reports on the implications of the accident and requests for additional information, and setting hearing for the week of January 12, 1987.

December 31 — Memorandum and Order (unpublished) issued ruling on new complaints and requests for information and establishing an agenda for the hearing.

January 12 through 15, 1987 — Hearing completed as scheduled. All the intervenors except EA participated in the evidentiary hearing. EA submitted a closing statement.

PRELIMINARY MATTERS

Deep-Well Injection of Raffinate

In the past, Staff granted a license amendment that permitted deep-well injection of treated raffinate from the existing plant. APC, NWC, and Mr. Henshaw expressed concerns with regard to this activity in their original complaints. Because raffinate will not be produced by the facility and because SFC had not sought permission in its application to dispose of any effluents from the facility by deep-well injection, I dismissed these concerns in the November 5 Memorandum and Order (at 4).

Mr. Henshaw again raised this matter in his complaints filed in the summer of 1986, this time alleging that the Staff's action in permitting deep-well injection was contrary to an Initial Decision (LBP-74-7, 7 AEC 113 (1974)) that had denied Kerr-McGee's earlier application for this authority. While adhering to my earlier conclusion that this matter was outside the scope of this proceeding, on October 10, I called for Staff and SFC to respond to Mr. Henshaw's allegations because they raised concerns for the integrity of the proceeding. Specifically, Mr. Henshaw questioned whether, based on Staff's prior action in issuing the amendment permitting deep-well injection, Staff would be permitted to act independently of any decision issued in this proceeding.

Staff and SFC responded on November 14 and 20, respectively. This matter was discussed at the November 20 prehearing conference (*see* Tr. 11-29) where it developed that Mr. Henshaw was not satisfied with the Staff's explanation. In the absence of any objection, Mr. Henshaw was permitted to reply to the Staff and SFC *ex parte*. Dr. Gourd also filed an *ex parte* reply.

In his reply, Mr. Henshaw takes issue with the Staff's conclusion that the application that it granted was sufficiently different from the earlier application that was denied in LBP-74-7 so as to permit this action. Staff's response brings out that, prior to permitting the test of the injection well, Staff was concerned that it take care not to take any action that might be contrary to the conclusions reached in LBP-74-7. To this end Staff sought legal advice. That advice is contained in an October 27, 1982 Memorandum from Robert L. Fonner to Ralph G. Page, Chief, Uranium Fuel Licensing Branch, which is attached to Staff's response. Mr. Fonner correctly concluded that changes in the facts underlying the application and in national policy permitted the Staff to again consider the amendment request and that a grant of the amendment would not be precluded by LBP-74-7. With regard to changes in factual circumstances, Mr. Fonner points out that the raffinate that Staff permitted to be injected was treated and thus contained radioactive material more than an order of magnitude below the NRC's standards for unrestricted release. This contrasts with the radioactive content of the raffinate that was the subject of LBP-74-7 which was high enough to be classified as low-level radioactive waste. This change in circumstances alone is sufficient to dictate that the Staff not only did not violate the terms of LBP-74-7 in issuing the amendment, but that any refusal of Staff to have considered the amendment application on the basis of that decision would have been improper. Consequently, I conclude that the Staff's issuance of the amendment was proper and in no way implies that Staff would ignore the terms and conditions of this decision.

Mr. Henshaw's quarrel with Staff on this point amounts to a difference of opinion as to whether the amendment should have been issued. That quarrel could have been taken up in a hearing on the injection-well amendment application. Mr. Henshaw requested such a hearing and subsequently withdrew the request. No hearing was held. This proceeding may not be used as a vehicle to take up that quarrel now.

Dr. Gourd's reply does not address the issue of the implications of the Staff's action in granting this amendment for the integrity of the proceeding. Rather, it raises numerous allegations regarding the deep-well injection matter which are outside the scope of this proceeding. Consequently, it is referred to Staff for review and any action that the Staff deems appropriate under 10 C.F.R. § 2.206.

Adequacy of Notice of Hearing

Counsel for CASE has objected to the adequacy of the notice of hearing given in this proceeding. Counsel maintains that the January 2, 1987 notice was received on January 8 and constituted inadequate advance notice that the hearing would be held beginning January 12. Counsel's position would be entitled to serious consideration were the January 2 notice the sole notice to her that the hearing would begin on January 12. It was not.

The schedule for the last filings and rulings in advance of the hearing, as well as the schedule for the hearing itself, was discussed at the November 20 prehearing conference at which counsel was present. (*See* Tr. 107-12.) At that time the hearing was set to begin on January 12. (*See* Tr. 112.) Further, the Prehearing Conference Order issued on November 25 stated that "[t]he hearing will take place the week of January 12, 1987. . . ." The notice that the hearing would take place that week clearly was adequate.

Requests to Reopen the Record

On January 10, two days before the commencement of the hearing, a small amount of UF_6 was released at a cylinder filling station in the existing facility from a pigtail that was not connected to a cylinder. The spill was contained within the fill station area, and apparently there were no injuries to plant personnel. Although this incident was not required to be reported to the NRC, SFC did report it.

NACE and APC have requested that the record be reopened in light of this incident. Both allege that this incident was kept secret from the intervenors and that this alleged concealment adversely reflects on SFC's competence and integrity. SFC responded to the NACE request on February 9, pointing out that SFC had addressed this incident in the testimony of Steven Emerson (Tr. 498-99, January 13, 1987). NACE and APC are mistaken in their belief that SFC concealed this incident during the hearing. Moreover, in view of the fact that it does not constitute an incident that must be reported under the Commission's regulations, no adverse implications for SFC's competence and integrity could have been drawn had SFC elected to remain silent. The incident appears to be minor. These requests are denied.

MATTERS ADDRESSED AT HEARING

The following constitutes findings of fact on the issues raised at the hearing.

Training

This matter was discussed in the October 10 (at 3) and December 31 (at 8) Memoranda and Orders following complaints by EA and Ms. Synar. Their complaints focussed on the inadequacies of the training program as it existed before the January 1986 accident. EA relied on Staff's conclusions concerning these inadequacies as support for its conclusions.

The training program has been substantially improved since the accident, and Staff has imposed two license conditions with regard to it. (*See* SFC Testimony, Tr. 273 *et seq.*; Staff's October 14 SER Related to Restart at 19-21.) At the hearing, the principal concern voiced was not with the adequacy of the training program as it was described by the SFC witnesses, but with SFC's commitment to maintain the program as described. (*See* Tr. 295-97, 306-11.) Indeed, given the apparent laxity that existed prior to the accident, this is a valid concern which is discussed under the heading Corporate Character and Competence, below.

Contingency Plan

The complaints bearing on this topic were filed by EA (April 10 Petition at 12-13), CASE (December 12 Filing, ¶ 27), and Ms. Synar (June 8 Filing, ¶ 12). Additionally, at the hearing CARA raised concerns with regard to the adequacy of the system for notifying members of the public in the event of an emergency. EA's complaints focus on the state of contingency planning at the time of the accident. Therefore they have largely been mooted by the filing of SFC's new contingency plan. This new plan, prompted by the weaknesses disclosed in the old plan during the accident, applies to both the existing UF_6 production plant as well as the new facility. In the restart SER, Staff concluded that "the Plan exceeds the requirements of [the Order for Modification of License], and that the Plan is suitable to alert offsite residents of an imminent or actual release to unrestricted areas and the proper response to be taken." (Restart SER at 33.)

CARA's concerns regarding the effectiveness of the notification system will be investigated by SFC, and appropriate corrective action taken. These concerns include the audibility of the three sirens designed to alert individuals within a 2- to 3-mile radius of the plant who are out-of-doors and the reliability of the automated telephone alerting system designed to alert those within approximately 2 miles who are indoors. (SFC's Statement on the Contingency Plan, ff. Tr. 320, at 3-4.)

CARA is concerned that the siren system may not be audible in all circumstances and that the sirens can be confused with train whistles sounded along a heavily traveled main rail line that passes close by the plant. CARA also reports that the automated telephone system, which is designed to dial the telephones of

nearby residents and deliver a recorded message in the event of an emergency, sometimes delivers messages that are garbled and incomprehensible. Additionally, CASE raised the possibility that not all residents within the 2-mile radius have telephones. (*See* Lammers, Tr. 352-56; CASE, Tr. 361-62.)

SFC is aware of the problems with regard to siren audibility and telephone reliability and at the hearing undertook to investigate them and to take appropriate corrective action. (*See* Tr. 324-29.) Additionally, SFC is to verify whether all of the residences within the 2-mile radius of the plant have telephones and make provisions acceptable to Staff to notify any that do not.

Ms. Synar and Dr. Gourd question the adequacy of the planning radius adopted by SFC. SFC testified that analyses by NRC, DOT, and EPA show that residents within a 1-mile radius of the plant should take protective action in the event of an accident by taking shelter indoors and closing all outside ventilation. SFC further testified that residents located at greater distances from the plant do not require similar protection, but that notification of residents within a 2-mile radius is advisable and, for certain wind conditions, desirable within a 3-mile radius. (*See* SFC's Statement on the Contingency Plan, ff. Tr. 320, at 3.) During questioning, SFC's witnesses indicated that their offsite plan was also predicated on NUREG-1140. (Tr. 340-41.)

Ms. Synar resides about 8 miles from the plant and believes that she should be included within the notification radius. (*See* Tr. 330-31.) Dr. Gourd believes that the notification radius chosen is arbitrary in light of the fact that the plume resulting from the accident traveled 18 miles. (*See* Tr. 358-59.) However, the distances chosen clearly comply with existing regulatory guidance and no showing has been made that circumstances exist that would dictate that different, more stringent standards be employed. The fact that the plume resulting from the accident may have travelled a much greater distance than that chosen for planning purposes is not in itself reason to require that protective actions be provided for out to that distance. To justify such planning, it would be necessary to show that the plume would have adverse effects that require such planning. No such showing was made.

Three remaining topics must be touched on before leaving this subject matter. First, APC brought out that, during the January accident it developed that telephone numbers for the NRC (and presumably other concerned government agencies) that were listed in the contingency plan were erroneous. (*See* Tr. 359-60.) SFC testified that it is required by the contingency plan to conduct one major exercise per year. (Tr. 328.) During that exercise, SFC should verify that the telephone numbers listed in its plan are accurate.

Second, EA in its complaint raised the possibility that an accident at the UF_6 plant could have adverse consequences for the UF_4 plant. SFC points out that the UF_4 plant can be remotely shut down and that provisions exist to protect this plant from any plausible event in either facility. (*See* Statement at 6-7.)

Third, OSDH asked whether SFC planned to continue to cooperate with the Sequoyah County Health Department with respect to contingency planning. SFC's witness responded affirmatively, stating that the company had enjoyed excellent support from all of the county agencies and had worked closely with all of them. Counsel for OSDH later stated that the county health department was very interested in working to ensure an effective contingency plan. (*See* Tr. 321-22, 364-65.) This kind of cooperation is laudable and is to be strongly encouraged.

Dust Collection System and Radiological Contamination

CARA (July 15, 1986 Motion at 6, 7-9), EA (April 10, 1986 Petition at 10-11; July 18 Amended Contentions at 3-4), CASE (July 18 Supplemental Response, ¶¶ 7, 23, 35; December 12 Response, ¶ 5, at 4), NWC (July 18 Statement, first, fifth, and seventeenth complaints; December 12 Response at 7), and Mr. Henshaw (July 18 Motion at 3) have raised a number of complaints concerning this topic. CARA, relying on reports concerning the Department of Energy's Fernald, Ohio plant, is concerned that a large volume of uranium dust will be produced with the possibility of widespread contamination in the area surrounding the plant. EA raises similar concerns and points to past inspection reports detailing allegedly high concentrations of airborne uranium in the UF_6 production plant and SFC's allegedly inadequate responses to these incidents. CASE alleges that, because of humidity, the vacuum system for collecting dust will not function properly.

NWC's first complaint alleges that there is widespread and pervasive radiological contamination on and near the facility, and its seventeenth complaint challenges SFC's monitoring program. Mr. Henshaw and CASE also challenge the monitoring program. NWC also challenges SFC's calculation of the filtration efficiency of the facility's baghouse because it is based on a reported filtration efficiency for foundry dust, rather than the material that it will actually encounter.

At bottom, these concerns are related to the designed efficiency of the baghouse installed at the facility and SFC's commitment to maintain the baghouse in good working order. SFC's record with respect to radiological releases from the UF_6 production plant has been relied on by intervenors as evidence of a lack of the necessary commitment.

The equipment in question is a pulse-type plenum baghouse manufactured by the Fuller Company (model number 32-6-2002). SFC believes that it is far superior to the baghouse at the Department of Energy's Paducah, Kentucky plant which provided the model for this facility. The baghouse is the same make and type as that in use in the UF_6 production plant. The baghouse itself is a metal housing containing 192 Gore-Tex fabric (12 ounces per square yard,

polyester-needled, scrim supporting felt) bags, each of which is 5 inches in diameter and 8 feet long. An exhaust fan draws air through the bags from a system of ductwork which is connected to ventilation hoods located at potential points of dust leakage. The filtered air is continuously monitored for uranium and fluoride. It is then discharged through a stack. (SFC Statement, ff. Tr. 377, at 1-2; Tr. 417; SFC August 1, 1986 Response at 7-9.)

The bags are supported on wire frames and arranged within the house so that UF_4 gathered by the ventilation hoods will be deposited on the outside of the bags. Periodically, small bursts of compressed air are applied to the inside of the bags in order to dislodge the UF_4 that has collected on the outside. This falls into a hopper where it is contained until the opening of a star valve transfers it to a series of two dust screw conveyors which convey it to the product drum filling station where it is added to the output of the plant. (*Id.*; Tr. 378-80, 383.)

From the above, it may be seen that the Fernald plant does not furnish an appropriate model for comparison. (*See* SFC Statement, ff. Tr. 377, at 4; Tr. 384-85.) Moreover, given the facts that the baghouse, although modeled after that in use at the UF_6 production plant, incorporates an improved filtration medium and a reduced flow rate (7600 cubic feet per minute (cfm) vs. 20,000 cfm), emissions should not exceed those experienced at the latter plant and in fact should be much lower. Because SFC has based its estimate of emissions from the facility's baghouse on its experience in filtering UF_4 in the UF_6 production plant, there is no need for SFC to calculate performance based on the size of particles that will be encountered. Finally, SFC has put to rest CASE's concern that humidity will prevent the vacuum system from functioning effectively. SFC agrees that humidity would cause problems were the UF_4 hygroscopic, and points out that it is not. (*See* SFC Statement, ff. Tr. 377, at 3-4; August 1 Response at 9-10; Tr. 390-91.)

CARA posed questions that were put to the SFC witnesses concerning the length of the nozzle to which each bag is attached (Tr. 403-04, 421), the method of inspecting the bags, and the maintenance schedule (Tr. 402-03, 417, 421). CARA maintains that it did not receive adequate answers to these questions. While it is true that the SFC witness was unable to answer these questions in detail, I am satisfied that the answers given were adequate. These questions all concern the possibility that a bag may deteriorate and leak. SFC was unable to furnish the length of the nozzle to which the bags attach, perhaps because this question was not clearly put. The witness did indicate that access to the baghouse for maintenance was through inspection ports on the clean side of the bags, and that the precise maintenance schedule will be worked out based on operating experience. Small or large tears, which will be detected by the particulate monitor or DCS respectively, or a gradual deterioration, which will be revealed by tracking the results of the daily air sample filter analysis, will

prompt inspection and corrective action. (*See* SFC Statement, ff. Tr. 377, at 2-3; Tr. 402-03.)

As noted, Intervenors allege that there is widespread radiological contamination surrounding the plant, that it resulted from the operation of the UF_6 production plant, and that the monitoring system for detecting such contamination is inadequate. They urge that the application be denied for these reasons. These allegations are stated in general terms. SFC denies them. The discussion of this topic begins with a review of the evidence supporting Intervenors' claims concerning radiological contamination and concludes with an examination of the monitoring system.

NWC's first complaint states that there is widespread radiological contamination in the vicinity of the plant. It supports this allegation with general references to NUREG-1189 and aerial radiological surveys conducted in 1980 and 1986 which are discussed therein. (*See* NUREG-1189, "Assessment of the Public Health Impact from the Accidental Release of UF_6 at the Sequoyah Fuels Corporation Facility at Gore, Oklahoma," Vol. 1, § 5.4, at 49; Vol. 2, Appendix 5.4.1, at 383.) NWC relies principally on the aerial surveys, asserting that they show "widespread and pervasive contamination on and near the current facility." (NWC's Matters of Contention, July 18, at 1; NWC's Review of NUREG-1189 dated July 8 and revised July 15 and September 8, 1986, at 4-5; Tr. 478-79.)

A review of the 1980 and 1986 aerial surveys indicates that the terrestrial exposure rates off site are less than 50 microrems per hour. Part 20 of the Commission's regulations requires that licensees conduct their activities so as to limit the dose to any individual in an unrestricted area to no more than 0.5 rem, and to make every effort to limit exposures to such individuals to a dose that is as low as reasonably achievable. (10 C.F.R. §§ 20.1(c), 20.105(a).) The 1980 survey indicates that the exposure rates reported may be converted to a dose expressed in millirem per year by multiplying by 8.76. (NUREG-1189, Vol. 2, at 390.) Thus it is evident that the offsite doses, whether resulting from SFC's operations or other sources, are well within regulatory dose limits and furnish no basis to deny the instant application.

NWC's seventeenth complaint has to do with monitoring. Specifically, it takes issue with SFC's statement in its October 16, 1985 response to the petitions (at 33) that historically its releases of radionuclides to the atmosphere have been within annual limits. NWC asserts that the aerial surveys discussed above suggest that, if this is true, it is because SFC's monitors have not worked properly. NWC repeats this allegation in its December 12 response. NUREG-1189 and the 1980 and 1986 aerial surveys provide no support for NWC's allegations.

Mr. Henshaw and Dr. Gourd testified concerning monitoring. Mr. Henshaw (Tr. 431-43) relied on certain inspection reports and correspondence for the proposition that SFC and NRC Staff lack the competence to perform effec-

tively. Dr. Gourd (Tr. 444-53) cited certain errors in reporting meteorological data, asserted that Staff would not rely on such data compiled by the National Weather Service because it is not controlled by SFC, and stated that, sometime after 1975, Staff assumed incorrectly that the wind at the site is predominantly easterly. I have reviewed all these matters. Mr. Henshaw's conclusion is not warranted by the facts on which he relies. The matters recited in the inspection reports and correspondence appear to be relatively minor and, by themselves, do not question SFC's or Staff's competence. Dr. Gourd's concern about the errors in reporting meteorological data have been adequately answered by a Staff inspection report (Docket No. 40-08027/86-08, September 4, 1986, at 8-10). This report casts doubt on his concern that Staff will not rely on National Weather Service data; the author took such data into account in dealing with Dr. Gourd's concern. A review of the environmental assessment accompanying this application reveals that the Staff does not assume that the wind at the site is predominantly easterly.

Ms. Deer in Water (Tr. 423-27) and Dr. Gourd (Tr. 448-49) have raised concerns about the cancer mortality rate and the adequacy of an Oklahoma State Department of Health study ("An Assessment of Potential Environmental and Adverse Health Impacts Resulting from Operation of the Sequoyah Fuels Facility — Gore, Oklahoma," November 1985) which was prompted by the concern of citizens in Sequoyah County. While the OSDH study has recognized limitations (Study at v-vi), Dr. Gourd and Ms. Deer in Water have not advanced any reason to reject it. Their position would require not only that I reject the OSDH study, which appears to be the only scientifically conducted study available, but that I find that an increased cancer rate exists in Sequoyah County which is directly attributable to SFC's operations. Nothing in this record comes close to justifying such sweeping conclusions. This conclusion in no way belittles these concerns. Indeed, I note that the OSDH study itself recommends that a more detailed epidemiological study be conducted (*see* Recommendation 4 at 45), and that the problem has attracted the attention of the Cherokee Nation (*see* testimony of Wilma Mankiller, Principal Chief of the Cherokee Nation, Tr. 766-A).

Accidents, Malfunctions, and Fire Prevention

These matters were set down for hearing in Memoranda and Orders of November 5, 1985 (at 15-16, 18), and October 10, 1986 (at 11). They were addressed in SFC's testimony (Statement, ff. Tr. 501.) Additionally, despite the fact that it had been excluded from the hearing because no specific complaints were filed, SFC also addressed the question of the handling of UF_6 cylinders. Several questions and comments were offered by Intervenors, based

on this testimony. They do not reveal any controversy with respect to these matters.

Staffing

This matter was discussed in the Memoranda and Orders of October 10 (at 12) and December 31 (at 5-6). The October 10 Memorandum and Order notes that CARA, CASE, Ms. Synar, and EA have raised questions concerning the adequacy of staffing. These questions stemmed from an assumption that only one person would be assigned responsibility to operate the UF_4 facility. SFC's clarification of the staffing level contained in its August 1 response (at 5-6) did not fully answer these questions, and they were set down for hearing.

Prior to the hearing, SFC submitted statements on this issue on November 20 and January 7. At the hearing, Mr. James G. Randolph, President of SFC, testified that each shift at the facility will be staffed as follows:

1. Shift supervisor — this individual is responsible for the operation of the UF_4 facility and, in addition, will devote 10% to 20% of his time to the utilities that serve both plants;

2. Chemical operators — one chemical operator is assigned to the control room (which is never left unattended during operation of the facility (Tr. 662)) where his sole duty is to operate the UF_4 plant, one is assigned to the plant itself to serve as the "eyes and ears" of the control room operator with whom he is in radio or telephone contact, and one who works the day shift only and has responsibility for loading the product in drums at the drum filling station; and

3. The yard crew — this crew has responsibility for the unloading of UF_6 cylinders and installing them in the autoclaves. They are supervised by the shift supervisor. When they are required (perhaps 15 minutes per day) they report to the facility from the UF_6 production plant.

(*See* Tr. 556-61.)

The hearing did not disclose any relevant controversies concerning this level of staffing. However, CARA did express concern that the shift supervisor does not devote full time to the UF_4 operation and that the 80% to 90% that he does devote could diminish. (*See* Tr. 565-67.) NACE is concerned that this level of staffing be incorporated into the license as a license condition so that it may not be changed without Staff approval. (*See* Tr. 562-65.) SFC did not object to this. Consequently, the staffing level of the facility as outlined by Mr. Randolph is to be incorporated as a license condition. Additionally, should operating experience reveal that the duties of any individual are, as a practical matter, significantly different than those outlined (e.g., utilities consume more than 20% of the shift supervisor's time), this fact is to be promptly brought to Staff's attention.

Personnel Qualifications

This matter was discussed in Memoranda and Orders of November 5, 1985 (at 15), October 10, 1986 (at 12), and December 31, 1986 (at 6-12). It was raised by NACE, CASE, CARA, EA, Mr. Henshaw, and Dr. Gourd. As the matter eventually evolved, complaints were accepted to the effect that the minimum personnel qualifications are not sufficient to assure that the UF_4 facility will be safely operated. These qualifications are stated in the underlying license and are applicable to both the UF_4 facility and the UF_6 production facility. Because of this, I made it clear that these complaints would not be entertained as challenges to the requirements applicable to the underlying license. This ruling required Intervenors to show that the qualifications that were found acceptable for the UF_6 production facility were not acceptable for this facility. No such showing was made. (*See* December 31 Memorandum and Order at 6-8.)

In the December 31 Memorandum and Order, I denied NACE's extensive requests for information concerning the January 4 accident. (*Id.* at 8-12.) In so doing, I noted that the Intervenors were "free to argue that SFC, its officers, and its employees lack the competence to safely operate the UF_6 to UF_4 facility." (*Id.* at 12.) NACE, Dr. Gourd, and Mr. Henshaw made arguments to this effect at the hearing. These are discussed below under the heading "Corporate Character and Competence."

Paragraph 1.8 of the Application — Exemptions and Special Authorizations

This paragraph concerns the definition of uncontaminated articles and posting requirements. It was discussed in the October 10 Memorandum and Order (at 13) following questions raised by CASE, EA, and Ms. Synar. There, SFC was asked to indicate the source of the terms of the exception it sought to the definition of uncontaminated articles and how the exception differed from NRC requirements and why it did not wish to follow the posting requirements for rooms containing a specified amount of natural uranium.

In its statement following Tr. 633, SFC has answered these questions. SFC notes that it does not intend to depart from NRC guidance with respect to these matters and that it may have misled Intervenors by placing them under ¶ 1.8. It explained that its definition of uncontaminated articles was merely an alternative formulation of the regulatory guidance and that it wished to post the entire UF_4 facility because its configuration does not permit the posting of discreet areas within it as containing more than the specified amount of uranium.

Intervenors asserted at the hearing that no article that might be contaminated should be released, thus posing a more stringent standard than that contained in the regulatory guidance. No showing was made that would support this standard.

Special Process Commitments

The topics raised under this heading, cooling water emergency system, gas coolers, nitrogen supply, and the meaning of the term "routine confirmation," were discussed in the October 10 and December 31 Memoranda and Orders at 14-15 and 13, respectively. They were raised by CASE and Ms. Synar. The questions raised were adequately answered by SFC (*see* Tr. 650-63) and no relevant controversies were raised.

Seismicity

This topic was raised by APC. SFC was directed to respond to it. (*See* November 5 Memorandum and Order at 14.) SFC did so at the hearing (Tr. 668-78) concluding that the design loading of the building is more than adequate to cope with any earthquake that reasonably could be expected to occur at the site. Although APC sought to contradict this testimony (Tr. 679-81) and NACE offered testimony on the local effects of distant earthquakes (Tr. 681-84), no reason to doubt SFC's conclusion was advanced.

Need for the Facility

In the November 5 Memorandum and Order (at 17-18), I noted that NACE and CASE had questioned the need for this facility and, because need is a matter that must be addressed under the National Environmental Policy Act and Part 51 of the Commission's regulations, directed SFC to address this point at hearing. SFC did so (Tr. 686-93). Although CARA, NWC, APC, NACE, CASE, Ms. Synar, and Mr. Henshaw all took issue with SFC's statement, none of them controverted SFC's statement of need. Moreover, their presentations tended to raise philosophical concerns associated with the end use of the product to be produced which are not cognizable in this proceeding. I find that SFC has stated a need for this facility.

Environmental Issues

In their original petitions, Dr. Gourd, NACE, and Mr. Henshaw raised questions concerning the cumulative environmental impact of the addition of this facility. These questions were answered in some detail by SFC in its October 16 response. The November 5 Memorandum and Order (at 16) afforded NACE, CASE, and Mr. Henshaw an opportunity to indicate how they quarreled with SFC's data. The October 10 Memorandum and Order (at 14) noted that CASE's water quality concerns stated in its July response were related and afforded it a similar opportunity. Further, the latter Order noted that SFC had not

answered CASE's question whether any radiation protection, effluent control, or monitoring requirements had been changed as a result of the January 4 accident. Consequently, SFC was directed to respond to this inquiry at hearing.

At the hearing, CASE presented the testimony of Dr. Jim Maxie, a Tulsa dentist, on the hazards of fluoride (Tr. 766 *et seq.*). It also offered testimony to the effect that SFC should be required to comply with state law (Tr. 788-97). Except to the extent that it alluded to CASE's position that the liquid effluent from the SFC facility should be monitored prior to being diluted, this testimony did not focus any of the issues set down for hearing. The testimony with regard to the dilution of liquid effluent is not persuasive.

Mr. Henshaw's and APC's testimony (Tr. 797-825 and 826-29, respectively) addressed the environmental data identified in the November 10 Memorandum and Order but supplied no substantial reason to question that data, the monitoring program, or to quarrel with Staff's conclusion that an environmental impact statement is not necessary.

NACE offered the testimony of Wilma Mankiller, Principal Chief of the Cherokee Nation of Oklahoma, in support of its position that the Nation should have been consulted and invited to participate in the scoping process preliminary to the preparation of an environmental impact statement (Tr. 753-58). NACE relies on § 302 of the Safe Drinking Water Act Amendments of 1986 and 10 C.F.R. § 51.28 for its position. The Safe Drinking Water Act does not appear to be applicable to this proceeding, and, under 10 C.F.R. § 51.30, it was not necessary for Staff to engage in a scoping process prior to preparation of an environmental assessment. No showing having been made that an environmental impact statement, rather than an environmental assessment, should have been prepared in connection with this application, NACE's argument must be rejected. Moreover, as noted in the Introduction to this Decision, the Cherokee Nation initially petitioned to intervene and subsequently withdrew that petition. Thus it affirmatively chose not to participate in the process afforded by the Commission with respect to this application.

Corporate Character and Competence

This topic has pervaded this proceeding. Some Intervenors have questioned SFC's veracity from time to time, a practice that has elicited strong objections from its counsel. Further, they have questioned its character and sought to support their position with references to the *Silkwood* litigation, the so-called Phillips Report, violations of the NPDES discharge permit, alleged failure on the part of SFC's parent to dispose of mill tailings at certain of its sites, and SFC's attitude toward the application. (*See* NACE's September 1985 Petition and December 1986 Response.)

There is no basis in this record to question the veracity of SFC. Nor do the other matters that Intervenors cite furnish a basis to conclude that SFC lacks the necessary character to be an NRC licensee. Further, SFC's witnesses at the hearing were forthright in their approach to the issues and questions raised, and illustrated sincerity in their undertaking to run a safe facility. However, this inquiry may not end with these conclusions.

Throughout the hearing many Intervenors reiterated their concern that SFC may become lax in its operation of this facility, thus defeating any safety margins that exist as a result of its careful design. They sought to support their position with references to inspection reports made by the Staff and other documents. Staff's various reports and enforcement actions following the January 4 accident clearly support Intervenors' concern. They illustrate a complacency that apparently was responsible for that accident.

SFC has clearly met the regulatory requirements and is entitled to the license it seeks. The fact that its complacency may have led to the accident does not alter that conclusion. However, it does argue for a license condition designed to guard against a repetition. Consequently, I have concluded that SFC's license to operate the UF_6 to UF_4 facility should be conditioned to require that its President and its General Manager, who are not located on site, each spend at least one full work day each month at that facility while it is in operation. This condition should help to ensure that the top managers are aware of any tendency toward laxity.

MATTERS ADDRESSED IN WRITING

In the course of this proceeding, a number of acceptable complaints were raised which did not require oral presentations and consequently were considered and decided on written submissions. These are identified below together with references to the memoranda and orders that constitute findings of fact thereon.

Criticality Accidents and Accidental Mixing of the Two Product Streams — November 5 at 7-8.

Authorized Signatures — November 5 at 8-9.

Decommissioning Costs — November 5, October 10, and December 31 at 9, 17-20, and 13, respectively.

Transportation — November 5, October 10, and December 31 at 9-10, 20, and 14, respectively.

Applicability of 10 C.F.R. § 40.34 — November 5 at 10.

Use and Disposition of Cooling Water — November 5 and October 10 at 11 and 21, respectively.

Site Suitability — November 5 at 11-12.

Duration of the Amendment — October 10 at 16.

Definition of Depleted Uranium — October 10 at 17.

Changes in Procedures, Facilities, and Equipment — October 10 at 20-21.

Introduction of Oxygen into the Reduction Process — October 10 at 21.

Relationship of the Two Plants — October 10 at 22.

SUMMARY OF SFC'S COMMITMENT AND LICENSE CONDITIONS

SFC's Commitment

At the hearing, SFC committed itself to investigate problems of siren audibility and the reliability of the automated telephone system and to take appropriate corrective action.

License Conditions

The following conditions are imposed on the license amendment authorized by this Decision:

1. Within 1 month following issuance of the license amendment, SFC is to ascertain whether all residences within a 2-mile radius of the facility have telephones and make provisions acceptable to Staff to notify any that do not;

2. SFC is to verify that all telephone numbers listed in its emergency response plan are accurate at each major exercise of the plan;

3. SFC is to maintain the level of staffing outlined at Tr. 556-61 unless a change is authorized by Staff, and SFC is to promptly report to Staff any significant changes in the duties as described on those transcript pages; and

4. SFC's President and its General Manager each are to spend at least one full workday each month at the UF_4 production facility while it is in operation.

CONCLUSIONS OF LAW

In accord with the findings of fact entered on the admitted complaints and subject to the license conditions set out above, I conclude as follows:

1. SFC is qualified to use the source material for the purpose requested in such manner as to protect health and minimize danger to life or property; and

2. SFC's equipment, facilities, and procedures are adequate to protect health and minimize danger to life or property; and

3. The issuance of the license amendment will not be inimical to the common defense and security or to the health and safety of the public; and

4. The NRC Staff's environmental assessment is adequate and its finding of "no significant impact" appropriate.

ORDER

In accord with this Decision and with his findings on matters not encompassed by this Decision, the Director of Nuclear Material Safety and Safeguards is authorized to issue a license amendment to License Number SUB-1010 authorizing SFC to operate a facility to convert depleted uranium hexafluoride to depleted uranium tetrafluoride at its Gore, Oklahoma site.

In accord with the Commission's July 24, 1985 Order, this Decision shall constitute the final action of the Nuclear Regulatory Commission 30 days after its date unless the Commission, on its own motion, undertakes a review of it. No petition for review will be entertained by the Commission of this Decision.

John H Frye, III
ADMINISTRATIVE JUDGE

Bethesda, Maryland

APPENDIX

QUESTIONS SUBMITTED BY INTERVENORS AT THE HEARING THAT WERE NOT ASKED

Ed Henshaw Questions

Is the DUF_4 radioactive or is it depleted of radiation as stated by a plant manager?

Did the former plant manager meet the minimum license requirements?

What type of trash incinerator is used at the facility?

Will floor sweep and other contaminated trash be burned at SFC?

Could the NRC licensed burial ground be a licensed burial ground at this facility?

Why was the commitment by General Randolph to the Congress of the U.S. to install autoclaves in the existing UF_6 Facility not fulfilled? *See* page 211 of *Review of Hazardous Chemical Regulation at Nuclear Facilities by the Nuclear Regulatory Commission and Other Federal Agencies*, March 14, 1986 Hearing

before a subcommittee of the Committee on Government Operations, House of Representatives.

Barbara Synar Questions

How much fire protection are we assured of? Since Gore is rated as a-9 in fire protection?

Is K.M. still putting out and applying radioactive material on 270 acre plot and 160 acre plot at facility?

Where will the radioactive waste be put in the UF_4 plant?

Do you write your job descriptions to fit plant needs?

How do you determine for area superintendent with high school diploma we will be assured the safety?

Memorandum & Order Dec. 31, 1986:

3 shifts a day, 5 days per week
Area Manager
Superintendent — 3 shift
7 chemical operators

Nov. 15, 1986 — NRC:

3 shift — 7 days area manager, 1 shift chemical operator, located in DuF to duty facility under shift supervisor. Additional shift operators shall assist.

Is this from UF_4? Is it seven or 5 days? Is this pertaining also to UF_6? UF_4 was to be separate from UF_6 — is this correct?

Why is revision stating 7 day work week and we are told a 5 day work week?

CASE Questions

In the 10/85 Oklahoma State Health Dept. *Assessment*, did OSDH include, for purposes of reaching its conclusion of no adverse impact, the heavy metals loading problem on the treated raffinate disposal lands?

Please state the total number of new jobs created by the UF_4 facility which would result in new employees being hired?

What is SFC's objection to the release standard proposed by CASE?

What is SFC's objection to posting each radioactive material area?

How will reheated UF_6 cylinders be cooled?

Does SFC agree that if the Sequoyah Facility or UF_4 facility were to be closed for maintenance or other reasons, does (SFC, KM) *agree* to close the other facility if remaining open constituted a risk of any sort?

Personnel Questions of CASE

Was UF_4 proposed startup manager, Billie J. Buntz, plant manager at the Cushing facility when it exploded?

Was UF_4 proposed startup manager, Billie J. Buntz, engineering manager at Cimmaron Uranium/Plutonium Plants on November 14, 1974?

CARA Questions

What type of schedule and how often will the bag filters on the dust collector be inspected visually?

Does the health physics manager have a scientific degree or formal education in that field? Are there any special qualifications not reflected on in SFC's responses to intervenors?

The DOE facilities that were closed, you stated they were outdated facilities, were they also contaminated by long years of manufacture? Fernald, Ohio is one case in point.

NWC Questions

Since this procedure is to license this UF_4 plant, how is it they've already gone ahead and hired/trained employees for their new positions?

Please clarify how and why you found my request for "Materials Unaccounted For" reports?

NACE Questions

Will anything we say here today make a difference?

Is there presently an UF_4 facility in operation? If so, where?

Who paid for the UF_4 facility?

SFC will provide follow up medical assistance (page 4). Why was it that KM ended up with all the hospital records of people treated for the January 4th accident without their signature?

The EPA rules state that Indian tribes must be treated as "states" when citing facilities within their boundaries — have you consulted with the Cherokee Tribal Government on this facility?

APC Questions

What is the "know" safe level of exposure to radiation?

Is there any other committee or agency set up besides SFC and NRC to determine levels of toxic wastes disposed by SFC upon the land, air, water of the local environment? Testing study without vested economic interest to SFC.

Are we at the brink of conventional warfare with a Warsau Pact nation?

Why is part of the supervisory staff to shuttle between the plants if we are supposed to consider the proposed plant a separate facility?

Re: "permit rapid mitigation of small releases" in paragraphs a. — as this goes to the atmosphere, what is the safe level of exposure. Can the panel name one and verify it?

Why did SFC after the accident announce to the public there had been a "toxic chemical accident" and make no reference to the fact that it was also a nuclear accident?

The five offsite air monitors did not detect the toxic cloud of January 4, even though Monitor I was in the path of the plume.

What provisions exist for regularly checking these monitors *now*?

Why did NRC in a past accident report say only 7 of approx. 100 people had low-level uranium exposure when NUREG-1189 shows 58% had excessive levels of uranium in their urine, and of these 70% had urinary uranium levels above the SFC permissible level for workers?

Why was there no emergency warning system for the community *before* the accident?

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD PANEL

Before Administrative Judge:

Charles Bechhoefer

In the Matter of

Docket No. 30-19378-ML
(ASLBP No. 87-548-01-SC)

MICHAEL F. DIMUN, M.D.
(Byproduct Materials License No. 37-13604-02)

March 10, 1987

In a proceeding involving an Order to Show Cause why a license should not be revoked for nonpayment of a fee due the government, the Presiding Officer dismisses the Licensee's hearing request as moot and terminates the proceeding, where the Licensee pays the amounts due the government.

MEMORANDUM AND ORDER
(Dismissing Proceeding as Moot)

The Licensee is the holder of Byproduct Materials License 37-13604-02. On April 18, 1986, the Nuclear Regulatory Commission billed the Licensee for an inspection fee of $480. A second notice of payment due was sent to the Licensee on June 5, 1986. The Licensee responded by letter dated June 24, 1986, protesting the amount of the fee. A final notice of payment due was sent to the Licensee on July 3, 1986. On July 17, 1986, the Commission responded to the Licensee's letter of June 24, 1986.

Lacking payment, the Commission on September 29, 1986, issued an Order to Show Cause, ordering the Licensee to show cause why License 37-13604-02 should not be revoked permanently and permitting him to request a hearing. By

letter dated October 24, 1986, the Licensee requested a hearing. On March 2, 1987, the undersigned was designated as Presiding Officer for this proceeding (52 Fed. Reg. 7049 (Mar. 6, 1987)).

By letter dated March 6, 1987 (confirming a telephone notification of March 5, 1987), the NRC Staff advised that the Licensee had paid the inspection fee, together with penalty and interest due the government. As the Licensee had previously been advised, such payment would result in withdrawal of the Show Cause Order and termination of the proceeding. Since the NRC Staff no longer seeks to pursue the Show Cause Order, the hearing request is hereby *dismissed* as moot, and the proceeding is *terminated*.

IT IS SO ORDERED.

PRESIDING OFFICER

Charles Bechhoefer
ADMINISTRATIVE JUDGE

Dated at Bethesda, Maryland,
this 10th day of March 1987.

Cite as 25 NRC 177 (1987) LBP-87-10

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Sheldon J. Wolfe, Chairman
Emmeth A. Luebke
Jerry Harbour

In the Matter of

Docket Nos. 50-443-OL-1
50-444-OL-1
(ASLBP No. 82-471-02-OL)
(Onsite Emergency Planning
and Safety Issues)

**PUBLIC SERVICE COMPANY
OF NEW HAMPSHIRE, *et al.***
**(Seabrook Station, Units 1
and 2)**

March 25, 1987

The Licensing Board authorizes issuance of a license to operate Seabrook Station, Unit 1, up to 5% of rated power. It resolves the three onsite emergency planning and safety contentions relating to (a) Applicants' emergency classification and action level scheme, (b) electrical equipment environmental qualification time duration, and (c) Applicants' safety parameter display system. It authorizes the issuance of this low-power license provided that, prior to the issuance thereof, Applicants have satisfied one condition imposed with respect to contention (b). With respect to contention (c), the Board orders that, if a full-power operating license is ultimately authorized by the other Licensing Board which is considering *offsite* emergency planning issues, prior to the issuance thereof, Applicants must have satisfied three conditions.

NUREG-0737: SAFETY PARAMETER DISPLAY SYSTEM

NUREG-0737, Supplement 1, does not require implementation of requirements for the safety parameter display system prior to initial criticality. However, to protect the public health and safety, implementation of certain SPDS requirements must be effected prior to operation at power levels above 5% of rated power.

TECHNICAL ISSUES DISCUSSED

Emergency Classification and Action Level Scheme;
Electrical Equipment Environmental Qualification; and
Safety Parameter Display System.

APPEARANCES

Robert A. Backus, Esq., Backus, Meyer & Solomon, Manchester, New Hampshire, for Intervenor Seacoast Anti-Pollution League.

Diane Curran, Esq., Harmon & Weiss, Washington, D.C., for Intervenor New England Coalition on Nuclear Pollution.

Carol Sneider, Esq., Office of the Attorney General, Boston, Massachusetts, for the interested Commonwealth of Massachusetts.

George D. Bisbee, Esq., Office of the Attorney General, Concord, New Hampshire, for the interested State of New Hampshire.

Thomas G. Dignan, Jr., Esq., and **R.K. Gad, III, Esq.**, Ropes and Gray, Boston, Massachusetts for Applicants, the Public Service Company of New Hampshire, *et al.*

Robert G. Perlis, Esq., and **Sherwin E. Turk, Esq.**, Office of the General Counsel, Washington, D.C., for the U.S. Nuclear Regulatory Commission Staff.

TABLE OF CONTENTS

	Page
OPINION	180
I. INTRODUCTION	180
A. Background	180
B. Content of the Opinion and Findings	182
II. CONTENTIONS	183
A. Contentions NECNP III.1 and NH-20 — Classification Scheme and Emergency Action Levels	183
B. SAPL Supplemental Contention 6 — Compliance of the Seabrook Safety Parameter Display System (SPDS) with NUREG-0737, Item I.D.2	183
C. Electrical Equipment Environmental Qualification Time Duration	187
III. CONCLUSIONS	189
FINDINGS OF FACT	190
EMERGENCY CLASSIFICATION AND ACTION LEVEL SCHEME	190
SAFETY PARAMETER DISPLAY SYSTEM	194
ELECTRICAL EQUIPMENT ENVIRONMENTAL QUALIFICATION TIME DURATION	205
CONCLUSIONS OF LAW	215
ORDER	216

PARTIAL INITIAL DECISION
(Operating License)

Opinion

I. INTRODUCTION

A. Background

On July 9, 1973, the Public Service Company of New Hampshire, *et al.* (Applicants) had filed with the then U.S. Atomic Energy Commission an application for licenses to construct Seabrook Station, Units 1 and 2. Each of the units is a Westinghouse pressurized water reactor and each is designed to operate at a thermal power of 3411 megawatts. The site of the nuclear generating facility is located on the western side of Hampton Harbor, in the township of Seabrook, Rockingham County, New Hampshire, and is approximately 11 miles south of Portsmouth, New Hampshire, and 40 miles north of Boston, Massachusetts. After a public hearing before an Atomic Safety and Licensing Board, the construction permits were issued on July 7, 1976.

The application for operating licenses was docketed by the Nuclear Regulatory Commission on October 5, 1981. Notice of the opportunity for requesting a public hearing was published in the *Federal Register* on October 19, 1981. (46 Fed. Reg. 51,330.) On November 30, 1981, an Atomic Safety and Licensing Board was constituted and the following Administrative Judges were appointed: Helen Hoyt, Chairperson; Emmeth Luebke; and Oscar Paris. On August 25, 1982, the Licensing Board was reconstituted with Administrative Judge Jerry Harbour being appointed to serve in lieu of Administrative Judge Paris.

Ultimately, pursuant to 10 C.F.R. § 2.714(a), the Licensing Board admitted various individuals and organizations as intervening parties (Intervenors), and, pursuant to 10 C.F.R. § 2.715(c), it permitted representatives of various interested States and municipalities to participate in the proceedings. Amongst those admitted as intervening parties were New England Coalition on Nuclear Pollution (NECNP) and Seacoast Anti-Pollution League (SAPL). Amongst those permitted to participate as representatives of interested States or municipalities were the Attorney General of the State of New Hampshire (NH) and the Attorney General of the Commonwealth of Massachusetts (Mass.).

During a hearing held in August 1983, the then-presiding (Hoyt) Board heard the Applicants' and the Staff's evidence upon three onsite emergency planning

and safety issues.[1] That Board also heard evidence presented by Applicants, the Staff, and Mass. on an offsite emergency planning issue.[2] After the closing of the record, the Applicants, the NRC Staff, and NECNP filed proposed findings and conclusions of law with respect to NECNP I.B.2 and with respect to NECNP III.1 and NH 20. NH filed submissions only with respect to NH 20. Applicants, the NRC Staff, Mass., SAPL, and NECNP filed proposed findings of fact and conclusions of law with respect to NECNP III.12-III.13. On November 23, 1983, Applicants filed a reply to the various proposed findings.

The Hoyt Board did not issue a partial initial decision with respect to the contentions referred to above. On September 9, 1985, the Board was reconstituted and this Board (the Wolfe Board), consisting of Administrative Judges Sheldon Wolfe, Chairman, Emmeth Luebke, and Jerry Harbour, was appointed to preside over all onsite safety and emergency planning issues. (50 Fed. Reg. 37,608.) The Hoyt Board retained jurisdiction over all offsite emergency planning issues.[3] In an Order issued on November 4, 1985 (unpublished), this Board stated as follows:

> We have reviewed the record and have concluded that the record needs to be reopened for the limited purpose of supplementation. It is not our intention, and we will not permit the retrying of issues heard before the closing of the record on August 23, 1983. After a prehearing conference, and after discovery, if any, a supplementary hearing will be ordered to take evidence on the above-identified matters pertaining to Contentions NECNP I.B.2, NECNP III.1 and NH 20, which involve significant health and safety issues, and which were not previously ripe for hearing.

Footnote 2 stated that, if NH Contention 10 (Detailed Control Room Design Review) was not informally resolved, evidence would be taken on that contention as well during the supplementary hearing.

In a Memorandum and Order of July 21, 1986, LBP-86-22, 24 NRC 103, the Board granted NH's motion to withdraw its Contention 10, but, because SAPL

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[1] NECNP Contention I.B.2 asserted that Applicants had not satisfied the requirements of GDC 4 that all equipment important to safety be environmentally qualified because Applicants had failed to specify the time duration over which the equipment was qualified.

Similar Contentions NECNP III.1 and NH 20 asserted, in substance, that the emergency plans did not contain an adequate emergency classification scheme as required by 10 C.F.R. § 50.47 and Appendix E, and by NUREG-0654.

[2] As reworded by the Board, NECNP III.12-III.13 reads as follows:

> *Evacuation Time Estimate*
>
> The evacuation time estimates provided by the Applicants in Appendix C of the Radiological Emergency Plan are deficient in failing to include an estimate of: (1) the times for evacuation during adverse weather conditions developing on a busy summer weekend; and (2) the times for simultaneous evacuation of beach areas lying NE to SSE of the Seabrook site.

[3] Subsequently, on March 25, 1986, Judge Hoyt ruled that that Board had jurisdiction over the evacuation time estimate contention in its entirety, both as to the prior litigation and as to any further litigation on that issue before that Board. In a Memorandum and Order of August 14, 1986 (unpublished), this Board ruled that NECNP Contention III.12-III.13 did not present an onsite emergency planning issue.

had preserved its rights as a joint intervenor with respect to that contention, it converted NH 10 to and replaced it with SAPL Supplemental Contention 6.

In a motion that had been filed on June 17, 1986, Applicants requested, inter alia, that the Board's Partial Initial Decision when issued should authorize issuance of an operating license for operation not in excess of 5% of rated power. The Memorandum and Order of July 25, 1986, LBP-86-24, 24 NRC 132, reflected that, after considering the evidence presented during the supplementary hearing, the Board would decide in its Partial Initial Decision whether or not to authorize issuance of an operating license for operation of Seabrook Unit 1 up to and including 5% of rated power.

On September 15, 1986, the Board partially granted Applicants' motion for summary disposition of SAPL Supplemental Contention 6. (LBP-86-30, 24 NRC 437.)

The reopened hearing began on September 29, and proceeded on September 30, October 1, and October 3, 1986.[4] The same parties and interested States, which had attended and participated in the 1983 hearing, also attended and participated in the 1986 reopened hearing. Proposed findings of fact, conclusions of law, proposed forms of decision, and briefs were filed on the following dates: Applicants — October 30; SAPL — November 7; NECNP — November 12; Mass. — November 12; NRC Staff — November 26, 1986.[5] Applicants filed a reply on December 1, 1986.

On November 25, 1986, Applicants advised that Unit 2 had been officially cancelled.

B. Content of the Opinion and Findings

Part II of this Opinion discusses and resolves the contentions. Part III reflects our conclusions. The Board's underlying Findings of Fact and Conclusions of Law are appended and incorporated by reference. An Order is also appended.

It should be noted that all of the proposed findings of fact and conclusions of law submitted by the parties that are not incorporated directly or inferentially in this Partial Initial Decision are rejected as unsupported in law or fact or as unnecessary to the rendering of this Partial Initial Decision.

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[4] Limited appearance statements were received during the initial August 1983 hearing and during the reopened 1986 hearing.

[5] NH did not file these submissions. NECNP's submissions were limited to addressing NECNP Contention I.B.2. Mass.'s and SAPL's submissions were limited to addressing SAPL Supplemental Contention 6. Only the Applicants' and the Staff's submissions addressed all of the onsite safety and emergency planning contentions.

II. CONTENTIONS[6]

A. Contentions NECNP III.1 and NH-20 — Classification Scheme and Emergency Action Levels (Fdgs. 1-13)

In substance these contentions assert that, contrary to the requirements of 10 C.F.R. § 50.47 and Part 50, Appendix E, and of NUREG-0654, the emergency plan does not contain an adequate emergency classification and action level scheme. It should be noted that, pursuant to a stipulation, the written direct testimonies of the Applicants' and the Staff's witnesses were admitted into evidence and incorporated into the 1986 record as if read. There was no cross-examination, and only the Applicants and the Staff filed proposed findings of fact, conclusions of law, and briefs with respect to these contentions. Thus, although these two contentions are no longer controverted issues, we decided to prepare factual findings and to set forth our conclusion.[6]

At the time of the 1983 hearings, the Applicants' emergency classification and action level scheme was not complete. In light of the supplementary evidence presented during the course of the 1986 hearing, we conclude that Applicants' emergency classification and action level scheme fully satisfies the requirements of § 50.47 and Appendix E of Part 50 and meets the guidance criteria of NUREG-0654.

B. SAPL Supplemental Contention 6 — Compliance of the Seabrook Safety Parameter Display System (SPDS) with NUREG-0737, Item I.D.2 (Fdgs. 14-47)

The central issue of this contention is whether there is reasonable assurance that the health and safety of the population in the immediate vicinity of the plant will be protected if corrections to deficiencies in the Seabrook SPDS are deferred until the first refueling outage. Requirements for the SPDS are set forth in NUREG-0737, Supplement 1,[7] a Commission-approved document providing certain post-TMI requirements and guidance to be implemented both by applicants for, and holders of, operating licenses for power reactors, in order to upgrade emergency response capability and facilities.

With respect to litigation of TMI-2 issues in operating license proceedings, the Commission specifically endorsed NUREG-0737 requirements as being necessary for responding to the accident at TMI-2, and categorized the NUREG-

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[6] These contentions constitute the only remaining issues in controversy with respect to onsite safety and emergency planning matters.

[7] "Requirements for Emergency Response Capability (Generic Letter No. 82-33)," transmitted to licensees and applicants by letter dated December 17, 1982.

0737 requirements, like those in NUREG-0694,[5] as falling into two categories in terms of their relationship to existing regulations:

> (1) Those that interpret, refine or quantify the general language of existing regulations, and
>
> (2) Those that supplement the existing regulations by imposing requirements in addition to specific ones already contained therein.

(Statement of Policy; Further Commission Guidance for Power Reactor Operating Licenses, 45 Fed. Reg. 85,236, 85,238 (Dec. 24, 1980).) The requirements for implementing the SPDS fall into the second category.

The implementation schedule of TMI Action Plan requirements for applicants for an operating license was given in Enclosure 2 of NUREG-0737 (at 2-3 to 2-11). Depending upon safety significance and the immediacy of the need for corrective actions, the schedule required implementation of different items at various times, such as prior to fuel load, prior to initial criticality, prior to full power, by some fixed date, or for some requirements, by a schedule to be determined. The implementation date for the SPDS requirements fell into the last category. While Supplement 1 to NUREG-0737 indicated that schedules therein superseded previous schedules, the schedule for implementation of the SPDS remained unfixed and to be set by agreement between the Applicants and Staff. The Board notes that the SPDS was never included among those requirements whose implementation was required prior to fuel load or prior to initial criticality.

While Supplement 1 to NUREG-0737 permits implementation of SPDS requirements by a schedule agreed upon between the NRC Staff and Applicants, it also stresses prompt implementation as an important contribution to plant safety. NUREG-0737, Supplement 1, does not require implementation prior to initial criticality, and no evidence was adduced to indicate that it must be.

The principal function of the SPDS is to aid control room operators during abnormal and emergency conditions in determining safety status of the plant and in assessing abnormal conditions that may require corrective actions to avoid a degraded core.

The Seabrook Station SPDS is not in full compliance with the requirements (and guidance) provided in NUREG-0737, Supplement 1, because of certain deficiencies of disparate severity found by the NRC Staff in its review of the operating license application. (*See* Fdg. 27, *infra*.) The severity of deficiencies ranges from those in "guidance" items, i.e., methods of achieving particular functions or operations (deficiencies 5, 8, and 9), to absence of minimum or

---

[5] "TMI-Related Requirements for New Operating Licenses," June 1980. Specific requirements for an SPDS were not included in NUREG-0694 but were included as Item I.D.2 in NUREG-0737 which superseded it.

critical plant variables specifically required by NUREG-0737, Supplement 1, as part of the SPDS displays, e.g., absence of displays for residual heat removal (RHR) flow and containment hydrogen concentration variables (deficiency 2).

One SPDS deficiency (No. 7), which had been fully resolved before the hearing, involved proper isolation of nonsafety-grade circuits of the SPDS from the Class IE systems to protect the safety systems from possible interference. Existence of this deficiency, which is controlled by requirements for safe interconnection of safety- and nonsafety-related systems as well as by SPDS requirements, was one of the main reasons that impelled this Board on September 15, 1986, to order adjudication of the status of the SPDS. LBP-86-30, *supra*, 24 NRC at 446-47. Evidence of the resolution of this item received at the hearing was uncontroverted, and the resolution is described in Appendix 8-A of Supplement 6 of the SER.

This Board has not attempted to make any independent evaluation of the relative safety significance of individual deficiencies; indeed, the record would not completely support such an evaluation. Instead, we have relied upon NUREG-0737 which sets forth certain requirements for the SPDS and describes some of the critical safety function requirements as "minimum information to be provided," for which the Staff has identified a minimum set of twenty plant parameters that it believes to be sufficient to provide plant operators with information about the critical safety functions. The general standard for resolutions that we have applied is that each of these specific SPDS requirements shall be met, or that equivalent alternative means for the control room operating personnel at the prime SPDS station to obtain the information, shall be implemented prior to operation at levels exceeding 5% of rated power (except for deficiency 11 discussed below). We have determined that three of the deficiencies (Nos. 5, 8, and 9) have been largely resolved between the Staff and Applicants as to how best to achieve certain functions or operations. Indeed NUREG-0737 merely provides guidance and does not mandate how to achieve these ends. Similarly, we could find no clear requirement in NUREG-0737 for SPDS availability calculations (deficiency 10). We, nevertheless, present our findings with respect to the deficiencies 5, 8, 9, and 10, *infra*.

With regard to deficiency 11, the tests that must be conducted to determine SPDS computer response time are required by NUREG-0737, but meaningful tests or statistics from computer response times must await plant operations at power levels when significant total loads are placed on the main plant computer. In the interim, public health and safety will not be adversely affected by the unknown system response time under heavy computer loading because the SPDS will be functional and available, and operating personnel are required to verify any SPDS indications prior to taking any actions on them. Applicants have made the commitment that, prior to restart following the first refueling outage, load tests shall have been conducted to determine response times for

SPDS indications, sufficient to evaluate SPDS priority requirements on the main plant computer.

With respect to two of the minimum plant variables identified by the Staff as essential to the provision of information on critical safety functions as required by NUREG-0737, Supplement 1, viz., residual heat removal (RHR) flow and containment hydrogen concentration variables (deficiency 2), we find that Applicants have not met their burden of showing that public health and safety will be protected if addition of these variables is deferred until restart following the first refueling outage. Accordingly, we impose a condition on the operating license to require addition of these indications to the continuous SPDS displays prior to operation above 5% of rated power.

The requirements addressed in deficiencies 3 (readability of the containment isolation display) and 4 (location of monitors that display steam-line radiation and vent-stack radiation parameters) constitute three other minimum plant parameters identified as essential to the provision of critical safety function variables. The Applicants aver that improvements, already made to the arrangement of lights that indicate containment isolation valve status, provide to the operator at the prime SPDS location the information on containment isolation that is required by NUREG-0737, Supplement 1. With regard to the location of the two essential radiation monitors, Applicants have committed to establish a radiological control screen on the SPDS prior to plant operation above 5% of rated power. While this screen will require a selection button to call up the radiation monitors, the same information is displayed an arm's length behind the SPDS station on the Radiation Data Management System (RDMS) displays, which have auditory alarms that sound if radiation levels exceed a designated set point. We find that the nearby auditory alarms adequately compensate for the lack of continuous display of the radiological control screen on the SPDS. Thus we find that the corrections already made and the commitment to implement corrections described by the Applicants, when verified by the Staff, will provide reasonable assurance with respect to these three SPDS essential requirements that the health and safety of the public will be protected during operations above 5% of rated power. We impose a condition on the operating license that the radiological control screen on the SPDS be implemented, as committed to, prior to operation at power levels above 5%. We consider Staff verification of these corrections, and others described below, to be ministerial tasks.

Applicants have committed to correction of another deficiency (No. 1), the lack of continuous display of SPDS variables, as required by NUREG-0737 Supplement 1. Two alternative approaches to meeting this requirement were described by the Applicants. (*See* Fdg. 30, *infra*.) We find, and so condition the license, that either alternative, if implemented prior to operation above 5% of rated power, and subject to Staff verification, will provide reasonable assurance

that the requirement that the SPDS display be continuous will be met and that public health and safety will be protected. *Also see* deficiency 4, *supra*.

Two SPDS displays, the subcriticality and core cooling status trees, had been found to be capable of providing erroneous indications of the status of these critical safety functions at normal operating power levels. The Applicants have corrected this deficiency (No. 6) so that the status trees will function properly at all power levels or requisite operational modes. Subject to verification of the corrections by the Staff, we find that this deficiency is resolved.

We are imposing license conditions with respect to three of the SPDS deficiencies (Nos. 1, 2, and 4) cited by the Staff in SSER-6 that must be corrected prior to plant operation above 5% of rated power. With regard to the other cited deficiencies we find that Applicants have demonstrated that any needed correction of certain of them may be deferred until the first refueling outage without adverse impact on public health and safety, and that the remainder already have been corrected in a manner that we find will protect public health and safety. Our findings on these corrections already made by Applicants is contingent upon verification by the Staff.

C. Electrical Equipment Environmental Qualification Time Duration (Fdgs. 48-90)

As set forth in our Findings of Fact, *infra*, assisted by its contractor, the NRC Staff made a preaudit review of the Seabrook Environmental Qualification program. Approximately 112 equipment qualification files (EQFs) were examined. The contractor's report, showing many deficiencies, was sent to the Staff in a memorandum dated February 21, 1986. The Staff's reviewer had received a copy of this preaudit report sometime prior to February 21. Prior to conducting the environmental qualification audit, the Staff's and its consultant's review team members met with the Applicants and discussed each of the deficiencies found during the preaudit review. Applicants agreed to correct these deficiencies. Between February 24 and February 27, 1986, the review team conducted an audit — some of the twelve EQFs audited were chosen to determine if Applicants had corrected the deficiencies as they had previously agreed to do. The results of the audit, recorded by the Staff in a Meeting Summary dated April 11, 1986, reflected that specific deficiencies were found in six of the twelve files audited. In Supplement 5 to the Safety Evaluation Report issued July 1986, the Staff noted that the Applicants had "proposed acceptable corrective measures in the form of additional information and file revision to eliminate the deficiencies cited." The Staff concluded in Supplement 5 that "on the basis of the results of its review and subject to confirmation that all audit deficiencies have been corrected, the Staff concludes that the Applicant has demonstrated compliance with the requirements for environmental qualification as outlined in

10 C.F.R. § 50.49, the relevant parts of GDC 1 and 4, and §§ III, XI, and XVII of Appendix B to 10 C.F.R. 50, and with the criteria as specified in NUREG-0588." The Staff has received a letter from the Applicants notifying it that all deficiencies have been corrected and that the EQFs have been changed to reflect these corrections.

NECNP has abandoned one aspect of this contention — viz., that Applicants' environmental qualification of electrical equipment program is deficient in failing to specify the time duration over which the equipment is qualified. As to this aspect of the contention, upon our review of the record, we conclude that the postaccident qualification time duration for electrical equipment important to safety at Seabrook, which is required to be environmentally qualified under General Design Criterion 4 of Part 50, Appendix A, and 10 C.F.R. § 50.49, has been specified for a period of 1 year following a postulated accident, or, in the alternative, for the time required to perform its safety function plus a margin, as specified in Position C.4 of Regulatory Guide 1.89, Revision 1.

However, as to a second aspect of the contention, NECNP proceeds to urge that Applicants' EQFs do not contain either complete or accurate documentation demonstrating that each safety component is capable of performing its safety function for the duration in which it is required to be functional during an accident. It argues thus that Applicants have failed to provide reasonable assurance that Seabrook's safety equipment can survive an accident for the requisite duration. In support of its position, NECNP alleges first that five of Applicants' environmental qualification files reflected deficiencies and that the "systemic and pervasive nature of Applicants' noncompliance with the NRC's environmental qualification requirements is confirmed by the NRC audit," in which six of the twelve equipment qualification files audited by the NRC Staff showed deficiencies. It also alleges that the Staff's sampling technique was flawed in examining only twelve equipment qualification files. (NECNP Brief at 9, 10.) Finally, it alleges that, given the large number of deficiencies found during the preaudit, it was premature to begin the audit until the extensive corrections found at the preaudit stage had been effected. (NECNP Prop. Fdg. 84.)

NECNP's first allegation is without merit since its basis is faulty. Except for a missing maintenance requirement document in one of the five files alleged by NECNP to be deficient, there is no evidence that the equipment listed in the five challenged files was not properly qualified or that the files failed to meet the recordkeeping requirements of § 50.49. We have directed in our Order, *infra*, that the missing maintenance requirement document be supplied. As to the six file deficiencies found during the audit of the Applicants' EQFs, four merely called for addition of clarifying or supporting information already in Applicants' possession, and two called for corrections to two equipment items observed during a walkdown inspection. In a letter to the Staff, Applicants have confirmed that all file deficiencies have been corrected. We do not find that

the audit deficiencies suggest, much less confirm, a "systemic and pervasive" noncompliance with environmental qualification requirements, and there is no evidence to support such an allegation. Instead, the record shows that Applicants have responded to the audit findings by correcting the deficiencies.

NECNP's second allegation is also without merit since it lacks evidentiary support in the record. It did not present an expert witness to testify that the Staff's sampling technique was flawed and it did not cite the testimony of any witness called by the Staff or by Applicants in support of such a barren allegation. Moreover, the record reflects that some of the twelve audited EQFs were selected to determine whether Applicants had corrected the deficiencies which they had agreed to do.

Finally, NECNP's third allegation is without merit. In its Proposed Finding 61, which we have adopted, NECNP asserted that the Staff generally performs an audit after it has reviewed a license applicant's equipment qualification program and concluded that it is basically adequate. (*See* Fdg. 57, *infra.*) As reflected above in our discussion of NECNP's first allegation, the environmental qualification program at the time of the audit was basically adequate, and thus the Staff's audit had not been conducted prematurely.

In light of our discussion, we conclude . the eleven equipment qualification files, which had been challenged by NECN during the hearing, are complete and accurate and thus show that each safety component is capable of performing its safety function for the duration in which it is required to be functional during an accident. We also conclude that there is no evidentiary basis for the allegation that Applicants systemically and pervasively failed to comply with the Commission's environmental qualification requirements.

III. CONCLUSIONS

The Board concludes that Applicants' emergency classification and action level scheme fully satisfies the requirements of § 50.47 and Appendix E of Part 50 and meets the guidance criteria of NUREG-0654.

We conclude that, except for three SPDS deficiencies which must be corrected prior to plant operation above 5% of rated power, the Applicants have established that the other SPDS deficiencies contested in this proceeding either will have no adverse impact on the public health and safety if corrections are deferred to the first refueling outage or have been corrected by the Applicants in such a manner so as to protect the public health and safety.

We conclude that the postaccident qualification time duration of electrical equipment important to safety at Seabrook, which is required to be environmentally qualified under GDC 4 of Part 50, Appendix A, and 10 C.F.R. § 50.49, has been specified for a period of 1 year following a postulated accident, or, in the

alternative, for the time required to perform its safety function plus a margin, as specified in Position C.4 of Regulatory Guide 1.89, Revision 1. Finally, we conclude that, except for a document absent from one file which we have ordered to be included, the eleven equipment qualification files, which had been challenged by NECNP during the hearing, are complete and accurate and thus show that each safety component is capable of performing its safety function for the duration in which it is required to be functional during an accident. There is no evidentiary support for the allegation that Applicants systemically and pervasively failed to comply with the environmental qualification requirements.

Findings of Fact[9]

EMERGENCY CLASSIFICATION AND ACTION LEVEL SCHEME

1. NECNP Contention III.1 asserts:

The emergency plan does not contain an adequate emergency classification and action level scheme, as required by 10 C.F.R. § 50.47(b)(4) and NUREG-0654, in that

(a) No justification is given for the classification of various system failures as unusual events, alerts, site area emergencies, or general emergencies.

(b) The classification scheme minimizes the potential significance of transients.

(c) The Applicants' classification scheme fails to include consideration of specific plant circumstances, such as the anticipated time lag for evaluation due to local problems.

(d) The classification scheme fails to provide a reasonable assurance that Seabrook onsite and offsite emergency response apparatus and personnel can be brought to an adequate state of readiness quickly enough to respond to an accident.

(e) The emergency action level scheme fails to identify emergency action levels or classify them according to the required responses.

(f) The scheme is incapable of being implemented effectively to protect the public health and safety because it provides no systematic means of identifying, monitoring, analyzing, and responding to the symptoms of transients and other indicators that transients may occur.

[9] The factual background is set forth in the introduction to our opinion, *supra*. At the close of the reopened 1986 hearing the Board directed the parties to file, and stated a party would be deemed to be in default if it did not file, proposed findings of fact and conclusions of law and briefs and a proposed form of order or decision (Tr. 1024). Further, *inter alia*, the Board instructed that proposed findings should be integrated and based upon the original (1983) record and upon the instant (1986) record. Finally, the Board instructed that the August 1983 transcript should be cited as 1-Tr. followed by the page number in order to distinguish it from the September-October 1986 transcript (Tr. 1025).

NH Contention 20 asserts:

> The accident at TMI demonstrated the inability of all parties involved to comprehend the nature of the accident as it unfolded; communicate the necessary information to one another, to the Federal, state and local governments and to the public in an accurate and timely fashion; and to decide in a timely manner what course to take to protect the health and safety of the public. The Applicants in these proceedings have not adequately demonstrated that they have developed and will be able to implement procedures necessary to assess the impact of an accident, classify it properly, and notify adequately their own personnel, the affected government bodies, and the public, all of which is required under 10 C.F.R. § 50.47 and Appendix E and NUREG-0654.

2. Section 50.47(b)(4) of 10 C.F.R. requires that emergency plans meet the following criteria:

> (4) A standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee, and State and local response plans call for reliance on information provided by facility licensees for determinations of minimum initial offsite response measures.

Part 50, Appendix E, in pertinent part, states:

> *IV.B. Assessment Actions*
>
> The means to be used for determining the magnitude of and for continually assessing the impact of the release of radioactive materials shall be described, including emergency action levels that are to be used as criteria for determining the need for notification and participation of local and State agencies, the Commission, and other Federal agencies, and the emergency action levels that are to be used for determining when and what types of protective measures should be considered within and outside the site boundary to protect health and safety. The emergency action levels shall be based on in-plant conditions and instrumentation in addition to onsite and offsite monitoring. These emergency action levels shall be discussed and agreed on by the applicant and State and local governmental authorities and approved by NRC. They shall also be reviewed with the State and local governmental authorities on an annual basis.

3. During the 1983 hearing, only Applicants' panel (Messrs. Anderson, Thomas, and MacDonald) testified (ff. 1-Tr. 1483) and the Staff's witness (Mr. Sears) testified (ff. 1-Tr. 1691).[10] Relying upon cross-examination, New England Coalition on Nuclear Pollution (NECNP) and New Hampshire (NH) did not present any witnesses. In the 1986 reopened hearing, additional testimony was presented by Applicants' panel (Messrs. MacDonald and Thomas) (ff. Tr. 487) and by the Staff's panel (Messrs. Perrotti and Bryan) (ff. Tr. 489). The testimonies of the two panels were incorporated into the

[10] During the 1983 hearing the following exhibits were admitted into evidence: Staff Exh. 1 — Safety Evaluation Report dated March 1983; Staff Exh. 1A — Suppl. 1 to the SER dated April 1983; Staff Exh. 1B — Suppl. 2 to the SER dated June 1983; Staff Exh. 2 — Final Environmental Statement dated December 1982.

record by stipulation (Tr. 485-87; Tr. 489) and no cross-examination was conducted. Only the Applicants and the Staff filed proposed findings of fact, conclusions of law, and briefs with respect to NECNP Contention III.1 and NH Contention 20.

4. An emergency classification and action level scheme is designed to enable responsible personnel in the control room to recognize and declare an emergency of a particular category or severity so that onsite and offsite emergency response organizations can be contacted and so that corrective actions can be taken to restore the reactor to normal (or stable) conditions. (MacDonald, 1-Tr. 1495-97; Sears, 1-Tr. 1700-03.)

5. The emergency classification and action level scheme for Seabrook set forth in Applicants' Radiological Emergency Plan was first transmitted to the NRC and to all the parties to the proceeding on June 27, 1983. The scheme utilizes a symptomatic approach to emergency recognition and classification. (Appl. Exh. 1, ff. 1-Tr. 1483, at 5-1; MacDonald, 1-Tr. 1486-87.) Subsequent amendments were made to the scheme (Appl. Exhs. 1 and 2, ff. Tr. 487).

6. The Seabrook emergency classification scheme categorizes a variety of component or system failures into four classes: unusual events, alerts, site area emergencies, and general emergencies. An unusual event is defined as a condition indicating a potential degradation of station safety margins not likely to affect personnel on site or the public off site. An alert indicates a substantial degradation of station safety margins which could affect onsite personnel safety, could require offsite impact assessment, but is not likely to require offsite public protective action. A site area emergency is an event that involves likely or actual major failures of station functions needed for the protection of the public. A general emergency indicates substantial core degradation or melting with potential for loss of containment integrity. (Appl. Exh. 1, ff. 1-Tr. 1483, at 5-1 and 5-2.) The four classes of events included in the Seabrook scheme are consistent with the classes identified in NUREG-0654, Appendix 1.[11]

7. The symptomatic approach used at Seabrook is a result of 3 years' work performed by the Westinghouse Owners Group. This approach relies on the monitoring of five critical safety functions and the recognition of various degrees of challenge to said functions. (Appl. Testimony, ff. 1-Tr. 1483, at 15-16.) The five critical safety functions are: subcriticality, core cooling, heat sink, reactor coolant system integrity, and containment integrity. Color-coded status trees, based on plant events that pose a threat to the safety status of the plant, have been developed for each of the critical safety functions. These trees will assist the operators of the plant in emergency classification and direct them to procedures to be used to mitigate the situation. Each safety function will be displayed to

[11] The Board takes official notice of pertinent Commission's NUREGs and Regulatory Guides.

the operator as green (safety-function satisfied — no operator action indicated), yellow (function not fully satisfied — action may eventually be needed), orange (function under severe challenge — prompt action necessary), or red (function in jeopardy — immediate action required). (Appl. Exh. 1, ff. Tr. 487, Figure 5.6.) The classification scheme at Seabrook relates the status of the critical safety functions to the four emergency action classifications. (*Id.*, Figures 5.1 through 5.5.)

8. In addition to the status of the five critical safety functions, Applicants' scheme takes into account thirteen miscellaneous emergency conditions (*id.*, Figure 5.6). Each of these conditions is related to at least one of the four emergency classifications. (*Id.*)

9. The NRC Staff had reviewed the framework of the emergency action level scheme utilized at Seabrook and had found that framework to be acceptable at the time of the 1983 hearings. (Sears, 1-Tr. 1699-1700.) The framework as described in Findings 6-8, above, fully meets the requirements of 10 C.F.R. § 50.47(b)(4) and Part 50, Appendix E.

10. At the time of the 1983 hearings, the Applicants' emergency classification and action level scheme was not yet complete. The testimony introduced in 1986 indicated that the system is now complete. (Appl. Testimony, ff. Tr. 487, at 3; Staff Testimony, ff. Tr. 489, at 4.) The Staff completed its review and evaluation of the Applicants' scheme and provided its detailed evaluation of the EALs in SER Supplement 4, May 1986. (Staff Exh. 4.) Subsequent Staff inspections verified that the corrective actions, identified in § 13.3.2.3 of Supplement 4, have been completed. (Staff Testimony, ff. Tr. 489, at 4.) The Staff concluded in its review that Applicants' emergency plan provides an adequate planning basis for an acceptable state of emergency preparedness with regard to the emergency classification system planning standard of § 50.47(b)(4) and the guidance criteria of NUREG-0654. (Staff Testimony, ff. Tr. 489, at 4; Staff Exh. 4, § 13.3.2.3.)

11. Based on the evidence adduced in the 1986 hearing, the Board concludes that the open items that were discussed in the hearing in 1983 have now been satisfactorily resolved. In particular, the Board finds:

a. All the Seabrook-specific set points for the critical safety function status trees have now been selected. (Appl. Testimony, ff. Tr. 487, at 4; Staff Exh. 4 at 13-10; *cf.* MacDonald, 1-Tr. 1489-91, 1511-13, 1544-45; Thomas, 1-Tr. 1516-23, 1545.)

b. Applicants have now incorporated indications and alarms from six different condition monitors as emergency action levels. (Appl. Testimony, ff. Tr. 487, at 4; Staff Exh. 4 at 13-10 and 13-11; *cf.* Sears, 1-Tr. 1717-20.)

c. Applicants have now performed an acceptable comparison between their emergency action levels and NUREG-0654. (Appl. Testi-

mony, ff. Tr. 487, at 5; Appl. Exh. 2, ff. Tr. 487; Staff Testimony, ff. Tr. 489, at 5; *cf.* Sears, 1-Tr. 1717-20.)

d. Applicants have now completed the training of operators in the use of the emergency action levels. (Staff Testimony, ff. Tr. 489, at 5; *cf.* MacDonald, 1-Tr. 1506-08, and Sears, 1-Tr. 1711-13.)

12. Applicants have also revised their treatment of fire and control room evacuation events so that the treatment is now consistent with the guidance contained in NUREG-0654. (Staff Testimony, ff. Tr. 489, at 5-7.)

13. Finally, training on the Seabrook Station emergency classification system has also been provided to representatives of the State of New Hampshire Civil Defense Agency and Department of Public Health Services. Both agencies have indicated their agreement with the procedure used to classify emergency conditions. (Appl. Testimony, ff. Tr. 487, at 4.)

SAFETY PARAMETER DISPLAY SYSTEM

14. As originally admitted, SAPL Supplemental Contention 6 (formerly New Hampshire Contention 10) challenged the adequacy of two aspects of the Applicants' control room design, i.e., the Detailed Control Room Design Review (DCRDR) and the Safety Parameter Display System (SPDS). Following this Board's partial granting of summary disposition with respect to the DCRDR issues, the surviving portion of this contention with respect to the SPDS asserted:

> The Seabrook Station control room design does not comply with NUREG-0737, item I.D.2.

We further focussed the issue in controversy as:

> [S]inch the SPDS is not currently at an optimum, i.e., incomplete, in light of the deficiencies which are listed in Draft License No. NPF-56 at C-9 and in light of five additional deficiencies which will be listed in Supplement 6 to the SER, [is there] reasonable assurance that, in deferring improvements to the SPDS until the first refueling outage, the safety of the population in the immediate vicinity of the plant will be protected?

(Board Memorandum and Order, LBP-86-30, 24 NRC 437, 447 (1986).)

15. NUREG-0737, dated November 1980, is a letter to licensees of operating power reactors and applicants for operating licenses forwarding post-TMI *requirements* that have been approved for implementation (NUREG-0737 at iii). Requirements for implementation of the SPDS are included under Item I.D.2 in NUREG-0737. The implementation schedule for the SPDS is shown as "TBD" (to be determined) rather than as required before operation at some specified power level, or prior to a fixed date, as is shown for other requirements. Supplement 1 to NUREG-0737, dated December 17, 1982, provides

additional clarification on requirements for emergency response capabilities, including those for the SPDS. The requirements set forth in NUREG-0737, Supplement 1, have been reviewed and approved by the Commission (on July 16, 1982). The document notes that the requirements therein "are to be accorded the status of approved NUREG-0737 items as set forth in the Commission's Statement of Policy: Further Commission Guidance for Power Reactor Operating Licenses (45 Fed. Reg. 85,236), December 24, 1980)." While NUREG-0737, Supplement 1, also indicates that any schedules for implementation of requirements therein supersede previously set schedules for those items, the SPDS implementation schedule remained indefinite. (NUREG-0737, Supplement 1, at 2, 5; *see* Fdg. 18, *infra.*)

16. The purpose and function of the SPDS is described as:

> The SPDS should provide a concise display of critical plant variables to the control room operators to aid them in rapidly and reliably determining the safety status of the plant. Although the SPDS will be operated during normal operations as well as during abnormal conditions, *the principal purpose and function of the SPDS is to aid the control room personnel during abnormal and emergency conditions in determining the safety status of the plant and in assessing whether abnormal conditions warrant corrective action by operators to avoid a degraded core*. This can be particularly important during anticipated transients and the initial phase of an accident.

NUREG-0737, Supplement 1, at 7 (emphasis added).

17. The minimum information required to be provided to the plant operators by the SPDS shall include information about five designated critical safety functions (CSFs):

> (i) Reactivity control
> (ii) Reactor core cooling and heat removal from the primary system
> (iii) Reactor coolant system (RCS) integrity
> (iv) Radioactivity control
> (v) Containment conditions
>
> The specific parameters to be displayed shall be determined by the licensee.

(*Id.* at 8.)

18. NUREG-0737, Supplement 1, addresses implementation schedules for the post-TMI emergency response requirements (including the SPDS) at several places. The general scheduling instructions state:

> You will note that the enclosure does not specify a schedule for completing the requirements. It has become apparent, through discussions with owners' groups and individual licensees, that our previous schedules did not adequately consider the integration of these related activities. In recognition of this and the difficulty in implementing generic deadlines,

> the Commission has adopted a plan to establish realistic plant-specific schedules that take into account the unique aspects of the work at each plant. By this plan, each licensee is to develop and submit its own plant-specific schedule which will be reviewed by the assigned NRC Project Manager. The NRC Project Manager and licensee will reach an agreement on the final schedule and in this manner provide for prompt implementation of these important improvements while optimizing the use of utility and NRC resources.
>
> . . . . For holders of construction permits and applicants for operating licenses, plant-specific schedules for the implementation of these requirements will be developed in a manner similar to that being used for operating reactors, taking into consideration the degree of completion of the power plant.

(*Id.*, Transmittal Letter at 2), and:

> Specific implementation plans and reasonable, achievable schedules for improvements that will satisfy the requirements will be established by agreement between the NRC Project Manager and each individual licensee.

(*Id.* at 5.)

19. While the above findings do not show that NUREG-0737, Supplement 1, *requires* a fully complying SPDS by any fixed date, or prior to issuance of an operating license, the importance and safety significance of prompt implementation of an SPDS is emphasized elsewhere in the document, viz.:

> Prompt implementation of an SPDS can provide an important contribution to plant safety. The selection of specific information that should be provided for a particular plant shall be based on engineering judgment of individual plant licensees, taking into account the importance of prompt implementation.

(*Id.* at 8), and

> Prompt implementation of an SPDS is a design goal and of primary importance. The schedule for implementing SPDS should not be impacted by schedules for the control room design review and development of function-oriented emergency operating procedures. For this reason, licensees should develop and propose an integrated schedule for implementation in which the SPDS design is an input to the other initiatives. If reasonable, this schedule will be accepted by NRC.

(*Id.* at 9.)

20. The Board heard evidence on SAPL Supplemental Contention 6 in Portsmouth, New Hampshire, on October 1 and 3, 1986. The Applicants presented direct testimony from Messrs. Lawrence A. Walsh and George S. Thomas (ff. Tr. 739); the NRC Staff presented the direct testimony of Mr. Richard J. Eckenrode (ff. Tr. 822). Seacoast Anti-Pollution League (SAPL) and Massachusetts (Mass.) presented no direct case, participating through the cross-examination of the witnesses presented by the Staff and Applicants. No other party participated

in the litigation of this contention, and no evidence had been presented during the 1983 hearing.

21. The SPDS is designed to provide a concise display of critical plant variables to control room operators to aid the operators in rapidly and reliably determining the safety status of the plant. (Staff Testimony, ff. Tr. 822, at 2.) The SPDS primarily serves to accumulate important safety information in one centralized location. (Eckenrode, Tr. 985-86, 995-96, 998, 1001.)

22. The SPDS is not considered a safety system; no operator actions are to be taken at the SPDS or based exclusively on information displayed on the SPDS. (Staff Testimony, ff. Tr. 822, at 2; Appl. Testimony, ff. Tr. 739, at 1-2; Eckenrode, Tr. 978-79.) The SPDS is used to refer operators to various other displays and controls in the control room where corrective actions are to be taken if needed. (Staff Testimony, ff. Tr. 822, at 2; Walsh, Tr. 808; Eckenrode, Tr. 839, 979.)

23. Operators are trained to respond to emergencies both with and without the SPDS. (Appl. Testimony, ff. Tr. 739, at 2; Walsh, Tr. 812, 817; *see* NUREG-0737, Supplement 1, ¶ 4.1.c, at 7.)

24. The Seabrook SPDS is incorporated as a function within the main plant computer. The displays are presented on cathode ray tubes (CRTs) that are an integral part of the control room displays. The designated primary SPDS CRT is located near the center of the control room at the shift technical advisor (STA) station. The SPDS displays may be selected and presented at any of six other CRTs on the main control board. Operator access is through the existing keyboards used for accessing all plant programs and displays. (Staff Testimony, ff. Tr. 822; § 18 of the Seabrook Safety Evaluation Report (SSER-6), (Staff Exh. 6 at 1, ff. Tr. 822.)

25. The top-level SPDS display format consists of six color- and position-coded bars representing the summary status of the six critical safety functions (CSFs). Each CSF status tree is displayed on the second-level format, which includes parameter values and a color- and shape-coded status circle for each tree branch. The color-coded summary bar for the six functions appears in the lower left corner of each CSF status tree. (§ 18 of SSER 6, Staff Exh. 6 at 2, ff. Tr. 822.)

26. Applicants submitted their SPDS report to the NRC Staff by letter dated January 6, 1986 (SBN-920). (Staff Testimony, ff. Tr. 822, at 3.) Additional information was submitted to the Staff by letter dated April 2, 1986 (SBN-987). The Staff and its consultants reviewed the information submitted by Applicants and conducted an onsite audit of the SPDS in May of 1986. (*Id.* at 4; Staff Exh. 6 (Audit Report), ff. Tr. 822.) The results of the Staff's review are set out in § 18 of SSER-6 (Staff Exh. 6 (SSER-6 and Appendix 18A), ff. Tr. 822.)

27. On the basis of its documentation review and information gathered at the onsite audit, the Staff concluded that the Seabrook SPDS does not fully

meet the applicable requirements of Supplement 1 to NUREG-0737. Eleven deficiencies, including the six listed in Draft License No. NPF-56, at C-9 (*see* Fdg. 14, *supra*), were set out in § 18 of SSER-6 (Staff Testimony, ff. Tr. 822, at 5; Staff Exh. 6 (SSER-6 at 6-10), ff. Tr. 822.) These are listed here, and findings applicable to each are presented below:

(1) The SPDS display is not continuous.

(2) RHR (Residual Heat Removal) flow and containment hydrogen concentration variables are considered by the Staff to be part of the minimum information required to assess the CSFs and are not displayed on the SPDS.

(3) The containment isolation display is not satisfactorily readable from the prime SPDS location.

(4) The SPDS does not display sufficient radiation variables.

(5) Several human engineering discrepancies have been identified, i.e., awkwardness of calling up the lower level displays and inconsistency of heat sink display geometry with other displays, in addition to items (1), (3), (6), and (9).

(6) Two CSF status trees (subcriticality and core cooling status) are not mode dependent and have the potential for misleading the operator.

(7) The Westinghouse RVLIS (Reactor Vessel Level Instrument System) isolators, used to protect RVLIS from SPDS, have not yet been approved by the Staff (*but see* Fdg. 39, *infra*).

(8) Data validation algorithms may not be sophisticated enough to ensure valid data are displayed to the operator.

(9) The usefulness of the lower-level SPDS display formats to the operator is in question.

(10) RVLIS and RDMS availability has not yet been factored into overall SPDS availability calculations.

(11) System response time appears to be satisfactory, but a system load test is needed to verify the worst condition of loading.

28. Based on reasoning chiefly addressed in Staff Prop. Fdgs. 57, 59-61, and Appl. Prop. Fdgs. 56-57 and Response Fdgs. at 1-3, including the fact that the Seabrook SPDS, while incomplete, is functional and useful, both the Staff and the Applicants take the position that correction of *any* incomplete SPDS requirements can be deferred until the end of the first refueling outage without adversely affecting public health and safety. (*See* Staff Testimony, ff. Tr. 822, at 4-5, 10; Appl. Testimony, ff. Tr. 739, at 1-2, 7.) The Board rejects this position because it runs counter to the thrust of the contention as restated by us (Fdg. 14, *supra*). Intervenors SAPL and Mass. take the opposite position that NUREG-0737 and its Supplement 1 provide requirements for a complete SPDS and that all deficiencies must be cured prior to operation of the plant. We reject

this position as not supported by our opinion or our findings. We now address the specific deficiencies *seriatim* in findings below.

29. *SPDS display is not continuous* (deficiency 1). The Staff found that because the Shift Technical Adviser (STA) at the SPDS has the capability to call up displays other than the SPDS at the SPDS terminal, the Seabrook SPDS is not a continuous display as required by NUREG-0737, Supplement 1. The Staff requirement for resolving this discrepancy is that either the CSF (critical safety function or "top level") summary display must be added to all CRT (cathode ray tube) formats accessible on the STA's CRT, or a dedicated CSF summary display needs to be added to the STA station. (Staff Testimony, ff. Tr. 822, at 8; Staff Exh. 6 (SSER-6), ff. Tr. 822, at 5-6.)

30. The Applicants have committed to dedicate the SPDS terminal so that a continuous display of the CSFs will be achieved or, alternatively, through a test function and test computer, Applicants will have an SPDS display on every CRT format in the control room and regardless of what display is called up this CSF monitor display will be shown. The Applicants indicated that at least the separate dedicated CSF display at the SPDS terminal could be achieved prior to full-power operation. (Appl. Testimony, ff. Tr. 739, at 2-3; Walsh, Tr. 764-65, 804-05.) The Board finds that implementation of either alternative prior to operation above 5% power to provide a continuous SPDS display of CSFs at the STA station provides reasonable assurance with respect to this matter that public health and safety will be protected.

31. *RHR flow and containment hydrogen concentration indications* (deficiency 2). Indications of these parameters are not specifically required by NUREG-0737, Supplement 1, to be included as part of the SPDS. However, Staff review of the Applicants' SPDS parameters found that the five CSFs specified in NUREG-0737 (*see* Fdg 17, *supra*) are not fully covered by the parameters to support the somewhat different critical safety functions selected by the Applicants in the Seabrook SPDS design (correspondence between the two sets of CSFs is presented in Staff Exh. 6 (Audit Report at 10), ff. Tr. 822). RHR flow and hydrogen concentration parameters are among those minimum or critical plant variables found missing from the SPDS by the Staff (*also see* containment isolation and radiation parameters, *infra*). (Staff Testimony, ff. Tr. 822, at 6-7; Staff Exh. 6 (SSER-6), ff. Tr. 822.)

32. The Applicants' position is that they are still negotiating with the Staff as to whether RHR flow and hydrogen concentration parameters should be displayed on the SPDS; their belief is that indications of these parameters on the main control panel are sufficient from the safety standpoint and their inclusion on the SPDS display is not necessary. (Appl. Testimony, ff. Tr. 739, at 3; Walsh, Tr. 768-70.) The Staff continues to require that RHR flow and hydrogen concentration parameters be added to the SPDS, but its position is that addition of these to the SPDS may be deferred without undue public health

and safety impact until the first refueling outage. (Staff Testimony, ff. Tr. 822, at 4-7, 10-11.) On Board and cross-examination, however, the Staff witness, a human factors engineer, couched his response with respect to deferral in terms of reliance upon the Staff review practices set forth in NUREG-0737, Supplement 1 (¶ 4.2.b, at 8; *also see* Mass. Exh. 2, ff. Tr. 964), and credibility of the Staff's position was undermined by its witness' apparently poor understanding of the underlying operational systems, the challenge to which is required to be shown by the SPDS. (Eckenrode, Tr. 834-37, 940-44, 978, and 984.)

33. The Board finds that the Applicants have not met their burden of proof in demonstrating that there is reasonable assurance that the public health and safety will be protected if addition of RHR flow and hydrogen concentration parameters to the SPDS is deferred until the first refueling outage.

34. *Containment isolation display is not readable from the prime SPDS location* (deficiency 3). Containment isolation indications are also among the minimum or critical plant variables required by the Staff as part of the SPDS. While the containment isolation status indicators are not displayed at the SPDS console, a bank of valve position indicator lights showing containment isolation status on the main control panel is visible from the prime SPDS location. The discrepancy cited by the Staff is one of pattern recognition and the Applicants aver that it has been resolved. (Staff Testimony, ff. Tr. 822, ¶¶ A.9.a, A.9.c, A.9.g, at 6, 8, 9; Eckenrode, Tr. 863; Walsh, Tr. 771-72, 781-84.)

35. The bank of valve position indicator lights showing containment isolation status on the main control panel is about 26 feet from the prime SPDS station. The lights are in boxes with windows, in a matrix (or grid) arrangement. Previously, some of the boxes that were not used were blank and the blanks were randomly placed in the matrix. The bank of lights has been rewired so that light boxes for components are grouped in a systematic order and the blanks are all in one location and off to one side. (Walsh, Tr. 771-72, 781-83.) The Staff witness, a human factors engineer familiar with the position and arrangement of this bank of lights, testified that if containment isolation has been called for in the plant, the corrections described by Applicants' witness would enable an operator at the prime SPDS location to determine containment isolation status from the bank of indicator lights on the main panel. (Eckenrode, Tr. 965-66, 986; *also see* Staff Exh. 6 (Audit Report at 8, ¶ 4.1.2).) Staff review of Applicants' corrections to the installation, however, has not yet taken place. (Walsh, Tr. 782-84; Eckenrode, Tr. 856.) Based on the foregoing evidence, the Board finds that, subject to Staff verification of the described corrections already implemented, there is reasonable assurance that public health and safety will not be adversely affected by deferral of addition of containment isolation indicators to the SPDS console until restart following the first refueling outage.

36. *The SPDS does not display sufficient radiation variables* (deficiency 4). This item specifically refers to two radiation parameters, steam-line radiation

and stack radiation, that are also minimum or critical plant variables that are not displayed on the SPDS console. The Applicants have committed to establish a radiological control CSF screen on the SPDS, which is a requirement of NUREG-0737, Supplement 1, prior to plant operation above 5% of rated power. There will be a selection button to enable picking up of the screen that will show all radiation monitors, but radiation parameters will not be added to the top-level SPDS display. (Staff Exh. 6 (SSER-6, Audit Report at 9), ff. Tr. 822; Walsh, Tr. 774-75, 805, 816; *also see supra* Fdgs. 17, 30.) Also, these radiation variables are continuously displayed on the Radiation Data Management System (RDMS) which is located on a panel just behind the prime SPDS location ("about an arm's length" away). The RDMS has auditory alarms to inform operators when radiation exceeds a designated set point. (Walsh, Tr. 774-75, 780, 805-06; Eckenrode, Tr. 866, 969, 986.) Based on the foregoing evidence and subject to the Applicants' commitment and Staff verification thereof, the Board finds that there is reasonable assurance that public health and safety will not be adversely affected by deferral of addition of steam-line radiation and stack radiation monitor continuous displays to the SPDS console until restart following the first refueling outage.

37. *Human engineering discrepancies* (deficiency 5). In addition to human factors aspects of other deficiencies addressed separately herein (viz., deficiencies 1, 3, 6, and 9), the Staff found that the format of the heat sink indicators of the SPDS displayed the flow data value above the decision block instead of below the block as do all the other formats, and that the SPDS display callup method for the first two CSF status trees is awkward. (Staff Testimony, ff. Tr. 822, at 9; Staff Exh. 6 (Audit Report at 17), ff. Tr. 822.) The heat sink screen format has been changed and is now consistent in its labeling with the other formats on the SPDS display. (Appl. Testimony, ff. Tr. 739, at 4; Walsh, Tr. 777.) Thus, subject to Staff verification of this improvement, this deficiency is resolved. As to the SPDS callup method, operators currently are required to position a cursor and press two buttons simultaneously. The Staff recommends that a single callup action be implemented, but finds that the current callup method, while it could be improved, is adequate in that the requested improvement would mean a difference between about 0.5 second and 1.5 to 2 seconds in time. (Appl. Testimony, ff. Tr. 739, at 5; Staff Testimony, ff. Tr. 822, at 9; Eckenrode, Tr. 855, 968.) The Board agrees.

38. *Subcriticality and core cooling status trees are not mode dependent* (deficiency 6). The problem with these displays was that they would indicate that these CSFs are being challenged during normal operations which would have misled the operators. The subcriticality status display would have indicated red (under extreme challenge) whenever reactor power exceeded 5%. Similarly, because the reactor coolant system (RCS) subcooling criteria used by the status tree might not always have been met during power operation, the status of

core cooling might have erroneously been indicated as orange (under severe challenge) during normal power operations. (Staff Testimony, ff. Tr. 822, at 5, 7; Staff Exh. 6 (Audit Report at 12), ff. Tr. 822.) Corrective changes have been made to the SPDS so that these status trees function properly at all power levels (are now mode dependent). (Appl. Testimony, ff. Tr. 739, at 4 (as corrected at Tr. 730); Walsh, Tr. 774.) Applicants are preparing documentation of these changes for Staff review. (Walsh, Tr. 814.)

39. *RVLIS isolators* (deficiency 7). The problem cited by the Staff involved the requirement for properly qualified interface devices between the SPDS and the Class IE safety-related instrument systems, the purpose of which is to protect the Class IE systems from interference. Prior to the September/October 1986 hearing the RVLIS isolation devices were analyzed and tested by the Applicants, and the Staff in its evaluation concluded that the RVLIS isolators were acceptable and that the proposed license condition requiring their installation and approval prior to exceeding 5% reactor power had been met. (Staff Exh. 3 (Appendix 18A), ff. Tr. 822; Appl. Testimony, ff. Tr. 739, at 4-5; Staff Testimony, ff. Tr. 822, at 8-9.) No party challenged the resolution of this noncompliance, including the deferral of replacement of GA RM-80 isolator devices used elsewhere in the SPDS with approved nonfused devices until the first refueling outage. (Staff Testimony, ff. Tr. 822, at 8-9; Staff Exh. 6 (SSER-6 at 8 and Appendix 18A at 18A-3), ff. Tr. 822.)

40. *SPDS data validation algorithms may not be sophisticated enough to ensure valid data are displayed to the operator* (deficiency 8). The issue here is presentation of reliable synthesized data on the SPDS. Concern was raised that a parameter value could be within an acceptable range but significantly different from other measures of the same parameter, causing the average value displayed to be incorrect and possibly misleading. The source of the concern is the SPDS algorithm; it utilizes only range checking, averaging, and auctioneering (i.e., selection of highest or lowest values in a set). According to the Staff's consultants, their audit concluded specifically that PSNH must implement data validation methodology that makes more effective use of, or interchannel comparison of, redundant information available via the main plant computer. (Appl. Testimony, ff. Tr. 739, at 6; Staff Testimony, ff. Tr. 822, at 7; Staff Exh. 6 (SSER-6, at 4, Audit Report at 12-13), ff. Tr. 822; Eckenrode, Tr. 839, 842-43; Walsh, Tr. 806, 809.)

41. According to the Applicants, the present algorithm is not inadequate for the task. Although under the circumstance where an average value is erroneously offset by a single high (or low) value in the set, and the SPDS does not indicate an abnormal situation, alerting the operator to validate the SPDS parameters is not the only function of the SPDS. (Appl. Testimony, ff. Tr. 739, at 6; Walsh, Tr. 807, 809.) According to the Staff, it is most likely that an individual parameter value in a set would have been picked up by an operator at the main

control board through an alarm by the time the operator (STA) at the SPDS, alerted by the top-level display, went to the lower-level display to see what the individual parameter value was. (Eckenrode, Tr. 985; *see* Eckenrode, Tr. 935.) *A fortiori*, the operator would be quickly alerted by an alarm of a single parameter value in a set even if the single parameter value did *not* offset the average of the set sufficiently to affect the top-level SPDS display. The Staff believes that there is not likely to be any confusion resulting from use of the current algorithm in the SPDS but, because there is a potential for confusion, Staff has asked the Applicants to examine it. (Eckenrode, Tr. 988.)

42. Thus the Board sees the resolution of this issue, which is but part of the general requirements for overall speed and reliability in determining the safety status of the plant, as one of guidance and degree of reliability (*see* Staff Exh. 6 (Audit Report § 4.3), ff. Tr. 822). For those instances in which a potential for misleading information may occur in the SPDS top-level displays because of the validation algorithm, the Board finds that in this case reliance by the plant operators on alarms and displays on the main control board is an adequate interim compensating procedure. Accordingly we find that deferral of changes to the SPDS algorithm employed in the main plant computer until the first refueling outage will not adversely affect the public health and safety.

43. *Usefulness of the lower-level SPDS display formats* (deficiency 9). The question posed by this item is utility of the lower-level displays on the SPDS. During Staff observation of an accident simulation at Seabrook, it was observed that the Seabrook operators did not use the SPDS lower-level displays on the SPDS terminal, but instead used hard-copy representations of the lower-level display. (Staff Testimony, ff. Tr. 822, at 7; Walsh, Tr. 759-61; Eckenrode, Tr. 972, 979-80.) The Staff did not identify any problem with the contents of the lower-level displays, but wanted an evaluation of why the operators used the hard-copy representation rather than the SPDS lower-level display; i.e., was there a format problem, or the like, that made it more difficult to use the SPDS display than the hard copy? (Eckenrode, Tr. 979-80.)

44. The Applicants' explanation at the hearing of the operators' use of the hard copy was that the SPDS lower-level screens and the hard-copy version show the same thing, and that when verifying SPDS indications on the main control board, as they are required to do, some operators prefer to pick up the hard copy in case they forget what they are looking for. Other operators simply use the SPDS screen and "walk the board" to verify it. (Walsh, Tr. 815-16; *see also* SAPL Exh. 2, ff. Tr. 1016.) Thus the hard-copy representations of the SPDS lower-level displays serve a memory assistance function. While the Applicants continue to be required to furnish the requested evaluation of the utility of the lower-level displays to the Staff, the Board finds that there is reasonable assurance that the lower-level displays on the SPDS, and the procedure whereby operators may utilize hard-copy representations of the lower-level screens while

verifying indications on the main control board pose no threat to public health and safety. On its face, the procedure described during the hearing for utilizing the hard-copy representations to aid operators' memory *would appear to improve safety.*

45. *RVLIS and RDMS availability has not yet been factored into overall availability calculations* (deficiency 10). According to the Staff, system availability data indicated an acceptable (over 99%) availability for the SPDS, but the calculations did not include the availability of RVLIS or RDMS data input. (Staff Testimony, ff. Tr. 822, at 7; Eckenrode, Tr. 973.) The overall availability calculation cannot be made prior to the actual interface of both units (RVLIS and RDMS) with the SPDS. (Appl. Testimony, ff. Tr. 739, at 6-7.) These apparently are separate data processing systems which will input data to the SPDS via the main plant computer. (Staff Exh. 6 (Audit Report at 2-3, 6 (¶ 3.4.2), 11), ff. Tr. 822; Eckenrode, Tr. 973.) The additional calculations would involve only the RVLIS and RDMS availability and would not affect availability of other SPDS parameters. (Eckenrode, Tr. 974.) RVLIS and RDMS availability is not expected to have a significant impact on overall SPDS availability, and there is no evidence to suggest that RVLIS and RDMS availability will be significantly less than that of other Seabrook plant computer-controlled data processing units. (An unavailability criterion (0.001) is given in the guidance document NUREG-0696 at 8.) Thus the Board finds that up to the first refueling outage, the high availability calculated for the SPDS alone, without the RVLIS and RDMS availability calculations, provides reasonable assurance that public health and safety will be protected.

46. *System response time — a system load test is needed to verify the worst condition of loading* (deficiency 11). Although system response times for the SPDS appear to be satisfactory (most factors are updated every 5 seconds), the Staff observations were made during a lightly loaded sequence. (Staff Testimony, ff. Tr. 822, at 7; Staff Exh. 6 (Audit Report at 18), ff. Tr. 822.) There is a very good chance that in the event of a severe accident a large number of nearly simultaneous processing demands will be made on the main plant computer, but whether the update rate of the SPDS indications would be slowed down depends upon what priority the SPDS has in the main plant computer. (Eckenrode, Tr. 974-75.) During a period of heavy load on the main plant computer, even if update rates were delayed, the SPDS would be available as long as the main plant computer is running. (Eckenrode, Tr. 857-58.) From a human factors standpoint a delay in updating could lead to a mistake on the part of the operator. (Eckenrode, Tr. 859.) However, since no operator actions are taken at the SPDS station and any SPDS indications must be verified on the main control panel prior to taking actions (Fdg. 22, *supra*) a delay in updating the SPDS indications is not likely to lead to incorrect actions or operations.

47. Applicants have agreed to perform a system load test under heavier loading conditions, which in order to provide meaningful results, would require some level of plant operation. (Appl. Testimony, ff. Tr. 739, at 7; Walsh, Tr. 788; Eckenrode, Tr. 989.) The Staff witness was unable to say whether an adequate system load test was part of a low-power testing program. (Eckenrode, Tr. 987.) Subject to the commitment by the Applicants to perform meaningful systems load tests if power operations are authorized, and because the SPDS would be available even during overloading conditions, and because SPDS indications must be verified prior to taking any actions, the Board finds that there is reasonable assurance that deferral of evaluation of results of a future system load test until the first refueling outage will not adversely affect public health and safety.

ELECTRICAL EQUIPMENT ENVIRONMENTAL QUALIFICATION TIME DURATION

48. NECNP Contention I.B asserts that:

> The Applicant[s have] not satisfied the requirements of GDC 4 that all equipment important to safety be environmentally qualified because [they have] not specified the time duration over which the equipment is qualified.

49. NECNP does not now urge that the time durations of the equipment important to safety have not been specified in Applicants' equipment qualification files. Since NECNP has abandoned this aspect of its contention but has proceeded to contest another aspect, upon our review of the record we decided to render the following ultimate finding upon the abandoned aspect. We find that the postaccident qualification time duration for electrical equipment important to safety at Seabrook, which is required to be environmentally qualified under GDC 4 of Part 50, Appendix A, and 10 C.F.R. § 50.49, has been specified for a period of 1 year following a postulated accident, or, in the alternative, for the time required to perform its safety function plus a margin, as specified in Position C.4 of Regulatory Guide 1.89, Revision 1. NECNP instead urges that the specified time durations are unsupportable because of incorrect or incomplete equipment qualification files and thus that Seabrook's safety equipment cannot survive an accident for the requisite duration. (NECNP's Brief and Proposed Findings filed November 12, 1986.)

50. During the 1983 hearings, the Applicants' panel (Messrs. Maidrand and Anderson) (ff. 1-Tr. 970), and the Staff's panel (Messrs. LaGrange and Walker) testified (ff. 1-Tr. 990). In the 1986 reopened hearing, the Applicants' panel (Messrs. Salvo, Thomas, and Woodward) testified (ff. Tr. 357). The Staff called a witness (Mr. Walker) to testify (ff. Tr. 494). No other witnesses were offered

by any party. However, NECNP did cross-examine the Applicants' and Staff's witnesses. Only the Applicants, the Staff, and NECNP filed proposed findings of fact, conclusions of law, and briefs with respect to this contention.

51. General Design Criterion (GDC) 4, 10 C.F.R. Part 50, Appendix A, requires as follows:

> *Criterion 4 — Environmental and missile design bases.* Structures, systems, and components important to safety shall be designed to accommodate the effects of and to be compatible with the environmental conditions associated with normal operation, maintenance, testing, and postulated accidents, including loss-of-coolant accidents. These structures, systems, and components shall be appropriately protected against dynamic effects, including the effects of missiles, pipe whipping, and discharging fluids, that may result from equipment failures and from events and conditions outside the nuclear power unit.

52. Section 50.49 of 10 C.F.R. specifies the requirements that must be met to demonstrate compliance with GDC 4, relating to the environmental qualification of electrical equipment important to safety that is located in a potentially harsh environment. In conformance with § 50.49, electrical equipment may be qualified in accordance with the acceptance criteria specified in Category I of NUREG-0588. In addition, guidance as to the means by which § 50.49 may be satisfied is provided in Regulatory Guide 1.89 (Walker, ff. Tr. 494, at 2). Regulatory Guide 1.89 which endorsed the Standard, IEEE 323-1974, provides that electrical equipment be qualified to withstand an accident environment after having been exposed to preaccident conditions for the qualified life duration under the normal operating conditions. (Appl. Testimony, ff. 1-Tr. 970, at 9-10.) The focus of testimony in this proceeding was on the postaccident qualification time duration, and the documentation in Applicants' environmental qualification files.

53. Requirements for maintaining records, in auditable form, of Environmental Qualification ("EQ") of electrical equipment important to safety are specified in 10 C.F.R. § 50.49(j), which provides:

> A record of the qualification, including documentation in paragraph (d) of this section, must be maintained in an auditable form for the entire period during which the covered item is installed in the nuclear power plant or is stored for future use to permit verification that each item of electric equipment important to safety covered by this section:
>
> (1) Is qualified for its application; and
>
> (2) Meets its specified performance requirements when it is subjected to the conditions predicted to be present when it must perform its safety function up to the end of its qualified life.

Section 50.49(d) specifies:

> (d) The applicant or licensee shall prepare a list of electric equipment important to safety covered by this section. In addition, the applicant or licensee shall include the following information for this electric equipment important to safety in a qualification file:

(1) The performance specifications under conditions existing during and following design basis accidents.

(2) The voltage, frequency, load, and other electrical characteristics for which the performance specified in accordance with paragraph (d)(1) of this section can be ensured.

(3) The environmental conditions, including temperature, pressure, humidity, radiation, chemicals, and submergence at the location where the equipment must perform as specified in accordance with paragraphs (d)(1) and (2) of this section.

54. At the time of the 1983 hearing, Applicants had completed approximately 80% of their review of their equipment qualification program to determine whether all electrical equipment important to safety could be qualified for a harsh environment duration of 1 year (Maidrand, 1-Tr. 978). As of that time, the Staff had not received Applicants' environmental qualification submittal in order that it could perform an audit of Applicants' qualification files to verify that electric equipment important to safety located in a harsh environment was qualified for 1 year or for the required operating time determined plus a margin. (Staff Testimony, ff. 1-Tr. 990, at 2, 3.)

55. The Staff made a preaudit review of the Seabrook qualification program based on § 3.11, Amendment 56, of the Seabrook Station Final Safety Analysis Report and on the Applicants' EQ Submittal, Revision 2.[12] It was assisted by a contractor, EG&G, the prime contractor of the Idaho National Engineering Laboratory. The contractor's report, showing many deficiencies, was transmitted to the Staff by a memorandum dated February 21, 1986. (NECNP Exh. 13.) The contractor's report also stated that the deficiencies, while a cause for concern, did not necessarily mean that the equipment was unqualified and that the Applicants should resolve the deficiencies and document the resolutions in an auditable form. (*Id.* at 4.) The Staff reviewer had a copy of the EG&G preaudit report sometime prior to February 21, 1986. (Walker, Tr. 697.)

56. Prior to conducting the EQ audit, the review team members met with the Applicants and discussed each of the deficiencies found during the preaudit review. Applicants agreed to correct them. (Walker, Tr. 700.)

57. During the period of February 24 through February 27, 1986, the Staff's reviewer and consultants conducted an audit of twelve equipment qualification files as part of their environmental qualification review. (NECNP Exh. 11.) The Staff generally performs an audit after it has reviewed the equipment qualification program and concluded that it is basically adequate, and after an applicant has agreed that it has sufficiently completed its environmental qualification program. Moreover, in choosing files for audit, the Staff attempts to achieve a random selection, except where it believes that there could be problems, or lack of information, or any indication that there are reasons to

[12] While the oral testimony did not specifically indicate the number of EQ files reviewed, perusal of Table 2 in the EG&G report (NECNP Exh. 13) indicates that all 112 files were available at the time for examination.

believe that a file may not be complete. (Walker, Tr. 692-93.) For the purposes of the instant audit, some of the files were chosen to determine if the Applicants had corrected the deficiencies as agreed (Walker, Tr. 696-97).

58. Results of the audit were recorded first in a report to the Staff from its consultants dated March 31, 1986. (NECNP Exh. 12.) This was followed by an exit interview Meeting Summary dated April 11, 1986, prepared by the Staff to document observations and comments made by the Staff and its consultants to the Applicants at the end of the February 24-27 audit. (NECNP Exh. 11.) The general comments noted in the Meeting Summary indicated that, *inter alia*, the Staff did not agree with the way that the Arrhenius equation[13] was used to calculate postaccident operability time. (NECNP Exh. 11 at 1.)

59. In response to the Staff's comment on improper application of the Arrhenius equation, Applicants recalculated the postaccident operability times for all equipment files using the methodology recommended by the Staff. The results were that equipment in all files, except eleven, met Applicants' original goal of 40-year normal operating life plus 1 year postaccident life. Technical justifications were given for the postaccident operability durations of equipment in the eleven files not meeting the 1-year postaccident life. (Appl. Testimony, ff. Tr. 357, at 4-17; Appl. Exhs. 2 and 7 (¶ 3).) The Staff reviewed the qualification information for equipment items in those files and found that they met the requirement of 100 days or the postaccident time margin requirements specified in Position C.4 of Revision 1 of Regulatory Guide 1.89 and were thus acceptable (Staff Exh. 5 at p. 3-24 and Table 3.1.)

60. The Meeting Summary also reflected that six of the twelve EQ files audited contained deficiencies that required correction. (*Id.* at 1-2; Walker, Tr. 517.) Of the six files, four called for supporting or clarifying information. They were: (a) one file (#113-01-01) should be updated to include test information that had been provided by Applicants during the audit, (b) a second file (#174-15-01) should be supplemented to include additional information justifying the use of a test sequence different from that specified in IEEE 323-1974, (c) a third file (#113-06-01) should include a statement specifying that submergence qualification was not required, (d) a fourth file (#236-11-06) should be supplemented to include clarifying test report data in the equipment summary evaluation. (NECNP Exh. 11 at 2.) Two of the six audit deficiencies addressed two specific equipment items observed during a plant walkdown conducted as part of the audit. They were (e) three internal wires and a terminal block in a Limitorque Motor Operator (EQ File #248-37-01) were not identifiable and must be replaced with qualified components, and (f) an ASCO Solenoid Valve (EQ File

[13] The Arrhenius equation is a time/temperature relationship that compares the test time and temperature with the time and temperature equivalency in the plant, with a constant in the equation that is representative of the materials of the device. (Woodward, Tr. 482.)

#NSSS-220-02) had two different equipment identification numbers on it, which situation must be rectified. (*Id.*)

61. Applicants' responses to the NRC audit observations, contained in letters of April 3 and April 10, 1986, were attached to the prefiled testimony of Messrs. Salvo, Thomas, and Woodward. These responses indicate that Applicants have completed, or have committed to complete, actions on the deficiencies and open items noted in the audit report. (Appl. Testimony, ff. Tr. 357, at 20-21, Exhs. 2, 7.)

62. With respect to the files requiring clarifying or supporting information, as found during the February 24-27, 1986 audit, the Staff noted in Supplement 5 of the Safety Evaluation Report (July 1986) that "[t]he applicant proposed acceptable corrective measures in the form of additional information and file revision to eliminate the deficiencies cited." With respect to the two deficiencies noted during inspection of the installed equipment during a plant walkdown conducted as part of the audit, the Staff noted that "[t]he applicant proposed acceptable corrective measures for the deficiencies that were found and committed to correct all deficiencies by fuel load." (Staff Exh. 5, § 3.11.4 at p. 3-25.)

63. With respect to the overall Seabrook EQ program, the Staff, in SSER-5 (*id.*, § 3.11.5 at p. 3-25) concluded:

> The Staff has reviewed the Seabrook program for the environmental qualification of electrical equipment important to safety and safety-related mechanical equipment. The purpose of the review was to determine the adequacy and scope of the qualification program and to verify that the methods used to demonstrate qualification are in compliance with applicable regulations and standards.
>
> On the basis of the results of its review and subject to confirmation that all audit deficiencies have been corrected, the Staff concludes that the Applicant has demonstrated compliance with the requirements for environmental qualification as outlined in 10 C.F.R. 50.49, the relevant parts of GDC 1 and 4, and §§ III, XI, and XVII of Appendix B to 10 C.F.R. 50, and with the criteria as specified in NUREG-0588.

64. Typically, the Staff asks an applicant to notify it by letter when all deficiencies have been corrected and the EQ files have been changed to reflect those corrections. Here the Staff has received such a letter from the Applicants (Walker, Tr. 688, 713).

65. In addition to the six audited EQ files discussed above, during the 1986 hearing, through cross-examination NECNP challenged the adequacy of several EQ files.[14] (*See generally* Tr. 358-457.) Our findings with regard to the specific

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[14] With respect to at least one of the files, concerns that had been raised in NECNP's opposition of July 2, 1986, to Applicants' motion for issuance of a partial initial decision authorizing low-power operation were addressed by Applicants' witnesses in their prefiled testimony (Appl. Testimony, ff. Tr. 357, at 18-20).

items in the five EQ files challenged in NECNP's proposed findings are set forth below.

66. *EQ file #113-01-01, item: Anaconda 5-kV power cable (multiple conductor)* — The multiple conductor cable was qualified on the basis of comparison with test results from a single conductor cable as tested by Anaconda. The construction of the tested specimen was referred to as being "exactly similar" to that of the individual conductor in the multiple conductor cable. (NECNP Exh. 1, reference 6, 5-page attachment to letter from Anaconda Company to United Engineers and Constructors, dated December 10, 1979, at 2.) Applicants' witness felt that the term "exactly similar" meant that both the tested cable and the multiple conductor cable are similar within the bounds of environmental qualification so that the test report adequately represents equipment supplied to Seabrook and that the test is a representative test of that equipment. (Woodward, Tr. 368-69.)

67. The Board does not find that the term "exactly similar" in this instance is confusing and notes that the reference 6 letter, *supra*, explicates the similarities and presents other information as to why the testing of the single conductor cable would be representative of and applicable to the multiple conductor cable. Environmental qualification by testing of similar items with a supporting analysis, is acceptable according to 10 C.F.R. § 50.49(f)(2). No evidence was adduced to challenge the tests or supporting analysis presented in the EQ file #113-01-01 (NECNP Exh. 1, reference 6). Thus, the environmental qualification is acceptable and adequately documented.

68. *EQ file #113-19-01, items: ITT Suprenant RG-58 coaxial cable and RG-11 triaxial cable* — These two items were qualified by comparison with similar types of cable, RG-11-U and RG-59-U coaxial cables, that were tested. The bases for similarity and qualification by comparison of the two untested cables with those tested was explicated in a letter from the manufacturer. (Woodward, Tr. 378-82; NECNP Exh. 4, Equipment Summary Evaluation at 1 of 1, and reference 4, Letter ITT Suprenant Division to United Engineers and Constructors, dated February 11, 1983.)

69. The absence of qualification for submergence was justified on the ground that the ITT Suprenant cables are not installed below postulated plant flood levels; hence submergence qualification is not required. The basis for this conclusion was a plant walkdown that is documented in the EQ file by a letter from Impell Corporation to Yankee Atomic Electric Company, dated February 2, 1986. (Woodward, Tr. 377-78; NECNP Exh. 4, reference 10.) The Board finds this conclusion to be justified.

70. Justification for similarity of the untested cables, generally, was that all four ITT Suprenant cables were similar in construction details and the materials used to construct them were identical. Further, the dimensions of the untested RG-11 triaxial cable and the tested RG-11 coaxial cable are identical through

the first shield, and the triaxial cable has an additional shield and jacket of materials identical to that of the coaxial cable. (NECNP Exh. 4, reference 4.) While NECNP challenged the similarity between the types of cable as not being documented in the EQ file (NECNP Prop. Fdgs. 15-19), the Board found little difficulty in accepting the manufacturer's certification, or for that matter, in locating testing requirements, materials specifications, and dimensions of all four cables in the EQ file provided by NECNP. (NECNP Exh. 4, reference 1, at 3-8, 12-13, Appendices A and B.) Thus, the Board finds that justification for environmental qualification of cables RG-58 coaxial and RG-11 triaxial by comparison with tested coaxial cables RG-11-U and RG-59-U is adequately documented in the Applicants' EQ files.

71. *EQ file #113-20-01, items: ITT Suprenant 300V instrument cable (and MM-IR-12 instrument rack)* — This cable was not subjected to a submergence test, but was qualified for 30 days' submergence by immersion in tap water and conducting a high-potential test based on 80 V/mil of insulation thickness after completion of the 100-day SLB/LOCA testing where peak temperatures reached 390°F, peak pressures reached 113 psig, 100% humidity was maintained through the 100-day test, and cables were exposed intermittently to chemical spray. The cable specimens were energized and electrical loadings were maintained throughout the 100-day test. Since the greatest depth of flooding that this cable will experience in the plant under accident conditions is 3 feet, producing a static pressure of about 1.3 psi, the static pressure is regarded as negligible in comparison to the 113 psig pressure during the test. The presence of high temperature, 100% humidity, and chemical sprays, with the high pressure is considered adequate to account for the submerged condition of this cable for a 30-day duration. (NECNP Exh. 5, reference 14, at 1-2.) Further basis supplied for acceptance of the judgment that this procedure adequately qualified the cable for 30 days' submergence was that the cable had undergone thermal and radiation aging to end-of-life conditions prior to the test sequence and that actual moisture contact with the cable would not have produced more severe conditions of stress. (Woodward, Tr. 404-06.)

72. The 300-kV ITT Suprenant instrument cable associated with three valves located inside the reactor containment building and subject to submergence due to LOCA flooding was found, with other items, not to meet a 1-year postaccident operability time, as shown in Applicants' prefiled testimony. That testimony indicated that the valves served by the cable would close in less than 1 minute, which time when added to the 1-hour margin required by Regulatory Guide 1.89 results in a required operating life of 61 minutes. Applicants' engineering analysis further indicated that once the inboard letdown isolation valve has closed, it has performed its safety function and is not required again in the near term or for long-term recovery operation. The other valves (accumulator tank isolation valves) are normally open during power operation and also re-

ceive an SI signal to open. Applicants' engineering review determined that all the valves would perform their safety function within 24 hours and that long-term failure of the cables does not result in a change in valve position. Thus Applicants concluded that the 30-day postaccident operability qualification of the associated cables has sufficient margin to ensure that the required safety function has been performed. (Appl. Testimony, ff. Tr. 357, at 9; Appl. Exh. 4 at 1-2.) We agree.

73. As another matter, NECNP challenged the completeness of EQ file #113-20-01 with respect to Instrument Rack MM-IR-12 which is supplied by the 300-kV instrument cable. According to NECNP, the EQ file indicates that submergence qualification for the cable is not required because the instrument rack has been downgraded to Operability Code C, and that no explanation or justification for the change (in the instrument rack operability code) is provided in the file. (NECNP Prop. Fdgs. 22-23; *see* NECNP Exh. 5, Environmental Qualification Assessment Report, at 11 n.9.)

74. Equipment categorized as Operability Code C is that which may see a harsh environment, including submergence, subsequent to design basis accidents, but which performs no safety function relative to mitigating the accident or putting the plant in a safe condition after the accident. Operability Code C equipment is also evaluated to determine that failure of the equipment due to environmental conditions will not affect the safety of the plant. (Woodward, Tr. 386-87; *see also* Regulatory Guide 1.89, Appendix D, ¶ 3.c.)

75. The Impell Corporation, for the Applicants, reviewed locations of Class IE electrical equipment in the plant and determined that some were located below flood level for the specific equipment locations. With regard to instrument rack MM-IR-12, located below flood level in the mechanical penetration area, Impell found that the rack, its accessories and the transmitters are not qualified for submergence. It recommended that the equipment be relocated above flood level unless it can be shown that operability for the moderate energy line break (MELB) is not required. (NECNP Exh. 5, reference 12, at 4; Woodward, Tr. 387.)

76. United Engineers and Constructors performed a specific review and determined that no piece of equipment in instrument rack MM-IR-12 was required to perform any safety function during an MELB. Accordingly, the instrument rack was downgraded to operability Code C. The report of the change is an Engineering Change Authorization (ECA No. 03/114514A dated 2-21-86) that is found in the EQ file, NECNP Exh. 5, reference 16). The ECA shows the signoff that indicates that several engineering disciplines reviewed the operability requirements and determined that there is no impact on downgrading the equipment from operability Code A to C. A pencilled-in change reflecting the change on the Class IE equipment list also is present in reference 16 and this

change will be reflected in the next scheduled revision of the harsh equipment list for Seabrook (Woodward, Tr. 386-91; NECNP Exh. 5, reference 16.)

77. The Board finds that detailed explanation of the criteria used to downgrade the instrument rack MM-IR-12 in the ITT Suprenant cable EQ file #113-20-01, beyond that contained in the file, is not necessary to satisfy the requirement of 10 C.F.R. § 50.49(j) that EQ files be maintained in auditable form. No other requirement for inclusion of more detailed explanation in the EQ file was averred by NECNP or any other party, and we know of none.

78. *EQ file #NSSS-220-03, items: limit switches RH-ZS-618 and RH-ZS-619* — NECNP challenged this file on essentially the same basis as the foregoing instrument rack (Fdgs. 73-76, *supra*). NECNP alleges incompleteness because there is no explanation in the EQ file of the reason for downgrading the limit switches to Operability Code C. Indeed, the same ECA (No. 03/114514A) is referenced to document the change in operability code. (NECNP Prop. Fdg. 29; NECNP Exh. 9, reference 12, at 2; Woodward, Tr. 446-48.)

79. The Qualification Evaluation Worksheet for the components in this file indicates that all items are located above flood level. Applicants' witness believed that this was incorrect and that the entry for the "above flood level" question should be "no" rather than "yes" because some equipment is located below flood level. Note 1 on the same page indicates that the limit switches RH-ZS-618 and RH-ZS-619 are located below postulated flood level but that the operability code has been changed to Code C. (Woodward, Tr. 446-47; NECNP Exh. 9, Environmental Qualification Worksheet at 2.)

80. For the same reasons held in Fdgs. 76-77, *supra*, for the instrument rack, we find that NECNP's allegation of incompleteness of EQ file #NSSS-220-03 for the limit switches lacks merit.

81. *EQ file #174-15-01, item: Transamerica Delaval level transmitters and silicone oil-filled-conduit riser assembly* — This equipment measures containment water level from a ball on a rod sensor and transmits the corresponding water-level electrical signals to the control room. A 30-minute submergence test had been conducted on the level transmitters, but in order to qualify the transmitters for a 1-year submergence duration, Applicants designed and installed a riser device of metal conduit with sealed connections through which the interconnecting wires run, and which is filled with silicone oil to prevent moisture intrusion into the transmitters. (Woodward, Tr. 429; NECNP Exh. 7, Qualification Evaluation Worksheet at 1 and reference 7 at 5.)

82. Each of the conduit riser assemblies is configured in an inverted "U" shape with its downward-pointed legs of unequal length terminating at the junction box or splice box attached to one of a pair of level transmitters. Only the lower transmitters (ID: CBS-LE-2384-1 and CBS-LE-2385-1) of each riser assembly are below flood level and subject to submergence. A "Tee" fitting with a threaded plug or cap is located at the high point of each inverted U-shaped riser

assembly to permit filling both legs with Dow #710 silicone oil. The risers, as constructed, are intended to provide a static head of 4 feet 6 inches of oil above postulated flood level to counter the 6-5/8-inch head of water that would cover the lower transmitters. (NECNP Exh. 7, Equipment List at 1, Environmental Qualification Assessment Report at 1 and 11, reference 5 at 1-4, reference 7 at 2, 3, 5, and 9; Woodward, Tr. 452 (post line 16)-454.) The oil used in the risers is the same as that used in the equipment boxes and was used in the environmental qualification test configuration. (Woodward, Tr. 436.)

83. NECNP challenged two aspects of the riser assemblies, principally on grounds associated with information provided in reference 7 of EQ file #174-15-01, the Engineering Change Authorization (ECA) which was prepared to obtain authorization and to provide instruction on installation of the risers. First, the ECA is inconsistent with other parts of the EQ file in that the flood levels differ by 2 feet 8 inches and the instructions to fill the riser would result in fill levels that differ by 4 feet relative to postulated flood levels.[15] Second, NECNP asserts that elimination of a pressure test to check for leaktightness of the riser assembly, that was originally called for by the ECA design, compromises the ability of the transmitter to function for the duration of an accident in which it might be submerged. (NECNP Prop. Fdgs. 35, 37, 40, 45; NECNP Exh. 7 at 2, 3, 5, 9; Environmental Qualification Assessment Report at 11 n.11.)

84. The ECA of this EQ file (NECNP Exh. 7, reference 7) contains the installation instructions for installing the risers. Sheet five of the ECA illustrates the concept of filling one riser to a 6-inch-minimum point above the flood level which corresponds to the spreader fill connection ("Tee"). This is not inconsistent with the fill instructions on sheet five of the ECA. Once the equipment was installed, the ECA is no longer the drawing of record for the plant. The postulated flood level in this location at the time the ECA was prepared was (−)18 feet. (Salvo, Tr. 451; Woodward, Tr. 452, 454; Thomas, Tr. 455.)

85. After issuance of the ECA (NECNP Exh. 7, reference 7) the postulated flood level at this location was changed to (−)20 feet 8 inches. (Woodward, Tr. 454.) Also, actual measurements of the riser assembly during a plant walkdown indicate that the elevation of the filler "Tees" are 8 inches above (−)17 feet 1-3/8 inches (equals (−)16 feet 5-3/8 inches) and 9-1/2 inches above (−)17 feet 1-3/8 inches (equals (−)16 feet 3-7/8 inches). (NECNP Exh. 7, reference 5, at 2, 4.) Filling the risers to the respective levels of the filler "Tees" will provide an oil head of 4 feet 2-1/2 inches above flood level at one riser and 4 feet 4-1/8 inches above flood level at the other riser. (*Id.* at 1, 3.) This would counter the

[15] In Proposed Finding 40 NECNP mistakenly states that a flood level of (−)18 feet is 2 feet 8 inches lower than flood level (−)20 feet 8 inches. An elevation of (−)18 feet is 2 feet 8 inches *higher* than elevation (−)20 feet 8 inches. Also, the fill levels ("Tee" fittings), *as constructed*, are in excess of 1 foot above the *minimum* (−)17-foot 6-inch level specified in the ECA. Thus the as-built fill levels are not inconsistent with those in the ECA installation instructions. (*See* Fdg. 84.)

6-5/8-inch head of water that would cover the submerged transmitters during the postulated flood. These elevations and static pressure heads are in approximate, but not exact, agreement with the design as specified in the "Special Conditions" for acceptance of the submergence qualification of this equipment. (NECNP Exh. 7, EQ Assessment Report at 1; *see supra* Fdg. 82.) Thus, we find NECNP's allegations concerning the design of the risers and the alleged discrepancies in flood level, fill level, and filling instructions to be without merit.

86. In regard to the elimination of the pressure test of the riser assemblies (Fdg. 83), the original purpose of the 60-pounds-per-square-inch test was to examine the assemblies for leaktightness. Upon later review, Applicants determined that the equipment could be damaged by the pressure test, so the test was eliminated. (Salvo, Tr. 450; NECNP Exh. 7, reference 7, at 2 (Rev. "C"), 3, 5, 9.)

87. According to the Applicants a visual examination was performed to verify that the system was leaktight. (Salvo, Tr. 451.) Applicants also asserted that leakage could be adequately monitored during periodic calibrations that take place at intervals of a year to 15 months and, generally, during entries into the containment. (Thomas, Tr. 433-35.)

88. Applicants also asserted that under accident conditions the design of the equipment is such that pressure on both sides of the device would be equalized, and that there would be no differential pressure on the system other than the static head of the liquid which is minimal. (Salvo, Tr. 480-81.) No explanation of how pressure equalization would be achieved by the design was given, however.

89. The environmental qualification duration for submerged conditions of the containment water level measuring transmitters depends upon an adequate level of silicone oil remaining in the riser devices to maintain a small static head to counter the 6-inch static head of water above the lower units under submerged conditions. Absence of a differential pressure head in the system under environmental pressure conditions is also required. (NECNP Exh. 7, Environmental Qualification Assessment Report, at 1.)

90. No maintenance requirements are specified to maintain the qualified life of the level transmitters in EQ file 174-15-01. (*Id.* at 3.) The Board directs that maintenance requirements for the silicone-oil-filled riser assemblies be developed and included in the EQ file to ensure that an adequate level of oil is continuously present in the riser assemblies to maintain the qualified life of the level transmitters under the required environmental conditions.

Conclusions of Law

The Board has considered all of the evidence presented by the parties and the entire record of this proceeding. All issues, arguments, or proposed findings

presented by the parties, but not addressed in this partial initial decision, have been found to be without merit or unnecessary to that decision. Having resolved all onsite safety and emergency planning issues in controversy, pursuant to 10 C.F.R. §§ 50.57(c) and 50.47(d), the Board authorizes issuance of a license to operate Seabrook Station, Unit 1, up to 5% of rated power, subject to the condition set forth below in paragraph number one of our Order. We find that there is reasonable assurance the Seabrook Station, Unit 1, can be operated up to 5% of rated power without endangering the public health and safety, and that the state of onsite emergency preparedness provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. Further, if the other Licensing Board, which is considering offsite emergency planning issues, determines to authorize a full-power operating license, prior to the issuance thereof Applicants must have satisfied the three conditions set forth below in ¶ 2 of our Order.

Order

WHEREFORE, in accordance with the Atomic Energy Act of 1954, as amended, and the rules of practice of the Commission, and based upon the foregoing Findings of Fact and Conclusions of Law, IT IS ORDERED that:

1. Upon making the applicable findings required under 10 C.F.R. § 50.57(a), the Director of Nuclear Reactor Regulation is authorized to issue a license authorizing low-power testing and operation limited to 5% of rated power for the Seabrook Station, Unit 1, provided that, prior to the issuance thereof, Applicants shall have developed and placed in the appropriate environmental qualification file, maintenance procedures required to ensure that an adequate level of oil is continuously present in the silicone-oil-filled riser assemblies associated with the containment water level transmitters to maintain the qualified life of the transmitters under the required postaccident environmental conditions (*see* Fdg. 90, *supra*);

2. If a full-power operating license is authorized by the other Licensing Board which is considering offsite emergency planning issues, prior to the issuance thereof, Applicants, with respect to the Safety Parameter Display System, shall have:

> (a) dedicated the SPDS terminal so that a continuous display of the Critical Safety Functions will be achieved *or*, by means of a test function and test computer, have an SPDS display on every cathode ray tube format in the control room to continuously display the SPDS top-level display (*see* Fdg. 30, *supra*);

(b) provided for continuous display of residual heat removal and hydrogen concentration critical safety function variables at the prime SPDS station (*see* Fdg. 33, *supra*); and

(c) established a radiological control screen at the prime SPDS station which, at the minimum, can be called up by the operator and will display steam-line radiation and stack radiation parameters (*see* Fdg. 36, *supra*).

Pursuant to 10 C.F.R. § 2.760(a) of the Commission's Rules of Practice, this Partial Initial Decision will constitute the final decision of the Commission forty-five (45) days from the date of issuance, unless an appeal is taken in accordance with 10 C.F.R. § 2.762 or the Commission directs otherwise. *See also* 10 C.F.R. §§ 2.764, 2.785, and 2.786.

Any party may take an appeal from this Decision by filing a Notice of Appeal within ten (10) days after service of this Decision. Each appellant must file a brief supporting its position on appeal within thirty (30) days after filing its Notice of Appeal (forty (40) days if the Staff is the appellant). Within thirty (30) days after the period has expired for the filing and service of the briefs of all appellants (forty (40) days in the case of the Staff), a party who is not an appellant may file a brief in support of or in opposition to the appeal of any other party. A responding party shall file a single, responsive brief regardless of the number of appellant briefs filed. *See* 10 C.F.R. § 2.762(c).

THE ATOMIC SAFETY AND
LICENSING BOARD

Sheldon J. Wolfe, Chairman
ADMINISTRATIVE JUDGE

Jerry Harbour
ADMINISTRATIVE JUDGE

Emmeth A. Luebke
ADMINISTRATIVE JUDGE

Dated at Bethesda, Maryland,
this 25th day of March 1987.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ADMINISTRATIVE LAW JUDGE

Ivan W. Smith

In the Matter of

Docket Nos. 30-01993
70-1396
(License Nos. 21-00338-02
SNM-1393)
(EA 85-89)

HURLEY MEDICAL CENTER
(One Hurley Plaza,
Flint, Michigan)

March 3, 1987

In an Initial Decision, the Administrative Law Judge sustains a civil penalty in the amount of $2500 imposed against the Licensee by the Director of Inspection and Enforcement for failure to comply with NRC requirements concerning the possession and use of a variety of nuclear materials in diagnostic and therapeutic medicine.

CIVIL PENALTY: ENFORCEMENT POLICY

In this enforcement action, the NRC Staff and the Licensee, a community hospital, had stipulated to fourteen violations of NRC requirements. The issue remaining was whether a civil penalty should be imposed in accordance with the General Statement of Policy and Procedure for NRC Enforcement Actions (10 C.F.R. Part 2, Appendix C), and in consideration of the safety significance of the stipulated violations. The Commission's Policy and Procedure for NRC Enforcement Actions, by its express terms, must be followed by the administrative law judge in determining whether a civil penalty should be imposed, mitigated, or entirely remitted.

CIVIL PENALTY: AGGREGATION AND ESCALATION OF LICENSE VIOLATIONS

When several Severity Level IV violations stemming from Licensee's general failure to exert management oversight and control over its radiation safety program are found, the Severity Level IV violations may be aggregated into a Severity Level III violation and a civil penalty appropriate to the escalated violation is imposed.

CIVIL PENALTY: BURDEN OF PROOF

Where the NRC Staff fails in its burden of proof with respect to some of the charged violations, the administrative law judge cannot substitute his own judgment for that of the Director of Inspection and Enforcement if doing so would mean imposing a penalty on charges not specified in the Director's order imposing the civil penalty, thus distinguishing *Atlantic Research Corp.*, ALAB-594, 11 NRC 841, 848-49 (1980).

CIVIL PENALTY: FAIR NOTICE AND CONSTITUTIONAL DUE PROCESS

As a matter of fair notice and due process, a licensee in a civil penalty proceeding must be timely informed of the theory of the case against it, *citing Goldberg v. Kelly*, 397 U.S. 254, 271 (1970).

CIVIL PENALTY: IMPARTIAL DECISIONMAKER AND DUE PROCESS

The administrative law judge may not save the Director of Inspection and Enforcement from a failed theory of the Director's case by substituting another theory because the Director, not the administrative law judge, has the burden of proof, and the licensee is entitled to an impartial decisionmaker. The function of the adjudicator may not be commingled with the function of the prosecutor, *citing Wong Yang Sun v. McGrath*, 339 U.S. 33, 46 (1950).

APPEARANCES

Edward P. Joseph, Esq., Counsel for Hurley Medical Center.

Lee Scott Dewey, Esq., Counsel for Nuclear Regulatory Commission.

TABLE OF CONTENTS

		Page
I.	INTRODUCTION	222
	A. Background	222
	B. The Issues	222
	C. Applicable Principles of Law and Procedure	224
II.	FINDINGS OF FACT	225
	A. The Violations	226
	Violation A	226
	Violation B	227
	Violation C	227
	Violation D	229
	Violation E	230
	Violation F	231
	Violation G	232
	Violations H and I	233
	Violations J and L	234
	Violation K	235
	Violation M	236
	Violation N	236
	B. Licensee's Violations Compared with Other Licensees	236
	C. Hurley's 1981 Inspection	237
III.	REASONS FOR DECISION — CONCLUSIONS OF LAW	238
	A. Introduction — Enforcement Policy	238
	B. The Severity Levels of the Violations When Considered Separately	239
	C. The Significance of the Violations When Considered Together	240
	D. Whether a Civil Penalty Is Needed	241
IV.	THE AMOUNT OF THE CIVIL PENALTY	243
V.	ORDER	243

INITIAL DECISION

I. INTRODUCTION

A. Background

This is a civil penalty action brought by the NRC Staff against Hurley Medical Center of Flint, Michigan. Hurley is a community hospital holding NRC licenses authorizing it to possess and use a variety of nuclear materials in diagnostic and therapeutic medicine.

The action is brought under § 234 of the Atomic Energy Act, as amended (42 U.S.C. § 2282), and 10 C.F.R. § 2.205. It is based upon fourteen violations of NRC "requirements"[1] observed by Radiation Specialist William P. Reichhold of NRC's Region III during a routine inspection on May 2, 3, and 24, 1985.

Following the inspection, the Administrator of Region III issued a Notice of Violation and Proposed Imposition of Civil Penalties in the amount of $2500. Hurley responded by protesting the imposition of penalties, but, on February 24, 1986, the Director of Inspection and Enforcement, for the NRC Staff, issued an Order Imposing Civil Penalties in the amount initially proposed. In an appendix to the Order, the Staff evaluated and rejected Hurley's response to each of the fourteen violations. Hurley exercised its right to a *de novo* adjudicatory hearing which I conducted in Flint, Michigan on October 15, 1986.

B. The Issues

None of the core facts underlying the Staff's action are in dispute. Licensee concedes that each of the fourteen charges against it are violations of Commission requirements.[2] Only the significance of the violations and adequacy of corrective actions were litigated. There is no allegation that Hurley personnel engaged in any personal wrongdoing or intentional misconduct.

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[1] NRC "requirements," as that term is employed by the NRC Staff, means regulations and license conditions. As is usually the case, Hurley's licenses each contain a condition which incorporates the commitments made in the license applications.

[2] The parties stipulated that a portion of the Order Imposing Civil Monetary Penalties (Staff Exh. 4), entitled "Appendix, Evaluation and Conclusions" (hereinafter "Stipulation") is a fair and accurate statement of the facts underlying the violations. Tr. 14, 52-55. *See also* Memorandum and Order Following Prehearing Conference, May 23, 1986 (unpublished). The Stipulation therefore contains (1) a statement of the violation, (2) a paraphrase of Licensee's responses to the Notice of Violation, and (3) the NRC evaluation of the responses.

In summary, the fourteen violations were:

(A) the failure of Hurley's Isotope Committee to meet quarterly;
(B) the use of xenon-133 in an unauthorized room;
(C) the failure by nursing personnel to wear film badges;
(D) the failure to perform surveys of patients' rooms and adjacent areas;
(E) the use of a physician, other than the physician listed on the license, to be responsible for the nuclear pacemaker program;
(F) the failure to explant, recover, and return for disposal a nuclear pacemaker;
(F) the failure to report the death of pacemaker patients;
(G) the failure to report the loss of contact with pacemaker patients;
(H) the failure to contact pacemaker patients monthly;
(I) the failure to conduct quarterly physical inventories of Group VI sources;
(J) the failure to conduct quarterly physical inventories of calibration sources;
(K) the failure to semiannually leak-test Group VI sources;
(L) the failure to assure that shipments of radioactive material were within allowable limits for external radiation and contamination; and
(M) the failure to maintain survey records of technetium-99m contaminated waste.

Stipulation.

The broad issue is whether, under the General Statement of Policy and Procedure for NRC Enforcement Actions (10 C.F.R. Part 2, Appendix C) (Enforcement Policy) and relevant regulations, a civil penalty should be imposed given the stipulated violations. Notice of Hearing, 51 Fed. Reg. 12,582-83 (Apr. 8, 1986). Both parties agree that, consistent with the Enforcement Policy, the safety significance of the violations must be considered. The Staff argues that each of the violations, except for Violation N, has more than minor safety significance. Hurley contends that none of them do, and at most, some are of only minor safety significance.

The parties dispute whether the violations have been correctly categorized in accordance with the five possible severity levels set out in the Enforcement Policy.

The Staff also contends that the violations should be aggregated and increased to a Severity Level III violation because of their common cause, and that Violation F, standing alone, calls for a Severity Level III designation. Consequently, according to the Staff, the civil penalty should be imposed. Hurley vigorously argues to the contrary. Moreover, according to Hurley, its own corrective action obviated the need for any remedial penalty.

C. Applicable Principles of Law and Procedure

The NRC Staff, as the proponent of the Order Imposing Civil Penalties, has the burden of proof. 10 C.F.R. § 2.732. The Staff must support its burden by the preponderance of the reliable, probative, and substantial evidence. Administrative Procedure Act, 5 U.S.C. § 556(d). My decision must be, and has been, based upon the whole record of the proceeding. I have considered all the arguments and proposed findings of fact advanced by the parties even though this decision may not address each of them. *Id.* The NRC Enforcement Policy, by its express terms, sets the policy and procedure to be followed by the Commission's presiding officers in enforcement proceedings. Part 2, Appendix C, preamble. The Enforcement Policy is discussed in detail below.

Because this action is brought pursuant to 10 C.F.R. § 2.205, the action I may take is limited to imposing, mitigating, or entirely remitting the civil penalty imposed by the Director's Order Imposing the Civil Penalty. 10 C.F.R. § 2.205(f). *See also* Notice of Hearing, *supra*. I may not, therefore, increase the amount of the penalty.

Furthermore, I may not impose a penalty on any theory of the case not timely advanced by the NRC Staff. This is a mixed question of jurisdiction and substantive law which has never been thoroughly covered in NRC case precedents. Because it is relevant to a portion of my decision below, some elaboration of my reasoning may be helpful.

In *Reich Geo-Physical, Inc.*, ALJ-85-1, 22 NRC 941 (1985), another civil penalty proceeding, I noted that I could not assign a severity level to a violation that would exceed the position taken by the Director in imposing the penalty. *Id.* at 960 n.10. The Staff apparently disagrees because, in this proceeding, the Staff argues that I am not bound by its theory of the case and that I can independently determine the basis for the penalty. Staff Proposed Finding 8, *citing Atlantic Research Corp.*, ALAB-594, 11 NRC 841, 848-49 (1980). It is true that the Appeal Board in *Atlantic Research* stated that the administrative law judge, the appeal board, and the Commission "may substitute their own judgment for that of the Director [imposing a civil penalty]." But the Appeal Board went on to explain: "Stated otherwise, if deemed to be warranted in the totality of circumstances, the adjudicator is entirely free to mitigate or remit the assessed penalty." *Id.* at 849.

In the case before me, I cannot substitute my own judgment for that of the Director if doing so would mean imposing a penalty on allegations not specified in the Director's Order imposing the civil penalty. That order, because it is incorporated by reference in the Commission's Notice of Hearing, sets the limits of the presiding officer's jurisdiction in the noticed hearing. *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-316, 3 NRC 167, 170 (1976); *Metropolitan Edison Co.* (Three Mile Island Nuclear

Station, Unit 1), CLI-82-31, 16 NRC 1236, 1238 (1982) (Commission notice of hearing did not give licensing board jurisdiction to impose a civil penalty).

Moreover, as a matter of fair notice and due process, the Licensee must be timely informed of the theory of the case against it. My decision must be based upon the legal principles established during the hearing process. *Goldberg v. Kelly*, 397 U.S. 254, 271 (1970). Therefore I may not substitute my own theory of the case for that of the Director if the consequence is to impose a penalty on any basis not made known to the Licensee in time for it to be confronted. *Id.*

Nor would it be appropriate for the presiding officer to save the Director from a failed theory of his case by substituting any other theory. The Director, not the presiding officer, has the burden of proof. The Licensee is entitled to an impartial decisionmaker. *Id.* The function of the adjudicator cannot be commingled with the function of the prosecutor. *Id.*; *Wong Yang Sun v. McGrath*, 339 U.S. 33, 46 (1950). Accordingly, in this proceeding at least, the Director, in carrying his burden of proof, must stand or fall on his own theory of the case.

Mindful of these principles, I turn next to the findings of fact and reasons for the decision.

II. FINDINGS OF FACT

1. The NRC Staff presented a panel of witnesses consisting of William P. Reichhold, an NRC Region III Radiation Specialist who conducted the inspections; Donald J. Sreniawski, Mr. Reichhold's Section Chief in Region III's Division of Radiological Safety and Safeguards; Perry D. Robinson, Enforcement Specialist in the NRC's Office of Inspection and Enforcement; and Bernard W. Stapleton, Region III Enforcement Specialist. The facts underlying the violations having been previously stipulated, the Staff Panel testified about the safety significance of each violation, whether the severity levels of the violations were correctly assigned, the basis for imposing the $2500 civil penalty, and whether the penalty should be imposed, remitted, or mitigated. Staff Panel, ff. Tr. 71.

2. NRC Staff exhibits offered and received into evidence at the hearing were: NRC Exh. 1 — the NRC's August 22, 1985 Notice of Violation and Proposed Imposition of Civil Penalties; NRC Exhs. 2 and 3 — the Licensee's two responses (both dated October 4, 1985) to the Notice; and NRC Exh. 4 — the NRC's February 24, 1986 Letter and Order Imposing Civil Monetary Penalties with an appendix which is now the Stipulation.

3. Hurley presented Jack Dagenais, Hurley's Assistant Director, and Dr. Morris I. Bank, Hurley's Radiological Physicist. ff. Tr. 206. Mr. Dagenais described steps taken by Hurley to improve its radiology program in recent years. Dr. Bank testified concerning his view of the safety significance of the

violation and explained the background of the events at Hurley. Hurley offered no exhibits. *Id.*

A. The Violations

Violation A

4. Hurley's Medical Isotope Committee was required by the license to meet no less than once in each calendar quarter, but it failed to meet during the first, third, and fourth quarters of 1981 and 1982; the second and third quarters of 1983; the first and second quarters of 1984; and the first quarter of 1985. Stipulation at 4.

5. The Committee's duties include performing audits and ensuring the medical facility's safe use of radioactive materials. It also has overall hospital responsibility for ensuring that all uses of radioactive material are in accordance with NRC regulations and the conditions of its nuclear license, for recommending corrective action for any deficiencies in the nuclear program, and for ensuring that the byproduct materials license is amended when necessary. Staff Panel (Sreniawski), ff. Tr. 71, at 8.

6. The Staff maintains that the failure to meet regularly was a significant safety concern which probably played a role in the numerous violations identified by the NRC during the 1985 inspection. The violations might have been prevented if the Committee had met and performed its duties as required. Staff Proposed Findings at 5-6.

7. Hurley explains that the Committee thought that meeting semiannually was sufficient, and that the failure was not willful. In any event, according to Hurley, the failure to meet had no environmental or safety significance, and compliance was brought about immediately following the May 24, 1985 inspections.

8. Turning first to the issue of willfulness, Hurley has not been charged with willful or intentional violation of the rules in any of the fourteen counts, nor do I find any willfulness. Accordingly there is no need to discuss this aspect of Hurley's defense each time it is raised. The standards for assessing the need for a penalty are discussed in § III.D, below. Similarly, I discuss in § III.D, below, the issue of the timing of Hurley's corrective actions.

9. It is true, as Hurley argues, that the failure of the Committee to meet cannot be traced directly to a safety incident. But the Staff is absolutely correct on this issue. The Committee failed in its duty to ensure that the uses of radioactive materials were in accordance with NRC requirements. Since I find that some of these violations had safety significance in themselves, the failure of the Committee to even meet as scheduled, let alone perform as required, is a matter of safety significance. Moreover, the fact that the Committee did not even

know how often it was required to meet is not, as Hurley would have me find, an attenuating factor. It is, in fact, an exacerbating factor. The meeting requirement was clear and should not have been subject to any misunderstanding. Stipulation at 1.

Violation B

10. The application incorporated as a license condition described Room 22, equipped with a ventilation system, as the area where xenon-133 would be used. However, Hurley began using Room 20 for xenon-133 procedures without NRC authorization and without informing the NRC. Dr. Bank testified, without elaboration, that the Radiation Safety Officer had determined that "the new room had same airflow as old room." Bank, ff. Tr. 206, at 3. However, on the day of the inspection, even upon questioning, Hurley personnel were unable to provide information that the airflow in Room 20 was adequate. Tr. 97-98 (Sreniawski). The basis for the Radiation Safety Officer's conclusion that the ventilation in Room 20 was adequate for xenon-133 use was not revealed. If indeed the Radiation Safety Officer had carefully calculated or evaluated the airflow of the ventilation system and the potential concentration of xenon-133 in Room 20, I would have expected that information to be presented at the hearing in support of Dr. Bank's terse conclusion. The information presented in the hearing and during the inspection at Hurley is scarcely the type of information needed to provide the requisite *assurance* that the statement is true — which is the issue here. It may or may not be true that Room 20 was adequately ventilated. The NRC inspectors have the statutory duty to assure themselves that the xenon-133 imaging room was operated with adequate radiological controls to protect workers, patients, and members of the public against unnecessary radiation exposure because the activity has safety significance. Staff Panel (Sreniawski), ff. Tr. 71, at 9. The rule that I apply with respect to violation B and similar violations is that where the activity has a safety significance, the failure to demonstrate when required that the activity has been safely conducted is in itself a matter of safety significance. Violation B is of more than minor safety significance.

Violation C

11. Contrary to the terms of its license in 1984 and 1985, Licensee's nurses failed to wear film badges during care of patients who had undergone brachytherapy implants. Stipulation at 2.

12. According to the NRC Staff, this failure was a significant safety concern since the badges are needed to evaluate the radiation doses a nurse receives

during time spent with a patient. Badges are particularly important when medical emergencies develop with a patient's care, requiring nurses to spend more time in the immediate vicinity of the patient. Badges are also especially important if brachytherapy sources become dislodged from patients undergoing treatment, thereby subjecting nurses to significantly higher radiation doses. Staff Panel (Sreniawski), ff. Tr. 71, at 9-10.

13. This activity is addressed in Part 20 of the Commission's regulations:

> **§ 20.202 Personnel monitoring.**
>
> (a) Each licensee shall supply appropriate personnel monitoring equipment to, and shall require the use of such equipment by:
>
> (1) Each individual who enters a restricted area under such circumstances that he receives, or is likely to receive, a dose in any calendar quarter in excess of 25 percent of the applicable value specified in paragraph (a) of § 20.101.

14. Hurley's Radiation Safety Officer determined that the nurses would be exposed to less than 25% of their allowable doses, therefore film badges would not be required. His calculations were based upon a very carefully considered evaluation of the potential doses and they were not disputed by the NRC Staff. Stipulation at 3. In fact the Director conceded that 10 C.F.R. § 20.202(a)(1) would *not* require the issuance of film badges to nurses, but that since the license application was more restrictive than the regulation, Hurley was nevertheless in violation. *Id.* With nothing more, the violation would be *pro forma* technical, with no self-evident safety significance.

15. The Staff, through the testimony of Mr. Sreniawski, reneged on the Stipulation. According to Mr. Sreniawski, Hurley was in violation of § 20.202(a)(1) because the Hurley Radiation Safety Officer's determination "does not take into account exigencies that might occur." Staff Panel (Sreniawski), ff. Tr. 71, at 10. The Staff now takes the position that a "worst-case analysis" is required to take into account the possibilities for greater exposure. *Id.*

16. The Staff has failed to carry its burden on Violation C. First, it is bound by the Stipulation that Hurley's film-badge determination complied with § 20.202(a)(1). Second, even on the factual merits, § 20.202(a)(1) refers to doses that an individual receives "or is likely to receive." The Staff's asserted requirement that a worst-case analysis must be made is not required by the regulation. Third, the Hurley Radiation Safety Officer calculated that a nurse would receive "10 mR per month or 90 mR per quarter [*sic*]." Stipulation at 3. This arithmetical incongruity may be the result of a copying error. The Radiation Safety Officer may have been referring to 90 mR for three quarters of

pregnancy relevant to a group of fertile female nurses.[3] If such is the case, the Radiation Safety Officer's determination was conservative because, according to Mr. Sreniawski of the NRC Staff, a fertile female is allowed to receive 125 mR per quarter or 375 mR per 9-month period. Calculated from Tr. 106 (Sreniawski).

17. The Staff argues, however, that Hurley cannot make a unilateral decision not to comply with the condition of the license. I agree that the better course would have been to seek a license amendment, and for that reason I find that Violation C had minor safety significance. However, I disregard the violation for the purpose of determining whether a civil penalty should be imposed.

Violation D

18. A license condition requires that, when patients are being treated with therapeutic quantities of radionuclides, surveys must be made of the exposure rates in the patient's room and adjacent areas. Hurley acknowledged that it did not meet the terms of the license but countered that it complied with the more lenient standard of the Michigan Radiation Rules, i.e., Hurley may rely upon calculations from previous surveys rather than a survey in each case. Stipulation at 4.

19. It is not disputed that Hurley made a series of surveys in areas where patients had received brachytherapy treatment and that no excessive radiation levels were found. The Staff, however, does not accept the result of previous surveys because they do not take into account variables in each treatment case such as changes in the location of the patient's bed, changes in shielding, changes in the type and magnitude of treatment, and possible errors in source loading. Staff Panel (Sreniawski), ff. Tr. 71, at 11.

20. The Staff concedes, however, that if Hurley evaluated for the variables in each case, the Michigan Rule would satisfy the NRC requirement. Tr. 109, 110 (Sreniawski). There is no evidence either way whether Hurley made a determination in each case that there were variables to contend with. Nothing was found during the inspection to indicate variables — for example, a change in the magnitude of treatment. Tr. 109-14 (Reichhold).

21. Hurley has by stipulation admitted that it violated the terms of its license. The license condition has obvious safety significance. If Hurley has affirmative evidence that its practices meet the substantive expectation of the license condition, it had the burden of coming forward with that evidence. I presume that Hurley would have presented such evidence to the inspector. I

[3] This finding is not free from doubt however. Hurley's original response stated that "[i]f the same nurse attended three patients per month, she would receive 30 mR per month or 90 mR per quarter. Staff Exh. 3, Attachment at 2. I have elected to follow the terms of the Stipulation, however, on the presumption that the lawyers in this proceeding stipulated to the accurate version, because stipulation has persuasive legal effect as a rule of evidence, and because the NRC Staff has the burden of proof.

do not regard the fact that the NRC inspection *did not identify* any variables adversely affecting safety to be such evidence. Accordingly, I find that Violation D has more than minor safety significance.

Violation E

22. A condition of the special nuclear material license, based on a 1973 representation, was that Dr. Weber was responsible for the nuclear pacemaker program. For many years, Hurley had not implanted a nuclear pacemaker. When it resumed the pacemaker program, Dr. Weber had been replaced by another physician, a cardiologist, who was qualified to be in charge of the program. However, Hurley failed to identify to the NRC Dr. Weber's successor. Stipulation at 5; Tr. 114 (Sreniawski).

23. The NRC is concerned when an unauthorized individual is given responsibility for a nuclear pacemaker program without NRC approval since individuals having this responsibility, without adequate training and knowledge of hazards and procedures, can cause the loss of a pacemaker. This loss, in turn, can result in unnecessary radiation exposure to the general public. Under these circumstances, it is necessary that an individual's training and experience be properly reviewed by the NRC to ensure that qualified individuals are responsible for the pacemaker program. Staff Panel (Sreniawski), ff. Tr. 71, at 12.

24. Since the NRC was satisfied retrospectively that the physician succeeding the authorized physician was also qualified, the essence of the violation was that the NRC was denied the opportunity to review the second physician's qualification *before* the activities under his direction took place.

25. In *Radiation Technology, Inc.*, ALAB-567, 10 NRC 533, 546, 547 (1979) (cited by the NRC Staff in its proposed findings), the licensee failed in its effort to mitigate a penalty by arguing that the unlicensed employee (using byproduct material) was in fact properly trained. *Id.* at 547. But unlike the case here, the *Radiation Technology* licensee had previously been cited for a similar violation which was resolved with a promise of future compliance. The gravamen of the violation in *Radiation Technology*, it seems, is that the licensee failed to comply with an express pledge not to repeat the same violation. The two cases are quite different. There is no suggestion that Hurley had ever been involved in a similar infraction of its license.

26. This is not to say that the matter lacks safety significance. The fact that the NRC was denied the opportunity to exercise its duty to review the second physician's qualifications has safety significance because the pacemaker program has very important safety significance. In such matters, the licensee cannot substitute its judgment for that of the NRC, thus cutting the NRC out of the process. *See Reich Geo-Physical, supra*, 22 NRC at 951 (cited by the Staff in its Proposed Finding 22). Therefore I must find that Violation E had more than

minor safety significance despite the fact that the program was always under the direction of a qualified person. Had the successor physician been unqualified to oversee the pacemaker program, the NRC Staff would have regarded the matter as "at least a Severity Level III" violation in itself. According to the Staff, the fact that the physician was qualified is already reflected in the severity level assigned by the Staff to the violation. Tr. 189 (Robinson). In view of the problems noted in Hurley's pacemaker program discussed below, I agree with the Staff's evaluation.

Violation F

27. Contrary to the conditions of its license, Licensee failed to participate in or supervise the explant, recovery, and return of a nuclear pacemaker of a patient who had died in February 1985. This incident resulted when Hurley, rather than immediately taking charge of a pacemaker of a deceased patient, instructed a funeral director, who was unauthorized and unqualified in the handling of pacemakers, to explant and return it to the manufacturer. Staff Panel (Sreniawski), ff. Tr. 71, at 12.

28. The patient with the pacemaker died at the hospital and was removed to the possession of the funeral director. Someone from the Hurley staff called the funeral director and instructed him to remove the pacemaker. Otherwise the funeral director would have allowed the pacemaker to be interred with the deceased, or in the case of cremation, the pacemaker would have been thrown into the trash. The hospital sent a container to the funeral director with instructions to send the pacemaker back to the manufacturer in accordance with Department of Transportation regulations. However, the funeral director had never made such shipments and was not familiar with DOT regulations. Stipulation at 6; Staff Panel (Sreniawski), ff. Tr. 71, at 12-13.

29. The pacemaker arrived at the manufacturer, but it is not known if it arrived in a proper package. It would be a fortuitous happening if the pacemaker had been sent in accordance with DOT regulations. I assume that the package provided by the hospital was a good one. In any event, the pacemaker was not leaking when it arrived at the manufacturer's place of business. Tr. 117-18 (Sreniawski).

30. The outer casing of the sealed pacemaker is attractive — highly polished stainless steel. It would not break open if merely dropped, but it can be broken open with tools such as a hammer or a vise. Once opened and the contents released, the hazards from even very small amounts of the plutonium-238 would be significant and would be a hazard to any individual coming in contact with it. Even small quantities of plutonium-238 are extremely hazardous since they can be ingested or inhaled and taken up by the body and distributed to various body organs. Once the radioactive material is in the body, it presents a significant

health hazard if deposited in the critical organs. The hazard of plutonium-238 is long term due to the very large, 87-year biological half life of the material.

31. In addition to personal injury, the environment could be adversely affected by the radioactivity, and the cost of decontamination could be extensive. If this material was not detected promptly, the problems with decontamination and health hazard would increase since the longer radioactive contamination goes undetected, the greater the chance the radioactivity will spread and the larger the cost for cleanup. Staff Panel (Sreniawski), ff. Tr. 71, at 13-14; Tr. 118-19 (Sreniawski).

32. Hurley seeks to dismiss the safety and environmental significance of the violation by (1) noting the device arrived at the manufacturer in a safe condition, and (2) it would be necessary to apply force, such as with hammer or vise to break it open.

33. As to the first argument, the fact that the pacemaker arrived in good condition is partly a matter of luck. Although Hurley contacted the funeral director and prevented the pacemaker from possibly being consigned to the trash, and although Hurley provided a shipping container, much more could have been and should have been done. Hurley knew or should have known the safety consequences of losing the pacemaker. But Hurley failed to recover it when, without dispute, it knew it had the chance. Second, the fact that a hammer or vise would be needed to open it does not persuade me that the matter lacked safety significance. A child with a rock could and probably would open it. I agree with the NRC Staff. This was a serious violation. As I discuss below, I adopt the NRC Staff's reasoning that Violation F, standing alone, is a Severity Level III violation.

Violation G[4]

34. Contrary to the provision of its license, Licensee failed in 1984 and 1985 to report deaths of two nuclear pacemaker patients within 24 hours of occurrence. The Staff testified that this failure was a significant safety concern since the NRC was unable to evaluate whether these pacemakers possessed any immediate hazards and whether they had any defects that should be corrected by their manufacturers. It is also important that the NRC be informed about pacemaker deaths to ensure that licensees are maintaining control of their nuclear pacemakers. Staff Panel (Sreniawski), ff. Tr. 71, at 14-15; Tr. 120-23 (Sreniawski).

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[4] The NRC Staff unintentionally omitted its Proposed Finding 26 (a restatement of Violation G) in its filing of November 18, 1986. As a result, Proposed Finding 27 seems to be a part of the Staff's proposed findings on Violation F. The Staff timely explained the problem in its Response to Hurley's Proposed Findings, dated January 6, 1987, at n.1.

35. However, upon cross-examination, the Staff witnesses were unable to support the written direct testimony cited in the preceding paragraph. Tr. 120-30. I regard the thrust of the charge to be the 24-hour reporting requirement, compared to say, monthly or quarterly reporting, or maintaining a log for examination during NRC inspections. One might envision a reporting scheme where a pacemaker failure, reported to the NRC within 24 hours of the death of the respective patient, would be information useful to immediately identify possible generic defects in other pacemakers. However, the NRC Staff could not explain that this was so. The Staff Panel could not identify the information required in the 24-hour report. Mr. Sreniawski believed that the requirement was to report only the fact of the patient's death. Tr. 129-30 (Sreniawski). Moreover, I cannot determine from the record how the 24-hour requirement, as compared to a more relaxed reporting requirement, better enables the NRC Staff to verify that proper control of the nuclear pacemaker was maintained by the Licensee.

36. I suspect that somewhere in the events underlying Violation G, there may be some important safety significance. But as I explained at the outset, I cannot postulate a theory of the case not put forward by the Director. Accordingly I find that the Staff has failed to carry its avowed burden that Violation G has more than minor safety significance. On the other hand, the failure to report is a violation, as stipulated by the parties, and it demonstrates the relaxed attitude toward NRC requirements. I find that Violation G has only minor safety significance. However, I also note that the violation was a result of Hurley's failure to be aware of the terms of the license, which is a factor I consider in the aggregation of the violations. § III.C, *infra*.

Violations H and I

37. Violation H charges that Licensee failed to report to the NRC within 10 days of loss of contact with a nuclear pacemaker patient. Violation I alleges that Licensee failed to contact such patients once each month as required.

38. Licensees are required to contact the pacemaker patients at regular intervals to evaluate the patient and to determine if the pacemaker is functioning properly. Staff Panel (Sreniawski), ff. Tr. 71, at 15. The safety significance of this requirement is obvious. Also, the contact and reporting requirements are important to maintain control over the pacemakers to avoid exposing the public to plutonium-238. The importance of this control is discussed under Violation F, *supra*.

39. Hurley, however, deprecates the safety significance of these violations by arguing that, (1) the failure to report was nothing more than that — a reporting failure, (2) contact was regained with the patients, and (3) there were only five instances involved. Hurley Proposed Findings 28-30.

40. As to the reporting requirement — the failure to report that a safety-significant situation actually exists is the most serious form of reporting failure. It is part and parcel of the safety-significant event. It is more serious than in the case of Violation E, for example, where a qualified physician was in fact in charge of the pacemaker program, but Hurley failed to report it, or the case of Violation N, where proper surveys for technicium-99m were made but records were not kept. Violation H is safety significant. The NRC Staff had no opportunity to react to an actual safety-significant situation.

41. With respect to Violation H, the fact that contact with the lost patients was reestablished might be accepted as mitigation if regaining contact was the result of diligent effort. But the Stipulation on this violation is that Hurley's Cardiovascular Study Unit was not properly trained in that its members were unaware of the necessity for the contact. Ignorance of the contact requirement is the gravamen of the violation and is safety-significant.

42. Nor am I persuaded by the assertedly small numbers of loss-of-contact incidents. Hurley Proposed Finding 29. There were more loss-of-contact incidents than there were patients to be followed — five patients between 1982 and 1984 (Tr. 133 (Reichhold)) compared with twenty-seven loss-of-contact incidents for those years. Stipulation at 8.

Violations J and L

43. Violation J charges that, contrary to the conditions of its license, Licensee failed since September 1983 until after the 1985 NRC inspection to inventory quarterly Group VI sources such as cesium-137 needles, cesium-137 "microrad after loading sources," and cobalt-60 needles. *Id.*

44. Violation L charges that, contrary to the requirements of 10 C.F.R. § 35.14(b)(5)(i), since June 1981 to the time of the inspection, Licensee failed to perform semiannual leak tests on the same Group VI sources. Stipulation at 10.

45. Hurley's position with respect to Violations J and L is that neither had safety significance because the sources had been maintained in locked storage during the entire relevant period and because the solid-state sources are sealed. *Id.* at 9; Bank, ff. Tr. 206, at 3.

46. According to the Staff, even though the sources are believed to be in locked storage they must be inventoried as required by the license to ensure that they haven't been lost or stolen. The loss of Group VI items would be a significant safety concern. Their small size makes them easy to be picked up and transported and their high-energy radiation, chosen for their ability to damage living tissue, is potentially dangerous to humans. Loss of control of these items can also result in their being recycled as metal scrap and subsequently introduced

in a consumer item that can cause unnecessary exposure to the public. Staff Panel (Sreniawski), ff. Tr. 71, at 16-17.

47. As to Violation L, failure to leak-test these sources would be a significant safety concern since an undetected leak from these sources could result in therapeutic misadministrations of patients, radiation exposure to licensee personnel, and radiation exposure to the public. *Id.* at 18.

48. Violation L assumes that the Group VI sources were in therapeutic use during the relevant period, but Violation J seems to depend upon an assumption that the sources were, as Hurley alleges, unused and maintained in locked storage during much of the same period. The Staff never reconciled the differing approaches to the two violations.

49. I find that the failure to inventory the sources, Violation J, has more than minor safety significance for the reasons advanced by the Staff. However, I find that Violation L has no more than minor safety significance because of Dr. Bank's unrefuted testimony and the Stipulation that the sources were believed to be in locked storage. The Staff never explained why it assumed the sources were used therapeutically. That assumption was important to Violation L. Such use could have been proved by Hurley's records if the Staff had elected to refute Dr. Bank on the issue. Since 10 C.F.R. § 35.14(b)(5)(i) (under which the violation is charged) requires testing of such source notwithstanding the fact that they were in storage, I find that Violation L does have minor safety significance. But I give it little weight.

Violation K

50. Violation K charges the failure of Licensee to quarterly inventory calibration or reference sources - - specifically, barium-133 and cobalt-60 — as required by 10 C.F.R. § 33.14(f)(2). Failure to inventory reference or calibration sources is similar to Violation J since, by not performing an inventory, the Licensee is unable to verify its control of these sources. These sources may be removed by an unauthorized individual or they may be lost. Without an inventory, the Licensee would not be aware of their unauthorized removal, loss, or theft. The loss of reference or calibration sources is significant because it could cause unnecessary radiation exposures to the public.

51. Licensee's violation is diluted since it did, in effect, inventory semiannually (including wipe tests), as opposed to quarterly. This violation is nevertheless significant since semiannual inventories are half the inventories Hurley is required to make. The violation has safety significance.

Violation M

52. Violation M involves a violation of 10 C.F.R. § 71.5 which states that no licensee shall transport licensed material out of his facility unless the licensee complies with 49 C.F.R. Parts 170-189 (Department of Transportation Regulations). Section 173.475(i) of 49 C.F.R. states that, before each shipment of any radioactive materials package, the shipper shall ensure by examination or appropriate tests that external radiation and contamination levels are within the allowable limits specified in this chapter. Contrary to the cited regulations, the Licensee failed to ensure that the external radiation and contamination levels were within allowable limits for packages containing molybdenum/technetium returned to the manufacturer for disposal. Since the date of license issuance, the Licensee had not performed direct radiation surveys and wipe tests for removable contamination on packages returned to the manufacturer. Stipulation at 11.

53. This violation was a significant safety concern since radiation surveys measure the radiation levels and wipe tests measure the external surface of a package to show the level of removable radioactive contamination. Without radiation surveys and wipe tests, shippers and members of the public can be exposed to unnecessary radiation. Staff Panel (Sreniawski), ff. Tr. 71, at 18; Tr. 199-200 (Sreniawski).

54. Hurley states as its *entire defense* that "at least a portion of this violation is the failure to record. [Therefore] . . . it is of minimal safety significance." Hurley Proposed Findings at 7. Simply stated, that defense is illogical and nonavailing. I find that Violation M has more than minor safety significance.

Violation N

55. Violation N charges that, contrary to 10 C.F.R. §§ 20.401(b) and 20.201(b), since the date of license issuance until after the 1985 NRC inspection, the Licensee failed to maintain records of surveys for technetium-99 contamination. Stipulation at 12.

56. Staff and Hurley both agree that Violation N has relatively low safety significance and I so find. Staff Proposed Findings at 18; Hurley Proposed Findings at 7.

B. Licensee's Violations Compared with Other Licensees

57. The parties have digressed into a debate over the significance of Hurley's record of violations compared to the record of other facilities. Staff Proposed Findings at 19; Hurley's Proposed Findings at 7. It would be unfair to both parties and inconsistent with a sound record to adopt either position.

58. By way of background, the Staff, explaining the significance of Violation A (failure of the Medical Isotope Committee to implement duties), stated that "the number of violations identified by NRC during the last two inspections far exceeded the number found during inspections of the vast majority of licensees of this type." Staff Panel (Sreniawski), ff. Tr. 71, at 8. The cited testimony constitutes the only affirmative charge grounded on a comparative-record violation. No such allegation appears in the Notice of Violation.

59. Cross-examination and redirect examination of Staff witnesses indicate that the charge was not lightly made, and was founded upon substantial experience. Nonetheless, the record in its entirety provides no reliable basis to add a comparative-record theory to the case against Hurley. The record presents no basis upon which I can translate Hurley's enforcement record, compared to that of similar facilities, into a public health and safety standard set out in the regulations, the Enforcement Policy, and license conditions.[5]

60. As for the Staff, it has the prosecutorial discretion to bring an enforcement action against licensees under the Enforcement Policy without justifying the action on a comparative basis. Within the context of this proceeding, Staff's effort to impose a comparative-record theory simply clutters the record.

C. Hurley's 1981 Inspection

61. A previous inspection of Hurley facilities in June 1981 had identified ten violations. Problems identified at that time included employees not being familiar with the terms of the license, patient followup not being conducted, and records not being available. Staff Panel (Stapleton), ff. Tr. 71, at 24-25.

62. As can be seen in the findings above, the problem with Hurley employees not being familiar with the terms of the license persisted until the 1985 inspection. The Staff also testified that, specifically, Violation H (failure to report loss of contact with pacemaker patient) and Violation I (failure to contact pacemaker patients) are repeat violations. *Id.* at 25.

63. During the 1981 enforcement action, the Staff notified Hurley about its weaknesses and gave it an opportunity to rectify deficiencies without further action or civil penalty by the NRC. *Id.*

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[5] The Staff argues that "comparisons, implicitly or explicitly, are routinely made at the regional and national levels so that the NRC can obtain consistency in its enforcement program." Staff Reply Brief at 5. Perhaps so. But the Staff's citation to § VII of the Enforcement Policy does not support that statement. Obviously consistency in the Staff's enforcement program is desirable. That is one of the purposes of the Enforcement Policy. The Staff logically would use comparisons among licensees to pinpoint enforcement targets as a matter of resource allocation. However, until it provides notice to licensees that they must meet a comparative-performance standard and explains that standard, it cannot, as a matter of fair notice to licensees, apply a comparative-performance standard in its civil penalty adjudicative proceedings.

64. Hurley argues, however, that the fact of the 1981 violations is not, in and of itself, of any significant value in deciding the issues. Hurley Proposed Finding 7-8. As far as that narrow argument goes, it is correct. Hurley is not now charged as a separate violation with repeating 1981 violations. Also the Staff does not assert that all ten violations were similar to the situation in 1981. Nor does the *number* of 1981 violations standing alone have significance.

65. The significance of the 1981 violation to this proceeding is that the 1981 notification to Hurley and the chance to correct its deficiencies without a penalty did not bring about compliance with the respective NRC requirements. This is demonstrated by the similar 1985 violations. This finding, in turn, is relevant to whether a civil penalty is required in the present action, as discussed below.

III. REASONS FOR DECISION — CONCLUSIONS OF LAW

A. Introduction — Enforcement Policy

66. Having found that the NRC Staff and Hurley have stipulated to fourteen violations of NRC requirements by Hurley, and having found that many of these violations have more than minor safety significance, I must now consider whether a civil penalty is appropriate. As stated at the outset, the Commission's presiding officers are directed by the terms of the NRC Enforcement Policy to apply the policy in reviewing the Staff's enforcement actions. 10 C.F.R. Part 2, Appendix C, Preamble.

67. The Policy Statement sets out five categories of Severity Levels in each of eight activity areas. In this case the relevant activity areas are set out in Supplement IV, Health Physics; Supplement V, Transportation; and Supplement VI, Materials Operation.

68. Within each activity area Severity Level I is the most significant and Severity Level V the least. Severity Levels I and II, not alleged in this proceeding, "are of very significant regulatory concern involving actual or high potential impact on the public." The most severe level alleged by the Staff is Severity Level III which involves matters of "significant concern." Severity Level IV violations are of course less serious than Level III violations, but are still of more than minor concern. The important aspect of Severity Level IV violations is that, if left uncorrected they could lead to a more serious concern. Finally, Severity Level V violations are of minor safety concern. Policy Statement, § III.

69. The Staff has evaluated each violation separately and urges a specific finding of a respective severity level for each — one Severity Level III, twelve Severity Level IV, and one Severity Level V. The Staff urges that the violations be aggregated into a separate Severity Level III. As noted below, the Policy Statement sanctions the Staff's theory of aggregation.

70. The Policy Statement also provides guidance in determining whether a civil penalty should be imposed for particular severity levels. A civil penalty is to be considered for Severity Level III violations. They may be imposed even for Severity Level IV violations that are similar to previous violations for which effective corrective action was not taken. There are several other factors that must be considered in determining whether a particular severity level violation, or a set of them, calls for a civil penalty, and whether a civil penalty should be increased (by the Staff), reduced, or perhaps entirely remitted. Policy Statement, § V.B. Several of these factors are present in the instant proceeding.

71. Also entering the calculation is a table of base penalties for various types of licensed facilities with power reactors at the top, and medical institutions near the bottom (Table 1A). Another table establishes percentages of the base penalty amount for particular Severity Levels (Table 1B).

72. As complicated as the process may seem, if examined carefully, one can see that it progresses in a logical fashion and provides a sound framework for a fair policy of imposing civil penalties and for other enforcement actions. Moreover, after all of the factors of the Policy Statement are considered, I may look to the overriding purpose of the policy, i.e., whether a civil penalty is needed for lasting remedial action and to deter future violations. *Id.* And in that context, whether a civil penalty is needed will be considered in the light of whether a penalty will improve conduct found to be deficient. It is not imposed as a matter of punishment for the sake of punishment. *Atlantic Research Corp.*, CLI-80-7, 11 NRC 413, 419 (1980).

73. Finally, one of the objectives of the Enforcement Policy is to improve by example the performance of the industry. Policy Statement, § I; *see also Atlantic Research, supra*, 11 NRC at 421.

B. The Severity Levels of the Violations When Considered Separately

74. The Staff argues that all of the violations except F and M should be categorized individually as "at least" Severity Level IV violations. I agree that nine of the violations are Severity Level IV violations:

Violation A	(Isotope Committee)
Violation B	(use of xenon-133 in unauthorized room)
Violation D	(failure to perform surveys of patients' rooms)
Violation E	(failure to report the name of the physician in charge of the pacemaker program)
Violation H	(failure to report loss of contact with pacemaker patients)
Violation I	(failure to contact pacemaker patients)
Violation J	(failure to conduct quarterly inventories of Group VI sources)

Violation K (failure to conduct inventories of calibration sources)
Violation M (failure to examine shipments of radioactive materials)

They fall squarely within the reach of Severity Level IV categories. Each has more than minor safety significance and, more importantly, each of them, if left uncorrected could lead to a more serious concern. Enforcement Policy, § III and Supplements IV, D.5; V, D.2; VI, D.2. Moreover, as noted above, Violations H and I are repeat violations, and for that reason alone might justify a civil penalty in that Hurley did not take effective corrective action following the initial violations and inspections. Enforcement Policy, § V.B.

75. Violation F (the failure to explant, recover, and return for disposal a pacemaker) is, as the Staff alleges, a Severity Level III violation. It is clearly a cause for significant concern as discussed in the findings on that violation, *supra*. It fits neatly into the Severity Level III categories of Activity Area IV (Health Physics), C.10. "Conduct of licensee activities by a technically unqualified person [the funeral director]" and the similar category under Activity Area VI (Materials Operations). Moreover, as the Staff alleges, Violation F represented a significant failure to control licensed material (plutonium-238) and is therefore a Severity Level III violation as defined in Supplements IV, C.11, and VI, C.11.

76. As noted above, I found that Violation C (failure of nursing personnel to wear film badges) had only minor significance. I assigned a Severity Level V to it, but disregarded it nevertheless in assessing the civil penalty.

77. Violation G (failure to report deaths of pacemaker patients) has only minor safety significance. It is, therefore, a Severity Level V violation. However, I do not disregard it in determining whether the violations should be aggregated. Violation L (failure to conduct leak tests on Groups VI sources) has only minor significance because the sources had not been used while in storage. It calls for a Severity Level V designation, and I give it very little weight in assessing the need for a civil penalty. The parties agree that Violation N is a Severity Level V matter. Its significance is lost when considered in light of the overall safety consideration involved in determining whether the violations should be aggregated.

C. The Significance of the Violations When Considered Together

78. The Policy Statement provides that in some cases the violations "may be evaluated in the aggregate and a single Severity Level assigned for a group of violations." *Id.*, § III. The Staff urges aggregation of the individual violations into a Severity Level III violation in addition to Violation F (itself a Severity Level III item). Staff's argument is based on a theory that "the Licensee's 14 violations can be attributed to a common cause, namely Hurley's failure to

exert adequate management and control over its radiation safety program." Staff Proposed Findings at 22.

79. The Staff theory is valid and is supported by the facts. While I have not found that all fourteen violations are to be considered in assessing a civil penalty, or in the aggregation of violations, more than enough violations remain to demonstrate Hurley's general failure to control its radiation safety program. For example, the individual findings relating to the pacemakers (G, H, and I) demonstrate that Hurley had lost control over that program. Having lost control over the program, Hurley also lost significant control of licensed material — a Severity Level III violation in both the Health Physics and Material Operations activity areas. Supplement IV, C.11, and Supplement VI, C.11. The Staff asserts, and I agree, that Hurley's repeated failures to report required information to the NRC (Violations B, E, G, H, and I) are also indications of a lack of management oversight.

80. One aspect of the violations is especially significant with respect to the quality of Hurley's management oversight. Some of the violations were not simply a result of overlooking the requirements or mistake. Rather they were a direct result of ignorance of the conditions of the licenses. The Medical Isotope Committee, at the very top of the nuclear-medicine hierarchy, did not know how often it was required to meet. Violation A, Stipulation at 1. Hurley misunderstood, therefore overlooked, the need to designate a physician authorized for the implant of pacemakers. Violation E, Stipulation at 5. Hurley did not notify the NRC about the death of two pacemaker patients within 24 hours as required by the license because it thought the responsibility rested elsewhere. Violation G, Stipulation at 7. Hurley did not contact pacemaker patients monthly because its staff did not know that it was required to. Violation I, Stipulation at 8. Not only did Hurley fail to exert management oversight and control over its radiation safety program, but, in those cases where it was ignorant of the terms of its license, there was not even an opportunity for such oversight and control.

81. Accordingly, I conclude that Violations A, B, D, E, G, H, I, K, and M (in addition to Violation F) derive from a common cause — management's failure to exercise adequate oversight and control over its radiation safety program. An aggregated Severity Level III violation is assigned to that failure.

D. Whether a Civil Penalty Is Needed

82. The Staff has by a comfortable margin established a threshold case for imposing a civil penalty under the guidance of the Enforcement Policy. Even so, I need not and would not impose the penalty if none was needed. The Enforcement Policy explains that "[c]ivil penalties are designed to emphasize the need for lasting remedial action and to deter future violations." *Id.*, § V.B.

83. There is no doubt that during the May 1985 inspection Hurley's Radiological Safety program needed lasting remedial action and an incentive to avoid future violations. Nor is it disputed that, with respect to the cited violations, Hurley had achieved compliance mostly by June 7, 1985 — which I find to be prompt. Stipulation, *passim*, Staff Proposed Findings at 27.

84. The Staff, however, views the corrections to the program with skepticism. Prompt corrective action, according to the Staff and the Enforcement Policy, is always required. To earn mitigation for Hurley, the corrective action must be "unusually prompt and extensive." Even then such action would serve only to reduce the amount of the penalty to "as much as 50%." Enforcement Policy, § V.B.2. There is no basis on the record before me to conclude that Hurley's corrective actions exceed simple regulatory requirements. Though prompt, compliance was not unusually prompt. Nor was it extensive. Tr. 227 (Robinson).

85. There are, however, other actions taken by Hurley that I have examined to determine whether the need for enforcement action has been obviated.

86. Hurley presented evidence that it had hired a Radiology Administrative Director in July 1984, established a Supervisor's position in Nuclear Medicine in December 1984, contracted with a firm with expertise in nuclear medicine and diagnostic radiology in October 1984, and hired a chief technologist in radiation therapy in March or April 1985 — all in an effort to improve the radiological safety program.[6] Dagenais, ff. Tr. 206, at 1-2; Bank, ff. Tr. 206, at 2; Tr. 214-15 (Bank, Dagenais).

87. However, as the Staff points out, some of these appointments had been in place for many months before the inspections in May 1985, but had not yet proven effective. Therefore, I cannot find that the appointments will bring about any lasting remedial effect or will deter future violations.

88. In *Atlantic Research, supra*, 11 NRC at 420-21, the Commission set a very severe, even harsh, standard for assessing the value of a civil penalty as a deterrent to future violations. There the Commission found that "the very fact that the licensee has instituted procedures that are designed to obviate a repetition of the incident implies quite strongly that the prospect of imposition of penalties in this case has already served a deterrent purpose."[7] Indeed, if I were to find that the licensee would not improve its performance as a consequence of a civil penalty, I would not impose one. Rather, I would terminate the case on that basis and recommend stronger enforcement action.

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[6] Hurley did not refer to this testimony in its proposed findings. This may have been an oversight. Perhaps counsel intended to incorporate by reference Staff Proposed Finding 66 where Staff describes these improvements. In any event, I have carefully considered the testimony of both of Hurley's witnesses.

[7] Of course, in *Atlantic Research*, the Commission did not use the licensee's subsequent improvements to establish culpability — only as evidence that the licensee's conduct would respond to strong enforcement action. *Id.* at 421 n.19.

89. As the record stands, however, I conclude that a civil penalty will improve with lasting effect Hurley's radiological safety program, by emphasizing the need to comply with the conditions of its licenses. Therefore, in the order below, I impose a civil penalty.

IV. THE AMOUNT OF THE CIVIL PENALTY

90. The base penalty for a medical institution under Table 1A for health physics type of violations is $5000. In accordance with Table 1B, 50% of the base penalty is applied for a Severity Level III violation. Therefore, the Staff was justified in imposing a civil penalty of $2500 which I also impose by ratification.

91. Hurley disdains any mitigation of its penalty, seeking instead to have it set aside as inappropriate. Hurley Proposed Findings at 10. Nevertheless, I have examined the mitigating factors set out in the Enforcement Policy for any basis to reduce the penalty and have found none. *Id.*, § V.B.1-V.B.5.

V. ORDER

92. IT IS HEREBY ORDERED that the licensee pay a civil penalty in the amount of Two Thousand Five Hundred dollars within 30 days of the date of this Order, by check, draft, or money order, payable to the Treasurer of the United States and mailed to the Director of the Office of Inspection and Enforcement.

93. Pursuant to 10 C.F.R. § 2.760, this Initial Decision shall constitute the final decision of the Commission 30 days from the date of issuance unless an appeal is taken in accordance with 10 C.F.R. § 2.762. *See also* §§ 2.785 and 2.786. Either party may take an appeal from this Decision by filing a Notice of Appeal within 10 days after service. The Licensee must file a brief supporting its position on appeal within 30 days after filing its Notice of Appeal. If the NRC Staff appeals it must file its supporting brief within 40 days of the filing of its Notice of Appeal. Any further briefing schedules shall be in accordance with Atomic Safety and Licensing Appeal Board direction.

Ivan W. Smith
ADMINISTRATIVE LAW JUDGE

Bethesda, Maryland
March 3, 1987

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR REACTOR REGULATION

Harold R. Denton, Director

In the Matter of	**Docket Nos. 50-289** **50-320**
GENERAL PUBLIC UTILITIES NUCLEAR CORPORATION **(Three Mile Island Nuclear Station, Units 1 and 2)**	**March 6, 1987**

The Acting Director of the Office of Nuclear Reactor Regulation denies a petition filed by Randy King in 1983 on behalf of the Three Mile Island Public Interest Resource Center (TMI-PIRC) and others requesting that the Commission "halt all work at TMI Units 1 and 2 immediately, save for maintenance necessary for safety." TMI-PIRC based its request on the allegations of Richard D. Parks concerning implementation of the quality assurance program and related areas at the Three Mile Island Nuclear Station, Unit 2.

DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206

INTRODUCTION

By letter to then Chairman Palladino of the Nuclear Regulatory Commission dated March 23, 1983, Randy King, on behalf of the Three Mile Island Public Interest Resource Center and others (TMI-PIRC or Petitioners), requested that the Commission "halt all work at TMI Units 1 and 2 immediately, save for maintenance necessary for safety." TMI-PIRC based its request on the allegations of Richard D. Parks concerning implementation of the quality assurance program and related areas at the Three Mile Island Nuclear Station, Unit 2.

On May 17, 1983, TMI-PIRC was informed that its letter would be treated as a request for action pursuant to 10 C.F.R. § 2.206 of the Commission's regulations, and that its request for immediate action had been denied. The Staff's interim response to the petition was set out in "Interim Director's Decision under 10 C.F.R. § 2.206" (DD-83-18, 18 NRC 1296) issued on November 18, 1983. This Decision is the final response to the petition.

The Parks' allegations were more fully set out in DD-83-18 as follows:

> Richard D. Parks, a senior start-up engineer at TMI Unit 2, provided a signed, sworn affidavit to Thomas Devine, Legal Director of the Government Accountability Project, on March 21, 1983. That affidavit, which was provided to the Commission by letter from Thomas Devine dated March 23, 1983, contained Mr. Parks' concerns regarding deficiencies in the recovery program at TMI Unit 2. Several allegations were made concerning a breakdown of TMI management controls and administrative procedures. The licensee was charged with no longer having a working, systematic review process for cleanup activities due to its attempt to meet "unrealistic schedules." Work requests regarding the polar crane were alleged to be inadequate because the request did not cover engineering functions or documentation of design quality assurance. Furthermore, modifications and changes regarding the polar crane were alleged to be intentionally classified as "not important to safety" so as to circumvent administrative procedures. Technical Specification violations were also alleged. As to polar crane testing itself, Mr. Parks alleged that load test procedures had not been developed in accordance with applicable administrative procedures, and that the polar crane refurbishment violated quality assurance with dissimilar replacement of parts of the polar crane. Mr. Parks also alleged that the polar crane safety evaluation report prepared by General Public Utilities Nuclear Corporation (the licensee) was inadequate because significant deficiencies were not addressed or resolved. The allegations also focused on concerns in both the quality assurance and quality control area. In particular, continuous quality assurance violations were said to be evidenced by numerous quality deficiency reports and inadequate corrective action. Furthermore, it was alleged that the management of the Bechtel Power Corporation, project director of the cleanup effort, improperly exerted influence on safety evaluation reports.

18 NRC at 1297-98.

In DD-83-18, I concluded that

> [N]otwithstanding the identified procedural deficiencies in the refurbishment of the polar crane, the program utilized to refurbish, test and operationally verify a working crane was technically sufficient and provides reasonable assurance that the crane is safe for the conduct of the requalification test. Furthermore, the licensee has taken action to correct the quality assurance deficiencies identified by Mr. Parks and substantiated by the OI report. Therefore, the petitioners' request is denied in part to the extent that it seeks to have the NRC prohibit the licensee from conducting a load test of the TMI Unit 2 polar crane or otherwise qualifying that crane for use. The staff will, however, continue to evaluate the merits of Parks' allegations and the OI findings regarding those allegations. The staff reserves judgment as to whether enforcement action is appropriate concerning the allegations and findings related to this

matter. I will issue a final decision with regard to the remaining aspects of the petitioners' request upon the completion of the staff's evaluation.

18 NRC at 1301.

For the reasons discussed below, I have decided that Petitioners' request should be denied.

DISCUSSION

A. TMI-1

1. Safety Significance of Parks Allegations at TMI-1

The Parks allegations and their implications, if any, for operation of TMI-1 were thoroughly considered by the Commission in the TMI-1 restart proceeding. In *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), CLI-85-2, 21 NRC 282 (1985), the Commission determined, for reasons set out in detail,[1] that the harassment issues raised by Parks did not raise significant safety issues for the operation of TMI-1.

In a Memorandum and Order dated May 29, 1985 (CLI-85-9, 21 NRC 1118), the Commission, after extensive hearings in the restart proceeding, authorized TMI-1 to resume operation subject to certain conditions of operation. In CLI-85-9, the Commission concluded:

> In sum, the Commission has found that GPU Nuclear, the current Licensee at TMI-1, represents a significantly improved organization over Metropolitan Edison Company in terms of personnel, organizational structure, procedures, and resources. The Commission is satisfied that the pre-accident management faults at TMI have been corrected such that there is reasonable assurance that TMI-1 can and will be safely operated. The Commission also finds that none of the other concerns raised outside of this proceeding warrant separate enforcement action to keep TMI-1 shut down. Accordingly, the Commission is lifting the immediate effectiveness of the shutdown Orders.

21 NRC at 1157. On October 2, 1985, the NRC Staff authorized the restart of TMI-1 pursuant to CLI-85-9.

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[1] "First, Parks was a Bechtel employee, and Bechtel must bear primary responsibility for his harassment, although GPUN bears responsibility for acts of its contractor." (Footnote 55, "The cleanup at TMI-2 is being conducted as a joint effort by GPU Nuclear and its contractor Bechtel. The limited direct involvement of GPUN employees in any acts of harassment do not raise a significant safety issue because of the remedial acts taken by GPU Nuclear management, *see* Supp. No. 5 [NUREG-0680, TMI-1 Restart] at 13-9, and because of the limited nature of that involvement.") "Second, there has been no showing of a widespread pattern of discrimination against more than one individual. Third, Robert Arnold, the major GPUN official involved, is no longer associated with TMI-1 activities. Fourth, these acts occurred at TMI-2, not TMI-1, and hence they relate to the safe operation of TMI-1 only insofar as there is an overlap of individuals or policies. The Commission finds that the removal of Arnold eliminates any such overlap. Fifth, Licensee has now adopted clear policies to prevent any future harassment or intimidation." 21 NRC at 329 & n.55.

Thus, the effect of Parks' allegations on operation of TMI-1 already have been considered and found by the Commission not to be a basis for preventing operation of TMI-1.

In addition to consideration of the Parks' allegations in the TMI-1 restart proceeding, the Commission has taken enforcement action against GPUN based on allegations of discrimination against Parks. On August 12, 1985, the Director, Office of Inspection and Enforcement served a Notice of Violation and Proposed Imposition of Civil Penalty (NOV) on GPUN. The NOV alleged that Richard D. Parks was discriminated against for engaging in protected activities in reporting safety problems to his management, requesting assistance from the NRC, and commencing a proceeding with the Department of Labor. On March 4, 1986, after considering GPUN's response to the NOV, the Commission imposed a civil penalty in the amount of $64,000.[2]

2. *Current TMI-1 SALP Report*

On October 24, 1986, the NRC issued a Systematic Assessment of Licensee Performance (SALP) report for TMI-1 for the period September 1985 through April 1986. A SALP is an integrated NRC Staff effort to collect available observations and data on a sampling and periodic basis and evaluate the Licensee's performance based on this information.

Of eleven functional areas, six were rated a high level of performance (Category 1), four were rated satisfactory performance (Category 2), and one was rated minimally satisfactory (Category 3). The NRC's overall assessment is that the Licensee has continued to demonstrate competent management and has generally exercised effective control of activities.

A SALP report for the period May 1986 through October 1986 was issued on January 5, 1987. Licensee response to the report has not been received. Eight of the ratings of the eleven functional areas remained the same. Of the remaining three, one improved from a category 2 to a category 1, another improved from a category 3 to a category 2, and the third was not rated. The NRC's overall assessment for that period is:

> Overall, the licensee has continued to operate TMI-1 safely with a generally strong orientation toward nuclear safety. The organization is comprised of highly-qualified and well-trained personnel. Many licensee initiatives go beyond regulatory requirements.

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[2] On March 20, 1986, the Licensee requested a hearing. A notice of hearing was issued and the proceeding presently is in the discovery stage.

3. *Conclusion with Respect to TMI-1*

For the reasons described above, the Parks allegations do not warrant "halting all work" at TMI-1.

B. TMI-2

1. *Safety Significance of Parks Allegations at TMI-2*

After release of the 9/1/83 interim OI Report addressing the Parks allegations, the Commission asked the NRC Staff to review the report. The Staff's technical review (SECY 84-36) was sent to the Commission on January 25, 1984. The Staff agreed with many of the findings of the OI Report and concluded:

> The Staff is of the opinion that separate organizations operating semi-independently on the cleanup effort during the time period that was under investigation contributed significantly to the management deficiencies and instances of administrative noncompliance. The licensee has undergone an extensive reorganization integrating GPUN and contractor organizations under one management organization. As of November 1, 1983, this reorganization has been essentially completed. In addition, the licensee has subsequently introduced a new administrative procedural system to improve control of the cleanup activities.
>
> As noted above, the OI Report did not attempt and was not expected to evaluate the safety significance of the instances of procedural noncompliance or the management deficiencies. An evaluation of safety significance has been conducted to place the deficiencies in perspective. The Staff, after a careful evaluation, has concluded that the specific deficiencies in plant activities or modifications covered by the OI report, particularly the refurbishment of the polar crane, did not result in a significant increase in the risk to public health and safety.

On January 9, 1985, after extensive safety review, the NRC approved use of the polar crane to its load rating capacity of 170 tons.[3]

2. *Recovery Quality Assurance Plan for TMI-2*

One of the principal allegations by Parks dealt with the adequacy of the GPUN Quality Assurance/Quality Control Department. After issuance of the technical review (SECY 84-36) of the September 1983 Interim OI Report, the Staff conducted a special inspection on the implementation of the GPUN Recovery Quality Assurance Plan (RQAP) for TMI-2. The purpose of this inspection was to examine and assess the effectiveness of the Licensee's management controls as promulgated in the RQAP. The RQAP describes the Licensee's

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[3] Letter from B.J. Snyder, Program Director, Three Mile Island Program Office, Office of Nuclear Reactor Regulation, to GPU Nuclear Corporation (January 9, 1985).

formal program to assure that the requirements of applicable regulations, codes, and standards are applied in plant modifications, systems, and activities that are determined to be important to safety or nuclear safety related, to ensure the health and safety of the public and site personnel. In addition to examining the implementation of the RQAP, the inspectors examined the management controls that are applied to modifications, systems, and activities classified as not important to safety. That inspection (50-320/84-12, dated October 10, 1984) found that there is an extensive, detailed, and largely effective QA program at TMI-2.

3. *Enforcement Actions at TMI-2*

On February 3, 1984, the Office of Inspection and Enforcement (IE) issued a Notice of Violation (NOV) for several procedural control violations that involved the failure of GPUN to adequately control activities to ensure compliance with GPUN-approved procedures for refurbishment of the reactor building polar crane. Since the Staff found that each procedural violation was of minor safety significance which, if left uncorrected, could lead to more serious concerns, the violations were characterized in the aggregate as a Severity Level IV problem in accordance with the Enforcement Policy, 10 C.F.R. Part 2, Appendix C. GPUN responded to the NOV on February 28, 1984, setting out corrective actions that had been taken and others proposed for future implementation. By letter from Richard C. DeYoung, Director of IE, to GPU Nuclear on April 18, 1984, the NRC acknowledged those corrective actions and indicated that the Staff would review those actions in future inspections.

GPUN advised the NRC by letters dated October 5, 1984, and October 8, 1984, that a modification had been made to the reactor building polar crane without proper engineering review and documentation. This modification, made in 1982, involved the addition of a hand release mechanism which had been found to directly affect the operation of the polar crane main hoist brakes. The Office of Investigations (OI) investigated this matter. The OI report was issued on September 23, 1985.

On September 29, 1986, the Staff issued an NOV and proposed imposition of civil penalty in the amount of $40,000 as a result of the modification to the main hoist brakes of the polar crane which was carried out without following the required GPUN-approved procedures. The NRC recognized in that enforcement action that the addition of the hand release mechanism appeared to be another more serious example of the original violations in which modifications were made to the reactor building polar crane without proper engineering review and documentation. The Staff concluded that GPUN and Bechtel Northern Corporation personnel were aware of the requirements to comply with GPUN-approved procedures and that Bechtel was not complying with them with regard

to refurbishment of the polar crane. The Staff concluded, therefore, that the violation apparently was willful and, in accordance with the General Statement of Policy and Procedure for NRC Enforcement Actions, categorized the violation as a Severity Level III. On October 29, 1986, GPUN paid the $ 0,000 civil penalty.

4. Current TMI-2 SALP Report

On May 8, 1986, the NRC issued a SALP report for TMI-2 for the period May 1, 1984, to February 28, 1986.

Six of the functional areas that were examined in detail have some relationship to the allegations raised by Mr. Parks. These are (1) shutdown plant operations/defueling preparations, (2) radiological controls, (3) effluent monitoring and control, (4) quality assurance, (5) maintenance, and (6) design, engineering, and modifications. Four out of the six categories were rated as a high level of performance (Category 1) and two as a satisfactory performance (Category 2). The SALP concluded that:

> Overall, the licensee has carried out its cleanup and shutdown activities in a safe and technically competent manner. The licensee's emphasis on safety has been demonstrated by a conservative approach and a generally high degree of management involvement in TMI-2 issues.

5. Conclusion with Respect to TMI-2

For the reasons described above, the Parks allegations do not warrant halting all work at TMI-2.

CONCLUSION

The allegations made by Mr. Parks in March 1983 concerning implementation of the quality assurance program at TMI-2 do not warrant the halting of all work at TMI Units 1 and 2. Petitioners' request is denied. A copy of this Decision

will be filed with the Secretary for the Commission's review in accordance with 10 C.F.R. § 2.206(c) of the Commission's regulations.

Frank J. Miraglia, Acting Director
Office of Nuclear Reactor
Regulation

Dated at Bethesda, Maryland,
this 6th day of March 1987.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR REACTOR REGULATION

Harold R. Denton, Director

In the Matter of **Docket No. 50-344**

PORTLAND GENERAL ELECTRIC COMPANY, *et al.*
(Trojan Nuclear Plant) **March 5, 1987**

By Petition dated November 3, 1986, submitted pursuant to 10 C.F.R. § 2.206, John Arum, on behalf of Forelaws On Board, Elaine Kelley, and Lloyd K. Marbet (Petitioners) requested the Nuclear Regulatory Commission (NRC) to institute a proceeding to suspend the operating license of the Trojan Nuclear Plant, to hold public hearings on such a proceeding, and to suspend immediately the operating license for the Trojan facility pending completion of such a proceeding. The Petitioners alleged that the Portland General Electric Company, the Licensee, failed to disclose the magnitude and extent of certain seismic design deficiencies in the walls of the control building and the turbine building, and diesel generator enclosures.

The Director of the Office of Nuclear Reactor Regulation denied Petitioners' requests because the Petitioners raised technical issues that the Licensee, the Staff, and other parties had resolved in proceedings before the Atomic Safety and Licensing Board and the Atomic Safety and Licensing Appeal Board, and the Petitioners had submitted no new information that would cause the Staff to alter its previous decisions.

RULES OF PRACTICE: PETITIONS UNDER 10 C.F.R. § 2.206

The Nuclear Regulatory Commission, having already considered and resolved the technical issues that a petitioner raises, need not reconsider those issues if the petitioner provides no new information. *See Northern Indiana Public Service Co.* (Bailly Generating Station, Nuclear-1), CLI-78-7, 7 NRC 429, 434 (1978),

aff'd sub nom. Porter County Chapter of the Izaac Walton League of America v. NRC, 606 F.2d 1363 (D.C. Cir. 1979).

DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206

INTRODUCTION

By Petition dated November 3, 1986,[1] John Arum, on behalf of Forelaws On Board, Elaine Kelley, and Lloyd K. Marbet (Petitioners) requested the Nuclear Regulatory Commission (NRC) to institute a proceeding to suspend the operating license of the Trojan Nuclear Plant, to hold public hearings on such a proceeding, and to suspend immediately the operating license for the Trojan facility pending completion of such a proceeding. (Petition at 1, 7).[2] By letter dated December 16, 1986, the NRC acknowledged receipt of the Petition and denied Petitioners' request for immediate suspension of the Trojan Nuclear Plant operating license. The instant Decision addresses in detail Petitioners' technical and regulatory concerns.

The Petitioners allege that the Portland General Electric Company (Licensee) failed to disclose to the NRC conditions that undermine the safety of the Trojan facility in case of a seismic event. The Petitioners allege that the Licensee failed to disclose the magnitude and extent of certain design deficiencies at the Trojan facility, specifically alleging structural deficiencies in the walls of the control building and the turbine building, and the diesel generator enclosures. The Petitioners allege that because of these deficiencies, the Licensee has not satisfied the General Design Criteria for Nuclear Power Plants, 10 C.F.R. Part 50, Appendix A (1986), and the Seismic and Geologic Siting Criteria for Nuclear Power Plants, 10 C.F.R. Part 100, Appendix A (1986). Furthermore, the Petitioners allege that the facility is not designed to withstand the safe shutdown earthquake. In addition to alleging that the Licensee failed to disclose this information to the NRC, the Petitioners allege that the Licensee violated the reporting requirements of 10 C.F.R. Part 21 (1986). The NRC has thoroughly investigated and evaluated the masonry wall design at Trojan. Public proceedings were conducted on these de-

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[1] Request for Institution of Proceeding to Suspend Operating License (Petition).

[2] In support of the Petition, Petitioners submitted a number of documents. Petitioners state that Portland General Electric and Bechtel Corporation agreed not to disclose these documents. (Petition at 2.) By letters dated November 24, 1986, the NRC notified Portland General Electric and Bechtel of the NRC's receipt of the documents attached to the Petition. By letters dated December 11, 1986, and December 15, 1986, Bechtel Corporation and Portland General Electric Company, respectively, informed the NRC that those documents are subject to a protective order issued in the case of *Portland General Electric Co. v. Bechtel Corp.*, and requested the NRC to refrain from making them available to the public. *Portland General Electric Co. v. Bechtel Corp.*, Civ. No. 79-103 BE (D. Or. June 29, 1979).

sign issues between 1978 and 1981. As explained below, the NRC has resolved all the technical concerns the Petition raises. Therefore, the Petition provides no basis to suspend operation of the Trojan Nuclear Plant. For reasons discussed below, I deny Petitioners' requests.

DISCUSSION

The major areas of technical concern, as expressed in the Petition, can be summarized as follows:

A. Calculational errors in the design of masonry block shear walls (Petition at 3);
B. Inadequate analytic modeling of structures resulting in inadequate resistance to seismic forces in the control building complex and the turbine building (*id.* at 2, 3);
C. Seismic inadequacy of the double wythe block walls of the control building complex and the turbine building due to:
    1. Discontinuity of the steel reinforcing rebar within the walls (*id.* at 3); and,
    2. Void space in the concrete grout used to fill the space between the wythes and connect them (*id.* at 4); and,
D. Seismic inadequacy of the double wythe block walls of the diesel generator enclosures due to void space in the concrete grout used to fill the space between the wythes and connect them (*id.*).

While Trojan was shut down for refueling in April 1978, the Bechtel Power Corporation (Bechtel), architect-engineer for the Licensee, studied the feasibility of cutting an opening and installing a security window in a wall of the control building. During this evaluation, Bechtel identified potential design errors with respect to the shear walls of the Trojan facility's control building. As the NRC stated in its Order for Modification of License, the Licensee promptly reported this potential nonconformance to the NRC's Office of Nuclear Reactor Regulation on April 14, 1978. 43 Fed. Reg. 23,768 (1978). The NRC Staff's ensuing investigation of the matter led it to conclude that, as a result of those errors, the design of the control building did not meet the operating basis earthquake[3] seismic criteria. At the same time, however, the Staff determined

[3] The "Operating Basis Earthquake" is defined as follows:

> (d) The "Operating Basis Earthquake" is that earthquake which, considering the regional and local geology and seismology and specific characteristics of local subsurface material, could reasonably be expected to affect the plant site during the operating life of the plant; it is that earthquake which produces the vibratory growth [*sic*] motion for which those features of the nuclear power plant necessary for continued operation without undue risk to the health and safety of the public are designed to remain functional.

(Continued)

that there was adequate assurance of safety in the event of a safe shutdown earthquake[4] and that the plant could be shut down safely in such an event, notwithstanding the design errors. 43 Fed. Reg. 23,768 at 23,769 (1978).

On May 26, 1978, the NRC's Acting Director of Nuclear Reactor Regulation issued an Order for Modification of License that directed the Licensee to perform modifications to the control building to bring it into substantial compliance with the requirements of the operating license. 43 Fed. Reg. 23,768 (1978). The order stated that the Staff was prepared to allow the interim resumption of operation of the reactor pending the completion of the modifications, provided that the Licensee observed certain conditions. The order gave the right to a hearing to the Licensee or any other person whose interest might be affected by the order.

Several organizations and individuals successfully petitioned for intervention and for a hearing. In addition, the Atomic Safety and Licensing Board (Board) granted the State of Oregon leave to participate in the proceeding under the interested State provisions of 10 C.F.R. § 2.715(c) (1978).

The Board divided the proceeding into two phases. In Phase I, the Board considered the safety of interim operation prior to modification of the control building. In Phase II, the Board considered the proposed modifications from a safety standpoint. The Board took evidence over a total of 15 hearing days on whether the facility should be allowed to operate pending a determination of the precise nature of the required modifications.

On December 21, 1978, the Board rendered a partial initial decision on the interim operation question (Phase I). LBP-78-40, 8 NRC 717 (1978), *aff'd*, ALAB-534, 9 NRC 287 (1979). Based on its findings, the Board concluded that reasonable assurance existed that interim plant operation would not endanger the public health and safety so long as the license amendment authorizing such operation contained the following conditions:

> (a) no modification which may reduce the strength of the existing shear walls shall be made without prior NRC approval; and
>
> (b) in the event that an earthquake occurs that exceeds the facility criteria for a 0.08*g* peak ground acceleration at the plant site, the facility shall be brought to a cold shutdown condition and be inspected to determine the effects, if any, of the earthquake. Operation cannot resume under these circumstances without prior NRC approval.

Seismic and Geologic Siting Criteria for Nuclear Power Plants, 10 C.F.R. Part 100, Appendix A, § III(d) (1986). The Final Safety Analysis Report (FSAR) for the Trojan facility defines Trojan's operating basis earthquake as an earthquake with peak ground acceleration of 0.15*g*. (FSAR § 3.7.)

[4] The "Safe Shutdown Earthquake" is defined as follows:

> (c) The "Safe Shutdown Earthquake" 135 is that earthquake which is based upon an evaluation of the maximum earthquake potential considering the regional and local geology and seismology and specific characteristics of local subsurface material. It is that earthquake which produces the maximum vibratory ground motion for which certain structures, systems, and components are designed to remain functional.

10 C.F.R. Part 100, Appendix A, § III(c) (1986). The FSAR defines the safe shutdown earthquake for the Trojan facility as an earthquake with peak ground acceleration of 0.25*g*. (FSAR § 3.8.)

8 NRC at 748.

The Board further directed:

> Operation of the Trojan facility pursuant to this amendment may commence only after completion of such additions and modifications of pipe supports and pipe restraints, as are necessary to assure that piping systems within the Control, Auxiliary, and Fuel Building Complex required for safe shutdown and to maintain offsite doses from accidents to within the guidelines of 10 C.F.R. Part 100, are qualified to withstand earthquakes up to and including the 0.25*g* SSE.

Id.

During the course of the proceeding, structural concerns relating to the capability of certain masonry walls to withstand imposed piping loads were also identified. This came to be labeled the "wall problem." Because of delays in conducting an evidentiary hearing on Phase II and because of the Board's concerns over the wall problem, the Board entered a modification of its December 1978 decision precluding resumption of operation pending further order from the Board. LBP-79-32, 10 NRC 699 (1979). (Trojan was already shut down at that time for an unrelated reason.)

The Board held the Phase II hearing in Portland, Oregon, during March and April of 1980. On July 11, 1980, the Board rendered an initial decision on the control building modifications (Phase II). LBP-80-20, 12 NRC 77 (1980), *appeal dismissed*, ALAB-627, 13 NRC 20 (1981). Based on its findings, the Board concluded that (1) the proposed modifications would satisfy the May 26, 1978 order by bringing the control building into substantial compliance with the requirements of the operating license and by restoring the intended design margins; (2) the wall problem had been adequately explored and resolved; and (3) the resumption of power operation, as stipulated by the license conditions, would not endanger the health and safety of the public. 12 NRC at 100, 111. The decision also imposed requirements upon the conduct of the control building modification program. *Id.* at 112-16.

The Staff continued its extensive involvement with the resolution of the wall problem and on May 27, 1986, informed the Licensee by letter that the Staff had concluded that all modifications had been completed and that there was reasonable assurance that the safety-related masonry walls would withstand the specified design load conditions. The control building complex and safety-related masonry block walls, as currently built, meet the requirements of the operating license.

The Staff's Order for Modification of License, 43 Fed. Reg. 23,768 (1978), the Board's partial initial decision, LBP-78-40, *supra*, and the Board's initial decision, LBP-80-20, *supra*, discuss in detail and resolve all Petitioner's technical concerns. In particular, the Board specifically considered steel rebar discontinuity and wall strength miscalculation in its initial decision. LBP-80-20, 12 NRC at

86. The Board considered concrete material properties, including void space, in both of its decisions. *Id.* at 94, 95; LBP-78-40, *supra*, 8 NRC at 729. Moreover, the Board thoroughly analyzed the recalculation of the control building walls' resistance to seismic forces throughout its opinions. As the preceding analysis demonstrates, the NRC has extensively considered the Petitioners' technical concerns, including public hearings. The Commission, having already considered and resolved those concerns, is not required to reconsider them in a case such as this, in which Petitioners provide no new information. *See Northern Indiana Public Service Co.* (Bailly Generating Station, Nuclear-1), CLI-78-7, 7 NRC 429, 434 (1978), *aff'd sub nom. Porter County Chapter of the Izaac Walton League of America v. NRC*, 606 F.2d 1363 (D.C. Cir. 1979).

In summary, the Petition does not express any technical concern that the Staff or the Board did not consider during the past proceedings, nor did it provide any new information that would cause the Staff to alter its previous conclusions.

In addition to the technical concerns addressed above, Petitioners allege that the Licensee violated the reporting requirement of 10 C.F.R. § 21.1 by failing to inform the NRC of the defects in the control building wall design and construction in 1978. As described above, the Licensee did inform the NRC of these problems on April 14, 1978. The Petition contains no information, other than Petitioners' unsupported allegation, indicating that the Licensee violated § 21.1 by not reporting the defects in the control building walls. Consequently, there is no basis for any NRC action on the allegation of a violation of § 21.1.

CONCLUSION

Based on the foregoing discussion, I have determined that the Petitioners' claims that the Licensee has not satisfied the requirements of the General Design Criteria for Nuclear Power Plants, 10 C.F.R. Part 50, Appendix A (1986), and the Seismic and Geologic Siting Criteria for Nuclear Power Plants, 10 C.F.R. Part 100, Appendix A (1986), and that the Licensee violated the reporting requirements of 10 C.F.R. Part 21 (1982), are not supported. Thus, the Petition provides no adequate basis for ordering the shutdown of the Trojan Nuclear Plant. I hereby deny the Petitioners' request for proceedings to suspend the operating license of the Trojan Nuclear Plant pursuant to 10 C.F.R. § 2.206 (1986).

The NRC will place a copy of this determination in the Commission's Public Document Room at 1717 H St., NW, Washington, DC 20555, and in the Local Public Document Room for the Trojan Nuclear Plant located at the Multnomah County Library, 801 SW 10th Ave., Portland, OR. A copy of this document will also be filed with the Secretary of the Commission for its review in accordance with 10 C.F.R. § 2.206(c) (1986) of the Commission's regulations.

In accordance with § 2.206(c) (1986) of the Commission's Rules of Practice, this Decision will constitute the final action of the Commission twenty-five (25) days after the date of issuance, unless the Commission on its own motion institutes review of this Decision within that time.

Frank J. Miraglia, Acting
Director
Office of Nuclear Reactor
Regulation

Dated at Bethesda, Maryland
this 6th day of March, 1987.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS

Hugh L. Thompson, Jr., Director

In the Matter of Docket No. 70-364

BABCOCK & WILCOX
(Parks Township, Pennsylvania
Facility)

March 13, 1987

The Director of the Office of Nuclear Material Safety and Safeguards denies petitions filed by Frances L. Munko and Mildred E. Chelko requesting action with regard to the Babcock and Wilcox Parks Township facility. The Petitioners requested that a proceeding be instituted to revoke the license for the facility and that the site be cleaned up, and Ms. Chelko further requested that any other site that contained material from previous activities or licenses be cleaned up. The Petitioners had asserted that present and past releases and residual contamination from activities at the facility posed a threat to their health and safety and, in addition, Ms. Munko asserted that since the Licensee had terminated fuel production operations at the facility, this constituted the end of plant life and necessitated decontamination of the facility for release to unrestricted use.

RULES OF PRACTICE: SHOW-CAUSE PROCEEDING

Where petitioners have not provided the factual basis for their request with the specificity required by 10 C.F.R. § 2.206, action need not be taken on their request.

AEA: SCOPE OF INTERESTS PROTECTED

The Commission has determined that the NRC need not consider psychological impact or mental stress to the public in exercising its regulatory responsibilities under the Atomic Energy Act.

NEPA: SCOPE OF INTERESTS PROTECTED

The Supreme Court has held that the NRC need not consider psychological impact or mental stress to the public under the National Environmental Policy Act (NEPA).

AEA: SCOPE OF INTERESTS PROTECTED

Absent any basis for application of financial protection under § 170, protection of economic interests is not within the scope of the Atomic Energy Act.

DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206

INTRODUCTION

On July 31, 1986, Frances L. Munko filed petitions pursuant to 10 C.F.R. § 2.206 requesting that the Director of the Office of Nuclear Reactor Regulation, the Director of the Office of Inspection and Enforcement (IE), and the Director of the Office of Nuclear Material Safety and Safeguards (NMSS) institute a proceeding to revoke the license for the Babcock & Wilcox (B&W) Parks Township, Pennsylvania facility and to require that the site be cleaned up. On August 1, 1986, Mildred E. Chelko filed petitions pursuant to § 2.206 requesting that the Director of IE and the Director of NMSS institute a proceeding for the same purpose and, in addition, require that any other site that contains material or waste from B&W's previous activities and licenses be cleaned up.

The Petitioners assert as a basis for their requests that present and past releases and residual contamination from licensed activities at the facility pose a threat to their health and safety. In addition, Ms. Munko asserts that since the Licensee has terminated fuel production operations at the Parks Township facility, this constitutes the end of plant life and that, in accordance with License Condition 22, B&W must decontaminate the facility so that it can be released for unrestricted use. Ms. Chelko further asserts that the ultrahazardous operations conducted at the facility have caused the value of her property to decline. She also expresses concern that there are no NRC or Environmental Protection Agency (EPA) regulatory limits governing the maximum amount of radioactivity that may be in the soil on her property.

The petitions have been appropriately referred to me for a decision. For the reasons given below, I have concluded that the Petitioners' requests should be denied.

DISCUSSION

Background

The Parks Township facility was established as a commercial venture by Nuclear Materials and Equipment Corporation in 1960, principally to design, develop, and fabricate nuclear fuels and sources containing plutonium. Other activities such as byproduct source preparation and hafnium metal production were added later. In 1967, the license authorizing these activities was transferred to a subsidiary of Atlantic Richfield Company, which continued these activities until 1971, when this subsidiary was purchased and the license acquired by Babcock & Wilcox. A plant to process high-enriched uranium fuel materials was authorized by license amendment dated June 20, 1973, after completion of appropriate safety and environmental reviews. These high-enriched uranium operations were discontinued by B&W in 1978.

In 1980, B&W decided to discontinue plutonium fuel fabrication, and embarked on a program to decontaminate the building in which this activity had been conducted. All plutonium processing equipment was removed and shipped for disposal, thus removing the major fraction of the plutonium contamination associated with the fuel processing operations. B&W's license was amended on December 9, 1981, after NRC review and issuance of a Safety Evaluation Report (SER) to delete authority to conduct fuel processing operations. Concurrently, B&W decided to undertake new activities involving the servicing, repair, refurbishment, and decontamination of nuclear reactor components and equipment (designated as nuclear service operations), and on October 18, 1983, after appropriate NRC reviews and issuance of an SER, B&W's license was amended to authorize receipt of nuclear reactor components for decontamination and refurbishment. Nuclear service operations now comprise the bulk of the work at the Parks Township facility, and building decontamination activities continue also.

On October 31, 1984, B&W requested authority to operate a Volume Reduction Services Facility (VRSF) that would use portions of the plutonium building to receive and reduce, by either use of a hydraulic high-force compactor or by incineration, low-level radioactive wastes principally from other licensees prior to return to the originator, or shipment for disposal. On July 24, 1985, the Commission ordered that an informal hearing be held on this request. A hearing was held before an Administrative Judge on September 30 to October 2, 1986, during which fourteen complaints related to the proposed VRSF were considered. In a decision issued December 23, 1986, LBP-86-40, 24 NRC 841, the Judge found *inter alia* that, in spite of compliance problems during the early years of its operation of the facility, B&W had become a responsible licensee with a very good record of compliance during the past 10 years. *Id.* at

867. The Judge authorized the Director of NMSS to issue an amendment to B&W's license authorizing operation of the VRSF utilizing the compactor.[1] On December 31, 1986, this amendment was issued.

The Petitioners raise several issues as a basis for their request for relief. For the most part, however, the Petitioners have not provided the factual basis for their request with the specificity required by § 2.206, and for this reason, action need not be taken on their request. *See, e.g., Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), DD-85-11, 22 NRC 149, 154 (1985). Nonetheless, the issues raised in the petitions have been evaluated to the extent possible without further specificity. As discussed below, there is no basis to take the actions requested.

Releases from Licensed Activities and Residual Contamination

The Petitioners assert that past releases and residual contamination from licensed activities are a threat to their health and safety and have caused them mental stress. However, the Petitioners provide no information regarding any particular conditions or events that might have caused releases of radioactive materials from the Parks Township facility that would have resulted in concentrations in air or water in unrestricted areas exceeding NRC limits, or that would have resulted in offsite residual contamination. The NRC has reviewed the records maintained by the Licensee during site inspections and the semi-annual effluent monitoring reports submitted by the Licensee. These indicate that the NRC annual limits specified in 10 C.F.R. Part 20 have not been exceeded by B&W off site or at the site boundary. Offsite monitoring of air, water, soil, and vegetation by the Commonwealth of Pennsylvania over the past 10 years has confirmed the information in these records. Furthermore, Oak Ridge Associated Universities (ORAU), in a study performed in 1981-82, found no evidence that radioactive materials in waste had migrated out of the trenches where the waste had been buried by the former licensees. See "Radiological Assessment of the Parks Township Burial Site (Babcock & Wilcox), Leechburg, Pennsylvania" (December 1982).

By letter dated October 17, 1986, the Licensee responded to the petitions submitted by Ms. Munko and Ms. Chelko, and submitted information regarding past releases from the facility. The information provided by B&W supports the facts documented above.

Based on the available information, there is no merit to the Petitioners' assertion that past releases occurred or residual contaminations exist as a result of activities that have been conducted at the Parks Township facility which would

[1] The Judge held that the amendment authorizing operation of the incinerator would not be issued until certain testing was completed and other conditions had been met.

pose a threat to their health and safety. Consequently, these unsubstantiated concerns do not provide an adequate basis for granting the relief requested by the Petitioners.[2]

Decontamination of the Facility

Ms. Munko asserts that since the Licensee has terminated fuel production operations, this corresponds to the end of plant life as defined in 10 C.F.R. Part 70, and the plant, therefore, should be decontaminated in accordance with License Condition 22.

Sections 30.36 and 70.38 of 10 C.F.R. provide that each licensee shall request termination of its license when it decides to terminate all activities involving materials authorized under the license, shall terminate use of such material, and shall remove radioactive contamination to the extent practicable. License Condition 22 provides that B&W shall decontaminate the Parks Township facility at the end of plant life so that the facility and grounds can be released for unrestricted use. The intent of these regulations and license condition is to prevent abandonment of the facility without decontamination prior to license termination.

As described above, following cessation of fuel processing operations in 1980, B&W has been actively engaged in nuclear service operations at the Park Township facility, and has requested authority to conduct low-level waste volume reduction. Thus, it is clear that B&W has not decided to terminate all licensed activities at the facility. The term "end of plant life," as used in License Condition 22, is meant to refer to the cessation of all licensed activities. Consequently, there is no merit to the Petitioner's assertion that the Licensee should be required to complete decontamination of the facility at this time.

Limits of Radioactivity in Soil

Ms. Chelko expresses concern regarding the lack of NRC or EPA regulatory limits governing the maximum amount of radioactivity that may be in the soil of her property. Although there are no NRC or applicable EPA regulations specifically governing the maximum amount of radioactivity in soil, nevertheless, there are limits upon the radioactivity that may be released into the environment, as set forth in 10 C.F.R. Part 20. As indicated above, there is no indication that these

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[2] Petitioners argue that such releases and contamination have caused them mental stress as well as threatened their health and safety. In this regard, the Commission has determined that the NRC need not consider psychological impact or mental stress to the public in exercising its regulatory responsibilities under the Atomic Energy Act. *In re Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), CLI-82-6, 15 NRC 407 (1982). The Supreme Court further held that the NRC need not consider these factors under the National Environmental Policy Act (NEPA). *Metropolitan Edison Co. v. People Against Nuclear Energy*, 460 U.S. 766 (1983).

limits have been exceeded. In addition, the NRC has published guidelines for concentrations of uranium and thorium in soil. *See* 46 Fed. Reg. 52,061 (Oct. 23, 1981). Furthermore, the results of the 1982 ORAU study discussed above indicated that radioactivity in soil at locations surrounding the Parks Township facility was at background levels and well within the guidelines set by the NRC.

Effects of Operations on Property Value

Ms. Chelko asserts that ultrahazardous operations conducted at the Parks Township facility have caused the value of her property to decrease. In support of this assertion, she has submitted an appraisal done on neighboring property which shows that it sold at a price approximately 13% below its appraised value.

Absent any basis for application of financial protection under § 170, protection of economic interests is not within the scope of the Atomic Energy Act. *See, e.g., Portland General Electric Co.* (Pebble Springs Nuclear Plant, Units 1 and 2), CLI-76-27, 4 NRC 610, 614 (1976); *Long Island Lighting Co.* (Jamesport Nuclear Power Station, Units 1 and 2), ALAB-292, 2 NRC 631, 638 (1975).[3] Accordingly, any decrease in property value that may be incidental to the licensed activities by B&W does not afford a basis for taking the action requested by the Petitioner.

CONCLUSION

For the reasons stated in this Decision, the Petitioners' requests that I institute a proceeding to revoke the license for B&W's Parks Township facility and require that the site be cleaned up are denied.[4]

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[3] As there is no evidence of any nuclear incident, any financial protection required under § 170 would not be available.

[4] Ms. Chelko requests that any other site containing material or waste from B&W's previous activities and licenses be cleaned up. The Petitioner has not provided any information as to which sites require such action or set forth any specific facts that provide the basis for this concern. *See Limerick, supra*, 22 NRC at 154. The NRC is aware of only one other site in the area containing material or waste from B&W's previous activities and licenses. That site is B&W's Apollo, Pennsylvania facility where uranium fuel fabrication has been conducted under NRC License No. SNM-145. The site is currently being decontaminated by the Licensee, although B&W has indicated that it plans to request NRC authority for conducting other licensed activities at the facility. Further action on the Petitioner's request is therefore not warranted.

A copy of this Decision will be filed with the Secretary of the Commission for the Commission's review in accordance with 10 C.F.R. § 2.206(c).

For the Nuclear Regulatory
Commission

Hugh L. Thompson, Jr., Director
Office of Nuclear Material
Safety and Safeguards

Dated at Silver Spring, Maryland,
this 12th day of March 1987.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Lando W. Zech, Jr., Chairman
Thomas M. Roberts
James K. Asselstine
Frederick M. Bernthal
Kenneth M. Carr

In the Matter of

Docket Nos. 50-443-OL-1
50-444-OL-1
(Onsite Emergency Planning and Safety Issues)

PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE, *et al.*
(Seabrook Station, Units 1 and 2)

April 9, 1987

The Commission undertakes *sua sponte* review of the issue of whether a low-power license may issue before a utility applicant submits a radiological emergency plan for the facility's entire plume exposure pathway emergency planning zone. The Commission determines that low-power operation should not be authorized until the applicant has submitted an emergency plan for the plume exposure emergency planning zone, even though a demonstration of offsite emergency preparedness is not required for low-power operation. The Commission believes that in the special circumstances of this case, it is sound regulatory policy to require the filing of a complete radiological offsite emergency plan prior to issuance of any operating license, including a low-power license, for Seabrook.

The Commission distinguishes the issues it faced in its review of the *Shoreham* proceeding where a utility offsite emergency plan had been filed, but where uncertainty existed regarding the merits of the emergency plan. The Commission notes that submittal of a complete offsite plan makes possible a

summary review to determine if adequate emergency planning is at least possible for Seabrook.

MEMORANDUM AND ORDER

INTRODUCTION

This decision completes the Commission's review of a single issue: whether a utility applicant must submit a radiological emergency plan (either a governmental plan or a utility plan) for the entire plume exposure pathway emergency planning zone (EPZ) for the facility before the Commission may issue any operating license, including one conditioned to permit only fuel loading or operations at less than 5% power. It is uncontroverted that when this issue came before the Commission no plan had been submitted for that entire portion of Massachusetts that is situated within the boundaries of Seabrook Station's EPZ and constitutes roughly one-third of the EPZ.[1]

In its January 9, 1987 order (unpublished) announcing that it was undertaking review *sua sponte*,[2] the Commission said that it believed it could decide the issue presented on the basis of the previously filed briefs. Nonetheless, the parties were permitted a full round of briefing, if they wished it.[3]

As we discuss below, on consideration of the views of the parties, the Commission has decided not to affirm the Appeal Board's decision. In so doing, we have decided to take no action with respect to the outstanding license for fuel

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[1] On the eve of affirming this decision the Commission received notification from PSNH that it was submitting a utility emergency plan for that portion of the EPZ that lies in Massachusetts. In that light, PSNH suggested that the instant review is moot and requested the Commission to lift its stay. In view of the lateness of PSNH's motion, and the policy importance of the matter under Commission consideration, the Commission has decided to proceed with its decision, and to treat PSNH's motion as a request to vacate today's decision on grounds of mootness and to vacate the stay on the ground that the concerns that underlie the stay have been alleviated. Views of the parties on the question of mootness and any other matters relevant to the maintenance of the stay are required on the following schedule:

All answers from other than NRC Staff — filed by April 28, 1987

NRC Staff answer — filed by May 1, 1987.

[2] Massachusetts Attorney General Bellotti petitioned for review as Commission consideration of *sua sponte* review was under way. Inclined to have this matter decided at the Commission level, the Commission decided not to delay its *sua sponte* decision for the process to consider pleadings for and against review. In that Massachusetts sought review of the same issue, its petition is in effect granted. In its filing before us New England Coalition for Nuclear Pollution (NECNP) sought among other things reconsideration of the Commission's *Shoreham* decision. The Commission declines NECNP's invitation and specifically limits its review to the issue specified.

[3] The following parties participated in the permissive briefing schedule: Attorney General Bellotti of the Commonwealth of Massachusetts (later substituting Attorney General Shannon), Seacoast Anti-Pollution League (SAPL), NECNP, Town of Hampton, PSNH, and the NRC staff.

We also note receipt of a brief *amicus curiae* submitted by former Senator Gary Hart. The brief did not address the specific issue on which we accepted review.

loading and precriticality testing[4] because there is no safety benefit to be derived from removing the fuel; moreover, fairness suggests in any event the need for a Commission decision on PSNH's mootness motion before taking any such action regarding the outstanding license. Today's decision is fully applicable to any license for Seabrook that authorizes criticality and low-power operation.

POSITIONS OF THE PARTIES

The Applicant and the NRC Staff argue for affirmance of the decision under review. They urge that in promulgating its rule on submittal of emergency plan applications, 10 C.F.R. § 50.33(g), the Commission never intended to establish submittal of offsite emergency plans as a licensing requirement independent of the ultimate required findings on the plans. They further contend that 10 C.F.R. § 50.47(d), which eliminates findings on the adequacy of offsite emergency planning as a precondition to issuance of a license for low-power operation, makes it clear that emergency plans need not be submitted by that stage. Finally, they can find no policy reason to support such a requirement.

On the other side, some or all of Intervenors (Massachusetts' incumbent Attorney General Shannon, NECNP, SAPL, and the Town of Hampton) argue that the express language of the rules requires plan submittal, while express language of § 50.47(d) does not list submittal of an emergency plan as one of the requirements to be omitted from consideration when licensing for low-power operations. They argue that sound policy favors a requirement for a substantially complete application — that the Applicant do all that it can do — before the risks and disadvantages of low-power testing are permitted. This is so, they say, because so long as an adequate plan for Massachusetts is required, until it is at least filed, issuance of a full-power license cannot at all be reasonably anticipated.[5]

DECISION

This is a matter of first impression. We find no evidence that the Commission has ever before specifically considered *by when* the applicants must submit the

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[4] A license for fuel load and precriticality testing was granted and was appealed. While the Appeal Board denied a stay request made by the Attorney General of Massachusetts, it expedited review presumably so that the matter could be resolved, if possible, in advance of readiness for low-power testing.

[5] Intervenors also suggest that Congress itself has found utility in requiring submittal of an application before allowing low-power testing as is evidenced by the structure of §192 of the Atomic Energy Act. Intervenors proffer various other policy considerations that they believe are served by requiring early submittal of plans, including an increment of additional safety as a result of early planning, less pressure on FEMA, and expedition of hearings.

emergency plan.[6] The statements of consideration and discussion of proposed rules §§ 50.33(g) and 50.47(d) include no insight on this issue. Nor has any licensing hearing presented this question.

It is contended by those seeking affirmance of ALAB-853, 24 NRC 711 (1986), that the Commission's *Shoreham* decision governs this matter. The issues in *Shoreham* were raised in connection with alleged grave uncertainty about whether eventual findings on the submitted Long Island Lighting Company (LILCO) emergency plan would support issuance of a full-power license. In that context the Commission noted that low-power testing has independent benefits, including the avoidance of potential delay if and when a full-power license is issued, and that the earlier low-power testing was initiated the more likely that its full benefits would be reaped on a timely basis. The Commission concluded that disputes about the eventual decision on the merits of issues under consideration for a full-power license should generally not interfere with the low-power testing.

But the disputes that fueled the controversy in *Shoreham* were, by their nature, litigation and political disputes. And, as noted by the U.S. Court of Appeals for the District of Columbia Circuit, we observed in regard to Shoreham, "the outcome of litigation and political conflicts frequently surrounding the grant of a final license is particularly speculative." *Cuomo v. NRC*, 772 F.2d 972, 976 (D.C. Cir. 1985). The emergency planning uncertainty at Shoreham could have changed favorably or adversely at any time as viewpoints changed or as accommodations were reached. This is characteristic of many matters in litigation, and the Commission properly declined to regard the existence of such litigation as a factor precluding issuance of a low-power license. But the issue before us in Seabrook is distinguishable from *Shoreham* — here we deal not with speculation as to the outcome of hearing litigation, but with the conclusions to be derived from the proposition that some of the materials that normally are essential to support a full-power license under our regulations were missing.

As summarized above, arguments based on the language of the rules have been made by both sides. We acknowledge that there is some merit to both sides' positions, and we commend the Appeal Board for its careful analysis of the question. But the question before us is not a strictly legal one, but rather a question of regulatory policy which ultimately we alone should decide. In the special circumstances of this case our judgment is that sound policy favors requiring the filing of a state, local, or utility plan before any operating license is issued, including a license confined to fuel loading or low-power testing.

In *Shoreham*, we specifically observed that the emergency planning issues raised there did "not appear to us to be categorically unresolvable," *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), CLI-83-17, 17 NRC

[6] The Commission believes that it is abundantly clear that a plan must at some time be submitted, and considers that the issue raised addresses only the timing of that submittal.

1032, 1034 (1983), and we did not discount the possibility that a license for fuel loading and low-power testing could be held up if it were established, beyond significant doubt, that there were truly insuperable obstacles to issuance of a license for operation at any substantial power level. We believe that sound policy requires that we retain this option at least for Seabrook. The filing of an offsite plan makes possible at least a summary review, of the type we performed in *Shoreham*, to determine whether adequate emergency planning is at least in the realm of the possible. Thus applicants must do at least this much before there can be any license issued.

The Commission stay remains in effect pending consideration of PSNH's "Suggestion of Mootness and Request for Vacation of Stay" in accordance with note 1 to this decision.

Commissioners Roberts and Carr disapproved this Order; their dissenting views are attached. Commissioner Asselstine's additional views are also attached.

It is so ORDERED.

For the Commission

JOHN C. HOYLE
Acting Secretary for
the Commission

Dated at Washington, D.C.,
this 9th day of April 1987.

ADDITIONAL VIEWS OF COMMISSIONER ASSELSTINE

I concur in the result reached in the Commission's order, but I do not necessarily subscribe to all of the reasoning therein. I believe that, as a matter of policy, the Commission should not issue a low-power license to a plant when there are fundamental uncertainties about whether the plant can be licensed.

DISSENTING VIEWS OF COMMISSIONER CARR

I would affirm the Appeal Board's decision in ALAB-853 because the Appeal Board interpreted the regulations at issue correctly and sensibly. Submission of a plan has no bearing on the findings required by our regulations for low-power licensing and elevates form over substance.

DISSENTING VIEWS OF COMMISSIONER ROBERTS

I would affirm ALAB-853.

To require, prior to issuance of a low-power license, submission of a utility plan for the portion of the EPZ that lies within the Commonwealth of Massachusetts serves no legitimate regulatory purpose and is inconsistent with our earlier action in the *Shoreham* case. The majority's reasons for distinguishing the Shoreham situation from the Seabrook situation are feigned. Moreover, to require, solely for the sake of completeness, submission of a document that has no bearing on the findings required by our regulations for issuance of a low-power license is to worship form over substance.

To reverse the legally correct and sensible position of ALAB-853 for the sole purpose of sending a signal to the applicants and the public that the Commission is not likely to approve a reduction in the size of the EPZ at Seabrook is wrong. That message can and should be transmitted more clearly and directly.

I believe that the choice of which path to pursue, seeking a reduction in the size of the EPZ or filing a utility plan for Massachusetts, and whether to risk a delay in licensing by taking the path they choose, should be left to the applicants and that, absent a valid safety basis for doing so, we should not interfere in their choices.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Christine N. Kohl, Chairman
Gary J. Edles
Howard A. Wilber

In the Matter of **Docket Nos. 50-352-OL**
50-353-OL

PHILADELPHIA ELECTRIC COMPANY
(Limerick Generating Station, Units 1 and 2)

April 17, 1987

The Appeal Board in this operating license proceeding affirms a Licensing Board's finding that arrangements for notifying and mobilizing off-duty correctional officers at a state prison in the event of a radiological emergency at the Limerick facility meet the pertinent regulatory requirements for emergency response planning.

APPEAL BOARD: STANDARD OF REVIEW (SCHEDULING OF HEARINGS)

The Appeal Board is ordinarily reluctant to second-guess a licensing board on scheduling matters, and will review such issues only to ensure that due process has been afforded to a complaining party. *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), ALAB-813, 22 NRC 59, 74 (1985).

APPEAL BOARD: STANDARD OF REVIEW (SCHEDULING OF HEARINGS)

Claims alleging deprivation of due process due to an expedited hearing schedule must be supported by a showing of specific harm resulting from such schedule. ALAB-845, 24 NRC 220, 251 (1986).

RULES OF PRACTICE: HARMLESS ERROR

Failure to show specific harm from an unduly expedited hearing schedule will result in a finding of harmless error, providing no legal ground for reversal. *See Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), ALAB-841, 24 NRC 64, 95, *reconsideration denied*, ALAB-844, 24 NRC 216 (1986); *Catawba*, 22 NRC at 74.

RULES OF PRACTICE: DISCOVERY RULINGS

Licensing board denials of discovery requests and the like are often prime candidates for later appeal; thus, a licensing board is expected to create and to preserve the record of any such action.

RULES OF PRACTICE: SUBPOENAS

Under the Commission's Rules of Practice, 10 C.F.R. § 2.720(a), subpoenas are issued upon a showing of only general relevance.

RULES OF PRACTICE: SUBPOENAS

Where general relevance has been shown, there is no provision in the Rules of Practice for a licensing board's sua sponte refusal to issue a requested subpoena; rather, a board may quash an already issued subpoena on motion of the person or entity against whom discovery is sought. 10 C.F.R. § 2.720(f).

RULES OF PRACTICE: HEARSAY EVIDENCE

Hearsay evidence is generally admissible in NRC proceedings. *See* ALAB-836, 23 NRC 479, 509 n.52 (1986), and cases cited; *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), ALAB-355, 4 NRC 397, 411-12 (1976).

EMERGENCY PLANS: CONTENT (SUFFICIENCY)

While the overall concept and essential elements of an emergency response plan must be described, a plan need not be formally approved by the pertinent organizations or even final before the reasonable assurance finding required by 10 C.F.R. § 50.47(a)(1) can be made. *See, e.g.*, ALAB-836, 23 NRC at 506, 508; *Cincinnati Gas & Electric Co.* (Wm. H. Zimmer Nuclear Power Station, Unit No. 1), ALAB-727, 17 NRC 760, 770 (1983).

EMERGENCY PLANS: CONTENT (CHANGES)

An emergency response plan can be changed during the hearing process without the prior approval of the Federal Emergency Management Agency and other interested entities.

APPEAL BOARD: STANDARD OF REVIEW (UNCHALLENGED TESTIMONY)

Testimony not objected to below cannot be challenged on appeal. *See Florida Power & Light Co.* (St. Lucie Nuclear Power Plant, Unit No. 2), ALAB-335, 3 NRC 830, 842 n.26 (1976).

APPEARANCES

Angus R. Love, Norristown, Pennsylvania, for intervenors, inmates of the State Correctional Institution at Graterford, Pennsylvania.

Troy B. Conner, Jr., Robert M. Rader, and **Nils N. Nichols,** Washington, D.C., for applicant Philadelphia Electric Company.

Theodore G. Otto, III, Camp Hill, Pennsylvania, for the Pennsylvania Department of Corrections.

Benjamin H. Vogler for the Nuclear Regulatory Commission staff.

DECISION

In ALAB-845, 24 NRC 220, 229-33 (1986), we concluded that the Licensing Board had erred in excluding from litigation in this operating license proceeding

a contention submitted by a group of inmates at the State Correctional Institution at Graterford, Pennsylvania (SCIG).[1] The contention questioned the adequacy of the "call-up" system to be used to mobilize the SCIG workforce in the event of a radiological emergency at Limerick necessitating evacuation of SCIG. *See* note 9, *infra*. The inmates were concerned that the commercial telephone network on which the call-up system relies might become overburdened as it had in past nonradiological emergencies in the area. We determined that this contention met the basis and specificity requirements of 10 C.F.R. § 2.714(b) and remanded the matter for further proceedings before the Licensing Board. That Board accordingly held a hearing and, after receiving testimony from witnesses appearing on behalf of the Pennsylvania Department of Corrections, the inmates, and the Federal Emergency Management Agency (FEMA), it concluded that the arrangements for notifying and mobilizing off-duty SCIG correctional officers in the event of a radiological emergency meet the pertinent regulatory requirements and "provide reasonable assurance that adequate protective measures for the Graterford inmates can and will be taken." LBP-86-38, 24 NRC 731, 745 (1986).[2]

The inmates appeal once again, raising three principal arguments. First, they claim that they did not receive a fair and impartial hearing. Second, the inmates complain that the Department of Corrections made substantial, unauthorized changes in the call-up system without notice to them. Finally, they argue that, even with these alterations in the SCIG radiological emergency response plan (RERP), the manpower mobilization system is not adequate to assure an orderly evacuation of the facility. The inmates seek a reversal of the Licensing Board's decision and remand to a different board for a new hearing. *See* Brief of Graterford Inmates (December 9, 1986) [hereafter, "Inmates' Brief"]. Applicant Philadelphia Electric Company (PECo), the Department of Corrections, and the NRC staff all oppose the appeal. As explained below, the inmates' appeal fails to establish reversible error, and thus we affirm the Licensing Board's decision.

A. Fairness of the Hearing

1. The inmates complain at the outset that the hearing following the remand ordered in ALAB-845 was unfairly expedited by the Licensing Board. They

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[1] SCIG is located within the 10-mile plume exposure pathway emergency planning zone (EPZ) for the Limerick nuclear generating station. ALAB-845, 24 NRC at 228 n.1.

The Commission declined review of ALAB-845. *See* Notice from the Secretary (November 13, 1986).

[2] The Commission's regulations require a finding of "reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency" before the issuance of a full-power operating license. 10 C.F.R. § 50.47(a)(1). This finding is made on the basis of how well the pertinent onsite and offsite emergency plans meet 16 standards set forth in 10 C.F.R. § 50.47(b). The standard involved here, 10 C.F.R. § 50.47(b)(5), concerns the adequacy of procedures for notification of emergency personnel. *See* ALAB-845, 24 NRC at 231.

note that there was only a total of two and one-half weeks between the Board's scheduling order and the hearing date (including just one week for discovery). The inmates point out that such expedition was particularly unnecessary inasmuch as the Limerick facility was already licensed and operating.

We are ordinarily reluctant to second-guess a licensing board on scheduling matters, and we entertain appeals on such issues only to ensure that due process has been afforded to a complaining party. *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), ALAB-813, 22 NRC 59, 74 (1985). Because the Licensing Board abbreviated the usual schedule for hearing and prehearing activity so severely and the need for such expedition was doubtful, a legitimate due process question is raised here.

Our decision in ALAB-845 remanding the inmates' manpower mobilization contention was served on Friday, August 29, 1986. Five days later (following the Labor Day weekend), the Board held a telephone conference call with the parties, during which it ordered discovery to begin immediately and witness lists to be exchanged by September 12. The Board also scheduled the hearing for completion in one day, September 22 — less than a month after the remand. Licensing Board Order of September 4, 1986 (unpublished). The principal reason given by the Board for expediting this matter was that "the schedules of the Board members for other hearings would not permit a hearing for this remand issue until next year" and that this matter should be resolved promptly. LBP-86-38, 24 NRC at 735 n.4. *See also* Tr. 21,356, 21,373-75.

We find no justification for the schedule established by the Board on remand. There is no apparent reason — and the Board gives none — why this matter had to be resolved "as quickly as possible." Tr. 21,375. Remands, in general (especially in the final stages of a proceeding), should of course be addressed promptly and not be allowed to languish. But as the inmates point out, the Limerick plant was already fully licensed and operating and PECo thus could not be heard to complain about economic and other losses occasioned by adjudicatory delays. The only party "harmed" by delay would be the inmates, but they did not seek expedition. Moreover, unlike in prior remands involving the Limerick facility, we found no cause to order expedited proceedings on the SCIG manpower mobilization issue. *Compare* ALAB-836, 23 NRC 479, 520 (1986); ALAB-819, 22 NRC 681, 716 (1985), *review declined*, CLI-86-5, 23 NRC 125 (1986); ALAB-809, 21 NRC 1605, 1615, *vacated as moot*, CLI-85-16, 22 NRC 459 (1985); ALAB-806, 21 NRC 1183, 1193-94 (1985). Instead, we expected that the proceeding on remand would follow the usual course and schedule contemplated by the Commission's Rules of Practice. *See* ALAB-845, 24 NRC at 233.

But while the inmates noted their objections to the expedited schedule to the Licensing Board (Tr. 21,373), they do not claim or show us how they have been thereby prejudiced. In response to the inmates' earlier complaints

about an expedited schedule in this proceeding (albeit one not so truncated as here), we stressed the need for a showing of "specific harm" resulting from such action. ALAB-845, 24 NRC at 251. For example, the inmates fail to tell us what discovery or testimony essential to their case was precluded by the time constraints in the schedule imposed by the Board. *See* Inmates' Brief at 4-5. *See also infra* note 5. Thus, despite our serious misgivings about the Licensing Board's severely abbreviated hearing schedule, we are obliged to find it "harmless error," providing no legal ground for reversal. *See Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), ALAB-841, 24 NRC 64, 95, *reconsideration denied*, ALAB-844, 24 NRC 216 (1986); *Catawba*, 22 NRC at 74.

2. The inmates also argue that the Licensing Board unfairly restricted the substantive scope of certain of their discovery requests and cross-examination during the hearing. Specifically, they contend that the Board improperly refused to issue subpoenas directed to Bell Telephone Company of Pennsylvania and the Department of Corrections for documents concerning how those organizations responded during the 1979 accident at Three Mile Island (TMI). The inmates also complain that the Board sustained PECo's objections to the inmates' attempt to cross-examine Richard A. Buell, District Manager of Network Technical Services for Pennsylvania Bell, on that same subject. In the inmates' view, because the TMI accident occurred within Pennsylvania (where Limerick and SCIG are located) and "involved the same telephone lines," the information they attempted to obtain was "extremely relevant" to the SCIG manpower mobilization issue. Inmates' Brief at 7.

Our efforts to address the inmates' argument in this regard have been hampered because the Licensing Board neglected to memorialize its denial of the involved subpoena requests.[3] PECo and the NRC staff, however, have directed our attention to pertinent portions of the hearing transcript where this matter was later discussed. The Licensing Board apparently refused to issue the subpoenas for the TMI response records because these requests were "vague" and "overproductive." *See* Tr. 21,417.[4] The Board disallowed the inmates' cross-examination of Mr. Buell on the subject of Bell Telephone's response to TMI essentially on the ground of hearsay; i.e., Mr. Buell had no personal knowledge of the matter, and the inmates could have obtained the information elsewhere but did not. *See* Tr. 21,414-20. In its decision, the Board noted that another witness (Richard T. Brown, a local official and communications technician who testified on behalf of the inmates) had testified briefly about dial tone delays during the

[3] Licensing board denials of discovery requests and the like are often prime candidates for later appeal by aggrieved parties. It should go without saying that we therefore expect the boards to create and to preserve the record of any such action.

[4] The Board did *not* indicate that it refused to issue the subpoenas on the ground of untimeliness.

TMI emergency. But the Board was "unable to translate this limited information into specific projections of the severity, duration, or geographical extent of any circuit overloading that might result from an emergency at Limerick." LBP-86-38, 24 NRC at 743.

There are several legal infirmities in the Board's handling of this matter. First, under the Commission's Rules of Practice, subpoenas are to be issued upon a showing of only "general relevance." 10 C.F.R. § 2.720(a). The general relevance of records of possible telephone service failures, during a past radiological emergency in a relatively nearby area, to the inmates' contention challenging the adequacy of the telephone-based call-up system at SCIG is patent. Indeed, the Board apparently did not question the general relevance of the information sought, only its volume. Tr. 21,417-18. Second, where general relevance has been shown, there is no provision in the Rules of Practice for the Board's sua sponte refusal to issue the subpoenas; rather, a board may quash an already issued subpoena "[o]n motion" of the person or entity against whom discovery is sought. 10 C.F.R. § 2.720(f). As for the Board's exclusion of Mr. Buell's hearsay testimony, the Board overlooked our long established rule that hearsay is generally admissible in NRC proceedings. *See* ALAB-836, 23 NRC at 509 n.52 (rejecting intervenor complaints about hearsay by PECo witnesses in another phase of this proceeding), and cases cited; *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), ALAB-355, 4 NRC 397, 411-12 (1976).

There is also an unfortunate irony in the Board's rulings. The Board clearly believed that, prior to the hearing, the inmates should have attempted to obtain from those with firsthand knowledge the very information they sought to elicit from Mr. Buell at the hearing. Tr. 21,419, 21,420, 21,426. In its decision, the Board also commented on the "limited information" produced on this subject. LBP-86-38, 24 NRC at 743. Yet the inmates' attempts to obtain more information were thwarted by the Board's improper denial of the subpoenas. *See* Tr. 21,416.[5]

The Board's erroneous procedural rulings, however, once again do not provide a basis for reversal. As the Board found and we discuss below, fewer off-duty SCIG employees than originally contemplated would have to be called in during an emergency, and the timing and means of their mobilization have been altered. The record also shows that, in any event, the SCIG call-up system is not entirely dependent upon the commercial telephone network, as it appeared previously; several backup means of communication exist. These changes make the operation of the commercial telephone network during the TMI accident essentially immaterial to the ultimate disposition of the inmates'

[5] The inmates do not claim (as they might well have), however, that the severe time constraints on discovery also prevented them from pursuing this matter more doggedly.

contention. Thus, the inmates cannot — indeed, do not — identify any *specific* harm occasioned by the Licensing Board rulings to which they object here.[6]

3. The inmates also list several other ways in which they were assertedly denied a fair hearing. They argue that the Licensing Board demonstrated its lack of impartiality by allowing the Department of Corrections to make changes in the RERP without notice or approval. Inmates' Brief at 6. On the substantive merits of this issue, however, we conclude *infra* pp. 280-82 that it was not improper for the Department to make these changes. It follows that the Licensing Board's allowance of the testimony in this regard cannot be considered improper or unfair to the inmates.

The inmates also claim that PECo's counsel, with "regularity," submitted ex parte filings to the Licensing Board Chairman, who "appeared to accept said documents enthusiastically and graciously thanked him for his concern." Inmates' Brief at 8. But the inmates' total failure to substantiate this charge with any citations or examples precludes giving it any serious attention.[7]

Lastly, the inmates refer to the "past treatment" of their issues in this proceeding. *Id.* at 7, 3-4. We are well aware of the obstacles the inmates have encountered in their attempt to participate as legitimate intervenors. *See* ALAB-806, 21 NRC 1183; ALAB-809, 21 NRC 1605. Nor can we ignore the procedural shortcuts taken by the Licensing Board after our last remand in ALAB-845. But as we noted in that decision, the inmates sought redress for their earlier grievances and prevailed. ALAB-845, 24 NRC at 250 n.31. As for the additional hurdles encountered on remand of the manpower mobilization contention, the inmates simply have failed to make out a case of reversible error. *See supra* pp. 277-78, 279-80.

B. Changes in the Plan

The inmates next argue that the Department of Corrections has made changes in the RERP without proper authorization or notice, and that the revised plan thus cannot provide the basis needed for the "reasonable assurance" finding. *See supra* note 2. The changes specifically noted by the inmates are a decrease in

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[6] It is also worth noting that the inmates were not entirely foreclosed from pursuing the TMI response matter. They were permitted to question their witness, Mr. Brown, about it. Tr. 21,529. Moreover, it is significant that, on cross-examination by PECo's counsel, Mr. Brown stated that the equipment in use near TMI at the time of the accident was an "old technology," and that the longest delay in obtaining a dial tone during that emergency was about 30 minutes. Tr. 21,533-34.

[7] PECo mentions a Washington Legal Foundation (WLF) working paper on emergency planning, authored by one of PECo's counsel and sent by WLF last year to the Commission and various NRC officials, including the Chairman of the Appeal Panel. *See* Licensee's Brief (January 9, 1987) at 16. We do not know if the WLF sent this paper to any Licensing Board member. In any event, in response to other intervenors' requests for certain sanctions against PECo and its counsel, both the Commission and we determined that no remedial or punitive action was warranted. *See* CLI-86-18, 24 NRC 501 (1986), *vacating on other grounds* ALAB-840, 24 NRC 54 (1986).

the number of off-duty employees who would have to be mobilized in the event of an evacuation of SCIG; less reliance on the commercial telephone network for manpower mobilization; and no provision for removal or transfer, with the inmates, of their medical records. Inmates' Brief at 8-11. The inmates' claims, however, are without merit.

The inmates do not cite any support for their view that "changes in the plan cannot be made . . . without approval from FEMA and PEMA [the Pennsylvania Emergency Management Agency]." *Id.* at 10.[8] Nor are we aware of any such limitation. To the contrary, we have held many times in this proceeding and elsewhere that, while the overall concept and essential elements must be described, a plan need not be formally approved by the pertinent organizations or even final before a reasonable assurance finding can be made. *See, e.g.*, ALAB-836, 23 NRC at 506, 508; *Cincinnati Gas & Electric Co.* (Wm. H. Zimmer Nuclear Power Station, Unit No. 1), ALAB-727, 17 NRC 760, 770 (1983). A fortiori, a plan can be changed during the hearing process without the prior approval of FEMA and other interested entities.

The inmates' argument about their lack of notice of the changes in the RERP is likewise unavailing. The inmates' counsel did attempt during the prehearing conference call to ascertain whether the Department of Corrections contemplated any modifications in the call-up system, as it had been described during an earlier phase of the proceeding.[9] He received no clearcut answer, possibly because the conference occurred so soon after the issuance of ALAB-845 that the Department of Corrections had not yet had an opportunity to determine what its response to the remanded issue would be. *See* Tr. 21,356-61, 21,369. There is no indication in the record, however, that the inmates made any effort during the albeit brief discovery period to get a more definitive answer on this subject from Department of Corrections personnel. Further, when Charles H. Zimmerman, Superintendent of SCIG, testified at the hearing about the changes in the plan, the inmates did not claim "surprise" and object to the testimony. *See, e.g.*, Tr. 21,451-54, 21,468-69, 21,473-74, 21,492-93, 21,496-97. They are therefore foreclosed from challenging this now on appeal. *See Florida Power & Light Co.* (St. Lucie Nuclear Power Plant, Unit No. 2), ALAB-335, 3 NRC 830, 842 n.26 (1976). Moreover, the inmates once again allege no specific harm as a

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[8] The inmates also complain that the changes were not documented in the plan itself. Inmates' Brief at 10. In response to the Licensing Board's direction (Tr. 21,563-66), however, the system now in use at SCIG for mobilizing off-duty officers during an emergency has been incorporated into the RERP. Letter from Theodore G. Otto, III, to Helen F. Hoyt (October 1, 1986); LBP-86-38, 24 NRC at 743. *See generally* ALAB-845, 24 NRC at 249 (emergency planning information should be readily available to those officials who must decide what protective actions to take); NUREG-0654/FEMA-REP-1, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants" (1980) at 29 ("plans should make clear what is to be done in an emergency, how it is to be done and by whom").

[9] Under this procedure, "[ ] employees [would] be mobilized through a pyramiding system in which one employee telephones ten others [from his or her home] and so on until all persons are notified." ALAB-845, 24 NRC at 229.

result of the lack of notice of the changes in the plan. Indeed, the inmates' cross-examination of Superintendent Zimmerman and development of the record in this regard appear to have been unimpeded. *See, e.g.*, Tr. 21,473-74, 21,492-93, 21,496-99.

Finally, it is worth noting that the changes in the plan that are the subject of the inmates' complaint are neither extraordinary nor contrary to the inmates' expressed concerns.[10] For instance, Superintendent Zimmerman testified that the pyramid call-up system that was originally described in this proceeding (*see supra* note 9) is, in fact, only partially used. That is, off-duty administrative and higher-level management personnel would help in the mobilization by telephoning one another from their homes. The staff on duty at SCIG, however, would contact off-duty nonmanagement personnel directly from SCIG, using not only commercial telephone lines but also several other means of communication, including 10 additional lines that are part of the Commonwealth's separate telephone network for its state agencies. Tr. 21,454-59, 21,473; Commonwealth Exhibit 1; LBP-86-38, 24 NRC at 737-38. Thus, this change in the plan has led to the very result implicitly sought by the inmates' contention — less reliance on calls made from off-duty employees' homes via a potentially overburdened public telephone network.[11]

The change in the number of off-duty employees that would have to be mobilized simply represents an appropriate refinement in the testimony. To be sure, the record previously showed that the number of off-duty employees that would need to be mobilized to evacuate SCIG in an emergency was a maximum of 300. *See* ALAB-845, 24 NRC at 233 n.13 (*citing* Tr. 20,840-42). Superintendent Zimmerman's testimony now is that no additional staff would have to be called in during the day, and fewer than 100 officers would have to be mobilized during the night-shift. Tr. 21,495-500. The earlier estimate was somewhat ambiguous (due to the Department's reluctance to reveal the number of guards on each shift) and was given for a different purpose in connection with another issue. Superintendent Zimmerman's testimony here, on the other hand, is specifically directed for the first time to the inmates' newly admitted manpower mobilization contention, and thus we would expect it to be more precise and reliable. In any event, the inmates do not directly attack this more recent manpower estimate as inadequate to evacuate SCIG in an emergency. The

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[10] The Department of Corrections, in fact, "denies" that any real "changes" have been made to the RERP. Commonwealth's Brief (January 12, 1987) at 5 n.26. At least as to the movement of medical records, this certainly appears true. The Department states unequivocally that "[t]he inmates' medical records are still being moved contemporaneously with the inmates [citation omitted]." *Ibid.* In any event, this particular matter was not raised previously on appeal (and perhaps not before the Licensing Board either) and thus is beyond the scope of the remand in ALAB-845 and the instant appeal.

[11] The inmates' arguments concerning the adequacy of the call-up system as revised are discussed *infra* pp. 283-84.

inmates' complaints about the lack of notice and prior approval of the changes in the RERP are therefore unconvincing.

C. Adequacy of the Call-up Procedures

In their final argument, the inmates contend that, even with the modifications in the RERP described above, the system for mobilizing the off-duty SCIG workforce in the event of a radiological emergency is still flawed and does not provide the requisite reasonable assurance. They stress that the local telephone system, which remains an integral part of the call-up procedure, is not designed for service during natural or manmade disasters. The inmates note that many of SCIG's employees live within or near the Limerick EPZ (*see supra* note 1), where the telephone lines are most likely to be overburdened in an emergency. Testimony shows that the availability of 10 additional lines in the Commonwealth's separate telephone network for outgoing calls would not necessarily overcome the congestion anticipated at the point of receipt of the call. As for the several back-up systems mentioned at the hearing, the inmates assert that Superintendent Zimmerman did not sufficiently explain how these systems would actually mobilize the manpower necessary to evacuate SCIG. In particular, they claim that the State Police and other organizations that have a backup role in the mobilization process do not have the addresses and telephone numbers of the individuals who would have to be contacted. Inmates' Brief at 12-15.

The inmates correctly point out that the telephone system is engineered for normal, rather than disaster, service,[12] and that, despite the availability of discrete lines for making outgoing calls from SCIG, some employees may experience difficulty in receiving calls at their homes if a public emergency were to occur. *See* Tr. 21,421-23, 21,428-29. The inmates, however, overlook several important facts. First, as noted above, Superintendent Zimmerman testified that, in the event of an evacuation of SCIG, fewer than 100 off-duty employees would have to be called in to supplement the on-duty workforce and only during the night-shift. Tr. 21,469, 21,495-97.[13] He testified further that preparations for evacuation (including mobilization of personnel) would begin at the "alert" stage (Tr. 21,469, 21,506) — which, in most accident scenarios, occurs well before a "general emergency" is announced to the public and before the corresponding strain on the telephone network would be expected to begin. *See* 10 C.F.R. Part 50, Appendix E, § IV.C; Tr. 21,560. Moreover, even if the telephone system

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[12] "Normal" service, however, is defined as the capability to provide a dial tone within three seconds to 97 percent of the customers during a "busy hour" of a "busy day" in winter. Tr. 21,393, 21,424, 21,431-32.

[13] The inmates' arithmetic concerning the total SCIG workforce (Inmates' Brief at 14) ignores the fact that a substantial number of guards are on duty and thus available to aid in an evacuation at all times.

was overburdened at the same time as mobilization of off-duty SCIG employees was under way, the testimony of the inmates' own witness, Mr. Brown, suggests that there is no reason to expect lengthy delays. *See* Tr. 21,534.

Perhaps most important, however, several means of backup communication exist. SCIG has a hotline to the State Police, an emergency radio system, a "CLEAN machine" (a teletype form of communication with state and local law enforcement agencies), and pagers for key staff members.[14] Each of these means (as well as the 10 additional Commonwealth trunk lines switched through Philadelphia) could be used to notify off-duty SCIG personnel through the State Police or the Department of Corrections' central office in Harrisburg, or to mobilize correctional officers at other Commonwealth institutions to aid in an evacuation. *See* Tr. 21,459, 21,460-62, 21,470; Commonwealth Exhibit 1; LBP-86-38, 24 NRC at 741. The inmates' point that Superintendent Zimmerman did not adequately explain how the backup systems would work is not well taken; the cited portions of the transcript show otherwise. Further, the Department of Corrections notes that the State Police, after notification from SCIG over the hotline, could contact the Department's central office in Harrisburg, which has the necessary call-up sheets (including SCIG officers' telephone numbers) and could thus mobilize the necessary staff from there. Commonwealth's Brief at 3 & n.11. *See also* Tr. 21,461. We are therefore persuaded that there is reasonable assurance that, in the event of a radiological emergency, sufficient off-duty employees can be timely mobilized to evacuate SCIG by reliance on the public telephone network and various backup means of communication. *Compare Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit No. 1), ALAB-697, 16 NRC 1265, 1269-72 (1982).

LBP-86-38 is *affirmed*.
It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

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[14] The Department of Corrections also plans to upgrade its telephone service to "priority" or "Class A," which improves the ability to get a dial tone. Tr. 21,458, 21,464. *See* LBP-86-38, 24 NRC at 739, 741.

Ms. Kohl, Concurring:

I agree with virtually all of the discussion in the majority opinion and the result. I take issue only with my colleagues' silence on a point that, while not outcome-determinative, is very troubling in terms of the inmates' "fairness" complaint about the Licensing Board's extremely expedited schedule.

As the majority notes, the Licensing Board's principal reason for expediting this matter was the prior commitments of all three Board members to hearings in two other specified proceedings (*Seabrook* and *Braidwood*). According to the Board, September 22, 1986, was the only date until January 1987 on which the hearing on the inmates' contention could be held. *See* LBP-86-38, 24 NRC at 735 n.4; Tr. 21,356, 21,373-75.[1] Ordinarily, such statements would be accepted at face value. But the severely and unnecessarily shortened discovery period (one week) and hearing schedule (one day), along with the implausible circumstance that the Board could convene on only one day during a four-month period, justify closer than usual scrutiny here in response to the inmates' claim of unfairness.[2]

Contrary to the impression given, the hearing schedules of the Licensing Board members in the two other proceedings identified by the Board did not preclude a more typical schedule here. At the time of the Board's conference call and scheduling order (September 3 and 4, 1986), only one Board member was scheduled for (and actually later participated in) lengthy hearings during the last four months of 1986.[3] This left the Board with several feasible and not infrequently used options. The two remaining Board members constituted a quorum and could have held the hearing later in the fall, allowing more time for discovery and the usual procedures such as prefiled direct testimony. *See* 10

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[1] The Board Chairman stated:

> [September 22] is the only available date [for] the members of this Board, who had other prior commitments on their dockets. Judge Harbour in Seabrook, Judge Cole in the Breakwood [sic] case. I have them in Seabrook. That is the only date on which we could all agree we could stand to have the hearing. And when I say that that is the only date, I'm talking about that's the only date between now [September 3, 1986] and probably sometime in January, 1987.

Tr. 21,373-74.

[2] It should also be stressed that the manpower mobilization issue we remanded in ALAB-845 had never been explored at any hearing because the Licensing Board originally rejected it. Thus, this is not a case where a remand was necessary simply to "clean up" a few items in connection with a contention that had already been subject to substantial litigation.

[3] Public Commission records (Board assignment notices, prior scheduling orders, hearing transcripts, and subsequent Board issuances) show the following. *See, e.g., Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), Docket Nos. 50-443-OL and 50-444-OL, Licensing Board Order of July 11, 1986 (unpublished); *id.*, Docket Nos. 50-443-OL-1 and 50-444-OL-1, Licensing Board Order of August 20, 1986 (unpublished). Judge Cole participated in many weeks of hearings during the fall of 1986 in connection with the *Braidwood* proceeding. On the other hand, Judge Harbour was scheduled for, and participated in, only a few days of hearings from September 29 to October 3, 1986, for the Seabrook plant. In another part of the *Seabrook* proceeding, over which Judge Hoyt presides, no hearings were scheduled for, or conducted during, the last four months of 1986. *Compare* Tr. 21,373-74. Further, no major decision in these or any other proceeding was issued by any of the *Limerick* Licensing Board members during this period.

C.F.R. § 2.721(d). The third member either could have declined to participate in the ultimate decision or could have decided the case on the basis of his review of the transcript and written filings. The option most often employed when such scheduling conflicts arise, however, is reconstitution of the Board pursuant to 10 C.F.R. § 2.704(d). *See Suffolk County and State of New York Motion to Rescind Reconstitution of Board [Long Island Lighting Co.]* (Shoreham Nuclear Power Station, Unit 1), LBP-86-37A, 24 NRC 726, 729 & n.2 (1986) (licensing boards reconstituted 15 times in last two fiscal years).[4] The notion that September 22 was the one and only day on which the hearing could be held (Tr. 21,373-75) was therefore simply not correct.[5]

Where a party is entitled to a hearing, as here, a board should make a diligent effort to establish a *reasonable* schedule for discovery and the hearing itself. In order to accomplish the Commission's dual objectives of "an efficient hearing" that "moves along at an expeditious pace, consistent with the demands of fairness," such a schedule should primarily preserve a party's due process rights and, secondarily, accommodate the legitimate conflicts of the board members and other parties. *Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452, 453 (1981). By failing even to consider the readily available options discussed above, the Licensing Board here effectively and arbitrarily reversed these priorities.[6] Because the inmates have not demonstrated any actual harm resulting from the Board's schedule, however, I must reluctantly agree with the majority that there is no legal ground for reversal.

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[4] This option (reconstitution) was thus available even if all three Board members had been fully committed to other proceedings during the latter part of 1986.

[5] The Board also implied that September 22 was the only day on which a room for the hearing could be obtained in Philadelphia. Tr. 21,374. No mention of other possible locations closer to the plant site was made, however.

[6] While my colleagues "find no justification for the schedule established by the Board" and "expected that the proceeding on remand would follow the usual course and schedule contemplated by the Commission's Rules of Practice," they do not indicate what the Board should have done in the circumstances. *See supra* p. 277. Employing one of the options I have set forth above would have minimized any delay while fully preserving the inmates' hearing rights.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before Administrative Judges:

Helen F. Hoyt
Jerry R. Kline, Technical Advisor

In the Matter of **Docket No. 50-346-ML**
(ASLBP No. 86-525-01-ML)

TOLEDO EDISON COMPANY, *et al.*
(Davis-Besse Nuclear Power Station, Unit 1)

April 15, 1987

In this Decision, the Presiding Officer affirms the decision of the Commission to grant Licensee's application to dispose of water treatment sludge and secondary-side demineralizer resins by land burial at the site of the Davis-Besse Nuclear Power Station. The Board finds that the low-level radioactive waste, mixed with the water treatment plant waste, presents no hazard to public health and safety because the means of burial securely confines the waste; water will not infiltrate the engineered waste disposal cells on the site; and there is reasonable assurance that neither radioactive nor chemical substances will be carried into the ground water.

WASTE DISPOSAL

Reasonable assurance that the public health and safety and environment will be protected when waste is buried can be found if (a) secure confinement of waste at its burial location is assured, even if the waste is a significant source of radioactive or chemically toxic constituents; or (b) the waste itself is not a significant source of hazardous materials, even if the conditions of confinement are not so secure as to guarantee that nothing would escape from the burial site in the future.

TABLE OF CONTENTS

		Page
I.	DECISION	288
	Introduction	288
	Project Description	290
	Contested Issues	291
	Conclusion	298
II.	FINDINGS OF FACT	299
	Uncontested Facts	299
	Contested Issues	303
III.	CONCLUSIONS OF LAW	322
IV.	ORDER	322

DECISION ON THE DISPOSAL OF WASTE AT DAVIS-BESSE

I. DECISION

Introduction

This case concerns a dispute by several parties with the Toledo Edison Company over its authority to dispose of water treatment sludge and secondary-side demineralizer resins by land burial at the site of the Davis-Besse Nuclear Power Station located near Locust Point, Ohio, on the shore of Lake Erie. The Licensee first filed an application for authority to bury waste at Davis-Besse on July 14, 1983, in accordance with 10 C.F.R. § 20.302(a). The Nuclear Regulatory Commission approved the request on October 15, 1985, after issuing an environmental assessment with a finding of no significant impact. 50 Fed. Reg. 41,265 (1985).

Several individuals and organizations requested a hearing after the authority to dispose of waste on site had been granted by the Nuclear Regulatory Commission.

On February 20, 1986, the Commission instituted a proceeding in this case to be conducted by informal procedures in accordance with its decision in *Kerr-McGee Corp.* (West Chicago Rare Earths Facility), CLI-82-2, 15 NRC 232 (1982), *aff'd, West Chicago v. NRC*, 701 F.2d 632 (7th Cir. 1983). The Presiding Officer was appointed on February 25, 1986, to conduct the informal proceeding. On March 10, 1986, the Presiding Officer published an order that

provided notice of the proceeding, provided interested parties an opportunity to intervene, and set forth pleading requirements. 51 Fed. Reg. 8920 (1986).

Eight petitions to intervene were filed. Four were rejected for lack of standing and four were admitted. The admitted parties were the State of Ohio (State); Toledo Coalition for Safe Energy and Susan A. Carter (TCSE); Western Reserve Alliance (WRA); and Save Our State from Nuclear Waste, Consumers League of Ohio, Arnold Gleisser, and Genevieve S. Cook (SOS/CLO). Memorandum and Order (May 29, 1986), printed in 51 Fed. Reg. 20,562 (1986). Based on allegations in the admitted petitions, the Presiding Officer designated twenty questions to be addressed in the hearing and ordered the parties to submit prefiled written testimony. Testimony was prefiled by the Licensee, the State, and SOS/CLO. The NRC Staff chose not to participate. Hearings were held in Sandusky, Ohio, on August 5-7, 1986. Limited appearance statements were also taken.

The Presiding Officer's authority in this case is to decide, based on the hearing record, whether Licensee's already existing permission to bury wastes on the Davis-Besse site should be affirmed, reversed, or conditioned for reasons of radiological safety or environmental impact.

In its review the Staff found that for the proposed project occupational doses will be maintained as low as reasonably achievable and within the limits of 10 C.F.R. Part 20. It also considered environmental effects and found that the project would have no significant effect on the quality of the human environment. 50 Fed. Reg. 41,265 (1985). In this proceeding, intervening parties contest both findings. Their reasons for disagreement were set forth in their petitions to intervene. However, in this informal proceeding no formal contentions were filed and the Presiding Officer chose not to require the parties to formulate contentions. Instead, the Presiding Officer formulated twenty questions to the parties based on their expressed concerns that would, if responded to fully, yield a factual record sufficient to decide whether the project would conform to NRC's regulations governing radiological safety and environmental impact. Parties were directed to respond to the Presiding Officer's questions in their prefiled testimony. 51 Fed. Reg. 20,563 (1986).

The Licensee addressed all twenty questions in its prefiled testimony. The State, which had been designated lead Intervenor, addressed questions where it had a disagreement with Licensee. SOS/CLO addressed a few of the questions, and TCSE and WRA did not prefile testimony. The questions established the scope of the hearing to which no party objected. The Presiding Officer permitted cross-examination of witnesses by the parties at the hearing in order to promote efficiency and development of a complete record. The State assumed the lead in cross-examination. Other parties were permitted to explore only those issues of concern to them that the State did not explore in its examination.

At the close of the hearing all parties were directed to file proposed findings of fact and all did so. Tr. 959.[1] Additionally, the Licensee was directed to prepare and file a project plan which would include the location, design, and operational features of the burial project. Tr. 964-69. The Licensee did so after the record was closed, and all parties were permitted opportunity to comment. None did so.

Project Description

The Davis-Besse plant operates its own water treatment facility to purify Lake Erie water for use in plant systems and for personal use. The treatment process yields a mixture of water treatment chemicals and lake water impurities as an insoluble sludge which is discharged to a settling basin on site. In a separate process the Licensee purifies water on the secondary side of the reactor by a process of demineralization, using powdered ion-exchange resins. The resins remove both radioactive and nonradioactive material from the secondary-side water in the plant. The resins are also discharged to the settling basin after use. The sludge or sediment in the settling basins therefore consists of a mixture of nonradioactive water treatment plant waste and slightly radioactive secondary-side demineralizer resins. Each year about 1000 cubic feet of resin and 5800 cubic feet of water treatment waste are transferred to the settling basin. Findings 1, 2, 3, and 4. 50 Fed. Reg. 41,265 (1985).

The Licensee expects to continue the practice of discharging waste to the settling basin. However, it requested permission from NRC to dredge the basin once each 5 years and transfer the accumulated waste to another location on site for permanent land burial. Burial of mixed sludge is expected to occur six times during the anticipated 30-year lifetime of the plant under that proposal. Findings 5 and 6.

Permission to carry out land disposal of waste on the Davis-Besse site was requested under an NRC regulation (10 C.F.R. § 20.302(a)) that provides a method for obtaining approval for disposing of large volumes of waste containing very low levels of radioactivity by means other than transfer to a commercial burial site. The NRC notified all reactor licensees of the availability of this approach under its regulations in 1983. (I&E Information Notice No. 83-05: Obtaining Approval for Disposing of Very Low-Level Radioactive Waste — 10 C.F.R. § 20.302). In its notice the Staff cited the Commission's recognition of the need for provisions for exemption of some low-level wastes from the

[1] One filing dated September 5, 1986, was submitted by Counsel for Intervenors on behalf of TCSE and SOS/CLO, and a separate *pro se* filing dated September 6, 1986, was submitted on behalf of SOS/CLO. Under the informal procedures governing this case and without objection or comment from the parties, the Presiding Officer considered all filings submitted even though some overlap occurred.

requirements of 10 C.F.R. Part 61 and that pending further development of regulations such exemption could be examined on a case-by-case basis under § 20.302.

Contested Issues

The parties to this dispute are in disagreement as to whether the waste sludge and ion-exchange resins generated by operations at the Davis-Besse site can be disposed of by land burial on site without endangering public health and safety or the environment. Toledo Edison believes the answer is affirmative for a number of reasons. In its view the mixed waste has very low radioactivity and is inherently nonhazardous to health; it will be buried in a geologically favorable medium that will prevent contact or transport by water; the design of the burial cells will further act to prevent transport of dissolved waste out of the burial cells; floods will not breach the cells or transport material out of them; and the burial site will not be constructed in and will have no impact on Navarre Marsh or any of its biota including any possible endangered species which might forage there on occasion. Initial Decision on the Disposal of Waste at Davis-Besse, Toledo Edison Co., *et al.*, September 8, 1986.

The State of Ohio and other Intervenors disagree with the Licensee. In their view, the information on which Licensee's analysis is based is not sufficient to support its conclusions; the waste may be more hazardous than Licensee states; the geologic medium of disposal might have sand or gravel pathways for water transport of materials from the waste into the ground water; the design of the burial cells may not be as secure as Licensee alleges because pathways might exist for water to enter and escape from the cells; record high water levels in Lake Erie might allow future storm surges to flood the burial site and breach or erode the burial cells; and construction and operation of the burial site might impact on the biota of Navarre Marsh or Lake Erie. Findings of Fact and Conclusions of Law proposed by the State of Ohio, September 5, 1986.

Intervenors TCSE and SOS/CLO oppose the burial proposal on similar factual bases as the State. Proposed Findings of Fact and Conclusions of Law of Intervenors Save Our State from Radioactive Waste, Toledo Coalition for Safe Energy, Susan A. Carter, Arnold Gleisser, Genevieve S. Cook, and Consumers' League of Ohio, September 5, 1986. Western Reserve Alliance opposes the burial proposal by argument that a full record for decision was not developed and that the Licensing Board failed to perform its general role. It argues further that there was bad faith in a past licensing hearing because Toledo Edison allegedly stated that there would be no disposal of solid waste on site under either the

construction permit or operating license,[2] and that this proposal requires an amendment to the Davis-Besse operating license which creates new hearing rights and a need to strike a new cost-benefit balance. Finally, WRA asserts that burying radioactive wastes on site is a violation of NRC's public trust to protect natural resources and in particular Lake Erie for the use of future generations. Western Reserve Alliance's Statement, September 8, 1986.

The State of Ohio was designated lead Intervenor in this informal proceeding and it presented factual evidence contrary to Licensee's at the hearing. SOS/CLO also sponsored an expert witness. The other Intervenors rely on the State's evidence or legal argument in their attempt to defeat the Licensee's waste burial plan. I turn first to resolution of the factual disputes as promulgated principally by the State of Ohio.

I note at the outset that the hearing on this matter developed a full and complete factual record that will enable a fair resolution of this controversy. Intervenors' complaints that the details of the burial proposal had not been fully and publicly disclosed prior to the hearing may well have some validity. The informal hearing, however, remedied whatever deficiency of public information Intervenors might have initially perceived since a comprehensive record was developed. Thus, whether the NRC's grant of permission to conduct onsite burial of waste should be affirmed or reversed now turns on the factual merits of the case as they were disclosed in the hearing.[3]

There is no meaningful dispute in this case as to the location of the burial cells on site relative to Lake Erie or Navarre Marsh nor is there any meaningful dispute as to the principal features of the design and construction of the individual burial cells. It is clear and agreed to by all parties that the waste consists of a mixture of spent ion-exchange resins containing small amounts of radioactivity and relatively much larger volumes of sludge which is a waste product from the ordinary treatment (purification and clarification) of Lake Erie water for use at the Davis-Besse plant. Findings 7-19.

It is undisputed that the principal chemical components of the sludge and largest contributor to its volume are calcium hydroxide, sodium aluminate, and calcium carbonate. No party alleges that these chemicals are potentially harmful to life or that they are likely to be dissolved by water and transported out of the burial site. This seems most reasonable since the compounds arise as the insoluble by-products of the treatment of water for human use and they will

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[2] This allegation deserves no consideration since the licensing hearings in question were held in 1970 while this application was made under a Commission Policy promulgated in 1983 in connection with rulemaking on 10 C.F.R. Part 61. The Commission has the authority to change its rules and policies as new information becomes available.

[3] I reject WRA's assertion in its proposed findings that the record is still inadequate for decision and that this proposal somehow creates yet another right to additional hearings. The findings of fact herein are founded on a comprehensive factual record. Additionally, this hearing satisfied any hearing rights WRA had according to the Commission order instituting the proceeding.

have resided in contact with water in the disposal pond for years prior to their being permanently disposed of by land burial. Findings 6, 9, and 108.

Similarly, both the Staff's radiological analysis and the expanded analyses of the Licensee show extremely low radiological hazards of waste burial that the State did not dispute. The Staff analysis showed that the waste to be dredged and buried once each 5 years would contain a total of 8.5 millicuries of radioactivity (dominated by Co-58, Cs-134, and Cs-137). In response to Board questions the Licensee testified that at the end of 30 years when six individual lots of waste have been buried, the maximum amount of radioactivity that could be in the burial cells will be 0.036 curie (36 millicuries) and that the likely amount is less. Findings 82, 83, and 91.

The dose to humans by direct exposure, terrestrial food pathways, or aquatic food chains after 30 years of burial activity would be less than 1 millirem per year (mrem/yr) under the most conservative assumptions. Not a single fatal cancer would be expected from such doses even if the exposed population were much larger than could be present at the burial site under any reasonable scenario. Findings 84-103.

The Licensee's factual radiological analysis went unanswered by the State of Ohio at the hearing. The State and TCSE preferred to argue instead in their proposed findings that the cumulative impact of radioactivity in Lake Erie from other sources together with that from Davis-Besse would cause a public health hazard even if the Davis-Besse waste could not create such a hazard alone. TCSE PF at 9-10; State PF B-5 at 7. I reject that argument for the reason that a cumulative impact argument is itself subject to resolution based on factual data. If any data exist showing that Lake Erie now has cumulative levels of radioactivity that could create a public health hazard, Intervenors are obligated to come forward with it if they hope to defeat a project that standing alone portends no significant radiological hazard to public health and safety. They did not do so and thus their argument is remote and speculative.

I am similarly unpersuaded with Intervenors' arguments that the project should be rejected based on the radiation risk implicit in the linear no threshold dose-response relationship used for risk estimation. State PF B-6 at 7-8. It is true that some risk can be calculated for any level of radiation under that hypothesis. However, no NRC regulation requires a finding of zero risk before a proposed project can be acceptable. The Licensee used the linear hypothesis consistent with accepted methodology to estimate cancer risk to an individual who might be exposed at the rate of 1 mrem/yr at the burial site. The risk is 1.58 in 10 million per year. The dose estimates, however, were conservatively made and likely to be less than 1 mrem/yr. Realistically expected cancer risks are therefore even less than stated by Licensee. Risks of genetic abnormalities are also extremely low. Findings 104, 105, and 106.

Thus, I conclude that the waste itself could not cause a radiological hazard in excess of limits prescribed in 10 C.F.R. Part 20 under any reasonable management scenario either during the life of the plant or after its license to operate expires.

The environmental impacts the waste could have because of its chemical constituents were thoroughly explored at the hearing. Intervenors sought to show that chemical hazards to the public could arise from two sources. The ion-exchange resins themselves might have some toxic effect on humans or wildlife in their view, and heavy metals or organic substances contained as trace constituents of the water treatment sludge might create health hazards.

No credible evidence was produced that the ion-exchange resins themselves could cause a public health hazard. The evidence instead shows that ion-exchange resins are insoluble and could not dissolve and pollute ground water; they are nondegradable either by chemical or biological processes, and they are nontoxic even when ingested directly. Findings 113-117, 119-121. I am similarly unpersuaded that any credible mechanism exists for eluting toxic elements or radioactive elements from the resins while they lie buried in the earth. Strong chemical treatment which will not be present at the burial site is required to elute resins. Findings 119 and 120. No party disputes that the resins lie initially with the water treatment sludge in an aqueous environment for up to 5 years in the settling ponds prior to burial. It stretches the limits of credulity to suppose that resins in that environment successfully resist elution and degradation only to yield later to the much smaller amounts of water that might slowly percolate through the soils of a burial site.

Although the State attacked Licensee's proposal by suggesting in its proposed findings that Licensee did not have a firm understanding of the effects of ingestion of resins, no credible pathway for ingestion by man or animal were brought out. Indeed, it is difficult to see how a direct ingestion pathway for resin particles might exist given that the resins are mixed with a large volume of water treatment sludge, that they will be solidified before burial and then will be deposited in burial cells having both a thick and impervious liner below and cover over the top.

The Licensee performed chemical analyses by EPA-approved methods on the sludge that it wishes to bury. The results show that the sludge contains trace metals and organic substances at concentrations too low to meet the definition of a hazardous waste under EPA regulations. The State acknowledges that this is so but argues that the sludge nevertheless contains organic and inorganic constituents that could be hazardous to human health. The State's argument is not persuasive because the definition of hazardous waste specifically includes consideration of both the presence of a hazardous constituent and its concentration. Waste may be nonhazardous even if potentially hazardous

constituents are present if their concentration is below established limits. That is the case with the Davis-Besse waste. Findings 107-112.

I consider the possible impacts of chemical nonradioactive waste under the requirements of 10 C.F.R. Part 51 which requires NRC to consider the consequences of its actions to the environment. I also consider EPA regulations governing hazardous waste for purpose of guidance but do not specifically order the enforcement of any EPA regulation in this decision.

After careful consideration of the evidence, the Presiding Officer concludes that the waste material proposed for burial at Davis-Besse site is of inherently low hazard to human or animal health because its radioactive and chemical constituents are nontoxic or occur in concentrations too small to create a significant safety or environmental risk. That conclusion alone might be sufficient to find reasonable assurance that the public health and safety and environment will be protected if this proposal is approved.

However, I need not rely on that conclusion alone because additional evidence exists showing that whatever the inherent toxicity of the waste, the conditions of burial are favorable to its secure confinement at the burial site. Thus, even if the waste did have hazardous characteristics, its constituents, either radioactive or chemical, would be unlikely to be transported by leaching into the ground water in sufficient quantities to cause harm to life or the environment. This is because there is minimal ground water flow through the glacial deposits that will contain the buried wastes. The wastes will not be within reach of a water table because the water table occurs at the top of the underlying bedrock which lies 15 feet below the land surface and by design, 7 feet below the lower surface of the burial cells. The glacial deposits retard the flow of percolating water because of their high clay content. They are naturally unsaturated and act to confine water in the dolomite bedrock formation which is under artesian pressure and would rise to form a piezometric water surface above the bedrock were it not for the impermeable characteristics of the glacial till. The buried wastes will therefore not be in an environment where there is percolating water. Thus, no significant pathway exists for buried wastes to dissolve or for dissolved wastes to be returned to the biosphere where they might contribute to environmental hazard. Findings 32-67.

The engineering design of the burial cells provides a further barrier to the transport of waste material out of the burial sites.

The cells will be lined with compact clay layers and an impervious barrier. The waste material will be solidified with cement kiln dust before it is buried. After burial the waste cells will be capped with an impervious clay layer as well as a sand or gravel drainage layer and a topsoil layer which will be seeded with grasses and clover. Findings 10 and 11. Water entry into the burial cell will be retarded by the caps. Any water that penetrates this barrier will be retarded from leaving the cell by the underlying barriers. Any water that does

somehow enter a cell, contact the waste, and then escape will enter the naturally impermeable and unsaturated glacial till where it must traverse about 7 feet downward before it could contact the bedrock aquifer.

The bedrock aquifer has a low hydraulic gradient which results in slow water movement toward Lake Erie and ultimate discharge offshore through bedrock outcrops on the lake bottom. Lake Erie water will further dilute any residual trace of material that somehow escapes the natural and engineered barriers that act to retard entry into the ground water.

The burial site has been flooded in past years as a result of storm surges on Lake Erie. Based on past records, it is reasonable to infer that occasional floods will occur throughout the indefinite future at the site. Storm-induced flooding is not likely to breach the dikes surrounding the burial cells because the top of the dikes will be about 2 feet higher than the highest water level of record. Findings 20-27.

The burial site is an inland site and will not be subject to erosion from wave attack similar to that which occurs at dikes along the lake shore. Flood water that could occur at the site will be shallow, and the size of possible waves will be limited by physical processes of wave formation in shallow water. In any event, the dike slopes will be covered by rip-rap which will protect them from any possible wave action. All of the foregoing factors lead to the reasonable predictive inference that even though flooding will likely occur at the burial site in the future, damage to the cells that could create a threat to public health and safety is extremely unlikely. Findings 28-31.

Physical construction activities at the burial site do not create environmental concerns. The location of the burial cells is now adequately identified. It is clear that the burial cells will not be constructed within the bounds of Navarre Marsh which is a wildlife refuge operated by the U.S. Fish and Wildlife Service. Findings 15-19. The Navarre Marsh is not a critical habitat for any species of wildlife on the federal endangered species list. Findings 68-81. No significant impacts from construction or operation of the burial site have been identified. In particular, there is no credible evidence that ground water flowing past the marsh from the burial site could somehow escape the bedrock aquifer in a manner that could lead to pollution of the marsh. Indeed, the analysis of ground water contamination in this decision shows that little or no contamination of the ground water with radioactive materials or hazardous chemicals is likely. Further, the glacial till overlying the bedrock aquifer is only slightly permeable, and no natural pathway exists to transport ground water upward from the bedrock into the till at the marsh site. Finding 45. There is reasonable assurance, therefore, that there will be no significant environmental impact on the marsh from the proposed project.

The conclusion is equally valid regarding the aquatic environment. Findings 72-78. No construction impacts on the aquatic environment have been identi-

fied. The only pathway for chemical or radiological pollutants to reach Lake Erie is via the dolomite aquifer that underlies the burial site and outcrops offshore in Lake Erie. Multiple impedances to transport of dissolved material will greatly retard or entirely prevent entry of chemical or radioactive substances into the ground water. Transport in the ground water is extremely slow, and the lake water will dilute whatever traces of chemical materials that might ultimately reach the lake. Taken together these factors all lead to the conclusion that there is more than reasonable assurance; indeed, there is virtual certainty that the public health and safety and the environment will not be endangered by burial of nonhazardous waste on the Davis-Besse site.[4]

The Licensee has adequately described its administrative provisions for planning, contracting, and constructing the burial site. Findings 122-139. It has made reasonable provisions for monitoring both the burial cells after closure and for monitoring ground water by sampling wells in the vicinity of the site. It has committed to making such repairs as are needed to maintain integrity of the dikes and cells and to keep permanent records of its burial activities.

The Licensee described its plans and procedures for managing burial site operations in testimony at the hearing. The Presiding Officer, however, requested the Licensee to prepare and submit a project plan that would consolidate and summarize its plans and commitments for the burial project in a single document. In response and after the record was closed, the Licensee submitted to the Presiding Officer a document dated September 1986, entitled "Project Plan/Conceptual Design Disposal of Very Low Level Radioactive Waste at Davis-Besse Site." All parties were permitted the opportunity to comment on the plan but none did so. The document serves to present, in orderly and systematic fashion, project design and management information that is already in the hearing record. Tr. 964-69.

The plan is necessarily incomplete at this time because the Licensee must seek a Permit to Install from the State of Ohio before the proposed project can go forward. The possibility exists that the State may impose additional requirements on the Licensee before approving the project.

The NRC Staff has concluded that when the Davis-Besse reactor is decommissioned, the burial site could be released for unrestricted use. There are no data in the hearing record that are inconsistent with the Staff conclusion. Nevertheless, evolving technology and changing standards might lead to a different conclusion at some point in the future, particularly where, as here, decommissioning may occur some 30 years from now.

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[4] This finding leads me to reject WRA's objection that this project will, if implemented, somehow lead to a violation of NRC's public trust to protect environmental resources including Lake Erie. No public trust will be violated because no significant impacts on the lake will occur.

Because of the possibility of changed technology or standards in the future, the Presiding Officer considers it reasonable to take steps now to ensure that a systematic and focused review of the burial project takes place at the time of decommissioning and before the burial site is released to the public for unrestricted use.

I therefore adopt Licensee's conceptual management plan as its commitment to design, manage, and operate the burial site and to keep permanent records. Further, it is ordered that the Staff's environmental assessment for this project be amended to include Licensee's plan. Responsibility for review and approval of changes in the plan that might result from State of Ohio review is delegated to the NRC Staff. Such delegation is appropriate because there is nothing in the plan that is new to the record or involves an unresolved issue in adjudication. Approval of changes that are consistent with the ultimate findings of this decision and do not result in higher risk to the public health and safety than found herein constitutes an administrative function which is appropriate for the Staff to perform.

Conclusion

Reasonable assurance that the public health and safety and environment will be protected when waste is buried can be found if either of two conditions are met. Assurance of secure confinement of waste at its burial location is alone sufficient to warrant such a finding even if the waste is a significant source of radioactive or chemically toxic constituents. This is a condition that must prevail before commercial waste burial sites may be licensed under 10 C.F.R. Part 61. Alternatively, confidence that the waste itself is not a significant source of hazardous materials provides assurance, even if the conditions of confinement are not so secure as to guarantee that nothing would escape from the burial site in the future.[5] This is the condition under which NRC permits exemption from its Part 61 regulation and allows onsite burial of waste under § 20.302.

In this instance, however, it is clear that both conditions are met. The waste itself has an extremely low radioactive content as well as low content of potentially hazardous chemical constituents and it will be securely confined. The trace constituents are contained in a bulky matrix of insoluble nontoxic water treatment chemicals and the entire matrix will be solidified before burial with cement kiln dust. The resins themselves are nondegradable by either biological or chemical means and are nontoxic. The waste will be buried in a glacial

[5] I note in passing that this is the situation that now prevails regarding the settling pond where excess water by design regularly overflows into Lake Erie. This is acceptable because the waste is nonhazardous and secure confinement is neither required nor provided. The burial project simply adds to existing margins of safety by greatly improving the confinement of waste.

deposit that does not readily transmit water. No water table exists in the glacial deposit, and physical separation between the waste cells and the underlying aquifer exists. Transfer of dissolved materials from the waste into the underlying aquifer will be minimal. The aquifer itself has a low gradient and transmits water to Lake Erie only slowly. Any dissolved material that could elude all of the barriers and reach the lake by this pathway would be quickly diluted by lake water.

The finding of nonhazardous waste and its secure confinement together are more than sufficient to support a conclusion that this project will not create a significant radiological or nonradiological hazard to life or the human environment. The project as described can be conducted within the dose and effluent limits of 10 C.F.R. Part 20, and the projected radiation doses have been maintained as low as reasonably achievable. The chemical wastes do not create a significant concern under 10 C.F.R. Part 51 obligations for NRC to consider alternatives to proposed actions or to prepare an environmental impact statement. Because there will be no significant environmental impact, there is no obligation to prepare an environmental impact statement under § 102(C) of the National Environmental Policy Act (NEPA). 42 U.S.C. § 4332(2)(C) 1982; 10 C.F.R. §§ 51.20, 51.32. Neither is there a need to study alternatives to the proposed action under § 102(E) of NEPA. That section requires the study of alternatives where there are "unresolved conflicts concerning alternative uses of available resources." No such unresolved conflicts exist in this proposal. The NRC has in fact considered the alternative of offsite disposal in a commercial burial site and has concluded that certain wastes should be exempt from the general requirements of 10 C.F.R. Part 61 when very small amounts of radioactivity are contained in the waste. That is the situation that prevails here.

I conclude that this project does not raise any issues concerning possible impacts on federal or state endangered species because there will be no significant environmental impacts on Navarre Marsh or Lake Erie either from construction or operation of the project.

In consideration of the foregoing, the Presiding Officer concludes that the Licensee has carried its burden of proof on the contested issues and that the prior NRC approval to dispose of mixed water treatment waste and slightly radioactive ion-exchange resins by land burial on the Davis-Besse site should be and hereby is affirmed.

II. FINDINGS OF FACT

Uncontested Facts

1. The Davis-Besse plant is a pressurized water reactor (PWR). A PWR circulates water or steam in two principal systems, which are physically sepa-

rated: the primary system and the secondary system. The physical separation between these systems provides a barrier for the control of the radioactive material. Water in the secondary system normally remains essentially nonradioactive. Licensee's Testimony on the Burial of Very Low Level Waste at Davis-Besse ("Lic. Testimony"), ff. Tr. 31, at 11-12 (Briden).

2. The Davis-Besse plant has its own water supply treatment facility. The water supply treatment facility purifies water from Lake Erie both for use in plant systems, including the secondary system, and for personal use. In the treatment process, Lake Erie water is chlorinated and lime for softening and sodium aluminate for clarification are added. Suspended solids, hardness, and other impurities precipitate out. The precipitate is removed, producing sludge, which is discharged to a settling basin. *Id.* at 10-11, 95 (Briden). Sludge by definition is a suspension of solids in water. The sludge discharged from the water treatment is about 1.5% solids. After settlement, the sludge accumulated at the bottom of the basin is about 20% solids. Tr. 618-20 (Bennett). *See* Lic. Testimony, Table 17-1 at 1.

3. The water in the secondary side of the plant is purified by demineralization in the Condensate Demineralizer System where powdered ion-exchange resins remove impurities. *Id.* at 12-13 (Briden).

4. While the secondary system is separated from the radioactive primary system, primary-to-secondary-system leakage can occur through the steam generator tubes. In March 1981, Davis-Besse experienced a steam generator tube leak which caused contamination in the secondary side of the plant. The plant was shut down and the leak repaired. During the cleanup period, the secondary-side cleanup resins contained radioactive material that required offsite disposal as radioactive waste. Since then, very low levels of radioactive contaminants have continued to accumulate on the Condensate Demineralizer resins. Much of this radioactive material is residual radioactivity introduced into the secondary system during the tube leak. *Id.* at 13-14 (Briden).

5. The volume of resins used in the Condensate Demineralizer System is small, and the resins are replaced weekly. Each batch of used secondary-side resin is dewatered, sampled, and analyzed for radioactive material prior to being discharged to the settling basin. *Id.* at 15 (Briden); Tr. 619 (Briden). If the resins satisfy predetermined radiological criteria, they are transferred as a slurry to the same settling basin that receives sludge from the water treatment facility. Lic. Testimony at 14 (Briden); Tr. 156-57 (Briden). If the radionuclide concentrations are higher than acceptable, the resins are treated as radioactive waste and processed for offsite disposal. Lic. Testimony at 15, 72 (Briden).

6. The sludge and resins that are discharged to the settling pond settle out immediately. Over time, this material accumulates in the pond. Tr. 157-59 (Briden). This accumulation of resins and sludge is the material to be disposed of by land burial at the Davis-Besse site.

7. The proposed burial ground will be located in the south-central portion of the Davis-Besse site, approximately 2000 feet south of the switchyard and approximately 1200 feet east of State Route 2. The location is contingent on Licensee obtaining a Permit to Install (PTI) from the State of Ohio. Lic. Testimony at 16 (Swim), Fig. 2-1. The design of the burial cells has been specified. *Id.* at 18-22 (Swim), Fig. 2-2.

8. The burial ground is unlikely to be disturbed by any future construction on the Davis-Besse site. The proposed burial site is a minimum of 100 feet from any frequently occupied area. The site will be over 1000 feet from any water well (except Licensee's observation and monitoring wells), and will be located at least 200 feet from any stream or lake (including the drainage ditch to the east of the burial site). The burial ground will not be within a floodway.[6] *Id.* at 16-17 (Swim).

9. Licensee intends to transfer mixed sludge and resins from the settling basin to burial cells six times over the life of the plant. Six lots of waste will be buried at the burial site, each in a separate burial cell. *Id.* at 18 (Swim).

10. The walls of the burial cells will be constructed to serve as dikes and will be rip-rapped. Each cell will have a 4-foot-thick liner. From bottom to top, the liner will be composed of a 2 1/2-foot-thick layer of compacted clay, a synthetic impervious membrane, a 1-foot layer of graded gravel for leachate collection, and a 6-inch layer of compacted clay. The mixed resins and sludge will be placed over this cell liner. Each cell will be capped with a 2- to 4-foot-thick compacted-clay layer, a gravel filter layer above the compacted clay, and an uppermost layer of topsoil. *Id.* at 18-19 (Swim); Tr. 250 (Swim).

11. The inner base of a typical single cell is approximately 45 feet × 45 feet, and is about 3 feet below land surface. From the base, the inner sides of the cells slope upward and outward at a 3:1 grade to the top of the surrounding dikes. The top of the cell (not including the cover) is approximately 98 feet × 98 feet, and is about 5 3/4 feet above land surface. From the top of the cell, the dikes slope downward and outward at 3:1 grade to land surface. From toe of dike to toe of dike, each cell is 162 × 162 feet. Lic. Testimony at 20 (Swim).

12. Some cells will adjoin others. Where a new cell is constructed adjoining a preexisting cell, the adjoining cells will share the dike between them. *Id.* at 19 (Swim).

13. The first three cells will be adjoining and will be constructed in the center of the burial site. The next two cells will adjoin each other and will be constructed to the west of the first three cells. These two cells will not be connected to the first three because transmission lines pass between the two- and

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[6] A floodway is the channel of the water course and those portions of the adjoining flood plains that are required to convey the regional 100-year flood. Ohio Admin. Code § 3745-27-01(F).

three-cell units. The last cell will be constructed next to the northeast corner of the first three cells. *Id.*

14. Adjoining cells will be constructed to share the dike between them. The dimensions of the multicell units are therefore not simple multiples of the dimensions of a single cell. The dimensions of the three-cell unit will be approximately 395 feet × 162 feet, and the dimensions of the two-cell unit will be approximately 278 feet × 162 feet. *Id.* at 21-22 (Swim).

15. The Presiding Officer inquired whether the waste burial site is located within the bounds of the Navarre Marsh and asked for a description of the burial site relative to the marsh. Licensee presented two witnesses who addressed this issue: Ms. Jennifer Scott-Wasilk, the Environmental and Emergency Preparedness Manager for the Davis-Besse Nuclear Station, and Dr. Charles E. Herdendorf, a Professor of Zoology, Geology, and Natural Resources at the Ohio State University and Director for the Center for Lake Erie Area Research. Mr. John H. Marshall, an Environmental Program Coordinator for the Ohio Department of Natural Resources, testified for the State. There was no dispute among the parties concerning the physical location of the burial site relative to the marsh.

16. Originally, the Navarre Marsh referred to the marshland within the Navarre tract. The Navarre tract was 524 acres that has been acquired by the U.S. Fish and Wildlife Service. This tract is within the site boundaries of the Davis-Besse site. *Id.* at 23 (Scott-Wasilk).

17. Under various leases and agreements with Toledo Edison, the U.S. Fish and Wildlife Service manages all the marshland in the Navarre tract. This marshland, plus 135 acres north of the site, are now called the Navarre Marsh unit of the Ottawa National Wildlife Refuge. The proposed burial site will not be within this area. The closest approach of the dike around the cell nearest to the Navarre Marsh unit will be approximately 400 feet west of the Navarre Marsh unit. *Id.* at 23-24 (Scott-Wasilk).

18. The burial site itself is not wetland under any definition. *Id.* at 24-28 (Herdendorf). The State agreed that the burial site will be outside the wetland area and that wetland acreage will not be lost. Tr. 756 (Marshall).

19. There is a small unit of wetland between the burial site and the Navarre Marsh. No construction will be performed in this area. At the closest point, this unit is 25 feet from the dike around the last burial cell that might be constructed and about 100 feet from the next nearest cell. Lic. Testimony at 28 (Herdendorf); Tr. 579 (Swim). This parcel is not contiguous with the Navarre Marsh; it is separated from the Navarre Marsh by a drainage ditch and dike. Tr. 175 (Scott-Wasilk). This parcel of marsh will revert to an upland-type area over the next year or so because of dike construction along the Toussaint River. Tr. 578 (Herdendorf, Scott-Wasilk).

Contested Issues

20. The Presiding Officer's fourth question asked, "What is the observed flooding frequency at the waste burial site?" This question was addressed by Dr. Herdendorf for the Licensee and by Mr. Donald Guy for the State.

21. The static water levels in the western basin of Lake Erie are affected by long-term and annual cyclic variations in the mean monthly water level, and short-period variations in the daily level. Lic. Testimony at 29 (Herdendorf). Water-level records for Lake Erie have been gathered since 1860. Current lake levels are measured by the National Oceanic and Atmospheric Administration at a number of gauges positioned around the lake. *Id.* at 30 (Herdendorf).

22. The Davis-Besse site is located approximately midway between two lake-level gauges; one is at Toledo (at the far western end of the lake) and the other at Marblehead on the east end. Lake levels are not uniform across the lake, but exhibit lengthwise and transverse variations during storms. The maximum lake levels are observed at the ends of the lake, while the center of the lake is a wind tide node, a point in the lake were no wind tide change in lake level occurs. The Davis-Besse site is located about 80% of the way from the wind tide node to Toledo, and wind tide variations (storm surges) are therefore about 80% of those recorded at Toledo. *Id.* at 30-31 (Herdendorf).

23. The general area around the burial site has been observed flooded, but specific hydrological records of such events have not been maintained. The frequency of flooding, however, can be estimated from water-level records for Toledo. It is estimated that over the last 50 years there have been twenty-five storms which potentially could have flooded the burial site. The total duration of these potential flooding events was probably less than the equivalent of 12 days, or about 2.4 days every 10 years. *Id.* at 31-33 (Herdendorf).[7]

24. Counsel for the State observed that most of the potential flooding events occurred over the last 15 years and suggested during cross-examination of Licensee's witness that only this period should be considered in determining flooding frequency. Tr. 223-24. Such an approach would be inappropriate because the increase in frequency over the last 15 years reflects abnormally high water levels, which would likely return to normal in the future. Tr. 224-25, 236-37 (Herdendorf). The State agreed that a spectral analysis of lake levels suggests that the high current lake level will not persist indefinitely although the level may rise still further in the next several years before subsiding. Direct Testimony of Donald E. Guy, Jr. ("Guy"), ff. Tr. 638, at 2. The full 50-year data base utilized by Licensee provides a reasonable basis for estimating future

[7] The analysis that was performed addressed lake flooding. Potential river flooding is less significant in comparison, and there is no evidence of river flooding at the burial site. Tr. 217-18, 589 (Herdendorf).

flood frequency because high current lake levels will eventually return to normal rather than continuing to increase indefinitely.

25. The burial site area will likely be subject to occasional floods in the future. The cells themselves will not be flooded because they will be surrounded by dikes constructed to an elevation that is 3.7 feet above the estimated flood level of the highest storm on record, which occurred on April 8, 1974. The greatest storm surge at Locust Point near Davis-Besse was approximately 4.2 feet above still-water level. If this maximum historical surge took place at the record high still-water levels observed in June 1986, the water level at the burial site would be nearly 2 feet below the top of the dike.[8] Lic. Testimony at 36-37 (Herdendorf).

26. A higher setup (or surge) of about 7 to 8 feet has occurred at the eastern end of Lake Erie. Tr. 674 (Guy). Surges of this magnitude have not been observed at the western end of the lake. *Id.*; Tr. 788-89 (Guy). The eastern end of the lake is funnel-shaped and focuses water coming from the west into a small area, thereby increasing the surge height relative to surges in the west. Tr. 789 (Guy). There is no basis to predict a surge of 7-8 feet at the western end of Lake Erie.[9] Such a surge far exceeds the highest surge on record and is very unlikely. Tr. 222 (Herdendorf).

27. A storm surge of 9.3 feet was calculated during Davis-Besse licensing as the probable maximum meteorological event. Tr. 886 (Guy); Tr. 895 (Guy). This event is a design-basis event for reactor licensing — an event with a near-zero probability of being exceeded. Tr. 934, 936-37 (Scott-Wasilk); Tr. 938 (Hendron). The event postulates winds of 70 miles per hour (mph) sustained for 6 hours and gusts of 100 mph. Tr. 934 (Scott-Wasilk). Such conditions far exceed those that have been actually observed. *Id.* This event is a worst conceivable event to which no probability could be assigned by the State. Tr. 895-96 (Guy). The maximum meteorological event calculated for reactor licensing therefore has no probative value to a prediction of flooding that could reasonably be expected at the burial site. The U.S. Corps of Engineers predicts that the maximum 500-year flood (i.e., a flood expected to occur only once every 500 years) at Locust Point is about 3 feet below the elevation of the dikes that will surround the burial site. Lic. Testimony at 36-37 (Herdendorf); Guy at 2.

28. The Presiding Officer next asked, "What soil erosion from storms has been actually observed at or near the disposal site?" This issue was addressed by Dr. Herdendorf and Mr. Swim for Licensee, and by Mr. Guy for the State.

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[8] Under Ohio regulations, even a hazardous waste facility may be located in a 100-year flood plain provided the facility is designed, constructed, operated, and maintained to prevent washout of the waste by a 100-year flood. Ohio Admin. Code §3745-54-18(B). *See* Tr. 593 (Hendron).

[9] Locust Point is not at the very end of the lake, and surges at Locust Point are generally about 20% lower than those that occur at the western end at Toledo. Lic. Testimony at 30-31 (Herdendorf).

29. The land surface at the site is well vegetated and there is no evidence of surficial erosion. Lic. Testimony at 39 (Herdendorf); Tr. 242-44 (Herdendorf). No storm erosion would be expected to occur at the burial site because erosion generally does not occur in the absence of wave attack. Lic. Testimony at 38 (Herdendorf); Guy at 4; Tr. 751 (Guy). The burial site is inland and not subject to wave attack because the outer marsh dikes absorb the brunt of storm waves coming from the lake.[10] Wave heights near the burial site would be limited by the physical properties of waves. The still-water depth near the burial site would be small in a flooding situation and the wave height would also be small because large waves cannot develop in shallow water. Lic. Testimony at 37-38 (Herdendorf). There therefore exists no basis for expecting significant erosion of the surface soils from storms. Floodwater will be primarily standing water at the site. Tr. 751 (Guy). *See also* Tr. 599 (Herdendorf).

30. The waste burial cells will be surrounded and protected by dikes. To prevent erosion of the dikes, the slopes of the dikes will be rip-rapped. There will be either a small graded stone layer or filter cloth under the rip-rap. The U.S. Soil Conservation Service[11] has recommended seeding the burial structure with a mixture of grass and clover, and is preparing a protective vegetation design plan which Licensee intends to follow. Lic. Testimony at 40-41 (Swim, Herdendorf).

31. Dikes elsewhere that have been destroyed in storms were primarily unarmored, earthen dikes that were subject to wave attacks. Tr. 785-87 (Guy). There is no evidence of catastrophic failures of armored dikes in slack water areas. Tr. 800 (Guy).

32. The Presiding Officer inquired: "What is the direction of ground water flow from the burial site relating to Lake Erie, Navarre Marsh, and the Toussaint River?" This issue was addressed by Mr. David M. Hendron for Licensee, and by Mr. Richard R. Pavey and John Voytek for the State.

33. Licensee's witness, Mr. Hendron, is a geotechnical engineer. He holds a graduate degree, has 20 years of experience, and has been involved in numerous waste management projects. Lic. Testimony at 6 (Hendron). He is a principal and vice president of Woodward-Clyde Consultants, a firm that specializes in geotechnical engineering. *Id.* at 2 (Hendron). Mr. Hendron and his firm have been directly involved in geological and hydrological work at Davis-Besse since 1968, and Woodward-Clyde geologists, hydrologists, and engineers have spent hundreds of hours studying the Davis-Besse site. Tr. 304, 908 (Hendron). The Presiding Officer finds that Mr. Hendron is qualified by

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[10] The outer marsh dikes are armored, except where a strong barrier beach exists. Licensee is committed to maintaining the dikes and barrier beach. Tr. 587-88 (Herdendorf, Scott-Wasilk).

[11] The legislative mission of the U.S. Soil Conservation Service is to control erosion and provide technical assistance on the subject. Tr. 599 (Herdendorf).

both education and site-specific experience to testify on matters pertaining to the geology and hydrology of the Davis-Besse site.

34. Testimony for the State was given by Mr. Richard Pavey who is a geologist and by Mr. John Voytek who is a hydrogeologist. The Presiding Officer accepts that the State's witnesses are qualified experts in the disciplines of geology and hydrology; however, they had little site-specific experience. *See* Resume of J. Voytek, ff. Tr. 638; Resume of R. Pavey, ff. Tr. 638. Tr. 805 (Pavey). Mr. Pavey visited the site once for a short time. Tr. 793, 801 (Pavey). He has not observed the excavations at the site or examined any of the cores that were taken. Tr. 801-02 (Pavey). He has examined the logs of about a half dozen borings. Tr. 804. He has not read the FSAR or updated SAR reports on site geology. Tr. 804 (Pavey). Mr. Voytek also had no data specific to the Davis-Besse site on which to base his conclusions. Tr. 845 (Voytek).

35. The geologic and hydrologic characteristics of the glacial deposits and bedrock were determined through investigations and studies of the Davis-Besse site for the siting and licensing of Units 1, 2, and 3. Hundreds of observations including borings, test pits, probes, pump tests, and other direct field tests were made throughout the site area, including the area being considered for the waste disposal site. Lic. Testimony at 45 (Hendron).

36. The large body of data from the soils, geological, and hydrological work performed at the Davis-Besse site since 1968 were reanalyzed by Licensee's consultant in conjunction with the waste burial project. Tr. 304-06 (Hendron). While these data were originally obtained in conjunction with construction of the Davis-Besse station, the data remain valid and are appropriate for evaluating the waste burial site. Tr. 607-08 (Hendron).

37. Recent investigations included five borings through the soil deposits, physical property testing of drive samples taken from the boreholes, and laboratory permeability testing of tube samples taken from the boreholes at the burial site. Lic. Testimony at 45-46 (Hendron); Tr. 291 (Hendron). An extensive excavation near the burial site permitted direct visual observations of the characteristics of the subsurface deposits. Tr. 310, 607 (Hendron).

38. The burial site is underlain by two primary glacial deposits. These deposits are together about 15 feet thick in the area of the burial site, and they overlie a relatively flat-lying dolomite bedrock formation. Lic. Testimony at 42 (Hendron).

39. The upper glacial deposit is a glaciolacustrine clay. The deposit consists of a relatively homogeneous plastic silty clay that contains minor amounts of silts and fine sands within the clay matrix. The topmost foot contains organic material and is referred to as topsoil. The glaciolacustrine deposit is only partially saturated since the voids between the individual clay particles are only partially filled with water. *Id.* at 42-43 (Hendron).

40. The lower glacial deposit consists of glacial till. The deposit consists of a relatively homogeneous mixture of moderately plastic clay, silt, sands, and gravels. The overall matrix of the deposit is controlled by the high clay-silt content. Within the area being considered for the waste disposal site, the glacial till deposit is also only partially saturated. *Id.* at 43 (Hendron).

41. The upper 15 to 20 feet of the underlying bedrock formation is a relatively pure massive dolomite. This upper layer is underlain to depths of several tens of feet by a laminated dolomite formation that contains lenses of gypsum and anhydrite in addition to the dolomite. *Id.*

42. There is no direct evidence that there could be as many as six distinct till deposits at the site as postulated by the State. Direct Testimony of Richard R. Pavey ("Pavey"), ff. Tr. 638, at 2. That assertion was based on general geological knowledge of glacial tills in northern Ohio; however, the nearest site to Davis-Besse that had been examined by State geologists did not contain six distinct till deposits. Tr. 810-11 (Pavey). The Presiding Officer relies on site-specific observation for concluding that only one till unit exists and rejects the State suggestion based on generic evidence that multiple till deposits exist. Tr. 908-10 (Hendron).

43. Ground water flow in the proposed burial area occurs only in the bedrock formation and not in the glacial till deposit. The dolomite formation is fully saturated and is relatively permeable because it has a system of joints, fissures, and vugs which convey water. Lic. Testimony at 44 (Hendron).

44. The gradient of ground water in the bedrock is 1 to 2 feet per mile. As a result, the rate of flow of ground water through the bedrock aquifer is small and difficult to measure, and the direction of ground water flow beneath the burial site has not been measured directly. The bedrock outcrops in the lake several miles offshore and to a smaller extent in the Toussaint River where bedrock is probably intermittently exposed by erosion of the overlying soil deposits by the river. Although not supported by direct observation, it is reasonable to infer from the gradients and outcrops that flow occurs beneath the burial site in the bedrock toward Lake Erie and that slow discharge into the lake occurs at the outcrop. *Id.* at 46-47 (Hendron). Flow toward Lake Erie occurs at about 10 feet per year in the bedrock. If contaminants were detected in this ground water, it could be intercepted and cleaned up before it reaches the lake. Tr. 287-89 (Hendron).

45. Ground water probably flows through the bedrock beneath the burial site toward the Navarre Marsh. Glacial clay deposits separate the marsh from the bedrock and prevent water in the bedrock from reaching the marsh. *Id.* at 48 (Hendron).

46. The glacial soils are highly impermeable (i.e., have a low hydraulic conductivity). *Id.* at 44 (Hendron). The permeability of the glaciolacustrine deposit is measured at less than 10^{-9} centimeters per second (cm/sec) and the

permeability of the glacial till is measured at less than 10^{-7} cm/sec. *Id.* at 49. The glaciolacustrine deposit and the till deposit contain no systematic open joints, fissures, sand strata, or other nonuniformities that could serve as ground water flowpaths. There is no measurable ground water flow that occurs horizontally or vertically through the soil deposits that overlie the bedrock. *Id.* at 44, 46 (Hendron).

47. The Presiding Officer does not accept the State hypothesis that till units at the site contain coarse sand and gravel lenses that are highly permeable and that can serve as ground water flow paths. While the proposition might be generally true for glacial tills of northern Ohio, the State witnesses lacked site-specific information on this matter which the licensee possessed. On cross-examination the State acknowledged that on a particular site there may be no sand or gravel lenses in a till deposit (Tr. 813, 818 (Pavey)); cobble might not exist in glaciolacustrine deposits (Tr. 819 (Pavey)) and that permeable layers do not occur in all glaciolacustrine deposits. Tr. 813, 820-21 (Pavey).

48. The State suggested that lineaments marked on State's aerial photographic Exhibits E and F might indicate areas where collapse of the bedrock has fractured the till above, resulting in saturated strips. The State witness thought he could discern a lineament in the burial site area. The diagnosis, however, was inconclusive and would require further site investigation to confirm or reject the hypothesis. Tr. 694-96 (Pavey).

49. The Presiding Officer accepts the data generated from site observation. Observations at the burial site show no evidence of more than one till deposit and no evidence of lake or river sediments separating tills. Tr. 909-10 (Hendron). The till is homogeneous and does not have permeable paths. Tr. 912 (Hendron). Sand strata are very infrequent and do not form systematic flow pathways. Tr. 310, 314-15 (Hendron). Fissures or joints in the till are closely shut and do not constitute ground water pathways. Tr. 316, 336, 610-13 (Hendron). Open joints have not been observed. Tr. 910-11 (Hendron).

50. The glaciolacustrine deposit is fine-grained, containing silt and clay-sized particles, not coarse material such as cobbles. Interconnected layers in the glaciolacustrine deposit have not been found. Sand lenses have been observed at the Davis-Besse site, but they are thin, infrequent, are not interconnected, and do not provide ground water pathways. Fissures in the glaciolacustrine deposit have been found to be very impermeable. Tr. 316, 336, 612, 618, 913-14 (Hendron).

51. Borings of soil on site were taken by an ASTM (American Society of Testing Materials) standard method that produces an intact sample suitable for determining the stratigraphic characteristics of the material tested. Tr. 294-97 (Hendron). The outer surface of such a sample is cut away to expose a fresh, unsmeared surface that permits accurate observations of strata. Tr. 921 (Hendron). Shelby tube samples (another standard method) were taken for permeability testing. Lic. Testimony at 46 (Hendron); Tr. 604-05 (Hendron).

52. Under standard practice, the presence of a sand or gravel lens would explicitly be noted in the boring logs if any were found. None were. Tr. 296-98, 927 (Hendron).

53. One sand lens about 2 to 3 centimeters thick and 5 to 10 feet long was observed in a 1000-foot-long excavation near the site. Information from the excavation is consistent with that from borings and both show that sand lenses are discontinuous and very infrequent in glacial deposits at Davis-Besse. Tr. 309-10 (Hendron).

54. Data from continuously sampled holes, the past and present observations of large cuts through the glacial deposits, and the high percentage of sampling at the burial site provide sufficient data to determine the absence of interconnected sand lenses or other nonuniformities in deposits at the burial site. Tr. 603-04 (Hendron). Angled borings as advocated by the State to detect vertical joints were unnecessary because characteristics of joints were determined by direct observation in excavations. Tr. 612 (Hendron).

55. Further direct evidence of impermeability was obtained during site construction when the bedrock aquifer was dewatered. The level of water in ponds in the glacial deposits remained constant, although the radius of influence of the dewatering operation extended to the bedrock aquifer below the ponds. The ponds were several tens of acres in size. Dewatering did not cause reduction of water level in these ponds. This independently demonstrates the absence of open joints and fractures through the glacial deposits. Tr. 311-14 (Hendron).

56. The State thought that perhaps the water levels in the ponds were unaffected because the drawdown was shallow (i.e., a few inches of drawdown). Tr. 724-25 (Voytek). The witness indicated that if there had been a significant drawdown (10 feet to tens of feet), he would change his opinion. Tr. 884-85 (Voytek). The drawdown of the bedrock aquifer during dewatering was about 20 feet at a distance of 2000 feet, and about 10-12 feet at about 3000 feet. Tr. 924 (Hendron). The ponds were within these distances. Tr. 312 (Hendron). The levels of drawdown were not only theoretically calculated but were confirmed by field measurements. Tr. 923-24 (Hendron). If roots were significant ground water pathways through the glacial deposits, fluctuations in the water levels in ponds during dewatering of the bedrock aquifer would have been found. Such fluctuations were not observed. No ground water has been observed coming up into the glacial till through root channels. Tr. 311-14, 317, 611-13 (Hendron).

57. The State thought that smearing of the excavated faces of glacial deposits and evaporation might have disguised ground water seeping out of the glacial deposits. Tr. 691-92, 852-53 (Pavey, Voytek). Such smearing would be inconsequential to ground water seepage over a long period of time, and further the smeared surface in excavations was typically scraped off by the geologists so that the underlying material could be examined. Tr. 310, 920-21 (Hendron). The

State admitted that less evaporation occurs in the winter, and that ice lenses would form and be visible in glacial deposits exposed by excavation if there were ground water within cracks in the deposits. Tr. 828-29 (Pavey). Ground water seepage out of excavated glacial deposits has not occurred at any season of the year, nor have ice lenses been observed. Tr. 909-10 (Hendron).

58. Water in the bedrock aquifer contains high levels of hydrogen sulfide, which indicates by another line of evidence that the bedrock aquifer is not being recharged with fresh water. Gypsum has been found at the base of the till unit, which is inconsistent with downward ground water flow through the till. Tr. 915-16 (Hendron).

59. Based on multiple lines of independent consistent evidence, the Presiding Officer finds that there is no measurable ground water flow through the glacial deposits at the burial site.

60. I next inquired: "What is the depth to bedrock of unconsolidated glacial deposits at the burial site?" Mr. Hendron addressed this issue, and his testimony was unchallenged.

61. In the area of the burial site, the glaciolacustrine deposit is 5 to 8 feet thick. The thickness of the glacial till deposit in the area being considered for the burial site ranges from 9 to 12 feet. Lic. Testimony at 50 (Hendron). This factual response was undisputed.

62. My next question asked, "What is the average depth and upper and lower range of the water table at the disposal site?" This issue was addressed by Mr. Hendron, and to some extent by Mr. Pavey and Mr. Voytek.

63. The Presiding Officer finds acceptable the definition of water table as the point of contact between the *saturated* and *unsaturated* geologic zones in the subsurface. This definition is consistent with that in Ohio's Solid Waste Disposal Regulations, Ohio Admin. Code § 3745-27-01(AA). *Id.* at 52 (Hendron).

64. Both the glaciolacustrine and glacial till deposits beneath the burial site are unsaturated. The bedrock deposit is saturated, and water in the bedrock formation is confined by the till deposit. The water table within the area being considered for the disposal site is the contact point between the glacial soil deposits and the top of the weathered bedrock zone. *Id.*

65. The distance between the bottom of the proposed waste cells and the water table below is 7 feet. *Id.* at 53 (Hendron).

66. Water in the confined aquifer is under artesian pressure that would rise to a level about 2½ feet below the soil surface if not confined. Tr. 290 (Hendron). The piezometric surface of the confined bedrock aquifer is not the same as "water level" in the glacial deposits because the soil deposits are so tight that upward flow does not occur. Tr. 335-36 (Hendron). No piezometric surface rises into the glacial deposits from the underlying bedrock aquifer. I conclude that waste buried in the glacial till will not be subject to contact with water by upward movement from the bedrock.

67. Water that collects in ponds in the topsoil during wet seasons is not a water table as suggested by the State. Voytek at 7.[12] Water that accumulates above an impermeable, unsaturated zone is referred to as a perched water table. It is not a true water table. Tr. 615-16 (Hendron).

68. The Presiding Officer's ninth question asked, "What species of plant or animal have been actually observed on the Davis-Besse site? What critical habitats for endangered species exist on the Davis-Besse site?" Dr. William B. Jackson, Dr. Jeffrey M. Reutter, and Dr. John E. Till testified for Licensee on this issue. Mr. John Marshall testified for the State. The Presiding Officer has reviewed the qualifications of these witnesses and accepts that they are qualified to testify as experts in this proceeding.

69. From 1972 through 1980, Dr. Jackson, Dr. Herdendorf, and Dr. Reutter conducted environmental studies of terrestrial and aquatic plants and animals at the Davis-Besse site. Dr. Jackson and his associates studied terrestrial animal and plant communities at the site. Lic. Testimony at 54 (Jackson). Dr. Jackson himself visited the site many times. Tr. 339 (Jackson).

70. Dr. Reutter and Dr. Herdendorf conducted aquatic studies over the same 9-year period. The aquatic studies included a sampling program of fish and benthic organisms in Lake Erie near the site. A 3-year sampling program was conducted in the Navarre Marsh. Lic. Testimony at 54-55 (Reutter).

71. Dr. Till is a health physicist who is qualified to testify on the issue of whether the low levels of radioactivity in the waste would have an impact on biota.

72. The State's witness, Mr. Marshall, holds degrees in fisheries management and botany, with emphasis on wetland floristics. The Presiding Officer has reviewed Mr. Marshall's qualifications and accepts that he is qualified to testify as an expert in this proceeding. State Testimony, ff. Tr. 638.

73. No plants or animals on the federal endangered species list have been observed on the Davis-Besse site. Lic. Testimony at 55. No aquatic species on the federal endangered species list have been found in this part of Lake Erie. No aquatic species on the federal or state lists were found in the Navarre Marsh. *Id.* at 55-56, 60 (Jackson, Reutter).

74. In Lake Erie, four aquatic species on the state's endangered species list have been found: silver chub, silver lamprey, Great Lakes muskellunge, and lake sturgeon. One muskellunge and one sturgeon were found in 11 years of sampling. *Id.* at 56 (Reutter).

75. Three benthic organisms listed by the State as "threatened" have also been found in Lake Erie near the plant site. These are the deer toe clam, the knob shell clam, and the eastern sand shell clam. *Id.*

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[12] The topsoil is also referred to as Toledo silty clay. *See* Tr. 324, 925 (Hendron). That water ponds in the topsoil indicates that the glacial deposits below are very tight and prevent ground water flow downward. Tr. 928 (Hendron).

76. The levels of radioactivity in the waste would have no discernible impact on aquatic species even if all the waste were deposited in the lake at once because the radionuclide concentrations would be well below the maximum permissible concentrations for water in Part 20 of the NRC's regulations.[13] At these levels, the impact on aquatic species would be negligible. *Id.* at 57 (Till).

77. The waste proposed for burial contains some impurities including heavy metals that came originally from the lake water. *Id.* at 94, 95, Table 17-1 (Bennett); Tr. 655-56 (Marshall).

78. The chemicals in the sludge should have no impact on aquatic species. Lic. Testimony at 57 (Reutter). Analysis of the sludge shows it to be below EPA extraction procedure (EP) toxicity limits, and any leachate would be below EPA water quality criteria, which are designed to protect aquatic life. Tr. 602-03 (Reutter). Furthermore, the proposed waste disposal methods and the hydrogeologic characteristics of the site make it very unlikely that any waste or leachate would reach the lake. Tr. 602-03 (Reutter); Tr. 288-89, 914 (Hendron).

79. The Navarre Marsh has not been designated as critical habitat within the meaning of the Endangered Species Act for the bald eagle or for any other species of plants or animals. Lic. Testimony at 61-62 (Jackson); Tr. 654-55, 745 (Marshall).

80. No endangered species of bird has been found to inhabit the Davis-Besse site (including the Navarre Marsh), although occasional visitation is possible. The construction of the burial site will not remove or disturb potential habitat for species that have been observed in the vicinity on occasion. Lic. Testimony at 58-59 (Jackson); Tr. 765 (Jackson). Use of the burial site will not affect endangered species and will not result in loss of wetland. Tr. 756-57 (Marshall).

81. Operation of the burial site will not impact bird species because the disposal method will prevent the waste from entering the food chain and because the radionuclide and heavy metal concentrations are too low to present any significant hazard to plant or animal even if the waste mobilized. Lic. Testimony at 59-60 (Jackson, Till). *Id.* at 96-98 (Bennett); Tr. 602-03 (Reutter).

82. The Presiding Officer's tenth question asked, "What will be the total radiological inventory of the burial site after 30 years of operation under expected levels of resin contamination? Mr. J. Steward Bland, a health physicist, testified on behalf of Licensee. Mr. Bland holds a bachelor of science degree in physics, a master of science degree in nuclear science, and has worked as a health physicist for a dozen years. Lic. Testimony at 1, 7 (Bland). No other party presented testimony on question 10. Mr. Bland's testimony was uncontradicted.[14]

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[13] 10 C.F.R. Part 20, Appendix B, Table II, col. 2.

[14] David Gitlin, MD, presented testimony on the general hazards of radiation on behalf of SOS/CLO (ff. Tr. 439 (Gitlin)). I gave no weight to this testimony because it contained no facts that would assist me in resolving the issues in this case. *See* Tr. 440-53 (Gitlin).

83. The total expected activity in the burial site at termination of the Davis-Besse operating license (in 2011) will be 0.013 curie. This activity is essentially all cesium-137. Lic. Testimony at 63-64; Table 10-3 (Bland).

84. Question 11 asked, "What is the estimated dose to an individual standing on covered basin dredgings after 30 years of operation under expected levels of resin contamination?" This issue was addressed by Mr. Bland on behalf of Licensee. No other party presented testimony on this issue, and Mr. Bland's testimony was uncontradicted.

85. The dose an individual would receive if he stood directly on top of the last constructed burial cell at the expiration of the Davis-Besse operating license 24 hr/day for an entire year is estimated to be 0.007 millirem. If the individual stood on top of earlier constructed cells, the dose would be less, since the inventory of those cells would have decayed more. *Id.* at 67 (Bland).

86. Counsel for TCSE inquired whether the 0.007 mrem per year dose calculated by Mr. Bland for continuous exposure for 1 year was consistent with the 0.7-millirem hourly dose calculated by the NRC Staff in its environmental assessment. There is no discrepancy because the NRC Staff's dose calculation was for an individual standing on uncovered basin dredgings, whereas the issue designated for hearing by the Presiding Officer asked for the dose an individual would receive standing on a covered cell. The cover reduces exposure and dose. Tr. 404-05 (Bland).

87. The Presiding Officer's twelfth question asked, "What criteria will be used to decide whether resins will be buried on site or transported to a licensed burial site in the event that resins become contaminated at higher-than-expected levels (from steam generator tube leaks or ruptures, for example)?" This issue was addressed by Mr. Bland and Mr. David Briden, the Chemistry and Health Physics Superintendent for the Davis-Besse Nuclear Station. Their testimony was uncontradicted.

88. Licensee has set limits on radionuclide concentrations in resin batches discharged to the settling basin. These limits were based on an evaluation of feasible release scenarios and environmental transport and exposure pathways. The concentration limits were chosen so that, under the feasible release scenarios and environmental transport and exposure pathways evaluated, the dose to any member of the public would be negligible (less than 1 millirem). Lic. Testimony at 72 (Bland).

89. Each batch of spent resin is analyzed before it can be discharged to the settling basin. If radionuclide concentrations exceed the established limits, the spent resins are not discharged to the basin, but are instead treated as radioactive waste and processed for offsite disposal. The maximum concentrations allowed in resin batches to be discharged to the settling basin apply to the resin batches before they are mixed with the water treatment sludge. *Id.* at 71-72 (Bland, Briden).

90. The Presiding Officer's thirteenth question asked, "What is the estimated upper limit of radionuclide inventory that could exist after 30 years under the above criteria?" Mr. Bland addressed this issue on behalf of Licensee. His testimony was not contradicted.

91. The maximum activity that could exist in the burial ground at the termination of the Davis-Besse operating license is 0.036 curie. This activity is almost entirely attributable to Cs-137. This value is based on the maximum activities that would result if all resin discharges contained the limiting (i.e., maximum allowable) radionuclide concentrations. *Id.* at 73 (Bland).

92. The Presiding Officer's fourteenth question asked, "What is the estimated upper limit of dose to the whole body for an individual standing on the burial site that could exist after 30 years under the above criteria?" Mr. Bland responded to this question on behalf of Licensee. In addition, Mr. Russell Bimber provided testimony on behalf of SOS/CLO. Mr. Bimber's testimony, however, consisted of questions and unsupported assertions. Testimony of R.M. Bimber, ff. Tr. 459. Mr. Bimber acknowledged that he is not a health physicist. Tr. 468 (Bimber).

93. The maximum whole-body dose due to direct exposure that an individual would receive if, after expiration of the Davis-Besse operating license, he stood directly on top of the burial site 24 hr/day, 365 days/yr, would be 0.02 mrem/yr. Lic. Testimony at 75-76 (Bland).

94. The Presiding Officer's fifteenth question asked, "Why has Sr-90 not been included in Licensee's assessments?" Mr. Bland responded to this question on behalf of Licensee, and his testimony was unchallenged.

95. Strontium-90 was considered in the ingestion and inhalation dose calculations in Licensee's testimony. The radioactive decay of Sr-90 is not accompanied by any gamma radiation or x-rays, and therefore does not contribute to the direct exposure doses. Lic. Testimony at 77 (Bland).

96. Sr-90 was not included in Licensee's previous assessments because of its negligible contribution to both the total activity and the doses. Sr-90 comprises only 0.04% (0.0004) of the total activity to be buried. Its abundance and dose contribution are negligible compared with that of Cs-137. *Id.* at 77-78 (Bland).

97. Question sixteen asked, "What would be the total estimated whole-body dose equivalent for an individual through the food ingestion pathway that could result from the final 30-year inventory of radionuclides including Sr-90? Provide estimates for expected levels and upper limits of radionuclide inventory after 30 years." Mr. Bland responded to this question on behalf of Licensee. No other parties submitted testimony on the issue.

98. The total estimated whole-body dose rate for the food ingestion pathway would be 0.31 mrem/yr. This dose was calculated using the environmental transport model of U.S. Nuclear Regulatory Commission Regulatory Guide

1.109 coupled with effective total-body dose conversion factors derived from Publication 30 of the International Commission on Radiological Protection. For the analysis, it was assumed that an individual grew all his fresh vegetables in soil contaminated with waste from the last burial cell. The soil-to-plant transfer factors specified in NRC Regulatory Guide 1.109 were used. Lic. Testimony at 79-80 (Bland).

99. The dose attributable to the ingestion of geese that might graze on the burial site was also evaluated. It was postulated that an individual would consume 14 kilograms (30 pounds) of goose flesh per year. The total whole-body dose equivalent from this scenario is 0.025 millirem. *Id.* at 80-81 (Bland).

100. Finally, the whole-body dose to an individual who drank contaminated lake water and consumed fish from the lake was evaluated. For this analysis, it was postulated that some catastrophic mechanism transferred the entire burial site inventory to the lake at one time and that all the sludge dissolved. An individual consumption rate of 21 kg/yr of fish and 730 liters/yr of water was assumed. The resultant total-body dose (assuming expected levels of resin contamination) would be 0.1 millirem. This dose would be received only in the first year after the postulated release. Doses in subsequent years would be orders of magnitude smaller because of waste dissipation. *Id.* at 81-82 (Bland).

101. An individual could not receive the total-body dose equivalent for vegetable and fowl consumption and the total-body dose due to ingestion of fish and drinking water because both scenarios could not occur simultaneously. Either the waste remains in the burial ground, in which case the dose due to vegetable ingestion applies, or the waste is released to the lake, in which case the dose due to ingestion of fish and water applies. *Id.* at 82 (Bland).

102. If radioactivity in the waste is at the maximum possible level, the maximum total-body dose equivalent for food ingestion (vegetables) would be 0.85 mrem/yr. The maximum total-body dose equivalent due to ingestion of goose flesh would be 0.07 mrem/yr. The alternative maximum total-body dose due to ingestion of fish and drinking water would be 0.3 millirem. The 0.3-millirem total-body dose due to ingestion of fish and drinking water would be received only in the first year and due to dissipation would not recur. *Id.* at 83 (Bland).

103. Dr. John Till, whose qualifications have previously been accepted, conducted a peer review of Mr. Bland's analysis. Dr. Till confirmed that Mr. Bland had used well-accepted methodologies, and that Mr. Bland's assumptions were generally conservative (i.e., would tend to overestimate actual doses). *Id.* at 84-85 (Till). Dr. Till's own independent calculations agreed with those of Mr. Bland. *Id.* at 84 (Till).

104. Dr. Roger E. Linnemann testified to the significance of the doses calculate by Mr. Bland. Dr. Linnemann is Vice Chairman and Chief Medical Officer of Radiation Management Corporation and is also an Associate Clinical Profes-

sor of Radiology at the University of Pennsylvania School of Medicine. Dr. Linnemann holds a medical degree and has been involved in the fields of radiology and health physics for over 20 years. *Id.* at 3, 8-9 (Linnemann).

105. Radiation risk estimates were based on the risk estimators published in the 1980 report of the Committee on Biological Effects of Ionizing Radiation, National Academy of Sciences, entitled, "The Effects on Populations of Exposure to Low Levels of Ionizing Radiation" (the BEIR III Report). These risk estimators assume a linear relationship between dose and response, with no threshold. *Id.* at 85-89, 91 (Linnemann).

106. The risk to an individual of a fatal cancer from a continuous 1-millirem dose would be 1.58 in 10 million per year. The risk of a spontaneous cancer death from other causes would be about 10,000 times greater. The risk of a genetic abnormality is about one-half of the cancer risk or about one chance in 10 million that a parent so exposed would experience a live birth with a genetic abnormality. The normal genetic abnormality risk from other causes is about one in ten. Even if the entire population residing within 10 miles of the Davis-Besse plant were to receive this dose (1 mrem/yr), one would not expect a single fatal cancer or genetic abnormality to occur. *Id.* at 89-90 (Linnemann).

107. Question 17 asked, "What are the principal chemical components of the nonradioactive sludge that are mixed with radioactively contaminated resins?" Dr. Gary F. Bennett who holds a Ph.D. in chemical engineering addressed this issue on behalf of Licensee. The Presiding Officer has reviewed his qualifications and experience and finds that he is qualified to give expert testimony in this proceeding. Lic. Testimony at 1, 9 (Bennett).

108. The sludge that is discharged to the settling basin consists of impurities removed from the raw lake water together with chemicals used in and produced by the water treatment process. These are calcium hydroxide, sodium aluminate, and calcium carbonate. The sludge is mainly a suspension of these inorganic solids in water. *Id.* at 94 (Bennett).

109. The sludge has been chemically analyzed by standard analytical procedures to determine the chemical and physical characteristics of the sample. *Id.* at 96 (Bennett). The sample that was analyzed was representative of the basin sediments because the water treatment process produces little variation in content, and the sample was a composite of several subsamples. Tr. 413-14 (Bennett, Briden); Tr. 619 (Bennett).

110. The chemical analysis shows that other than the water treatment chemicals themselves, the sludge contains heavy metals and other impurities found in Lake Erie water but in a more concentrated form. The settling basin bottom sample has a pH of 9. At this pH level, the metals would exhibit close to their minimum solubility and maximum resistance to dissolution and leaching. Lic. Testimony at 96-97 (Bennett). The Davis-Besse sludge is fairly typical of that produced in municipal water treatment facilities. Its principal

solid constituent is calcium carbonate. The concentrations of heavy metals in the Davis-Besse sludge are smaller than those in sludge produced by the water treatment facility of the Town of Oregon or the City of Toledo. *Id.* at 94-96 (Bennett).

111. The settling pond sludge was also tested in accordance with the extraction procedure (EP) toxicity tests called for in the U.S. Environmental Protection Agency's regulations implementing the Resource Conservation and Recovery Act (RCRA), 40 C.F.R. Part 261, Appendix II. Comparing the results of the tests with the RCRA standards (40 C.F.R. § 261.24) shows that the settling basin bottoms were well below the EP toxicity limits. Given the characteristics of the sludge and resins, the sludge does not exhibit the characteristics of reactivity, corrosivity or ignitibility as defined in the U.S. EPA regulations (40 C.F.R. §§ 261.21, 261.22, and 261.23). Water treatment sludge is not listed as a hazardous waste in 40 C.F.R. Part 261, Subpart D of EPA regulations. Lic. Testimony at 97-98 (Bennett).

112. Some of the trace metals and organic constituents of the sludge are listed by EPA and subject to limits. Tr. 414-17 (Bennett). The waste meets the applicable concentration limits. Lic. Testimony at 97-98 (Bennett). Although listed metal and organic constituents are present, this does not indicate that the waste is hazardous. Tr. 620 (Bennett).

113. The Presiding Officer's eighteenth question asked, "What is the rate of biological or chemical degradation of resins?" Question nineteen asked, "What biological hazards are there from resin degradation that have been published in the scientific literature or are known from manufacturers' tests?"

114. Mr. Richard Hetherington addressed these issues on behalf of Licensee. Mr. Hetherington holds a bachelor of science degree in chemistry from Temple University. He has worked in ion-exchange and water treatment fields for over 40 years. Lic. Testimony at 9 (Hetherington). Mr. Bimber who has also worked professionally with ion-exchange resins provided testimony on resins on behalf of SOS/CLO. The Presiding Officer has reviewed the qualifications of both witnesses and concludes that both are qualified to testify as experts in this proceeding on the subject of ion-exchange resins.

115. Ion-exchange resins are not subject to biological degradation. Lic. Testimony at 100-01 (Hetherington). Intervenors' witness confirmed that the polymeric structure of resins is very resistant to degradation. Tr. 462-63 (Bimber).

116. The resins are also resistant to chemical degradation. They are extremely insoluble in water. Even in solvents and solutions used in the laboratory, the resins are essentially insoluble. Decomposition can occur, but requires extremely powerful oxidizing solutions used in the laboratory, such as boiling nitric acid or chromic-nitric acid. Lic. Testimony at 101 (Hetherington).

117. There will be essentially no chemical reaction between the resins and the environment which might cause the release of radioactivity from the

resins. Impurities that have been exchanged onto a resin may be deliberately eluted (i.e., removed) from the resin by a regeneration process. This process requires the use of relatively strong acids or bases. *Id.* at 102-03 (Hetherington). It is highly unlikely that acids or bases of sufficient strength exist in the natural environment. Moreover, the manner in which the burial cells are constructed, as well as the packing characteristics of the resins, would prevent water containing ionizable salts and acids from percolating through the resins. Also, the resins are mixed with a very large volume of lime sludge. Even if water were able to percolate through the resin/sludge mixture, the alkalinity of this material would neutralize any strong acid. *Id.* at 103-04 (Hetherington).

118. Mr. Bimber suggested that perhaps fertilizer might elute radionuclides from resins. Bimber at 5. However, fertilizer will not be applied to the burial site (Lic. Testimony at 40 n.12 (Swim)); the resins have a greater affinity for cesium (the principal radionuclide on the resins) than for potassium in fertilizer (Tr. 385 (Hetherington)); elution will not occur if the eluting ions are not in solution and if the resins are encrusted (Tr. 376, 378, 380, 385 (Hetherington)). Elution therefore would not occur in solidified waste. Tr. 384-85 (Hetherington). Finally, the residual ion-exchange capacity that remains on the resins after they are discharged provides further protection against elution of the radioactive ions, because spent resins when they are discharged still retain about 40% of their ion-exchange capabilities. The presence in the environment of ions with a greater affinity for the resins than those ions presently held on them would not be expected to cause leakage of radioactive ions from the resins. Lic. Testimony at 104 (Hetherington).

119. The ion-exchange resins are not only inert but also nontoxic. Similar resins have been used in drugs and cough medicines on the market for years. Lic. Testimony at 102 (Hetherington); Tr. 364, 374 (Hetherington).

120. There is no credible evidence that indicates that the resins might be carcinogenic. *See* Tr. 373-75, 382-84 (Hetherington). The SOS exhibit does not support this claim. (SOS Exh. 1 marked at Tr. 310, not received.)

121. The resins are not combustible until moisture is removed. When moisture is removed, the resins will burn in flame at 230°C. It is estimated that auto-ignition of pure resins will occur at 427°C (800°F). At Davis-Besse, however, the resins will not be buried in pure form, but rather are already mixed with thousands of cubic feet of water treatment sludge (which is predominantly calcium carbonate) and will be solidified by cement kiln dust. Such a solidified mixture will not be combustible. Lic. Testimony at 105 (Hetherington).

122. The Presiding Officer's last issue stated, "Describe the Licensee's plans for site management during operation, for marking the burial site, and for record keeping at the burial site." This issue was addressed by Mr. David M. Wallace, a construction engineer and Lead Nuclear Projects Manager for the Davis-Besse Nuclear Station, and by Ms. Scott-Wasilk. During cross-

examination of Licensee's witnesses, Mr. Hendron and Mr. Swim also provided pertinent information. The Intervenors presented no witnesses to testify on issue 20.

123. Each time it becomes necessary to remove and bury settling basin sludge, the Licensee will appoint a project manager who will be responsible for construction of the burial cell; for removal of sludge from the settling basin; for transportation of the sludge to the constructed cell, and for the subsequent closure of the cell. After the cell is sealed and the burial project completed, Licensee's Environmental Monitoring Section will assume responsibility for monitoring the burial site and maintaining the cell. *Id.* at 106 (Wallace).

124. The burial project will be conducted in accordance with the Davis-Besse Project Management procedure. The project team will be composed of members of the various divisions with responsibility over aspects of the project. The procedure brings all these divisions together under one project management and ensures an integrated, interdisciplinary approach to the project. *Id.* at 107 (Wallace).

125. The project manager will develop a detailed project plan which will define the scope of the work to be done, the project goals and objectives, the project team organization, the method of implementation, schedule, and functional assignments. The project team will perform any further engineering work that might be necessary (for example, to satisfy any additional design features that might be required by the Ohio Permit to Install). The team will develop the final specifications for the project (including the specifications for the synthetic membrane liner). *Id.* at 107-08 (Wallace). The ability to withstand puncture will be taken into account in the selection of the synthetic membrane, as will be the compatibility between the waste and liner. Tr. 191 (Swim); Tr. 582 (Hendron).

126. The actual construction of the cells and transportation of the waste will likely be performed by contractors. The contractual documents will provide the specifications for the work to be performed and will include quality controls. The project team will oversee the work to ensure it meets the specifications. Lic. Testimony at 107-08 (Wallace).

127. Construction of an individual cell should be completed in less than 90 days. Tr. 195 (Wallace). The construction will be conducted so as not to disturb previously constructed cells. Tr. 193-94 (Swim). If a new cell is going to be built adjoining a previously constructed cell, the sides of the new dike will be constructed before rip-rap is removed from the wall separating the two cells. Tr. 195 (Swim). The removal of the rip-rap will cause no damage. Tr. 194 (Swim). If it rains during construction of the cells, the rainwater will be pumped out and will not affect the materials being worked. Tr. 196-97 (Wallace).

128. After the cell is constructed, the waste will be removed from the settling basin and transported to the burial cell. A number of representative

samples of the sludge will be taken for an analysis. Contractors' vacuum trucks will be used to draw the sludge from the settling basin and to transport the waste to the burial site. Lic. Testimony at 108-09 (Wallace).

129. At the burial site, the waste will be mixed with a solidifying agent (cement kiln dust). *Id.* at 109 (Wallace). This process will be performed in accordance with formal specifications to ensure uniformity of the product. Tr. 425 (Wallace). Typically, a backhoe bucket would be used to mix the waste and solidifying agent in the cell. Tr. 425-26 (Wallace); Tr. 433 (Hendron). The same wide-tired equipment would be used to mix the material as was used to place and compact the liner; hence there will be no unusual loads placed on the liner. Tr. 433 (Wallace). The solidifying agent will cause the waste to set up. Lic. Testimony at 109 (Wallace).

130. After the waste has solidified, the cell will be capped and the cover seeded. *Id.* (Wallace). This process should be completed in about a week. Tr. 434 (Wallace). The volume of the cell is sufficient to encompass the waste and kiln dust with about a 1-foot freeboard. The waste therefore will not overtop the cell, even if rain occurs during the capping process. Tr. 203-04, 583 (Swim); Tr. 435-36, (Herdendorf); Tr. 623 (Hendron).[15]

131. Licensee's Environmental Monitoring Section will monitor ground water and conduct periodic inspections of the cells. Lic. Testimony at 109 (Scott-Wasilk). Final procedures have not yet been prepared, since they will depend on the terms of the Permit to Install issued by the State. Tr. 426-27 (Scott-Wasilk).

132. The Environmental Monitoring Section's current plan is to monitor ground water in four wells. One of the wells will provide background data, and the other three will be located in directions of possible ground water flow. Water in these wells will be sampled semiannually for priority pollutants, pH, and radioactivity. Lic. Testimony at 109-10 (Scott-Wasilk). Licensee will also remove and test leachate in the cells. Tr. 193 (Swim). The disposition of the leachate will depend on the results of the test. *Id.* Licensee expects some leachate in the cells initially after they are completed. After a short while, however, leachate should no longer occur. Tr. 192, 423-24 (Hendron).

133. The Environmental Monitoring Section intends to conduct formal inspections of the cells and dikes semiannually to ensure that cracking of the cover or erosion does not occur. The cells and dikes will also be inspected after any significant flooding event. Lic. Testimony at 110 (Scott-Wasilk). In addition to these formal inspections, the Environmental Monitoring Section conducts site surveys several times a week. The survey teams pass by the burial site area and will be able to observe the condition of the cells. Tr. 245-46 (Scott-Wasilk).

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[15] The time Licensee estimates for closure is well within the period allowed by Ohio's regulations. Tr. 623 (Wallace).

134. If any significant deterioration of a cell is detected, it will be repaired. Lic. Testimony at 110 (Scott-Wasilk); Tr. 200 (Scott-Wasilk). If the vegetative cover on the cell dies, new grass will be planted. Tr. 247 (Scott-Wasilk). The grass will be watered to the extent necessary. Tr. 248. The Environmental Monitoring Section will also deal with any deep-rooted plants that might seed themselves on the cells and compromise the integrity of the cells. Tr. 248-49 (Scott-Wasilk). Plant roots are, however, unlikely to penetrate the gravel layer separating the topsoil and compacted clay, since the gravel layer is xeric. Tr. 596-97 (Jackson). The gravel layer also impedes insects from burrowing into the compacted clay below. Tr. 254-56, 597 (Jackson). Groundhogs could perhaps tunnel into a cell, although the gravel layer would present a barrier. Tr. 256-57 (Jackson). Licensee, however, conducts a groundhog eradication program under the direction of the U.S. Fish and Wildlife Service in consultation with the Ohio Department of Natural Resources. Tr. 598 (Scott-Wasilk).

135. The Environmental Monitoring Section will maintain a description of the waste in each cell, identified by type, volume, content, and date of burial. The location of each cell will be surveyed and recorded on a plat. In addition, all settling basin sampling data, all ground water monitoring data and reports, all burial site inspection reports, and all maintenance reports will be retained. These documents will be kept available for inspection and will be treated as NRC permanent records. Project records pertaining to the design and construction of the cells will also be retained as NRC permanent records under the Davis-Besse Nuclear Records Program. Lic. Testimony at 110-11 (Wallace, Scott-Wasilk).

136. Since the burial cells will be surveyed and recorded on a plat, and since the cells are raised, diked structures, there is no need to erect monuments or markers to define the bounds of the cells. Licensee will post signs to alert any person in the area and to prohibit unauthorized access. *Id.* at 111 (Scott-Wasilk).

137. The Presiding Officer concludes that the Licensee has developed sufficient information to resolve the disputed issues in this case. The levels of radioactivity in the waste are known to be very low. The chemical nature of the waste has been ascertained and evaluated against EPA criteria. The location of the site has been specified, and the design characteristics of the cells are sufficiently developed to permit determinations as to the environmental impact of the project. *See, e.g.*, Tr. 624-25, 953 (Hendron).[16] The geology and hydrology of the site, including the potential for flooding, have been extensively explored. The effect of the project on wildlife and endangered species has also been evaluated.

138. The record in this proceeding establishes that the waste in question at the Davis-Besse site presents no radiological or chemical risk to the public health and safety.

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[16] Further details on site design and operation may need to be developed by Licensee to obtain a Permit to Install from the State, but that process and the State's requirements belong to the State, and are beyond the province of the Commission.

139. The record in this proceeding also establishes that the waste burial project at the Davis-Besse site will have no significant environmental impact.

III. CONCLUSIONS OF LAW

1. There is reasonable assurance that the secondary-system demineralizer resins and water treatment sludge can be buried at the Davis-Besse Nuclear Station without endangering the health and safety of the public.

2. The issuance of a materials license authorizing burial of this waste is not inimical to the public health and safety or the common defense and security.

3. The burial will have no significant environmental impact, and the National Environmental Policy Act therefore does not require that an environmental impact statement be prepared. 42 U.S.C. § 4332 (1982).

4. There are no unresolved conflicts concerning alternative uses of available resources, and the National Environmental Policy Act therefore does not require further studies. 42 U.S.C. § 4332.

5. There is no reason to believe that any endangered species will be affected by the waste burial, and the consultation provisions of the Endangered Species Act are therefore not invoked. 16 U.S.C. § 1536(a)(3).

6. The NRC's environmental assessment, 50 Fed. Reg. 41,266 (1985), is amended *pro tanto* to include these findings and conclusions. 10 C.F.R. § 51.103(b); *Allied-General Nuclear Services* (Barnwell Nuclear Fuel Plant Separations Facility), ALAB-296, 2 NRC 671 (1975).

7. The NRC environmental assessment is amended to include Licensee's project plan entitled "Project Plan/Conceptual Design Disposal of Very Low Level Radioactive Waste at Davis-Besse Site" (September 1986). Authority to approve amendments to the plan resides with the NRC Staff.

IV. ORDER

The authority previously granted by the Nuclear Regulatory Commission to The Toledo Edison Company to bury water treatment sludge and secondary-side demineralizer resins on the site of the Davis-Besse Nuclear Station is affirmed. In accordance with the Commission's Order of February 21, 1986, this Decision will become final agency action 30 days after the date of issuance, unless the

Commission on its own motion undertakes a review of the Decision. No petition for review of this Decision will be entertained.

IT IS SO ORDERED.

Helen F. Hoyt
ADMINISTRATIVE JUDGE

Dated at Bethesda, Maryland,
this 15th day of April 1987.

Cite as 25 NRC 324 (1987) LBP-87-12

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Helen F. Hoyt, Chairperson
Gustave A. Linenberger, Jr.
Dr. Jerry Harbour

In the Matter of

Docket Nos. 50-443-OL
50-444-OL
(ASLBP No. 82-471-02-OL)
(Offsite Emergency Planning)

PUBLIC SERVICE COMPANY
OF NEW HAMPSHIRE, *et al.*
(Seabrook Station, Units 1
and 2)

April 22, 1987

In this Memorandum and Order, the Licensing Board finds that Applicants' petition for a waiver of the regulations requiring planning for a plume exposure pathway emergency planning zone in excess of a 1-mile radius fails to make a *prima facie* showing on its technical merits that the waiver should be granted. Accordingly, the Board holds that the petition may not be considered further.

REGULATIONS: WAIVER

The *prima facie* showing required by 10 C.F.R. § 2.758 for a waiver of a Commission regulation requires the Board to determine whether the petition for waiver with its accompanying affidavits, weighed against the responses of the other parties, presents legally sufficient evidence to justify the waiver request.

MEMORANDUM AND ORDER
(Ruling on Applicants' Petition with Respect to Emergency Planning Zone in Excess of 1 Mile)

BACKGROUND ON THE APPLICANTS' PETITION

The Board has before it "Applicants' Petition under 10 C.F.R. 2.758 and 10 C.F.R. 50.47(c) with Respect to the Regulations Requiring Planning for a Plume Exposure Pathway Emergency Planning Zone in Excess of a One-Mile Radius," filed December 18, 1986. Applicants' memorandum in support of their petition accompanied the petition. Attached to the certificate of service was a list of those documents Applicants relied on in their petition. The Board has attached this list as Appendix A.

On December 23, 1986, this Board ordered that any party to this proceeding could file a response in accordance with the provisions of 10 C.F.R. § 2.758(b). We affirmed the due date for responses in a Memorandum and Order dated January 7, 1987 (unpublished), and again on January 21, 1987, in response to a motion for extension filed by Massachusetts Attorney General. On January 27, 1987, the Board granted an extension to February 2, 1987, to counsel for New England Coalition on Nuclear Pollution (NECNP) and the NRC Staff due to unusual conditions in the Washington, D.C. area. Seacoast Anti-Pollution League (SAPL) asked for and received a 1-day extension.

Opposition to Applicants' petition was timely filed by Intervenors: (1) "Town of Hampton Memorandum in Opposition to Applicants' Petition to Reduce EPZ"; (2) "NECNP's Opposition to Applicants' Petition Under 10 C.F.R. 2.758 and 10 C.F.R. 50.47(c) for Waiver of Ten-Mile Emergency Planning Zone"; (3) "Seacoast Anti-Pollution League's Brief in Opposition to Applicants' Petition Under 10 C.F.R. 2.758 and 10 C.F.R. 50.47(c) for Reduction in the Size of the Seabrook Station Plume Exposure Pathway EPZ" and First Supplement dated January 29, 1987, and Second Supplement dated February 6, 1987; (4) "Town of Amesbury Response to Applicants' Petition Under 10 C.F.R. 2.758 and 10 C.F.R. 50.47(c) with Respect to the Regulations Requiring Planning for a Plume Exposure Pathway Emergency Planning Zone in Excess of a One-Mile Radius"; (5) "Attorney General Shannon's Memorandum in Opposition to Applicants' Petition Under 10 C.F.R. 2.758 and 10 C.F.R. 50.47(c) with Respect to the Regulations Requiring Planning for a Plume Exposure Pathway Emergency Planning Zone in Excess of a One-Mile Radius" (attached to the Attorney General's Memorandum were affidavits which are identified in

our Appendix B); (6) Town of Kensington "Partial" response[1]; and (7) "State of Maine's Memorandum in Opposition to Applicants' Petition to Reduce the Emergency Planning Zone."

The State of New Hampshire filed its timely response in which the State did not take a position before the Board with respect to the Applicants' petition.

On March 26, 1987, there was filed with the Board "Applicants' Motion to File a Reply to Massachusetts Response to Applicants' Petition Under 10 C.F.R. 2.758." NRC Staff opposed Applicants' Motion on April 10, 1987. We deny Applicants' motion to file a reply to Massachusetts' response on the same grounds as that cited to us by the Staff. The provisions of 10 C.F.R. § 2.758 do not contemplate the filing of replies to responses, and no good cause has been put forward by Applicants in this case to permit them to go beyond what the rule provides. Accordingly, the Applicants' reply has not been considered by this Board.

10 C.F.R. § 2.758

Section 2.758(a) provides that Commission rules may not be attacked in an adjudicatory proceeding concerning initial licensing, such as the operating license Applicants are seeking in this proceeding. Since the rules under Part 50, specifically 10 C.F.R. § 50.47(c)(2), provide that a plume exposure pathway (EPZ) for nuclear power plants shall consist of an area of about 10 miles in radius, any reduction of the EPZ could only be permitted providing that a petitioner sustain an application for a waiver or an exception. The standard for determining if the petition is successful is whether the petitioning party has made a *prima facie* showing that the Commission rule would not serve the purpose for which the rule was adopted. If there is a negative finding, no evidentiary proceeding will be permitted and the matter cannot be further considered by the Board.

The provisions of § 2.758(b) are as follows:

> (b) A party to an adjudicatory proceeding involving initial licensing . . . may petition that the application of a specified Commission rule or regulation . . . be waived or an exception made for the particular proceeding. The sole ground for petition for waiver or exception shall be that special circumstances . . . are such that application of the rule or regulation (or provision thereof) would not serve the purposes for which the rule or regulation was adopted. The petition shall be accompanied by an affidavit that identifies the specific aspect . . . as to which application of the rule or regulation . . . would not serve the purposes . . . and shall set forth with particularity the special circumstances alleged to

[1] Board records show only a three-line objection dated January 23, 1987. No complete response promised by February 3, 1987, was received.

justify the waiver or exception requested. Any other party may file a response thereto, by counter-affidavit or otherwise.

10 C.F.R. § 50.47(c)

Applicants have also sought a grant of relief from the provisions of § 50.47(c)(2) setting the 10-mile radius for emergency planning around the Seabrook nuclear plant. In the event the Board determines that the permanent waiver or exemption under § 2.758 is inappropriate, Applicants solicit the Board to grant relief under § 50.47(c) by applying the three criteria articulated in the rule. In anticipation that a waiver in respect to emergency planning regulations may be granted under § 50.47(c) only after a showing that 10 C.F.R. § 50.12 criteria have been satisfied, the Applicants have set out arguments meeting those criteria as well.

DISCUSSION

Pertinent to any discussion of the basis of our decision on Applicants' petition requires that we set forth the standard of what this Board considers is appropriate for a *prima facie* showing that the Commission rule for a 10-mile EPZ can be waived or an exception made for this proceeding.

The *prima facie* showing standard was not defined in § 2.758(c) and only one licensing board has, in a footnote, found that it is reasonable to equate "*prima facie*" showing with substantial showing. *Carolina Power & Light Co.* (Shearon Harris Nuclear Power Plant), LBP-85-5, 21 NRC 410, 443 n.16 (1985). That Board did go on to say that this would mean that affidavits supporting a petition for waiver should present each element of the case for waiver in a persuasive manner and with adequate supporting facts from a qualified expert, where appropriate. To this Board the difficulty here lies in accepting our colleagues' explanation of what *prima facie* showing is with their labeling of this standard as being a *substantial* one. Were the standard such as to require the proof suggested by the use of term substantial, then there would be a need for much more than "adequate supporting facts from a qualified expert." We believe that the label of substantial would require full, important, essential, and considerable factual detail which is somewhat more than mere "adequate supporting facts."

It was against this background that the Board had to examine the use of an exemption of one of the more controversial public concerns relating to safety of the population around a nuclear power plant — that is, the evacuation of persons within only a 1-mile radius in the event of a nuclear incident. We find little guidance in the cases before this Commission or the regulations. We would be less than candid if we did not express, albeit *dicta*, our belief that the provisions of § 2.758 were never intended to be used in deciding an issue of this magnitude.

The Appeal Board in *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-653, 16 NRC 55, 72 (1981) stated the standard with which we associate in this instance when it said that "prima facie evidence must be legally sufficient to establish a fact . . . unless disproved." We have applied this standard and find Applicants' petition does not meet the required *prima facie* showing needed to certify the matter to the Commission for final determination.

Applicants in a response to Joint Intervenors' appeal of our order of January 7. 1987, before the Appeal Board on January 27, 1987, at pages 9-12 has also stated what this Board has applied in determining the standard to be used in judging whether this petition passes muster. Briefly stated, the Board has determined that the *prima facie* showing standard is whether the petition with its accompanying affidavits as weighed against the responses of the parties, presents legally sufficient evidence to justify the waiver or exemption from the requirement of a 10-mile EPZ.

10 C.F.R. § 50.47(c)

The provisions of this section provide that if an applicant fails to meet any of the sixteen offsite emergency planning standards established in § 50.47(b), the applicant will have an opportunity to demonstrate the following:

(1) that deficiencies in the emergency plans are not significant for the plant; or

(2) that adequate interim compensating activities have been or will be taken; or

(3) that there are other compelling reasons to permit plant operation.

The Applicants have argued that the "deficiency" of a 1-mile zone is not significant for the Seabrook plant because it has demonstrated that it is in compliance with the NUREG-0396 rationales that projected radiation doses would not exceed the Protective Action Guide levels beyond 1 mile. We believe that our discussion of § 2.758, below, has demonstrated the unacceptability of this argument.

The second alternative is that interim compensating activities have been or will be taken. Any discussion of such activities is premature to say the least. The Board is presently working toward resolving such matters in the litigation of the New Hampshire Radiological Emergency Response Plan (RERP). It would be inappropriate to grant the waiver on the as yet untested New Hampshire emergency plans.

The third alternative of "compelling reasons" is also rejected. The Board has no difficulty with accepting Applicants' theory that Seabrook is a valuable energy resource. But that does not relieve the Board of its responsibility to make its finding that there is reasonable assurance that adequate protective measures

can and will be taken in the event of a radiological emergency at this valuable energy resource. We also reject the argument that limiting a completed plant to low-power operation is an unnecessary and unjustifiable economic burden. The regulations are quite clear — the plant must have an acceptable RERP prior to going to full power. Other events occurring in this case make clear that the emergency plan for only one of the two states involved is ready for litigation on the issues of adequacy of various emergency preparedness provisions. The second state plan, filed by Applicants, has been circulated to the parties very recently. In short, there is yet much emergency planning work to be done before we could determine that there were only minor cosmetic problems left which could be waived as insubstantial.

Applicants have not made their case here with any of the three criteria. We further note that § 50.47(c) provides for waiver of planning standards set forth in § 50.47(b). The requirement for the 10-mile emergency planning zone is set forth in § 50.47(c)(2).

INTRODUCTION TO TECHNICAL ISSUES

This discussion deals with the narrow question of whether Applicants have made a *prima facie* showing in support of their motion to reduce the size of the Seabrook plume exposure pathway emergency planning zone (PEPZ) to 1 mile. We have addressed this issue separately from the legal and regulatory sufficiency set forth above. Applicants' motion was accompanied by technical documents and peer review testimonials purporting to provide a *prima facie* showing that a 1-mile PEPZ for the Seabrook Station is technically appropriate. (*See* Appendix A.)

Technical support for Applicants' motion was provided in the form of three documents:

(1) YAEC-1502, "Licensing Aspects of the Seabrook Emergency Planning Zone Study," S. Lee and P. S. Littlefield, December 1985;

(2) PLG-0432, "Seabrook Station Risk Management and Emergency Planning Study (RMEPS)," Pickard, Lowe and Garrick, Inc., December 1985;

(3) PLG-0465, "Seabrook Station Emergency Planning Sensitivity Study (EPSS), Pickard, Lowe and Garrick, Inc., April 1986.

These reports are summarily characterized as follows: Item 1 presents the Yankee Atomic Electric Company's dose assessment results for the Seabrook Station that reflect not only the characteristics of the Seabrook Station but also the insights gained from numerous accident and source-term studies since the publication of WASH-1400 and NUREG-0396. Item 2 presents the results of a technical evaluation of emergency planning options and other risk manage-

ment actions under consideration for Seabrook. These results include an update of the Seabrook Station Probabilistic Safety Assessment (SSPSA) prepared for Public Service Company of New Hampshire and Yankee Atomic Electric Company by Pickard, Lowe and Garrick, Inc. (PLG-0300, December 1983). As with Item 1, it includes more recent insights about source terms than were available for the SSPSA analysis. Item 3 is most directly supportive of Applicants' motion in that it reverts to the source-term methodology of WASH-1400 in performing a sensitivity study to help evaluate emergency planning options for Seabrook. Characterizing the source-term methodology as extremely conservative, EPSS concludes that a PEPZ of no greater than 1 mile is appropriate for Seabrook.

The thrust of Applicants' technical discussion is that the design characteristics of Seabrook are such that accident analyses using WASH-1400 methodology — without taking account of advances in the understanding of source-term behavior developed since the publication of WASH-1400 — yield environmental releases of radiation at 1 mile from the plant site that have lower risk consequences than those deemed acceptable by NRC's Safety Goals. Additionally, Applicants state that said risk consequences are comparable to those considered by the authors of NUREG-0396 in concluding that an approximate 10-mile PEPZ is appropriate for all light water plants. Hence, say Applicants, a 1-mile PEPZ is justified for Seabrook.

Other inputs reviewed by the Board include the following: a Brookhaven National Laboratory (BNL) final report (March 1987) prepared for the NRC that performed sensitivity studies of those portions of PLG-0465 found to be most influential in calculating Seabrook risk estimates; the response of the Commonwealth of Massachusetts to the Applicants' motion — in particular the affidavit of S.C. Sholly accompanying that response (Sholly Affidavit of 23 January 1987); the response of the Staff to Applicants' motion, which provided the affidavit of S. Newberry (Newberry Affidavit of 27 February 1987); the Review Comments of T.G. Theofanous prepared for the Staff regarding steam generator tube rupture (SGTR), 12 January 1987; a Staff memorandum from Warren Lyon to Charles E. Rossi concerning SGTR events during severe accidents at Seabrook, 3 March 1987; and the comments of the New Hampshire Yankee Division of Public Service of New Hampshire transmitted by letter of January 20, 1987, to V. Nerses of the NRC Staff, concerning the BNL draft report A-3852 (predecessor of the BNL final report noted above).

DISCUSSION

Applicants' Case

The materials submitted by Applicants in support of their motion requesting a reduction of the PEPZ from 10 miles to 1 mile have been identified and characterized above. Whereas the materials provide a backdrop of information of substantive value to formulating and critiquing the Seabrook emergency response plan, we address them here in the context of whether they offer sufficient technical input to warrant further consideration of Applicants' motion.

The Seabrook Station RMEPS (PLG-0472, December 1985) comprises a risk assessment that led Applicants to conclude that the total benefits of evacuation of the populace around Seabrook are very small because the risk without evacuation is already very small and a 1-mile PEPZ is appropriate. The bases for this conclusion include the following:

- The potential for early releases to the environment is substantially reduced because of the strength and structural integrity of the large, dry, reinforced concrete containment building;
- New data and engineering insights concerning accident sequences involving interfacing systems LOCA indicate an acceptable consequence for such events;
- A broad-scope risk model is used in order to take account of Seabrook-specific plant design and site characteristics and to take advantage of post-WASH-1400 advances in data and modeling techniques; and,
- Post WASH-1400 advances in source-term assessment are used.

The Seabrook Station EPSS (PLG-0465, April 1986) provides the results of a sensitivity analysis of the risk assessment results from RMEPS, but without source-term assessment advances, using, instead, WASH-1400 source-term methodology. From PLG-0465, Applicants confirm their belief that a 1-mile PEPZ is appropriate for Seabrook, even without taking credit for recent reassessments of source-term behavior, i.e., the conclusion of the RMEPS is insensitive to source-term assumptions, as treated by Applicants.

The two documents just mentioned comprise the thrust of the technical support for Applicants' motion. YAEC-1502 presents a summary of dose calculations made for Seabrook that is consistent with results of the broader-scope PLG studies. However, we do not discuss YAEC-1502 here since its results are largely subsumed within the PLG documents.

An earlier full-scope risk assessment analysis of Seabrook was performed by Pickard, Lowe and Garrick, Inc., for Public Service Company of New Hampshire and Yankee Atomic Electric Company (PLG-0300, "Seabrook Station Probabilistic Safety Assessment" (SSPSA), December 1983). Building upon the

SSPSA, the RMEPS (currently before us) updates the earlier assessment by invoking significant advancements involving the following:

Nature and magnitude of radioactive source-term releases;

Strength of the Seabrook large, dry containment and implications of its integrity with respect to the timing and magnitude of source-term releases;

Progression of accident sequences for loss-of-coolant events outside of the containment.

Risk reduction options are examined in the perspective of this updated assessment. The significant results are summarized as follows:

The acute health risk is very low in absolute terms as well as in relation to any known standards of acceptability or safety goals. Even under the assumption of no immediate protective actions, the acute health risk estimated for Seabrook Station is:

- More than an order of magnitude less than that estimated in the SSPSA, which assumed a 10-mile evacuation distance.
- More than an order of magnitude less than that estimated in WASH-1400, which assumed a 25-mile evacuation distance.
- About two orders of magnitude less than the NRC safety goal for individual risk within 1 mile of the site.
- Substantially less than the level of risk achieved with an EPZ distance of 10 miles as perceived in NUREG-0396.
- Spatially located close to the plant site, with over 95% located within 2 miles of the containment, and over 70% within 1 mile.

The latent cancer risk is estimated to be:

- Comparable to that estimated in the SSPSA and in WASH-1400.
- More than a factor of 250 less than the NRC safety goal for societal risk within 50 miles of the site.
- Insensitive to assumptions regarding evacuation because of the role of long-term exposures to low dose levels in the models used to estimate latent health effects.

Staff's Response

The Staff requested that Brookhaven National Laboratory (BNL) undertake a review of the PLG reports ultimately submitted by Applicants in support of their motion. The BNL results have been published, first in a draft report (BNL A-3852, December 1986) and in a final report dated March 1987. We have reviewed both reports, which bear the same title, "Technical Evaluation of the EPZ Sensitivity Study for Seabrook." Our observation is that both reports deal with both of the PLG studies submitted by Applicants. We do not present our

own summary of the BNL effort for the reason that Staff's critique of same is seen to be realistic and credible.

The Staff's response to Applicants' motion is contained in the affidavit of Newberry, which summarizes the Staff's current position as follows:

> We believe that a more complete understanding of the Seabrook plant and risk assessment needs to be developed before a position can be taken on the risk assessment aspects of the petition. This is primarily due to the low probability estimates for early containment failure which are a cornerstone of the Applicants' petition. Unresolved questions remain from the BNL review of PLG-0465 [BNL A-3852, Draft Report, December 1986] in the areas of containment loads (including the contribution to containment accident loads resulting from the direct containment heating phenomenon), induced steam generator tube rupture, and severe accidents at shutdown. We believe the BNL questions merit further investigation. Therefore, further detailed evaluation of accidents at shutdown and steam generator tube rupture is necessary. Identification of a Seabrook specific containment event tree with Seabrook specific containment loads using the BNL structural capability estimates is also being considered. We also believe that further review of internal and external accident sequences in the SSPSA [an earlier risk assessment, PLG-0300, December 1983] needs to be completed to consider the likelihood and uncertainty of early containment failure at Seabrook.
>
> In addition to assessing the validity of Applicants' risk assessment, the Staff will also be reviewing the Applicants' analysis of the consequence of design basis accidents at Seabrook. In this regard, independent Staff consequence calculations are planned. The Staff also will be examining certain emergency-planning related issues, including the adaptability of emergency plans for the taking of ad hoc measures beyond one mile if necessary (the fourth rationale identified in Applicants' petition), and the rationales for having selected ten miles as the appropriate zone for the plume exposure pathway EPZ.

(Newberry Affidavit at 9-10).

The Staff's Newberry affidavit comments upon the major areas addressed by BNL, which are summarized here:

> *Interfacing Systems LOCA* (Bypassing containment) — BNL's most significant concern in this area relates to the initiation of such an event, it being primarily a function of valve failure rate. BNL estimates a higher likelihood of failure than does PLG based upon valve failure rates judged to be more appropriate. However, BNL concludes that owing to credit for fission product scrubbing by coolant in the residual heat removal vault, this situation probably would not significantly change the risk profile assessment of PLG-0465.
>
> *Accidents During Shutdown* — This item was not addressed by PLG-0465 but was assigned to BNL during its review. In response to the BNL draft report, Applicants submitted additional information that pointed to the reduction of source term resulting from duration of shutdown as a mechanism that reduces accident significance. The BNL final report, published subsequent to the Newberry affidavit, concludes that the

shutdown risk assessment is unacceptable as presently documented (BNL Final Report at 2-26).

Steam Generator Tube Rupture — This phenomenon involves the loss of steam generator tube integrity subsequent to the onset of a core melt accident. This could permit fission product release to the environment via steam generator relief valves, another potential example of containment bypass. While not reviewed in detail by BNL, this matter has been considered by the Staff and reviewed by Dr. Theofanous at Staff's request. Dr. Theofanous concludes that in the face of uncertainties of estimates and the recognition that not all tubes are in good-as-new condition, the effect of induced SGTR should not be neglected and prompt reactor coolant system depressurization should be given serious consideration. (Review Comments of T.G. Theofanous, 12 January 1987, at 4-5).

Containment Isolation Failure — Neither the Staff nor BNL has reviewed this matter in detail. Applicants conclude that it has a small impact on risk; Staff concludes that fully closed purge and vent valves should provide reliable isolation under severe accident conditions (Newberry Affidavit at 6).

Containment Integrity and Containment Loads — Given that the Seabrook containment is about 23% stronger than the Zion containment, BNL expects the probability of failure should be lower for Seabrook than for Zion. BNL's analysis of the Seabrook containment leads it to conclude that failure due to gross leakage is not likely to occur at a pressure below 165 psig, including penetrations. Seabrook specific containment loads were not derived by BNL. Based upon Zion loads previously analyzed by BNL, it estimates a low probability of early Seabrook containment failure but considers these estimates to be preliminary; BNL did not quantify the probability (*id.* at 6-7).

Source Terms — BNL finds general consistency between fission product behavior in PLG-0465 and WASH-1400. BNL also finds that Applicants' justification of subcooling of coolant in the residual heat removal vault is reasonably supportive of the assumption noted above concerning the decontamination that will be achieved (*id.* at 7).

Consequence Modeling — Risk consequences for Seabrook are obtained in PLG-0465 through the use of the PLG "CRACIT" code whereas BNL used the "MACCS" code. Differences were found, but BNL believes that these differences are accounted for by differences in modeling techniques used in the two computer codes. BNL did not verify the risk of early fatalities reported by PLG-0465 but did note that the MACCS code would tend to predict more early fatalities than would CRACIT (*id.* at 7-8).

For the most part, we consider that the BNL report has been appropriately characterized in the Staff's Newberry affidavit; hence we do not present a detailed assessment of it here. There is one matter, however, that is addressed by BNL that perhaps deserves more emphasis than is given by Newberry. That has to do with accidents during shutdown. Because PLG-0465 does not address the subject of risk during shutdown, BNL made use of an NSAC report that specifically dealt with this matter for the Zion PWR (NSAC-84, "Zion Nuclear Plant Residual Heat Removal PRA," July 1985). NSAC-84 results show that the dominant core damage sequences during shutdown derive from loss of the residual heat removal system due to operator errors. Although BNL has found that extensive revisions to NSAC-84 are needed to correct deficiencies, these revisions (states BNL) tend to increase the frequency of core damage. In response to Staff's request, Applicants presented additional information regarding shutdown accidents (PSNH Letter SBN-1225), dated October 31, 1986, Response to Request for Additional Information (RAIs), J. DeVincentis to S.M. Ing). BNL states that the result of this analysis is inadequate, if not incorrect, and requires many changes (BNL Report at 2-18 through 2-22). [In fairness to the Staff, we note that the foregoing statement was found only in the BNL final report issued subsequent to the Newberry affidavit.]

As will be noted from the foregoing, the Newberry affidavit seems not to take issue with the BNL report. Staff estimates that its full review of the merits of Applicants' motion can be completed by November 1987. (Newberry Affidavit at 8.)

Further insight into the Staff's thinking with respect to one of the above areas (SGTR) is contained in a report titled "Seabrook Station Steam Generator Tube Response During Severe Accidents," January 27, 1987 (Lyon Report). This report was transmitted by Staff Memorandum from W. Lyon to C.E. Rossi, dated March 3, 1987. It identifies a number of subareas in which work has been done, provides an assessment of that work, and makes recommendations for future work that may be needed to resolve the question of the seriousness of an SGTR event with respect to offsite risk consequences.

Owing to the high strength and large volume of the Seabrook containment, Applicants state that the containment has the capability to either significantly delay or to prevent the release of large amounts of radioactive material during and following a severe accident involving core damage or core melt. Hence accident sequences that bypass the containment are of particular importance to the evaluation of the adequacy of Applicants' motion. One bypass potential involves a path between the reactor coolant system (RCS) and the environment via ruptured steam generator tubes. An SGTR event during a core melt accident while the RCS is at pressure offers the potential opportunity for a radioactive release through the steam generator relief valves, or through a rupture in a steam line outside the containment.

The Lyon Report says that an SGTR event is probably only of concern if the RCS is pressurized, but concludes that a formidable undertaking may be necessary to resolve the issue of whether such pressurization accompanied by tube failures presents an underestimated risk to the environment. Lyon characterizes Applicants' position on the matter as finding a small probability for the occurrence of the many SGTRs required to produce a significantly large containment bypass. The report acknowledges the position of Staff consultant Theofanous (as does Newberry, noted above) concerning the importance of RCS depressurization, but expresses the belief that the issue can be shown ultimately (albeit with considerable effort) not to contribute significantly to risk. The complexities of the problem are reviewed in considerable detail; the report identifies several areas for which additional work must be done before Staff can reach a final conclusion.

We note parenthetically here that Applicants have provided to the parties and the Board a copy of their response to the Staff regarding their reactions to the BNL draft report, A-3852, enclosed with Applicants' letter to Victor Nerses (NYN-87-002), dated January 20, 1987. We have reviewed this response; it purports to set the record straight with respect to a variety of matters that Applicants believe have been improperly or unfairly dealt with by BNL. This response, alluded to in the Board Conclusions below, does not materially alter our thinking.

Response of the Commonwealth of Massachusetts

In support of its response to Applicants' motion, the Commonwealth submitted the affidavit of Steven C. Sholly and the joint affidavit of Sholly and Dr. Gordon R. Thompson. The former affidavit discusses numerous perceived faults associated with materials accompanying Applicants' motion. The thrust of each of these faults is summarized; the latter affidavit is not directly relevant to Applicants' motion.

(1) *Acts of Terrorism and Sabotage* — It is noted that Applicants have not explicitly addressed such acts either in their motion or in previously submitted accident analysis submittals, since worst-case accidents can be avoided or accommodated without regard to how initiated. The point is made that the analyses of accidents provide a blueprint for defeating plant protective measures on a detailed, plant-specific basis. The fact that history provides little precedence for concern is no basis for apathy about what the future may bring.

(2) *Event V Modeling* — Event V is the WASH-1400 analog of a LOCA (loss-of-coolant accident) initiated by the failure of valves separating the reactor coolant system from the RHR (residual heat removal) system. Event V is also referred to as an interfacing LOCA event; the

affidavit says that steam generator tube rupture (SGTR) is another example of this class of sequences. Affiant states the belief that the frequency of occurrence of event V sequences is significantly higher than estimated by Applicants. Overreliance on Bayesian methodology results and on prompt and proper operator actions are cited as bases for this belief.

(3) *SGTR Scenarios* — Two parts of the affidavit that treat steam generator accidents are combined here. Frequencies of various accident scenarios are discussed along with impacts of station blackout assumptions. The consequences of updated source-term considerations are imposed, leading affiant to conclude that there is the potential for more serious risk consequences than postulated by Applicants.

(4) *Seismic Sequences* — Affiant states that seismic events involving large ground accelerations (initial event, perhaps followed by strong aftershocks) can degrade the efficacy of emergency plan implementation, increase the likelihood of earlier-than-expected containment failure, and degrade operator performance. Affiant believes that a more detailed review of such matters than currently exists is necessary to assess seismic event impacts.

(5) *High-Pressure Core Melt Modeling* — Affiant cites Sandia experimental studies for the proposition that Applicants' characterization of the behavior of core debris ejected from the reactor vessel may be incorrect. In particular, he states that dissolved gases in the core melt and the production of aerosols by the melt ejection process can lead to containment pressurization and direct containment heating, presenting the potential for early containment failure and higher-than-anticipated radioactivity release, matters that Applicants have not adequately considered. Affiant expresses his disagreement with Applicants and BNL that such phenomena cannot cause the Seabrook containment to fail or at worst to fail at a very low probability.

(6) *Containment Pressure Failure* — In essence, the affidavit builds upon the above considerations and leads to the possibility that containment integrity may not be adequate for containment pressure loads derived from phenomena noted in the above item.

(7) *Steam Explosions* — Work done by others (e.g., UKAEA and Sandia) convinces affiant that there is substantial uncertainty over the probability of containment failure due to in-vessel steam explosions (termed an alpha-mode failure). This is taken to indicate that an alpha-mode failure cannot be ignored in the context of PEPZ distances.

(8) *Iodine Behavior* — Two parts of the affidavit dealing with iodine are combined in this summary. Affiant suggests that the following possibilities concerning iodine behavior can be important:

- The formation of volatile, organic iodine within the containment might impact environmental releases depending upon containment spray behavior and integrity of the containment itself;
- Sandia experiments indicate the possibility that cesium iodide (the chemical form dealt with by Applicants in their accident analyses) may dissociate into elemental iodine and permit HI and HOI to dominate under the influence of gamma radiation in the pressure vessel containment envelope and of hydrogen burns, thus behaving quite differently than CsI; and,
- Late containment failures can provide an opportunity for tellurium-132 (78-hour half-life) to decay to iodine-132 (2.3-hour half-life) leading to the possibility of gamma radiation exposure not being adequately considered.

(9) *Aerosol Behavior* — Citing no bases to support his thesis, affiant postulates that deposited fission product aerosols might as the result of chemical or mechanical disturbances reevolve for release to the environment, and give rise to higher-than-anticipated source-term estimates.

(10) *Accidents During Shutdown* — Citing prior assessments of this category of accident as being restricted to internal events leading to a shutdown accident, affiant states that external events, especially earthquakes, should be considered for cold shutdown accidents, when containment isolation is not required. A study of the Sequoyah plant by Science Applications, Inc., is criticized for not having considered quakes larger than the safe shutdown earthquake. Affiant states that full consideration of seismic initiating events is required in order to perform a complete cold shutdown risk analysis.

(11) *De-Inerting Burns* — The affidavit states that when A/C power and/or containment sprays are appropriately recovered during an accident sequence, Applicants treat the accident as being benignly terminated. The potential for high concentrations of oxygen and hydrogen in the containment if containment spray is recovered several hours after reactor vessel failure is said not to have been considered by Applicants. Thus, affiant states that there is the potential for a hydrogen burn; and if containment integrity is not maintained indefinitely, risks could be understated.

(12) *Accident Behavior of Secondary Containment* — Characterizing the Seabrook containment enclosure (secondary containment) as having a low pressure capacity, affiant states that this enclosure offers little radioactivity mitigation from a severe accident in which primary containment integrity is lost. At best, it might offer the advantage of a more elevated release point than would otherwise be the case. Lacking

a steel liner such as exists in the primary containment and having a low pressure capability give the secondary containment little merit during severe accidents.

(13) *Peer Review* — Affiant states that in the circumstances under which it was performed, it was impossible for the peer review group to have performed adequately in the face of such a complexity of considerations and time constraints before them. He also questions the independence of the reviewers. Affiant further notes that despite the importance placed on containment strength by Applicants, none of the reviewers is a structural engineer.

(14) *Consequence Modeling* — Affiant devotes two separate discussions to the thesis that the risk consequences of a severe accident at Seabrook should not ignore the differences (for the same accident sequence) that can arise from differing assumptions made for different consequence models. Specific references are made to the various codes employed in justifying the reduction of the Seabrook PEPZ, with emphasis upon the extreme care that must be exercised in intercomparing results.

Affiant Sholly concludes that the PEPZ designation of 10 miles from NUREG-0396 was set in the face of numerous uncertainties and that Applicants' motion does not carry the day so far as justifying a significant reduction of that distance for Seabrook, because of considerations such as discussed above and the numerous uncertainties involved here also.

BOARD CONCLUSIONS

Preface

Prior to our review of the Applicants' motion and the responses thereto, the Board raises the following considerations:

- With respect to the TMI-2 accident, from the 1980 Rogovin report it appears that plant operating personnel could have lessened the severity of accident consequences by more rigidly adhering to proper procedures, and by being better prepared to interpret the significance of off-normal plant conditions;
- Numerous incidents recently reported in NRC Information Notices regarding licensed nuclear power plants attest to the thesis that there are instances of hardware components having safety significance that have not on random demand performed in accordance with the design intent for those components (check valves, motor-operated valves, incorrect status readout in control room, and faulty instrument air supply are typical examples);

- Although Applicants state that advancements in the understanding of source-term behavior have not been taken into account, there are prior source-term reassessment analyses that cause us to question whether such an omission represents a potential for error in the analyses of accident consequences and containment performance that might ultimately yield more-severe-than-anticipated environmental consequences (fission product behavior and transport within the reactor containment envelope, core-concrete interactions, and aerosol formation and behavior are a few of the phenomena about which possibly significant uncertainties remain);
- It would be instructive to know whether, at TMI-2, after-the-fact evaluations of containment performance and offsite risks would lead to the conclusion that a 1-mile PEPZ for TMI-2 would have been equally as appropriate, technically, as Applicants conclude for Seabrook.

Our subsequent review of Applicants' motion has uncovered little basis for confidence that measures have been or will be taken to ensure that no larger-than-anticipated environmental consequences will result from the first three of the above considerations. Without more specific information from Applicants than is currently before us, the above considerations place in question the sufficiency of Applicants' justification for a reduction of the PEPZ to 1 mile.

Conclusions

The providing of an in depth and definitive assessment of the sufficiency of the technical merits of the materials Applicants have provided in support of their motion to reduce the radius of the Seabrook Station PEPZ to 1 mile is a formidable and complex task. The Board has not attempted a *de novo* review of these matters for such would be beyond the resources of time, personnel, and computational assistance available to us. Additionally, to do so would require significantly more in-depth information than is currently before us in the way of input assumptions, code and model details, and the actual computations leading to many results whose derivations are only summarized. Rather, we have reviewed with considerable care the Applicants' materials including several references contained therein, and the responses of others to those materials. The purpose of this review has been to gain a perspective about the technical merit of Applicants' justification for reducing the PEPZ and the depth, completeness, and credibility of that justification. As the Lyon Report (discussed above) acknowledges, Applicants have undertaken a very comprehensive investigation of nuclear power plant accidents and risk consequences specific to the Seabrook plant and site. We have reached the same conclusion.

We have seen no basis that would cause us to conclude that there are errors in the results proffered by Applicants in support of their motion. On the

contrary, we believe that Applicants have made a good-faith effort to support their motion. Nevertheless, there are a number of areas wherein it appears that Applicants have not presented full and complete results sufficient to inspire confidence that their motion deserves further consideration at this time. We identify several of these now, in no particular order of priority or importance.

Containment Strength — Superior strength of the Seabrook containment is a major factor underlying Applicants' position. Given that the design strength is as Applicants conclude it to be, the as-built strength may be less than designed. The Board is unable to discover a basis for believing that this is not the case.

Source-Term Behavior — Post-WASH-1400 reassessments of radioactivity behavior make it unclear that the use of WASH-1400 source-term methodology is categorically conservative. For example, iodine behavior, fission product reevolution potential, and aerosol formation and transport may be influenced by the specifics of accident sequences, associated chemical dynamics, and the influence of radiation fields. We are not aware that such matters have been given adequate consideration.

Operator Reliability — Numerous Seabrook accident sequences have identified certain plant operator actions to be taken to mitigate the consequences of an accident in progress, and in several instances Applicants state that such actions are being or have been incorporated into plant operating procedures. Absent an understanding of how well operator training prepares operators to recognize off-normal plant conditions, to assess the urgency of following special procedures, and to execute the proper actions, the Board is left in doubt that accident mitigation requiring appropriately prompt and/or proper operator response will always be safely carried out.

Equipment Malfunction — Included here is the possibility that certain equipment, although performing as desired, will not have its status correctly displayed to operators. The possibility that certain equipment will not perform its intended function upon emergency or random demand cannot be overlooked. This is not to say that Applicants have overlooked such matters. However, a detailed analysis of preoperational and in-service testing and maintenance to minimize or prevent such occurrences is not before us for evaluation.

Accident Analyses — Apart from the preceding comments, the Newberry affidavit, the Lyon Report, and the Sholly Affidavit discuss a variety of accident sequence analyses and their resulting risk consequences that have been treated in a manner that raises questions about the comparability of input assumptions, differing computational approaches, and the propagation of uncertainties associated with risk results. In Applicants' response to the BNL draft report A-3852 (submitted as an en-

closure to NYN-87-002, a letter from PSNH to V. Nerses of the NRC Staff, January 20, 1987), Applicants explain that many of these matters, at least as commented upon by Brookhaven, reflect variances of perspective, questionable selections of experience with component failures, imperfect understanding of details of the Seabrook design, etc. When placed in proper context, say Applicants, the BNL objections lose their significance.

Accidents During Shutdown — In discussing this topic, the Newberry affidavit notes Applicants' assertion that the time interval between shutdown and an accident during shutdown provides time for the decay of fission products, thus reducing the decay heat generation in the core. While this is a valid observation, the Board has not found where consideration has been given to the possibility that an accident during shutdown might restore the fission product inventory to a level unacceptable in terms of risk consequences.

SGTR Events — Newberry, Theofanous, and Lyon offer a consensus of concerns regarding this matter that has not adequately, as yet, been laid to rest by Applicants.

The foregoing items provide a sampling of topics that causes this Board to conclude that it would be premature to recommend to the Commission, at this time, that further consideration should be given to Applicants' motion. We do not take a position that a 1-mile PEPZ for the Seabrook Station is unjustifiable; only that Applicants and Staff need more time to determine convincingly whether it is. This is especially important since the Seabrook Station has not yet operated and its operational and maintenance organizations have had no opportunity to

establish a team effort track record. Accordingly, we conclude that Applicants' instant petition does not provide a *prima facie* showing on its technical merits.

IT IS SO ORDERED.

THE ATOMIC SAFETY AND
LICENSING BOARD

Helen F. Hoyt, Chairperson
ADMINISTRATIVE JUDGE

Gustave A. Linenberger, Jr.
ADMINISTRATIVE JUDGE

Dr. Jerry Harbour
ADMINISTRATIVE JUDGE

Dated at Bethesda, Maryland,
this 22nd day of April 1987.

APPENDIX A
(Documents Relied upon by Applicants)

1. Seabrook Station Risk Management and Emergency Planning Study, PLG-0432 (1985).
2. Seabrook Station Emergency Planning Sensitivity Study (SSEPSS).
3. Affidavit of Karl N. Fleming.
4. Affidavit of Dr. Alfred Torri.
5. Affidavit of Robert J. Lutz.
6. Affidavit of Dr. Robert E. Henry.
7. Affidavit of Keith Woodard.
8. Letter of Robert J. Budnitz of November 9, 1985, to New Hampshire Yankee Division of Public Service Company of New Hampshire.
9. Letter of Dr. Robert J. Budnitz of January 17, 1986, to New Hampshire Yankee Division of Public Service Company of New Hampshire.
10. Affidavit of Dr. Robert J. Budnitz.
11. Affidavit of Dr. David C. Aldrich.
12. Affidavit of Dr. Joseph M. Hendrie.
13. Affidavit of Dr. Norman C. Rasmussen.
14. Affidavit of Dr. Robert L. Ritzman.

15. Affidavit of Dr. William R. Stratton.
16. Affidavit of Dr. Richard Wilson.
17. Licensing Aspects of the Seabrook Emergency Planning Zone Study, YAEC-1502, Yankee Atomic Electric Co. (1985).
18. Affidavit of Dr. Shengdar Lee.
19. Affidavit of Peter S. Littlefield.
20. Affidavit of John G. Robinson.

APPENDIX B

(Documents Relied upon by Commonwealth of Massachusetts)

1. Affidavit of Steven C. Sholly.
2. Affidavit of Gordon Thompson.
   - Attachment 1 — Resume for Gordon Thompson.
   - Attachment 2 — Some Comments on Recent Studies Sponsored by Public Service Company of New Hampshire, Regarding Planning at the Seabrook Nuclear Plant.
   - Attachment 3 — The Source Term Debate — A Report by the Union of Concerned Scientists.
3. Affidavit of Dr. Joel R. Primack.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before Administrative Law Judge:

Morton B. Margulies

In the Matter of **Docket No. 50-289-CH**
(ASLBP No. 85-514-02-OT)

GENERAL PUBLIC UTILITIES NUCLEAR CORPORATION
(Three Mile Island Nuclear Station, Unit 1)

April 2, 1987

The Administrative Law Judge finds that a license condition imposed as part of the Appeal Board's decision on management-related issues in the Three Mile Island, Unit 1 restart proceeding, ALAB-772, 19 NRC 1193, 1224 (1984) should not be vacated. The condition barred an employee of the Licensee from supervisory responsibilities in the training of nonlicensed personnel at the plant. This Initial Decision holds that the employee's conduct and attitude toward the NRC regulatory process require that he not be permitted to serve in a supervisory position that affects public health and safety.

The Judge notes that Commission regulations do not address qualifications for the position in question, Supervisor, Nonlicensed Operator Training. However, where the holder of that position may adversely affect public health and safety because of attitudes and behavior toward the NRC and the regulatory process, the Commission can take necessary action that will provide reasonable assurance that the activities authorized by the operating license will be conducted without endangering the health and safety of the public. This is so even if the result is to disqualify an individual from being employed in a particular category.

The Judge further finds that the imposition of the condition was not done as a sanction, nor is its purpose to forever bar the employee from that position. It was done as a matter of providing reasonable assurance for the protection of public health and safety. The employee can regain the subject position, if he demonstrates that he is so qualified to meet its requirements.

APPEARANCES

George E. Johnson, Esq., Bethesda, Maryland, for the Nuclear Regulatory Commission Staff.

Louise Bradford, Harrisburg, Pennsylvania, for Intervenor Three Mile Island Alert, Inc.

Deborah B. Bauser and **Scott E. Barat, Esqs.**, Shaw, Pittman, Potts & Trowbridge, Washington, D.C., for Intervenor GPU Nuclear Corporation.

Michael W. Maupin and **Maria C. Hensley, Esqs.**, Hunton & Williams, Richmond, Virginia, for Charles Husted.

INITIAL DECISION

I. PROCEDURAL HISTORY AND BACKGROUND

This proceeding was instituted by the Commission on September 5, 1985, to provide a hearing for Mr. Charles Husted, a former licensed operator and licensed operator instructor at the Three Mile Island Nuclear Station (TMI). The purpose is to determine whether a license condition imposed as part of the Appeal Board's decision on management-related issues in the Three Mile Island, Unit 1 (TMI-1), restart proceeding, ALAB-772, 19 NRC 1193, 1224 (1984), should be vacated. This condition barred Mr. Husted from supervisory responsibilities in the training of nonlicensed personnel at the plant. This Initial Decision finds that Mr. Husted's conduct and attitude disqualify him from such a position and that the condition imposed by the Appeal Board shall not be vacated.

This matter evolved from examinations administered by the Commission at TMI in April 1981, which tested thirty-six individuals seeking NRC reactor operator and senior reactor operator licenses. Evidence of cheating by individuals taking the examinations was subsequently disclosed. Mr. Husted was interviewed twice in the course of the NRC's investigation of the matter.

The Licensing Board in the TMI-1 restart proceeding determined to reopen the phase of the proceeding pertaining to the quality of the Licensee's management and its operating personnel. It appointed a Special Master to preside over a hearing on the relationship between information developed about cheating on the April 1981 NRC operator licensing examinations and the management issues previously considered or left open by the Licensing Board. *Metropolitan Edison*

Co. (Three Mile Island Nuclear Station, Unit 1) (*TMI-1 Restart*), LBP-82-56, 16 NRC 281, 287-88 (1982).

Mr. Husted appeared as a witness before the Special Master. He was not a party to the restart proceeding, nor was he represented by individual counsel during the time that the restart proceeding worked its way through to review by the Appeal Board. The Special Master found that Mr. Husted refused to cooperate with the NRC investigation, had displayed an attitude toward the investigators and the hearing that was unacceptable, and had solicited an answer during the examination from another person taking the examination. After noting that he was without guidelines, the Special Master determined that he could not conclude that Mr. Husted should be removed from his licensed duties but that a lesser sanction would be appropriate. He made no recommendation regarding the lesser sanction because he did not have the information necessary to make such a determination. *TMI-1 Restart*, LBP-82-34B, 15 NRC 918, 957-61, 1045-46 (1982).

After considering the Special Master's report, the Licensing Board concluded that there was no reliable evidence that Mr. Husted cheated on the examination. However, the Licensing Board concluded that Mr. Husted had refused to cooperate with NRC investigators, that he continued to withhold information within his knowledge, and that he had provided unbelievable testimony at the hearing. The Licensing Board questioned whether Mr. Husted is able, or, if able, willing to impart a sense of seriousness and responsibility to the TMI operators. It then concluded that certain changes be made in the Licensee's training program including the establishment of criteria for the qualifications of training instructors and the auditing of training at the point of delivery. No direct sanction was imposed on Mr. Husted, but the Licensing Board recommended that his qualifications and delivery performance receive particular attention during a review of the TMI training program. *TMI-1 Restart*, LBP-82-56, 16 NRC at 315-20 (1982).

During the pendency of appeals of the Licensing Board decision, the Licensee (now GPU Nuclear Corporation as successor to Metropolitan Edison Company) reached a stipulation with the Commonwealth of Pennsylvania, a party to the restart proceeding. The Commonwealth withdrew its appeal and GPU Nuclear Corporation agreed not to employ Mr. Husted at any time in the future to operate TMI or to train operator license holders or trainees. *TMI-1 Restart*, ALAB-772, 19 NRC 1193, 1201 n.1, 1213, 1222 (1984).

In its review of the Licensing Board decision, the Appeal Board found that the record supported the conclusions of the Special Master and the Licensing Board about Mr. Husted's poor attitude toward his responsibilities as reflected in his failure to cooperate with the NRC investigators. However, the Appeal Board disagreed with the Licensing Board on how to view Mr. Husted's attitude toward his teaching responsibilities. The Appeal Board stated that where so much of the

training information to be conveyed concerns the need to comply with proper procedures, the instructor's attitude toward (i.e., respect) for these procedures, becomes an integral part of the instructor's ability to teach. *Id.* at 1221-24.

The Appeal Board noted that although the stipulation between the Licensee and the Commonwealth of Pennsylvania would prohibit Mr. Husted from training licensed operators, Mr. Husted had been promoted to Supervisor, Nonlicensed Operator Training. This promotion placed him in a position to instruct personnel with important duties that affect the public health and safety and that have important management responsibilities. The notice of the promotion was given to the Appeal Board in May 1983. The Appeal Board questioned the Licensee's judgment in promoting Mr. Husted. It thereupon required that Mr. Husted have no supervisory responsibilities insofar as the training of nonlicensed personnel is concerned. *Id.*

The Commission took review of whether the Appeal Board had the legal authority to impose on a licensee a condition that in effect operates as a sanction against an individual, where that individual is not a party to the proceeding and has had no notice of a possible sanction or the opportunity to request a hearing. After examining the statutory and constitutional issues raised, the Commission elected not to decide them. Instead, it granted Mr. Husted the opportunity to request a hearing on whether the Appeal Board's condition barring him from supervisory responsibilities insofar as the training of nonlicensed personnel is concerned should be vacated. The Commission further determined that the Appeal Board's condition should not remain in effect during the pendency of any requested hearing. *TMI-1 Restart*, CLI-85-2, 21 NRC 282, 314-17 (1985).

Mr. Husted requested a hearing on March 25, 1985, not only on the Appeal Board condition, but also on whether he "is barred by concerns about his attitude or integrity from serving as an NRC licensed operator, a licensed operator instructor or training supervisor." Notice of Hearing, 50 Fed. Reg. 37,098 (1985).

The Commission granted Mr. Husted's request to expand the scope of the issues, finding that whether Mr. Husted should hold any of the jobs in question would focus on the same four concerns:

> (1) the alleged solicitation of an answer to an exam question from another operator during the April 1981, NRC written examination;
> (2) his lack of cooperation with NRC investigators;
> (3) the lack of forthrightness of Mr. Husted's testimony before the Special Master; and
> (4) his poor attitude toward the hearing on the cheating incidents.

Id.

While expanding the scope of the hearing, as requested, the Commission also acknowledged "the rights of the parties to [the] Stipulation" that bars Mr. Husted from operating TMI and from training operating license holders or trainees. The Commission noted that should Mr. Husted be able to demonstrate his fitness

for the positions at issue, he could raise the matter of the Stipulation with GPU Nuclear Corporation and the Commonwealth of Pennsylvania. *Id.*

The Commission assigned NRC Staff the role of participating as a party to ensure that the record is fully developed. It also invited petitions to intervene. *Id.* After publication of the Notice of Hearing and the appointment of this Administrative Law Judge to preside, both GPU Nuclear Corporation (GPU Nuclear) and Three Mile Island Alert, Inc. (TMIA) petitioned to intervene in the proceeding, and were admitted as parties. Memorandum and Order, December 6, 1985 (unpublished).

An initial prehearing conference was held in Harrisburg, Pennsylvania, on February 19, 1986, to discuss various procedural matters. A Report and Order on Initial Prehearing Conference was issued February 27, 1986, which admitted, as rephrased, the two contentions proffered by TMIA. These are:

> 1. The Appeal Board's condition barring Charles Husted from supervisory responsibilities insofar as the training of nonlicensed personnel is concerned should not be vacated by reason of his demonstrated bad attitude and lack of integrity.
> 2. Husted should be barred from serving as an NRC-licensed operator or licensed operator instructor or training supervisor by reason of his demonstrated bad attitude and lack of integrity.

GPU Nuclear's single contention also was admitted. It provides:

> The conduct and attitude of Charles Husted with which GPU is familiar indicates that the NRC should not disqualify Mr. Husted from serving as an NRC-licensed operator or an instructor of licensed or nonlicensed personnel.

The Notice of Hearing did not readily place this hearing in the format of a typical proceeding. Given that Mr. Husted was faced with the imposition of the equivalent of an agency sanction, I determined that the proceeding is most like a hearing in a proposed enforcement action. It was also determined that the proceeding required the development of a new record through a hearing *de novo*. Report and Order on Initial Prehearing Conference, February 17, 1986 (unpublished), at 7.

The NRC Staff's (Staff) role was ultimately defined as to go forward with the presentation of a record on which the Appeal Board's condition might be judged. I further ruled that Mr. Husted had no initial burden to go forward and no burden of persuasion on the matters at issue in this enforcement type of proceeding. Ruling on Staff Objections to Prehearing Conference Order, March 26, 1986, at 4. Staff was also required to make known to the participants, no later than 7 days prior to the commencement of the hearing, its position as to whether or not the condition imposed in ALAB-772 should be vacated. This

requirement was to enable the conduct of the hearing in accordance with the administrative process. *Id.* at 5-6.

In addition to the four factual matters directed to be considered by the Notice of Hearing, previously referred to on page 348, I requested that the following questions would also be considered:

> What does Mr. Husted's performance of his responsibilities with GPU Nuclear reflect about his attitude and integrity?
>
> In light of the answers to the four factual matters directed to be considered by the Notice of Hearing and the above question, is any remedial action required with respect to Mr. Husted?
>
> If remedial action is required, what is it?

Report and Order on Initial Prehearing Conference, February 27, 1986, at 11.

I also determined that in addition to providing Mr. Husted with an opportunity to demonstrate his fitness for the position at issue and for a hearing *de novo*, the Commission Notice permitted me to consider evidence bearing on Mr. Husted's qualifications to be employed in the job in question, without limitation as to the time frame. *Id.* at 5.

Finally, I determined it was appropriate to address, in the course of the proceeding, the question as to the standards to be applied in determining whether Mr. Husted should be barred from any of the positions under consideration. *Id.* at 11.

A final prehearing conference was held on May 20, 1986, in Harrisburg, in which various determinations were made regarding the procedures and order for the presentation of evidence at the hearing.[1] Report and Order on Final Prehearing Conference, May 27, 1986.

On June 12, 1986, the Staff gave notice in advance of the hearing that its position was that the Appeal Board condition imposed in ALAB-772 should be vacated. Hearings were conducted in Harrisburg on June 23-26, and on July 1, 1986, when the record was closed. I heard testimony from five witnesses called by the Staff, six witnesses called by Mr. Husted, including Mr. Husted, and one witness, a former GPU Nuclear employee, subpoenaed on behalf of TMIA.

At the conclusion of the hearing, I directed that proposed findings of fact and conclusions of law be served in hand by August 18, 1986, with replies due

[1] Prior to each prehearing conference, the parties met and discussed the numerous and sometimes difficult procedural issues relating to this somewhat unusual proceeding. In each instance, a memorandum covering the parties' consideration of these matters, setting forth their agreements (and disagreements) as well as recommendations to the Judge, was prepared by counsel for Mr. Husted and submitted in advance of the conference. The parties' efforts in this regard measurably advanced the focusing and resolution of procedural issues.

in hand by September 8, 1986. The parties were requested to address the seven concerns identified (see above). In addition the parties were directed to address:

> Whether the Appeal Board used an appropriate standard when it barred Mr. Husted's promotion based on finding him lacking in the ability to communicate effectively a sense of responsibility?
>
> If so, did Mr. Husted fail to meet that standard?
>
> Assuming Mr. Husted failed to meet the standard, should he forever be barred from obtaining the position that he held?
>
> Whether or not Mr. Husted met the standards of the Appeal Board previously, and does he meet them now?
>
> What did Mr. Husted's actual appearance on the witness stand, testifying in this proceeding demonstrate as to his forthrightness, attitude and integrity?

Tr. 974-75 (Margulies, J.).

Timely filings of proposed findings of fact and conclusions of law were made by the parties. Replies were filed by Mr. Husted, Staff, and TMIA. It should be noted that all of the filings submitted by the parties have been considered and those proposed findings of fact and conclusions of law not incorporated directly or inferentially in this Initial Decision are rejected as unsupported in fact or law or are unnecessary to the rendering of this Decision.

II. FINDINGS OF FACT

A. Did Mr. Husted Solicit an Answer to an Exam Question from Mr. Janes During the April 1981 NRC Examination?

1. From April 21 through April 24, 1981, the NRC administered examinations for reactor operator (RO) and senior reactor operator (SRO) licenses to thirty-six TMI employees. The examinations were given in connection with the proposed restart of TMI. During the grading and review of the examinations in July 1981, it became apparent from similarities in answers that cheating had taken place. Husted Exh. 26 at 1.

2. On April 24, 1981, David C. Janes, a shift foreman, had taken the SRO examination. The only other examinee in the room for the examination was Charles Husted. From time to time an NRC proctor was also in the room. Janes, ff. Tr. 278, at 1.

3. As part of the NRC investigation into cheating involving parties other than Mr. Husted, William J. Ward, Chief of the Investigations Branch, Office

of Inspection and Enforcement (OIE), and Peter E. Baci,[2] Senior Investigator, interviewed Mr. Janes on September 25, 1981. Tr. 158 (Ward).

4. During the interview, Mr. Janes, then a shift supervisor, expressed anger at the proctor's absence from the examination. He stated he felt the proctor's absence made him vulnerable to an allegation of cheating. Ward, ff. Tr. 140, Attach. 3. Because of Mr. Janes' demeanor, Mr. Ward concluded that a solicitation had taken place or that Mr. Janes believed one had taken place. *Id.* at 5. Mr. Ward testified that in order to get Mr. Janes to acknowledge what Mr. Ward suspected, he used an investigator's technique of asserting, without substantiating evidence, that the investigators knew that Mr. Husted had asked Mr. Janes a question. *Id.*; Baci, ff. Tr. 216, at 5-6.

5. In December 1981, Mr. Ward testified before the Special Master that:

> the reason you are so upset about this is that it puts you in an awkward position when Husted asked you a question, and he looked startled, and he started to hesitate. And I said something to the effect that we knew he had asked the question, and he said well, he only asked one question, and that was how the information came up . . . . He related that it was just one attempt. He could not remember specifically what it was, to my recollection. It was more like a certain concept was, well, what in the hell does this mean or words to that effect. And we [*sic*] he refused to answer it, no further questions were asked.

Ward, ff. Tr. 140, Attach. 2, Tr. 25,462-63.

6. Earlier in his testimony before the Special Master, Mr. Ward said that Mr. Janes' answer was somewhat ambiguous. Mr. Ward stated that Mr. Janes said that a fellow examinee asked him a direct question on one occasion, but that he did not provide the answer, and that ended the situation at that point. *Id.*, Tr. 25,316.

7. In his testimony at the current hearing, Mr. Ward reaffirmed the accuracy of his prior testimony. Ward, ff. Tr. 140, at 4. Mr. Ward believed that Mr. Janes provided truthful information in the September 1981 interview. Tr. 151 (Ward). Mr. Ward further testified that it was not clear to him either at the time of the interview or at the time of his current testimony whether Mr. Husted's alleged utterance was an exclamation of concern over his inability to answer the question that he saw in front of him or whether it was actually a question directed to Mr. Janes. Tr. 149 (Ward). Mr. Ward had the impression it was exclamatory in nature. Tr. 163 (Ward). Mr. Ward explained that when in his testimony the word solicitation was used it was meant that a question was asked. He said he was uncertain whether or not an answer was expected. Tr. 200 (Ward). Mr. Ward agreed that as time passed his recent recollection was not as clear as that closer to the event. Tr. 150 (Ward).

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[2] At the time of the subject hearing, Mr. Baci was Assistant Director, Department of Defense Inspector General, Defense Criminal Investigative Service.

8. Mr. Ward was the principal interrogator during the September 1981 interview. He kept no notes of the interview. A report of the interview was prepared by Mr. Ward and contained in a report of investigation dated October 13, 1981. It does not mention the discussion involving Mr. Husted. Ward, ff. Tr. 140, Attach. 3, at 40-41; Tr. 146 (Ward). The reason given for not mentioning the Husted incident was the investigation involved organized or conspiratorial type cheating and management involvement and that Mr. Husted's incident did not relate to those concerns. Ward, ff. Tr. 140, at 5; Tr. 142, 192-93 (Ward).

9. Mr. Baci basically agreed with and confirmed the testimony of Mr. Ward. Baci, ff. Tr. 214, at 3-4; Tr. 272 (Baci). Mr. Baci had appeared as the other member of the panel with Mr. Ward in testifying before the Special Master, but Mr. Ward spoke for the panel. Tr. 269 (Baci).

10. Mr. Baci testified that Mr. Janes could not recall the nature of the question asked by Mr. Husted. Mr. Baci believed Mr. Janes might have indicated it was a rhetorical question. Tr. 224 (Baci). Mr. Baci further testified that Mr. Janes "knew somebody said something, asked a question, but that is why I believe I indicated that it may have been a rhetorical question, you know, like, what the hell is this? Where did it come from?" Tr. 250 (Baci). He further elaborated that Mr. Janes could not characterize what was said as a solicitation or question. Somebody asked something which may have been like "what does this mean or what the hell is this." Tr. 267-68 (Baci).

11. Shift Supervisor Janes testified before the Special Master that Mr. Husted did not ask him anything about the examination and did not speak to him during the examination. Tr. 286 (Janes). Mr. Janes confirmed that testimony during the current hearing and stated he knew of no reason why Mr. Ward would testify as he did about Mr. Husted asking him a question, other than by way of a misunderstanding. Janes, ff. Tr. 278, at 2-3.

12. Mr. Janes also testified before the Special Master that when he was being questioned by Mr. Baci, Mr. Ward broke in to state that Mr. Husted had solicited help. Mr. Janes said that before he could deal with Mr. Ward's incorrect statement, Mr. Baci asked another question, which Mr. Janes proceeded to answer. He did not respond to Mr. Ward's statement, which was not in the form of a question. *Id.* at 3.

13. Mr. Janes further testified that in preparing for this hearing he recalled something being discussed during the September 25, 1981 interview that may have some similarity to Mr. Ward's allegation. *Id.* at 4. Mr. Janes stated that during the interview he was asked the hypothetical question of what he would have done if someone had asked him a question during the 1981 exam.[3]

[3] In testifying on June 23, 1986, Mr. Ward denied that he asked Mr. Janes any hypothetical question. Tr. 201 (Ward).

Mr. Janes stated that he told the investigators he would have refused to answer the question. He further testified that he was then asked what he would do if he were asked such a question at that time (September 25, 1981). Mr. Janes stated that he replied it would just constitute an attempt, but because of what transpired he would be very hostile to the person who asked the question. He also testified that at the end of the September 1981 interview he may have indicated to the investigators that he had heard one or more groans or exclamations during the examinations he took, as the people in the rooms read the exam. He stated that he did not presently know nor did he think he knew on September 25, 1981, who groaned or in which of the exams he took that the noises occurred. *Id.* at 5.

14. Mr. Janes filed supplemental testimony which was placed in the record. He stated that on the basis of Mr. Baci's prefiled testimony, he concluded that he had in his own testimony reversed the identities of Mr. Ward and Mr. Baci. He further recollected that the first of the questions asked was, in effect, "What would you have done if Chuck [Husted] had asked a question during the exam?" Mr. Janes believes he then said, "Only one question? I wouldn't answer." *Id.*, Supp. Testimony at 1-2.

15. In April 1981, Mr. Husted was a full-time instructor in Licensed Operator Training and a holder of an SRO license. Husted, ff. Tr. 330, at 1. He testified before the Special Master that he did not solicit an answer and did not speak to Mr. Janes during the April 24, 1981 examination. Staff Exh. 2, Tr. 26,936-37. In the current hearing he reaffirmed his prior testimony and stated that he and Mr. Janes did not speak once the examination began. However, he stated that he did speak out loud at one point during the examination. Mr. Husted testified that he had developed lesson plans for his students and had instructed them in thermodynamics on the Rankine cycle, which is a practical or real process. The question in the April 1981 SRO exam dealt with the Carnot cycle, which is a theoretical process. Mr. Husted said that when he came to the question he realized he had not prepared the operators to answer the question.[4] He said he was upset and said aloud words to the effect "What the hell is this?" He further testified that he did not direct the remark to anyone or mention the substance of the question that led to the exclamation. *Id.* at 4. Mr. Husted said he did not believe that which he considered a rhetorical statement was talking because it was not conversation. Tr. 339 (Husted).

16. The first time Mr. Husted provided information to the NRC regarding this explanation was April 8, 1986, in connection with the current hearing. Tr. 497-98 (Husted). He indicated this recollection came about independently, not as a result of reading testimony. Tr. 501 (Husted). When Mr.

[4] Mr. Husted himself did not correctly answer the question on the examination. Tr. 335 (Husted).

Husted was questioned by NRC investigators on July 29, 1981, regarding whether there was talking in the examination room, Mr. Husted said no. He had stated that the classroom was quiet and the only disruptions were at times proctors were asked to clarify questions. Husted Exh. 1, Tr. 338-39 (Husted).

17. In answer to a question from me as to whether he had testified before the Special Master about the exclamation he said he made, he testified that he had. Tr. 346 (Husted). At that point, counsel for Mr. Husted indicated that his client may have inadvertently produced a couple of incorrect answers. Counsel asked permission to permit Mr. Husted to reread the transcript of his testimony before the Special Master. *Id.* (Maupin). Permission was granted, and the following day Mr. Husted testified that during the current hearing he had incorrectly stated that he mentioned his exclamation before the Special Master. He explained that he had a hard time remembering when specific things happened in the past and that it was hard for him to place in a time frame something that occurred in 1981. Tr. 498 (Husted). Then, in response to a question from his counsel whether he was examined before the Special Master on December 10, 1981, on comments, utterances, or discussions with Mr. Janes, Mr. Husted replied not directly but that at one point he was asked if the examinees had agreed who would go to the proctor if they had come across an examination question that needed clarification. Mr. Husted then stated that he had testified, "no, we did not discuss anything during the exam." Tr. 495-96 (Husted). Mr. Husted did not mention the question posed to him that same day before the Special Master: "Q. One of the NRC investigators has testified, as you know — that Mr. [Janes] said that you asked him a question during the exam. Is that true?" Staff Exh. 2, Tr. 26,937.

18. Mr. Samuel Newton, Operator Training Manager, testified that when he first heard of the allegation that Mr. Husted had solicited an answer from Mr. Janes, he spoke to Mr. Husted who denied it. Mr. Newton said he seems to recall he was told by Mr. Husted of the "What the hell does this mean?" remark, but he may have read about the comment elsewhere. Newton, ff. Tr. 836, at 3. This testimony provided nothing dispositive.

Conclusion: There is no convincing evidence that Mr. Husted solicited an answer to an exam question from Mr. Janes during the April 1981 NRC examination.

19. I accept the Ward-Baci version of what transpired when they interviewed Mr. Janes on September 25, 1981. It was helpful to have Mr. Ward clarify his prior statements and to have Mr. Baci testify. The essential facts derived from their interview were that they confronted Mr. Janes with a statement that Mr. Husted asked a question during the April 24, 1981 examination; that

Mr. Janes acknowledged that it had occurred; that the question tended to be in the nature of being rhetorical or an exclamation; and that Mr. Janes denied that he ever offered any response to the question. I believe the foregoing to have occurred when Mr. Janes was interviewed.

20. The testimony of Mr. Ward and Mr. Baci is found to be more accurate than that of Mr. Janes. The investigators basically corroborated each other's statements as to what transpired, and they are dispassionate observers of what occurred. What they reported was of no consequence to their primary investigation. It was because of this that no mention was made of the Husted discussion in the report of investigation. Further, their recounting of what occurred became somewhat less focused with the passage of time, which is consistent with what usually occurs. This helped make their testimony persuasive.

21. Mr. Janes' version is one that continues to be refined as time passes. When testifying before the Special Master, he recounted that Mr. Ward interrupted questioning by Mr. Baci to state that Mr. Husted had solicited help and that before he could respond to the statement, Mr. Baci asked another question which Mr. Janes proceeded to answer. He said that he never did respond to Mr. Ward's statement. During this hearing Mr. Janes disclosed a recent recollection which was that he was asked hypothetical questions by the investigators as to how he would react if he were questioned by Mr. Husted. Mr. Janes then testified what he stated his answers were. He ascribes to Mr. Ward a misunderstanding of his answers to the hypothetical questions as being the cause for Mr. Ward stating that Mr. Husted asked him a question during the April 1981 examination.

22. The Ward-Baci version of what transpired is more credible than Mr. Janes' because the latter's recounting of his conversations with the investigators was not corroborated and he was far from being a dispassionate participant. Mr. Janes was angry during the interview: he misidentified his questioners. If there was any misunderstanding it was likely that of Mr. Janes. The investigators were asking the questions and if anyone knew if they were hypothetical, the investigators would have. Mr. Ward denied that a hypothetical question was asked. Mr. Janes had never previously testified about this precise recollection of hypothetical questions that deal with a subject that Mr. Janes did not indicate to be the subject of continuing discussion. Mr. Janes' recent recollection of what transpired, reported more than 4 years after the occurrence, is not convincing that the investigators had misunderstood what happened at the interview and that their testimony was incorrect.

23. If one accepts the Ward-Baci description of what they were told, as true, it does not establish that Mr. Husted solicited an answer to an exam question. All that this hearsay establishes is that there was an utterance from Mr. Husted, in the form of a question that tended to be rhetorical or exclam-

atory. It does not constitute proof that Mr. Husted solicited an answer to the question and that he attempted to cheat on the examination. The evidence does not justify such a conclusion.

24. In coming to the above decision, it is not necessary to look for corroboration to Mr. Husted's disclosure of what he says he said aloud during the examination. His statement that he said words to the effect "What the hell is this?" was first made known to this agency's representative some 5 years after the event.[5] The testimony was very precise as to what was said to have occurred. Because experience shows that human memories dim with time, one questions the meaning of such a specific exculpatory recollection by Mr. Husted, which was revealed just before the hearing and after the Licensing Board had found in its decision that the exclamatory words did not establish the alleged cheating.

B. Did Mr. Husted Fail to Cooperate with NRC Investigators?

25. Charles Husted was first interviewed on July 29, 1981, during the NRC investigation into cheating on the April 1981 operator exams at TMI. The interview was conducted by OIE Investigators R. Keith Christopher and Raymond H. Smith. Baci, ff. Tr. 214, at 2, Attach. 2. Mr. Husted was accompanied by Paul G. Christman, Manager, Plant Administration, TMI.

26. The interview resulted in a summary being placed in the "Report of Investigation — Three Mile Island Nuclear Generating Station, Unit 1/Investigation of Alleged Cheating on Operator Licensing Examinations," August 11, 1981, at 39 ("August OIE Report"), Husted Exh. 26, Baci, ff. Tr. 214, Attach. 2.

27. The August OIE Report states, in pertinent part,

> [Husted] was queried concerning the possibility of reference material being covertly brought into the classroom by examinees. However, for unknown reasons, he declined to respond to this question or explain his reluctance to discuss this issue. He was also asked whether any rumors or comments regarding instances of cheating on the exams had come to his attention. He acknowledged that he had heard rumors to this effect which he labeled as "unconfirmed hearsay." However, [Husted] refused to reveal any specifics of the rumors he had heard or to identify the individuals (if named) who were allegedly implicated. Upon further attempted questioning, [Husted] declared he could not recall anything concerning what he had heard.

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[5] On brief, Staff's position was that there did not appear to have been questioning before the Special Master that could reasonably have elicited that information. Staff Proposed Findings of Fact and Conclusions of Law, August 15, 1986, at 18. It would not have been unreasonable for that information to have been part of the response to the question asked of Mr. Husted, "One of the NRC investigators has testified, as you know, that you asked — that Mr. [Jones] said that you asked him a question during the exam. Is that true?" Mr. Husted's answer was, "Absolutely not." Staff Exh. 2 at Tr. 26,937. The information also could have come out in questioning by the investigators on July 29, 1981, when Mr. Husted testified that the room was quiet and the only disruptions involved questions asked of the proctors.

Husted Exh. 26 at 39.

28. In this proceeding there was no Staff witness that could attest to the accuracy of the summary. Mr. Christopher could not recall the interview. He did not know who wrote up the summary. From the style of the summary, Mr. Christopher assumed he did not write it. Tr. 384-99 (Christopher). His testimony was without worth. Mr. Smith was too ill to appear and never provided testimony. Tr. 402 (Johnson).

29. Another account of what transpired was contained in a more extensive summary prepared by Mr. Christman. It differed in several respects from the August OIE summary and, as pertinent, stated:

> Mr. [Husted] was asked whether candidates are allowed to bring notebooks, pads of paper, textbooks, etc. to the examination. Mr. [Husted] did not answer this question. He was then asked did anyone bring articles as described above to either examination. He responded that he could only answer for himself and that he did not bring such articles to the examinations. He did state that the one textbook that he recalled being available in the classroom was a set of Steam Tables.
>
> * * *
>
> He responded no when he was asked whether he had any knowledge of cheating. He refused to answer a question about whether he had heard any rumors or gossip in regards to cheating on the April examinations. When he was asked this question again, he answered that he cannot recall having heard any rumors or gossip in regard to cheating on the April examinations.

Husted Exh. 1 at 3.

30. Although both reports indicate that Mr. Husted failed to answer the question about whether reference materials were brought into the examination room, the Christman summary indicates that Mr. Husted subsequently did answer a slightly different question. The August OIE Report does not record this answer at all. Husted, ff. Tr. 330, at 7-8, Husted Exh. 1. Rather, the August OIE Report states that Mr. Husted declined to explain his reluctance to discuss this issue.

31. The Christman summary states that Mr. Husted initially refused to answer a question about rumors or gossip as to cheating on the April examinations. Then, according to Mr. Christman, when the question was asked again, he answered it, stating he could not recall any such rumors or gossip. The August OIE Report did not mention repeating the question. It stated that Mr. Husted acknowledged that he had heard rumors to that effect, which he labeled as "unconfirmed hearsay." He refused to reveal the specifics of the rumors or to identify the individuals. The August OIE Report discussed the cheating in terms of "on the exams." The Christman summary spoke of the cheating "on the April examinations."

32. Mr. Christman had accompanied Mr. Husted to the July 29, 1981 interview for the purpose of representing the utility, to see that the rights of its employees were not undermined, and to learn about the subject under investigation. Tr. 365 (Christman). At this hearing Mr. Christman only had

the typewritten copy of his summary, which he believed to be accurate. If an item were not reported in the summary he considered it unlikely that it occurred. His summary did not report any discussion by Mr. Husted with the investigators indicating that the questions were too broad in scope or that he asked permission to decline to answer a question. He did not remember that occurring at all. Tr. 377-80 (Christman). Mr. Christman also testified that if the term "unconfirmed hearsay" were used, it would have appeared in his report, which it had not. Mr. Christman considered Mr. Husted as being cooperative overall with the investigators, taking into account his not answering two questions initially. He described the atmosphere of the interview as very businesslike and tense. Mr. Christman testified that the summary was correct in reporting that Mr. Husted had said, in regard to another area of inquiry, that he did not know whether the proctor had left the examination room. Tr. 380 (Christman).

33. Mr. Husted's second OIE interview occurred on September 18, 1981. Matakas, ff. Tr. 406, Attach. 4 at 16. The only persons present were Mr. Husted and the interviewer, Richard Matakas. *Id.* Mr. Matakas is a senior investigator, with 17 years of investigative experience. The pertinent part of the interview is set out in the report of investigation as follows:

> [Husted] was asked to clarify what he meant by "unconfirmed hearsay" in his previous statement. He stated that he did hear one comment made during the time period of the NRC RO/SRO exams where someone (he did not recall who) said they saw someone (the unidentified person did not say who) passing papers in the exam. [Husted] stated he heard the comment in the area near the coffee pot and men's room in the trailer that was located between the two classrooms. He said he personally did not have any knowledge regarding either reference material or crib sheets being taken into the NRC exams and that he did not know if the above mentioned comment relating to "passing papers" was being directed at him or not; further, he did not know if the person was referring to the NRC exams or some other exam.

34. In testifying about the September 18, 1981 interview, Mr. Matakas stated that, prior to conducting the interview, he had been told by telephone — he believes by Mr. Baci — that in a previous interview Mr. Husted had been reluctant to answer certain questions related to cheating or alleged cheating on reactor operator exams at TMI. He was also told that Mr. Husted termed this information as "unconfirmed hearsay." It was Mr. Matakas' assignment to pursue what Mr. Husted meant by "unconfirmed hearsay" in the earlier interview. Matakas, ff. Tr. 406, at 3; Tr. 407-08 (Matakas).

35. Mr. Matakas believes he started the interview with the matter of the "unconfirmed hearsay." Tr. 431-32 (Matakas). The investigator did not recall asking Mr. Husted if he used the term "unconfirmed hearsay." He remembered asking Mr. Husted what he meant by the term. Mr. Matakas' notes reflected the

information he obtained. Mr. Matakas wrote: "This is 'unconfirmed hearsay' statement (see report p. 39)" in the left margin on the first page, next to his notes describing what Mr. Husted told him about an incident he had heard. These notes indicated that Mr. Husted

> heard statement near coffee pot and men's room in trailer between two classrooms. Some one (don't recall who) — don't even know if comment was directed at me — passing papers in the exam. Starting the day of the first exam and go seven days. It was in this period that I heard it.
>
> Q. Characterize statement.
>
> A. It was one of those type statements that someone makes when he was mad and says to the first person he sees. (going to second page)
>
> Don't even know if he was talking about SRO or RO exams.

Id., Attach. 2.

36. Mr. Matakas' draft summary related the incident described in the notes, prefacing the description with a statement that "Mr. Husted was asked to clarify what he meant by 'unconfirmed heresay' [*sic*] in his previous statement." *Id.*, Attach. 3. In his prefiled testimony, Mr. Matakas stated that either Mr. Husted gave the indicated response in an answer to a question as to what he meant by "unconfirmed hearsay," or, after he made the response, he acknowledged that the statement referred to the same incident he was referring to when he used the phrase "unconfirmed hearsay" during the July 29, 1981 interview. *Id.* at 5. Mr. Matakas stated that Mr. Husted characterized the statement as a rumor. He noted, however, that Mr. Husted's statement may have been voluntary. *Id.*

37. Mr. Matakas asked Mr. Husted why he did not provide the information before and was told, "It wasn't that I did not want to identify anyone the last time interviewed. I couldn't identify anyone. I didn't want to spread rumors." Tr. 428 (Matakas). To the best of Mr. Matakas' knowledge, Mr. Husted used the phrase "passing papers in the exam." He said Mr. Husted indicated he did not know whether the passing of papers was referring to the NRC exams or some other exam. Mr. Husted further told the investigator that he had no knowledge of reference material being brought into the classroom. Mr. Husted said that no one told him about having cheated nor did he see anyone cheat. Mr. Husted did state that the questions he was asked during the first interview were so broad he did not feel that he could answer them. Tr. 409-10 (Matakas).

38. Mr. Matakas explained that when taking notes he writes comments during the interview or immediately thereafter. He makes margin comments when he amplifies his original questions in further questioning, and gets additional information. He thinks the margin comments on Mr. Husted's responses were made right away. Tr. 411 (Matakas). When interviewing Mr. Husted, the

investigator did not have a copy of the August OIE Report with him. Tr. 444 (Matakas).

39. The investigator testified that he did not believe Mr. Husted withheld any information from him nor did he recall him being uncooperative or not forthcoming. Matakas, ff. Tr. 406, at 6-7.

40. Mr. Husted testified that when he was interviewed on July 29, 1981, he did not know at that time that two of his co-workers were under suspicion for cheating and that the mechanism involved the passing of exam papers. He was apprehensive before the interview because a shift foreman had told him that in connection with the TMI Unit 2 accident NRC interviewers asked excessively broad questions, trick questions, and often distorted the answers they received. Husted, ff. Tr. 330, at 5. Mr. Husted said he went into the interview with the thought that he was going to give very specific and accurate answers. He was not going to answer a question that was so broad that it would be likely the answer would be incomplete. Tr. 514 (Husted).

41. Mr. Husted acknowledged that he declined at first to answer the question dealing with bringing in reference material because it was too broad. He said the question was not limited to authorized or unauthorized material and not to any particular examination. When the question was then asked as to either examination, he answered about himself. His recollection as to the answer was consistent with the Christman summary. Husted, ff. Tr. 330, at 7-8. On cross-examination, Mr. Husted stated he sought clarification of the question, and answered it as rephrased. Tr. 505-07 (Husted). Mr. Husted acknowledged, however, that such an exchange was not recorded in the Christman notes. Tr. 508 (Husted).

42. Mr. Husted also recalled being asked about any knowledge of cheating, a question he was displeased with and declined to answer at first for a reason he could not remember. He then noted that the Christman summary states that he said he could not recall having heard any rumors or gossip in regard to cheating on the April examinations. Mr. Husted testified that the Christman record most accurately reflects his answer. The August OIE Report did not report the exchange but stated that Mr. Husted acknowledged hearing rumors and labeled them as "unconfirmed hearsay." Husted, ff. Tr. 330, at 8-10.

43. Mr. Husted testified that he seemed to recall that when he was asked a question he did not want to answer he asked the interviewers whether he could decline. He said he was told if the investigators wanted more information on the subject they would interview him again later. *Id.* at 10. The witness testified that as to the questions he did not answer at first, he answered them when placed in a different form or a more specific question was asked. Tr. 505, 508 (Husted).

44. Mr. Husted stated that he did not recall hearing or using the term "unconfirmed hearsay" in connection with the July 29, 1981 interview, which

is consistent with Mr. Christman not using the term in his summary. Husted, ff. Tr. 330, at 10.

45. When Mr. Husted was cross-examined on his statement about his refusal to answer the first question dealing with bringing reference material into the examination room, for the reasons that it was too broad and did not relate to any particular examination, he stated that he could not recall how specific the information was that the investigation was related to cheating on the April 1981 examination. He stated that he may have known that the investigation was related to that examination. Tr. 571 (Husted).

46. Mr. Husted then testified that he was uncertain as to when he knew the interview involved an NRC examination, whether it was before he went to the interview or if he was told at the beginning of the interview. When pressed as to why he interpreted the question on materials being brought into the exam as applying to all exams that he participated in since joining the company, Mr. Husted stated that the broadness of the question provided no guarantee that the investigators were looking into that one recent examination. When pressed further, he stated he was not certain that at the start of the interview that anyone specifically told him that the questions would be limited solely to that examination and not to any other activities that occurred prior to that examination. Tr. 572-81 (Husted).

47. Mr. Husted on cross-examination recalled Mr. Christman's testimony to the effect that it was clear that the July 29 interview related only to the April 1981 examinations. In answer to a question as to why he had difficulty as to which exams were involved, Mr. Husted said it related to the warning of the shift foreman about broad questions. He said he wanted to make sure his answers would relate to the specific exams. Tr. 611-13 (Husted).

48. Mr. Husted was asked as to how he related his statement during the July 29 interview as was reflected in the Christman summary, that Mr. Husted said he did not know if the proctor left the room during either examination with his comment before the Special Master, that although a wild guess, it was 50% of the time. Mr. Husted answered that the Christman notes indicated he had a limited knowledge of the specific whereabouts of the proctor and when asked by the Special Master he just picked 50%. Tr. 614-15 (Husted).

49. Mr. Husted testified that he currently had a very limited recollection of the September 18, 1981 Matakas interview. Mr. Husted said he did not recall the investigator using the term "unconfirmed hearsay" and it is not a term Mr. Husted uses. Tr. 531 (Husted). Mr. Husted repeatedly testified that he never considered his statement about the passing paper remark to involve a rumor and

he never knowingly characterized it as such.[6] Tr. 541 (Husted). He described it as information he personally gathered first hand in passing by a conversation and that it was a conclusion he had drawn on his own. When deposed on October 23, 1981, Mr. Husted stated he did not hear rumors to the effect that papers were passed from one person to another in the exams. In giving his deposition on April 29, 1986, Mr. Husted stated that he did not consider the matter to involve rumors.

50. Mr. Husted felt that the investigator in his interview mistakenly recorded that Mr. Husted had classified the passing papers remark as the unconfirmed hearsay. Mr. Husted said that when he left the September 18 interview he did not think that he had given Mr. Matakas the impression that his knowledge of the conversation he had overhead constituted a rumor. Tr. 534 (Husted).

51. Mr. Husted introduced a whole new element into the proceeding when he gave prepared testimony as follows:

> It is possible that he [Mr. Matakas] did not ask me the question he meant to. It is also possible, however, that Mr. Matakas did ask me if I considered the "passing papers" comment to be "the unconfirmed hearsay" alluded to on page 39 and that I simply misunderstood the question when I said it was. It is also possible that I understood the question and gave an incorrect answer; when I was first asked the question as the hearing [before the Special Master], I answered it incorrectly and had to correct my answer later on.

Husted, ff. Tr. 330, at 16.

52. Husted could not recall when he learned of the two workers who in cheating had passed papers between them. He testified that he believed he did not recall the passing papers comment until after the July 29, 1981 interview. He said it could have been when he saw the August OIE Report. Mr. Husted stated that at the time he learned of the mechanism by which the two had cheated, or shortly thereafter, he remembered the comment he overhead previously which involved the words "passing papers." He said that reading the August OIE Report may have caused him to remember the remark. *Id.* at 13. Mr. Husted then described the comment to Mr. Matakas in his second NRC interview.

53. Mr. Husted also had another view as to what went on at the September 18, 1981 interview with Mr. Matakas, as revealed by the conversation Mr. Husted had with John F. Wilson on October 5 and 6, 1981. Mr. Wilson is an attorney who represented the Licensee and acted as liaison for the Licensee with the NRC

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[6] Before the Special Master, Mr. Husted accepted the characterization of the passing papers comment as a rumor in the following exchange:

> Q. Let's turn to Staff 27 at page 16. You describe a rumor that you heard near the coffee pot and men's room in the third paragraph on that page. Is that the same instance that you are referring to?
>
> A. Yes.

Staff Exh. 2, Tr. 26,924.

in interviews and in transmitting information that was developed in the course of the utility's investigation. Tr. 458 (Wilson). Mr. Husted and John G. Herbein, then Vice President for Nuclear Assurance, were having a conversation on October 5, 1981, when they telephoned Mr. Wilson because a question came up as to whether or not Mr. Husted reported the passing papers remark to the NRC by way of the Matakas interview. Mr. Husted was concerned that the information should be reported, if in fact he had failed to do so. Tr. 457 (Wilson). Mr. Wilson made notes on the conversation and testified from them at the hearing.[7] Husted Exh. 2.

54. Mr. Wilson's recollection was that Mr. Husted was uncertain as to whether or not he told the NRC about the passing papers and the purpose of the call was that if he had failed to do so, to find out how he could accomplish it. Mr. Wilson testified that as of October 5, 1981, Mr. Husted had a question as to whether or not he had informed the NRC. However, by the next day, upon reflection, Mr. Husted had confirmed in his own mind that he had passed on the information to the NRC during the Matakas interview. Tr. 458 (Husted). The Wilson notes were consistent with Mr. Husted's statement that he used the term "passing papers" and never did extend it to "passing papers in the exam," a phrase that Mr. Matakas used. Tr. 585 (Husted).

55. Mr. Samuel Newton, Operator Training Manager, testified during this hearing that he had a conversation with Mr. Husted about passing papers, which he believed may have occurred sometime between the two interviews but was uncertain about this time. Newton, ff. Tr. 836, at 3-5. Mr. Newton's testimony did nothing to help clarify the issue.

56. Mr. Husted's testimony before the Special Master on December 10, 1981, relating to the July 29 and September 18, 1981 interviews, is relevant to the issue of whether Mr. Husted failed to cooperate with the NRC investigators.

57. Mr. Husted testified before the Special Master that the August OIE Report containing the summary of the July 29, 1981 interview was an accurate description of his interview with the NRC investigators with one exception. He said the exception related to the investigators' summary that stated that Mr. Husted declined to respond to a question concerning the possibility that reference material had been covertly brought into the classroom by examinees and that Mr. Husted had not explained his reluctance to discuss the issue. Mr. Husted testified to the Special Master that he explained to the investigators that he had seen no material brought into the room that was not authorized by the proctor of the exam and further he did not want to discuss what took place in other exam

[7] Dr. Robert L. Long, now GPU Nuclear Vice President for Nuclear Assurance, took notes on an October 5, 1981 conversation he had with Mr. Herbein. The notes state that Mr. Husted had told Mr. Herbein "Husted wants Wilson to verify w/I&E that they know Husted heard two words at the water fountain 'passing papers.'" Husted Exh. 11.

rooms and over the course of the entire exam. Tr. 608 (Husted). He also testified that the Matakas interview on September 18, 1981, was accurately described in Mr. Matakas' report.[8] *Id.*

58. Mr. Husted initially testified that the passing papers remark was the unconfirmed hearsay referred to in the initial interview. He testified on cross-examination:

> Q. On Staff Exhibit 26, page 29 [*sic*] [July 19, 1981 summary] you also refer to unconfirmed hearsay. Are you referring to a different instance there or the same instance?
>
> A. That is the same instance.

59. When asked about the July 19, 1981 summary stating that he had refused to reveal any specifics of the rumors he heard or identify the individuals who were allegedly implicated and why he refused to answer the question, Mr. Husted answered, "I do not know. Stupid, I think." Tr. 522 (Husted).

60. When he was questioned further about the response of being "stupid," Mr. Husted explained that he did not like the way the investigation was conducted and the questions were being asked. He stated that they were so broad and vague that he could not give a specific answer. For a lack of anything other to say he just told the investigators he did not want to answer the question. He went on to state that he could not remember any specific instances of rumors that were told to him about specific things that could have gone on during the examinations. He explained that he did not provide any information because he did not have any information. Mr. Husted stated that the summary was how the investigators interpreted his saying that he did not have anything to say. Staff Exh. 2, Tr. 26,929.

61. Mr. Husted further stated that between the July interview and the September interview he concluded that the words "passing papers" that he had heard could have been referring to passing papers during the exam, which he indicated to the interviewer in September.

62. Mr. Husted was questioned about his testimony that both interview accounts were accurate, that in both instances he was quoted as referring to rumors as "unconfirmed hearsay," that he had testified earlier that they were the same incident, and then that in the first interview he said he did not recall any specific rumors. He was then asked which account was correct. Mr. Husted answered the last account was most correct, the September 18 interview. In response to the question why he had stated earlier that they were the same incident, he replied that he did not know. *Id.*, Tr. 26,930-31.

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[8] Mr. Husted testified before the Special Master that because of the difficulty he had with the initial investigation report, he insisted that Mr. Matakas write down every question, which he was permitted to read, and he then stated his answer which was written down verbatim. Staff Exh. 2, Tr. 26,967.

63. During the current hearing Mr. Husted was asked why in his testimony before the Special Master he had agreed to the accuracy of the July 29 interview summary. He answered that he had not taken the time to seriously consider the question put before him and that he had given the document only a cursory review. He also explained that he had been chastised and attacked rather than cross-examined before the Special Master, and that caused him to be confused and to make foolish errors. Tr. 611, 630-31 (Husted).

Conclusion: Mr. Husted failed to cooperate with the NRC investigators.

64. The evidence of record establishes that Mr. Husted failed to cooperate with the NRC investigators who conducted the July 29 and September 18, 1981 interviews.

65. "Cooperation" may be defined as "to act or work together for a common purpose or to a common end." Cooperation with investigators can be measured by the extent of the information furnished in answering questions when interviewed. It can also be measured by the reliability of the information furnished, as well as by the candidness with which it was provided. Providing information that proves to be unreliable and misleading and undermines the investigative effort is the antithesis of cooperation. Overall, that is what Mr. Husted did in providing information to the investigators, and it must be concluded he failed to cooperate.

66. For ease of development, Mr. Matakas' September 18, 1981 interview of Mr. Husted is discussed first.

67. Mr. Matakas, a professional investigator with many years of experience, proved to be a very credible witness. His testimony was supported by notes and summaries. He was straightforward, knowledgeable, and persuasive in testifying.

68. When Mr. Matakas interviewed Mr. Husted, he began with the assumption that Mr. Husted had been reluctant to answer certain questions during the July 1981 interview relating to cheating on the April examinations. Mr. Matakas had been advised that Mr. Husted termed the alleged cheating "unconfirmed hearsay" and he was to attempt to obtain information about this matter from Mr. Husted. Mr. Husted informed Mr. Matakas of the passing of papers. In the ensuing interview, Mr. Matakas reasonably believed from what Mr. Husted told him that the passing papers remark constituted the rumor that Mr. Husted had heard but did not reveal at the initial interview. Supporting evidence that Mr. Husted led Mr. Matakas to believe the foregoing was the response Mr. Husted gave to the investigator's question as to why he had not provided the information about passing papers at the first interview. Mr. Husted said that he could not identify anyone and he did not want to spread rumors. Mr. Husted

through this response indirectly identified the passing papers comment as a rumor and did nothing to dispel that identification. Mr. Husted did not say that he did not categorize the incident as a rumor and that he did not recall the incident at the time of the interview, as he would do later. At the very least Mr. Husted misled Mr. Matakas during the September interview.

69. How willing was Mr. Husted to stand by and confirm the story he told Mr. Matakas, thereby supporting its credibility and trustworthiness?

70. Within 18 days after the Matakas interview, of which the "passing papers" comment was a significant component, Mr. Husted informed his superiors, on October 5, 1981, that he was uncertain as to whether or not he had told the NRC about the passing of papers, and if he had not done so, asked how to go about it. The very next day he then advised the Licensee that he had in fact passed on the information.

71. When testifying before the Special Master on December 10, 1981, Mr. Husted initially not only testified that Mr. Matakas had correctly described the interview, but also that the passing papers remark was the unconfirmed hearsay that was involved in the initial interview. However, he later took another tack, testifying that he could not remember any specific instances of rumors that were told him about specific things that had gone on during the examinations. Mr. Husted stated that he did not provide any information at the initial interview because he did not have any information.

72. Mr. Husted then came full circle at the last hearing, again indicating that Mr. Matakas' statement about the interview was accurate, but with a new wrinkle. Mr. Husted raised the possibility that Mr. Matakas had asked him if he considered the passing papers comment to be the unconfirmed hearsay referred to and that Mr. Husted had "simply misunderstood the question when he said it was." Mr. Husted also raised the possibility that he had understood the question but gave an incorrect answer. This came about despite extensive testimony by Mr. Husted during this current hearing as to why the Mataka ccount was incorrect.

73. From the start Mr. Husted undermined an important segment of his interview with Mr. Matakas. He immediately questioned what the content of the interview was, and thereafter made inconsistent and contradictory statements of what was said. Mr. Husted's statements vitiated that part of the interview dealing with his acknowledgment that the passing papers comment was the same as the rumor he had heard, but that he did not reveal at the initial interview. Mr. Husted's continuing conduct cannot be explained away or excused on the basis that it resulted from how Mr. Husted reacted to cross-examination at a difficult time. Mr. Husted's actions showed a lack of reliability, credibility, and responsibility on his part, which most adversely affected his discussion with Mr. Matakas and evidenced a failure to cooperate with him.

74. Moving over to whether Mr. Husted cooperated with Investigators Christopher and Smith in the July 29, 1981 interview, a principal area of focus becomes whether Mr. Husted responded to the questions asked of him. It should be pointed out that the mere failure to answer a question during an investigation does not necessarily demonstrate a failure to cooperate; there may be a justification for the refusal, such as vagueness in the questions or that the information requested is not available at the time the question is asked. If one were cooperative, the reason for the inability to respond to the question would be given.

75. The report of the interview prepared by the investigators differed from that of Mr. Christman, who attended the interview for the Licensee. As pertinent, the investigators' report said that Mr. Husted refused to answer a question about covertly bringing reference material into the classroom and he did not explain his reluctance to discuss the issue. It also said that Mr. Husted acknowledged having heard rumors about cheating on the exams but refused to reveal specifics. It further said that upon additional questioning Mr. Husted declared that he could not recall anything concerning what he had heard. This would indicate that Mr. Husted failed to cooperate with the investigators by refusing to answer questions about reference materials and rumors, without explanation.

76. Mr. Christman reported that after not answering a question about reference materials, Mr. Husted did answer then a similar one. Mr. Christman also reported that Mr. Husted initially refused to answer a question about rumors and that, when asked the question again, stated that he had not heard rumors in regard to cheating on the April examinations. Mr. Christman provided no explanation of why Mr. Husted refused to respond initially. Mr. Christman's report indicated that while not willing to cooperate immediately, Mr. Husted did cooperate with the investigators by answering their questions.

77. Mr. Husted's testimony before the Special Master ultimately confirmed that he had not answered questions. He testified that he did not like how the questions were asked and for a lack of anything other to say he just told the investigators that he did not want to answer the question. His testimony before the Special Master did not establish what his answer to the investigators was. Mr. Husted testified that he did not provide any information because he did not have any information and that the investigators' statements about his July 29, 1981 refusal to reveal specifics was their interpretation of Mr. Husted saying he did not have anything to say.

78. Mr. Husted introduced a new element in the current hearing, which would indicate a more cooperative effort on his part. He testified that as to the July 29 interview he sought clarification of the question on materials brought into the exam room, and he asked permission to decline to answer a question. Mr. Christman could not corroborate this and because it was not recorded in his notes Mr. Christman indicated it did not occur.

79. If one accepts the investigators' summary in the August OIE Report, it would support the conclusion that Mr. Husted did not cooperate with them. If one accepts the Christman version, it shows that as to answering questions, after some hesitancy, Mr. Husted ultimately did not fail to cooperate with them.

80. The investigators' summary, although admissible in evidence, is entitled to virtually no weight. It is without probative value for there was no one who could stand cross-examination on it. In a system of jurisprudence that rests heavily on the right of cross-examination, one cannot ascribe any significant value to a document where no one stood ready to defend it.

81. Although Mr. Christman was not an independent witness to what occurred at the interview, being there to represent the Licensee and to look out for its employees, there is nothing to indicate that his report of what occurred was other than accurate. He noted the questions that were not initially answered. He differed with Mr. Husted on the latter's claim of justifying not answering. Mr. Christman's version of what occurred at the interviews is accepted as what happened, along with the conclusion that Mr. Husted answered questions asked of him after initially refusing to do so.

82. There is other evidence that Mr. Husted did not fully cooperate with Investigators Christopher and Smith. When Mr. Husted initially failed to answer a question on bringing materials to the examination, claiming it was overly broad and saying it could cover all examinations he had taken at the facility, he appears to have been obstructive. Mr. Christman had no difficulty identifying what examinations the inquiry concerned.

83. Also, Mr. Husted gave inconsistent testimony on the matter of the whereabouts of the proctor. He told the investigators he did not know whether the proctor left the examination room. He testified before the Special Master that he guessed that the proctor was gone 50% of the time. His statements were contradictory and unreliable.

84. Mr. Husted was not candid with Investigators Christopher and Smith when he was questioned as to whether there was talking in the examination room. He said there was none, not considering as talking the previously discussed question or exclamation. Mr. Husted stated that the classroom was quiet and the only disruptions were at times proctors were asked to clarify questions. This response was at least an obfuscation of what he testified later had occurred.

85. Mr. Husted's interview with the investigators on July 29, 1981, was marked by a resistance to testifying, which he then acceded to. He also, in part, obscured what had occurred in the classroom.

86. Although Mr. Husted's responses to the investigators on July 29, 1981, cannot be viewed as an overall failure to cooperate, it involved some deficiency. This deficiency must be considered along with Mr. Husted's very basic failure to cooperate with Mr. Matakas. These two interviews were part of

a single investigation and are wholly interrelated. When the evidence of both interviews is considered together, it is convincing that Mr. Husted failed to cooperate with the NRC investigators investigating cheating on the April 1981 NRC examinations.

87. Discussion is warranted of what the interviews established substantively. Both interviews failed to show that Mr. Husted had any knowledge of cheating on the examinations brought about by bringing in outside materials into the examination room.

88. Also, as evidenced by the accepted Christman summary, the first interview failed to show Mr. Husted concealed information at that time of rumors or gossip in regard to cheating on the April examination. Further, there was no other reliable, probative, and substantial evidence presented to establish that Mr. Husted did, in fact, knowingly have information of rumors or gossip at the time of the first interview which he concealed. Discarding what is just speculation and conjecture, basically the only information of record about the knowledge Mr. Husted possessed at that time comes from his statements and these statements have proved to be so unreliable that they are without value and are not useable for fact finding. The record in the proceeding fails to comprehensively establish what Mr. Husted knew and when he knew it. Without such evidence, it was not established that he concealed information from Mr. Christopher and Mr. Smith about cheating on the April 1981 NRC examinations.

C. Did Mr. Husted's Testimony Before the Special Master Lack Forthrightness?

89. A dictionary definition of "forthright" is "proceeding straight on, lacking ambiguity, straightforward." *Webster's Third New International Dictionary* (Unabridged, 1976). Testimony that is contradictory, misleading, lacking in credibility, or less than serious is not forthright. The record before the Special Master contains a significant number of such instances in Mr. Husted's testimony.

90. As discussed in § B, above, Mr. Husted first testified before the Special Master that the investigators' reports of their interviews with him on July 29 and September 18, 1981, were accurate. He agreed that the passing papers remark was the unconfirmed hearsay referred to in the initial interview. During the same session before the Special Master, he also took a position on the accuracy of these statements that was inconsistent with his original testimony. This action evidenced a lack of reliability, responsibility, and credibility in an important area of inquiry.

91. When Mr. Husted was asked about the July 29, 1981 summary stating that he refused to reveal any specifics of the rumors he heard or identify the individuals who were allegedly implicated and why he refused to answer the

question, Mr. Husted answered, "I do not know. Stupid, I think." Tr. 522 (Husted). (This answer could be interpreted as again confirming the accuracy of the August OIE Report summary.) Mr. Husted's comment on this answer during the current hearing is telling. After mentioning his regret, he stated, "Given this remark and my inconsistent testimony about the 'passing papers' comment, I have no reason to doubt that I appeared flippant and to consider the questions in a less than serious manner."

92. Mr. Husted answered some questions before the Special Master in a manner that was inconsistent with other answers he gave at that hearing. These internal inconsistencies resulted in testimony that lacked credibility and obfuscated what occurred. Mr. Husted testified at different times that Mr. Wilson was the exam proctor and that he did not know who the proctor was. Staff Exh. 2, Tr. 26,942-43. Mr. Husted testified he was totally unaware of Mr. Janes' actions during the exam; yet he also said that he "certainly" would have noticed if Mr. Janes had left the room while the proctor was absent. *Id.*, Tr. 26,936. Also, Mr. Husted testified before the Special Master that he guessed the proctor was absent 50% of the time, whereas he stated at the July 29, 1981 interview that he did not know if the proctor left the room during the examinations. Tr. 614-15 (Husted). Questions about the activities of a proctor in an inquiry on cheating during an examination are important.

93. Mr. Husted explained that the inconsistencies were more likely the result of poor choices of words, rather than a lack of forthrightness. Tr. 548-49. However, this explanation cannot be readily accepted because, in other instances, he claimed subtle differences in word meanings to explain away difficulties he found himself in. These differences he claimed included a distinction between the words "bothered" and "a burden" in defending his 1981 testimony that he was bothered by the absence of the proctor [because it forced him to leave the room to obtain clarification], but that it was not a burden, because he did not mind getting out of his seat to walk around. Tr. 543-47 (Husted). Mr. Husted claimed another difference in meaning when he was questioned by NRC investigators whether there was talking in the examination room. He responded no, because he did not consider a rhetorical statement as "talking" because it was not conversation. Tr. 338-39 (Husted). Moreover, he said he did not classify the passing papers remark as a rumor because it was something he had overheard and was a conclusion he had drawn on his own. Tr. 535-40 (Husted). Mr. Husted found no conflict between his statement, made during this hearing, that he seldom gets angry and his description of uttering aloud the exclamation "What the hell is this?" and leaving the examination room to regain his concentration, by explaining that at the examination he was upset or disappointed rather than angry. Husted, ff. Tr. 330, at 4; Tr. 520, 606-07 (Husted).

94. Mr. Husted provided a number of reasons why he testified before the Special Master in the manner he had. First, he said it was the first time

he had testified in such a proceeding. Husted, ff. Tr. 330, at 22. Second, he said he had been under a great deal of physical and emotional stress in the months just prior to his appearance. *Id.* Third, he said that perhaps because of the sequestration order put in place by the Special Master, he received little help from company counsel before the hearing. *Id.* at 23. Fourth, and most importantly, Mr. Husted said he learned only a few days before his appearance of Mr. Ward's testimony implicating him in charges of attempted cheating. *Id.* at 22. He testified that these allegations turned his anxiety about testifying to "outright fear." *Id.* Mr. Husted said that after he learned of the Ward charges, he gave very little thought to his two OIE interviews. *Id.* at 23. He stated that he had not reviewed the first and second reports carefully before testifying. *Id.* And while Mr. Husted said he believes he reviewed the Christman report of his first interview before testifying, h does not think he compared it carefully to the first report. *Id.* Mr. Husted testified that as the cross-examination proceeded, he became "hopelessly rattled." *Id.* at 24. He had an urgent desire to get the testimony over with and get out of the hearing room. *Id.*

95. Mr. Husted testified that for the reasons described, he got off on the wrong foot. At the outset, he incorrectly conceded the accuracy of the first and second reports. *Id.* at 23. He incorrectly testified that the "passing papers" comment was the "unconfirmed hearsay" referred to in the first report. *Id.* Mr. Husted noted that the statement singled out by the Licensing Board (that because he had no information he said he did not want to answer the question) evidenced a mistake on his own part. Mr. Husted said that he had had no information and he should have said so. Tr. 613 (Husted).

96. Mr. Husted's testimony before the Special Master came after Mr. Husted was deposed by the attorney for an intervenor on October 23, 1981. Mr. Husted characterized his answers to questions posed in the deposition, as being cute.[9] Because he was not called until more than 2 hours after he was scheduled, Mr. Husted had been annoyed and lost his temper. Husted Exh. 12 at 1; Husted, ff. Tr. 330, at 21; Tr. 596 (Husted).

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[9] A particular glaring example was the following:

Question: May I ask you, what happens to fuel pin temperature over core life if an oxidizing layer builds up on the cladding surface?
Answer: No, you may not.
Question: You don't know the answer?
Answer: Of course I know the answer. I think its a ridiculous question. You asked me if you may ask me and my answer is you may not.
Question: Let me rephrase that then. What happens to fuel pin temperature over core life if an oxidizing layer builds up on the cladding surface?
Answer: It increases.
Question: Thank you.
Answer: You're welcome.

Tr. 596, 616-18, 620 (Husted).

97. On about December 2, 1981, following the deposition and before he testified before the Special Master, Mr. Husted was admonished by an attorney for the Licensee not to conduct himself as he did when he was deposed. Tr. 600 (Husted). His conduct was held up to other Licensee employees as an example as how one should not conduct oneself when testifying. Husted, ff. Tr. 330, at 21. Mr. Newton discussed with Mr. Husted the necessity of staying calm so that he would give thoughtful answers. Newton, ff. Tr. 836, at 6-7. Despite the advice, Mr. Husted conducted himself in the way he did before the Special Master. Attorneys for the Licensee in the restart proceeding brought Mr. Husted's testimony before the Special Master to management's attention. Newton, ff. Tr. 836, at 7.

Conclusion: Mr. Husted's testimony before the Special Master lacked forthrightness.

98. The inconsistencies, contradictions, and conflicts in the testimony of Mr. Husted and his lack of seriousness at times giving the testimony make it apparent that on its face that his testimony before the Special Master lacked forthrightness.

99. Mr. Husted's explanations as to why this unhappy display occurred are unsatisfactory. Although it is well appreciated that this was a trying time for Mr. Husted, he had previously been warned as a result of his flippancy when being deposed that such conduct was unacceptable. As an individual with a responsible position, Mr. Husted must be accountable for his actions. Trying times do not give one a license to act at will. Mr. Husted evidenced a disregard for the regulatory process.

100. It was not established in this proceeding that Mr. Husted, at the time of the first interview, had a comprehensive knowledge of cheating which he concealed at that time. Neither was it shown that his lack of forthrightness before the Special Master was an attempt to obscure such information, although his lack of forthrightness did have the effect of obfuscating what transpired. The fact that obstruction of the investigation was not established as a motive for Mr. Husted testifying as he did does not mean his testimony was any more forthright. It just means the reason for his doing so was not proven. Mr. Husted's testimony before the Special Master lacked forthrightness and is not excusable.

D. Did Mr. Husted Have a Poor Attitude Toward the Hearing on the Cheating Incidents?

101. This is the fourth and last concern that the Commission requested that the hearing focus on for determining whether Mr. Husted should hold any

of the jobs in question. The issue pertains to his attitude on the investigation, and the pretrial and trial aspects of the inquiry into cheating on the April 1981 examinations.

102. Mr. Husted's actions that evidence his attitude were fully considered under §§ A, B, and C of this Decision, and there is no need to detail them here again. They show that he did not cooperate with the investigators, that he was flippant in giving a deposition, and that he was not forthright in his testimony before the Special Master. It can only be concluded Mr. Husted had a poor attitude toward the hearing on the cheating incidents.

103. A review of his actions shows that he acted with disdain and a lack of regard for the regulatory process. It was he who took it upon himself to judge the value of the way the proceeding was conducted. Accordingly, as it suited his purposes, he would answer questions, not answer them, or give them less than serious consideration. This resulted in instances where he toyed with those engaged in the process. He made contradictory statements and changed his testimony at will.

104. Mr. Husted's poor attitude resulted in a lack of communication between him and those conducting the inquiry. The record was obscured, and no accurate account was obtained of what occurred.

105. Mr. Husted was undergoing emotional and physical stress during the inquiry. But despite the fact that he was cautioned that his conduct was unacceptable, the conduct continued. The unacceptable conduct was not an isolated instance, but continued throughout the inquiry. As one who holds a responsible position, he should be held accountable for his actions. There is no basis for overlooking his poor attitude.

106. Relevant to the matter of Mr. Husted's attitude toward the hearing on the cheating incidents is the attitude he evidenced during the current hearing. Although he did approach the current hearing much more seriously, it did not appear that he fully understood the error of his past conduct, and he continued to display some of the same elements that led to the conclusion that he had a bad attitude.

107. At the outset it should be stated that he was not expected to be contrite to demonstrate that he had a correct attitude toward the process. The illustration below is a prime example of his not having learned that his answers to questions must be correct and that it was incumbent on him to fully communicate his position on matters. The testimony quoted below related to contradictions in his answers about the proctors and their whereabouts. His answer is revealing of his thinking, and it is quoted in its entirety.

> Q. Your testimony was to some extent inconsistent, and your question of your forthrightness in your testimony before the Special Master has become an issue,

and I would like to ask you whether you believe your testimony was forthright and, if so, how are we to interpret or explain your inconsistent testimony?

A. First off, I believe my testimony was forthright and most of the inconsistencies that have been brought to my attention are most likely as a result of poor choices of the words that I used in explaining the answers.

Using your last question as an example, it is very apparent to me that during the exams I showed little concern at all as to who the proctor was, therefore, *I can very easily understand why, when asked a lot of questions about who the proctor was and how often the proctor was there, that I could have easily not have a consistent answer from one question to another.* [Emphasis supplied.]

The primary concern in taking on these exams is to pass. In order to do that it requires a great deal of concentration. Keeping track of the whereabouts of the proctor would not be in the best interest of anyone taking that exam. *Therefore, it doesn't trouble me at all that I didn't remember who the proctor was or when the proctor was and was not in the room.* [Emphasis supplied.]

In fact, the proctoring of the exams changed hands from time to time without my knowledge, one time Mr. Haverkamp was in, another time Mr. Wilson would be in, some other time someone else would be in, sometimes there was no proctor. *But I did not keep track of it, therefore, I don't have any trouble understanding why, when pressed on the issue, I may give inconsistent answers.* [Emphasis supplied.]

Tr. 548-49 (Husted).

108. The response shows that once again Mr. Husted's approach is to only concern himself with what he considers important and to act accordingly, irrespective of the consequences on the validity of the inquiry and the effectiveness of the regulatory process.

109. In addition to not acknowledging inconsistencies in his testimony before the Special Master, Mr. Husted went so far as to evidence surprise and considered incorrect the Special Master's finding that Mr. Husted had refused to cooperate with the NRC investigation and the inference from that finding that he lacked credibility. Tr. 610, 614 (Husted). In view of the strong record made before me that supports findings that Mr. Husted had refused to cooperate with the NRC investigation and lacked credibility, it must be concluded that Mr. Husted continues to deny the consequences of his actions and accept responsibility for them.

110. During the current hearing, Mr. Husted evidenced incidents of unreliability in his testimony but to a lesser extent than he had previously. He gave incorrect answers to questions. When asked if he testified before the Special Master on the exclamation he said he made during the examination (in a question bearing on when the statement was first made known), he said he had, when in fact he had not. After being allowed to review the transcript overnight he was asked about questions that had been asked before the Special Master on comments, utterances, or discussions with Mr. Janes. He testified that there

was one question that indirectly touched on it. He did not mention that he had been asked: "One of the NRC investigators had testified, as you know — that [Mr. Janes said that you asked him a question during the exam. Is that true?" He responded, "Absolutely not."

111. Mr. Husted altered his testimony in ways that had lacked credibility. Although he testified at length as to why the Matakas interview report was incorrect in reporting the passing papers remark to be the "unconfirmed hearsay," he also stated it was possible he simply misunderstood the Matakas question and had said the passing papers comment was the "unconfirmed hearsay" or possibly he gave an incorrect answer to that question.

112. His memory was also selective, which produced a negative impression. This included his newly disclosed exculpatory recollection of the exclamation he said he made during the examination. Another example was the discussion he related with the investigators on July 29, 1981, about clarification of a question and obtaining permission not to answer a question, which another witness, Mr. Christman, indicated did not happen.

113. The record disclosed that Mr. Husted had and continues to have a poor attitude toward the hearing on the cheating incidents.

E. What Does Mr. Husted's Performance of His Responsibilities with GPU Nuclear Reflect About His Attitude and Integrity?

114. The Commission in instituting the proceeding noted that Mr. Husted should be able to demonstrate his fitness for the position at issue. To permit the record to be fully developed concerning Mr. Husted's fitness to hold the positions, the parties were permitted to present evidence on Mr. Husted's regular job performance.

115. Mr. Husted has held various jobs with Metropolitan Edison Company and GPU Nuclear. The latter is the successor entity as the licensed operator of TMI. Tr. 784-87 (Long). Mr. Husted held an NRC RO license from June 1978 to July 1980 and an SRO license from July 1980 to July 1983. He was an auxiliary operator instructor from July 1978 to July 1982, at which time he became a licensed operator instructor. Haverkamp, ff. Tr. 648, Attach. 2 at 3. In March 1983, Mr. Husted was appointed Supervisor, Nonlicensed Operator Training. Subsequently, in June 1983, GPU Nuclear made a commitment to the Commonwealth of Pennsylvania to remove Mr. Husted's SRO license and to decline to use him as a TMI-1 licensed operator or instructor of licensed operators. In June 1984, ALAB-772 mandated that Mr. Husted be removed from the position of Supervisor, Nonlicensed Operator Training. Long, ff. Tr. 755, at 6-7. Since June 1984, Mr. Husted has worked as an Engineering Assistant, Senior III in the Nuclear Assurance Division and deals with the TMI replica simulator. Husted, ff. Tr. 330, at 1.

116. A full record was developed regarding Mr. Husted's performance on the job. Six witnesses testified over two full hearing days. Mr. Donald R. Haverkamp, an NRC inspector with extensive experience at nuclear plants, conducted an inspection at TMI between February 25, 1986, and March 11, 1986, concerning Mr. Husted's performance. Haverkamp, ff. Tr. 641, at 3-4. Documents reviewed included employee evaluations and appraisals from 1974 to 1985, instructor performance monitoring reports from 1981 to 1984, and various confidential memoranda related to the special monitoring of Mr. Husted which followed the cheating hearings. Haverkamp, ff. Tr. 648, Attach. (Inspection Report) at 6-11.

117. Mr. Haverkamp's evaluation also was based on interviews to determine personal views of Mr. Husted. Mr. Haverkamp concluded that Mr. Husted's performance

> was maintained at an acceptable or satisfactory level. During most of his employment, particularly while assigned as an operator instructor or supervisor of instructors, his performance appeared to be good to excellent. The many documents regarding Mr. Husted's performance reflected favorably on his attitude and integrity.

Id. at 16.

118. Mr. Haverkamp interviewed ten individuals who had various contacts with Mr. Husted. They included Michael Ross, Supervisor, Plant Operations, TMI-1; Bruce Leonard, Mr. Husted's supervisor after he became Supervisor, Nonlicensed Operator Training; and Nelson D. Brown, who was Mr. Husted's supervisor from September 1980 until March 1983. Also interviewed were others Mr. Husted worked with or instructed. *Id.*, Table 4.1. The purpose of the interviews was to detect concerns about Mr. Husted's attitude, integrity, or forthrightness, based on observations of his performance and demeanor. *Id.* at 16.

119. The interview comments were generally positive. Mr. Haverkamp noted three comments that questioned Mr. Husted's demeanor. One viewed him as outspoken, another that he sometimes shows bad judgment in what he says in oral discussions, and, a third, that he may at first appear flippant, but was truly serious. *Id.* at 21. Based on the generally positive or favorable comments from those interviewed, Mr. Haverkamp determined that Mr. Husted's integrity, forthrightness, and demeanor were normal to very good. *Id.*

120. Mr. Husted's annual performance ratings also were reviewed. The 1980 annual performance rating, prepared prior to the cheating incidents, rated Mr. Husted in the "high competent" to "low-commendable" range of the rating scale. Husted Exh. 15. The comments noted Mr. Husted's "determination" to satisfy the demands placed on him by working extra hours, his individual initiative in obtaining his SRO license, and Mr. Husted's "honest and direct"

personal interaction and "open and effective working relationships with his supervisor, peers, and subordinates." *Id.*

121. Mr. Brown became Mr. Husted's supervisor in September 1980 and worked closely with Mr. Husted in 1981 and 1982. Brown, ff. Tr. 697, at 2. In preparing his annual evaluation of Mr. Husted for 1981, Mr. Brown asked Mr. Husted to do a self-evaluation for Mr. Brown's consideration, and, in addition, Mr. Brown did an unusual preliminary "snapshot" evaluation of his then impressions of Mr. Husted. *Id.* at 9-10; Tr. 708, 718 (Brown); Tr. 898 (Newton). Both of these preliminary inputs to the 1981 annual evaluation reflect the impact of the aftermath of the cheating episode on Mr. Husted.

122. According to Mr. Husted, the TMI operators blamed the Training Department for the cheating because the individuals engaged in passing papers had been unprepared for their examinations. Husted, ff. Tr. 330, at 11. Operator resentment grew even stronger with the NRC announcement that the April 1981 NRC examination results were being voided because of the cheating incident. *Id.* at 11-12. Added to the generally low morale this caused was a greatly increased work load in the Training Department. *Id.* at 12. Mr. Husted stated in this input for his 1981 annual evaluation:

> It is become increasingly difficult to maintain a positive working attitude which is leading to reduced production and increased reduction in motivation.

123. Mr. Brown's "snapshot" of Mr. Husted depicted irritability, flagging interest and productivity, resistance to change, and difficulty reacting positively and meeting schedules. Husted Exh. 3. Nevertheless, the general comments reflected an overall positive evaluation, despite problem areas resulting from the "adverse conditions" of that period. *Id.* Mr. Brown felt that Mr. Husted maintained a professional attitude, despite the "hard times" he was going through. *Id.*, Brown, ff. Tr. 697, at 12. Mr. Brown's overall evaluation, based on a more studied review of work for the entire year was "average to above average." *Id.* He noted Mr. Husted was "a competent instructor . . . on his way to becoming an excellent instructor," but noted that the "adverse conditions of the last year have had their effect on . . . his projected attitude." Husted Exh. 4.

124. Mr. Husted's next evaluation, in July 1982, was done by Mr. Newton, Operator Training Manager, who noted improvements in Mr. Husted's performance. Husted Exh. 16, Newton, ff. Tr. 836, at 9-10. Mr. Newton noted that he had been "extremely diligent and professional in the use of his own time to prepare more thoroughly for classroom assignments." He also noted that "[s]ince the completion of the restart hearings and associated reports there has been a noticeable improvement in his enthusiasm and morale." Husted Exh. 16.

125. By this same time, TMI-1 management had begun a special monitoring program to evaluate Mr. Husted's performance and attitude. Long, ff. Tr. 755,

at 3-4. The monitoring started in the first half of 1982 and continued until the end of 1983. Staff Exhs. 3 and 4, Husted Exhs. 9, 14. The monitoring consisted of periodic classroom teaching performance evaluations, quarterly performance evaluations, regular annual performance evaluations, and periodic counseling sessions, including at least one meeting with the two vice presidents involved with training and operations at TMI — Dr. Long and H.D. Hukill. Staff Exh. 3; Husted Exh. 14; Long, ff. Tr. 755, at 2-3.

126. As part of the monitoring program, a contractor for GPU Nuclear evaluated the classroom performance of Mr. Husted. Staff Exh. 3; Husted Exh. 13; Tr. 796 (Long). The project manager in a telephone conversation with Dr. Long, on August 27, 1982, stated that Mr. Husted did not display a damaging attitude. The project manager also said that Mr. Husted was not the most effective instructor, but that he was basically "okay" as an instructor. Husted Exh. 13, Tr. 802-03 (Long).

127. In Mr. Husted's 1982 annual evaluation, Mr. Brown rated Mr. Husted "above average," noting his "attitude of 'quality,'" and his very good performance in the classroom.[10] Husted Exh. 5; Brown, ff. Tr. 697, at 14. Mr. Newton's December 1982 classroom evaluation noted "a highly professional attitude at all times." Husted Exh. 20. Characterizing his formal evaluation of Mr. Husted in a memorandum to Dr. Long and Mr. Hukill dated October 17, 1982, Mr. Newton found "no problems pertaining to his attitude and demeanor," noted Mr. Husted's "professional manner," and observed nothing "out of line." Husted Exh. 24. By memorandum of the same date, Dr. R.A. Knief, Manager Plant Training, also commented, based on observation of Mr. Husted's classroom teaching on October 11, 1982, that despite student criticism, "he handled the session in a very professional manner in terms of both technical ability and attitude." Dr. Knief also noted a "positive attitude" in the postevaluation discussion. Husted Exh. 10.

128. In commenting on Mr. Husted's performance from November 1982 to January 1983, Mr. Newton wrote to Dr. Long that Mr. Husted's work in preparation of the written requalification examination was "superb," and that Mr. Newton was remiss in not writing a special letter of commendation for Mr. Husted. Husted Exh. 25.

129. In March 1983, Mr. Brown recommended Mr. Husted for promotion to the position of Supervisor, Nonlicensed Operator Training, with a highly favorable evaluation, noting in particular a "positive professional attitude displayed in complying with requirements of the job." Brown, ff. Tr. 697, at 15; Husted Exh. 6; Tr. 736-37 (Brown).

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[10] During the hearing, Mr. Brown was questioned on the extent to which he considered Mr. Husted's hearing conduct in his evaluation. He stated that he took such conduct into account, but that in view of its isolated nature, it did not have a significant bearing on the overall evaluation. Tr. 733-34 (Brown).

130. Before approving the promotion in March 1983, Dr. Long stated that he questioned the training director and, through him, his staff, extensively as to whether they were satisfied that Mr. Husted was able to instill a sense of seriousness and to maintain integrity, discipline, and appropriate attitudes toward nuclear safety and the regulatory process. Tr. 789 (Long). After receiving sufficient assurance, and consulting the Office of the President of GPU Nuclear, Dr. Long approved the promotion. *Id.* In his testimony, Dr. Long noted that Mr. Husted performed very effectively as Supervisor, Nonlicensed Operator Training, until June 1984, when the Appeal Board directed that he be removed from that position. Long, ff. Tr. 755, at 6-7.

131. Following Mr. Husted's reassignment out of the Training Department to work on risk and reliability analysis in October 1984, Mr. Husted was rated as having "a very positive, enthusiastic attitude about the project" and doing "more work than is asked of him in order to contribute and to learn." Husted Exh. 17.

132. Dr. Long noted no evidence, from the extensive monitoring program and evaluation of Mr. Husted, of undesirable attitudes or lack of respect for the training or licensing process. Long, ff. Tr. 755, at 6. In addition to his review of the monitoring program, Dr. Long continued to monitor and meet with Mr. Husted during the past 2 years to discuss Mr. Husted's progress and to update his opinion on Mr. Husted's attitude toward his responsibilities. *Id.* at 7. Dr. Long stated that he knew of no information to indicate that Mr. Husted "has conveyed to his students or fellow workers an improper attitude toward safety, toward the regulatory process, or toward the company or NRC training processes." *Id.* at 8. Similarly, he had received no information that Mr. Husted was flippant, displayed less-than-serious attitude toward his work, toward safety concerns, or toward the NRC, or was incredible or lacked integrity. Tr. 804 (Long). In evaluating Mr. Husted, it was Dr. Long's intention to address the concerns stated in the Licensing Board decision in the restart proceeding, and he was satisfied that any doubts about Mr. Husted's competence to instill a sense of seriousness about the important need for integrity, discipline, and public confidence in the TMI training program had been removed. Tr. 806 (Long).

Conclusion: Mr. Husted's regular job performance reflected very positively on his attitude and did not present anything to adversely reflect on his integrity.

133. Very extensive evaluations were made of Mr. Husted's job performance over the years. They showed, overall, that his on-the-job attitude has been professional and appropriate to his responsibilities. This attitude has extended to safety, the NRC, and regulatory requirements. He was able to overcome the challenges that the cheating incidents caused and go on to perform conscien-

tiously and with enthusiasm. He was shown to be an employee who fulfilled the day-to-day job requirements of the positions he held in a more-than-adequate manner.

F. Should the Appeal Board's Condition Barring Mr. Husted from Supervisory Responsibilities Insofar as the Training of Nonlicensed Personnel Is Concerned Be Vacated?

134. The condition imposed by the Appeal Board in *TMI-1 Restart*, ALAB-772, 19 NRC at 1221-24, caused Mr. Husted to be removed from the position he held with GPU Nuclear as Supervisor, Nonlicensed Operator Training.

135. The Commission in deciding to provide Mr. Husted a hearing on whether the Appeal Board's condition should be vacated did not do so on the basis of a determination that the law required it, but on a concept of fairness. *TMI-1 Restart*, CLI-85-2, 21 NRC at 314-17. In instituting the proceeding, the Commission looked for a decision on whether the condition should be vacated based on a factual determination of the issues raised by the Commission relating to Mr. Husted's conduct. The Commission never questioned or raised for review the standard used by the Appeal Board in imposing the condition. Notice of Hearing, 50 Fed. Reg. 37,098 (1985).[11]

136. In imposing the condition barring Mr. Husted from supervisory responsibilities insofar as the training of nonlicensed personnel, the Appeal Board employed the following considerations to make its determination.

> [T]eacher competence . . . [includes] the ability to communicate effectively a sense of responsibility as well as information. . . . Where, as here, so much of the training information to be conveyed concerns the need to comply with procedures . . . the instructor's attitude toward — *i.e.*, respect for -- those procedures becomes an integral (though perhaps subliminal) part of his or her ability to teach.
>
> To be sure, Husted will no longer be permitted to train licensed operators. Moreover, there is no hard evidence on the record that Husted's bad attitude did, in fact, affect his teaching performance. . . . But in his new position as Supervisor of Nonlicensed Operator Training, not only will Husted be in a position to instruct personnel with important duties that affect the public health and safety, he will have certain management responsibilities. As such, Husted will presumably also have a role in establishing the criteria for training instructors and developing the audit program imposed by the Licensing Board, as least in part, as a remedy for his own failure to cooperate with the NRC. . . . We seriously question Licensee's judgment in *promoting* Husted to an important position with management responsibilities, given his documented past failure to cooperate with the NRC in its cheating investigation. . . .

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[11] The Commission in its unpublished March 20, 1986 Order denying TMIA's March 4, 1986 Motion to Dismiss noted that the Intervenor contended that the only issue involved was legal. The Commission said that as to the hearing offered Mr. Husted "[t]he focus of the hearing is not a legal one, but rather a factual determination of whether the Appeal Board's condition should remain in place."

TMI-1 Restart, ALAB-772, 19 NRC at 1223-24 (footnotes omitted).

137. The Appeal Board in imposing the condition did not find it necessary to determine whether his unacceptable attitude toward the NRC did, in fact adversely affect his teaching performance or the exercise of his management responsibilities. Mr. Husted's failure to cooperate with the NRC and his actions in derogation of the regulatory process were deemed sufficient flaws to disqualify him from holding a supervisory position that affects public health and safety. In effect, the Appeal Board held that his unacceptable attitude toward the regulatory process had the potential of being transmitted to others or instilled in the system he was responsible for managing, all of which affect public health and safety.

138. The position of Supervisor, Nonlicensed Operator Training, relates to public health and safety. The person holding that position is responsible for training the auxiliary operators that work in the plant. Their functions on a daily basis have the potential for initiating an event. They can also mitigate an event by their prompt action. The auxiliary operators are an extension of the licensed operators in the control room and their training is safety related. Tr. 736 (Brown).

139. The Atomic Energy Act of 1954, as amended, grants NRC broad power in dealing with the regulation of nuclear energy. Section 161(b) grants the Commission the authority to establish by rule, regulation, or order such standards to govern the use of nuclear materials as the Commission may deem necessary or desirable to protect health or to minimize danger to life or property. 42 U.S.C. § 2201(b).

140. The Commission's regulations do not address qualifications for the position of Supervisor, Nonlicensed Operator Training. However, where the holder of that position may adversely affect public health and safety because of attitudes and behavior toward the NRC and its regulatory process, the Commission can take necessary action that will provide reasonable assurance that the activities authorized by the operating license will be conducted without endangering the health and safety of the public. *See* 10 C.F.R. § 50.57(a)(3). This is so even if the result is to disqualify an individual from being employed in a particular job category.[12]

141. The Appeal Board discussed the legal authority employed for imposing the licensing condition that worked against Mr. Husted.

142. In ALAB-772, the Appeal Board explained the manner in which the issues being reviewed in that decision concerning reactor operator training and management capability related to the underlying question as to what actions

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[12] The Commission in enforcement actions taken under § 103 and/or § 186 of the Act and applicable regulations requiring cooperation with NRC inspection activities has conditioned licenses requiring the removal of particular individuals from nuclear-related responsibilities. *Niagra Mohawk Power Corp.* (Nine Mile Point Nuclear Station), 45 Fed. Reg. 80,854-55 (1980); *Detroit Edison Co.* (Fermi-2), 51 Fed. Reg. 25,411 (1986).

"are necessary and sufficient to provide reasonable assurance that [TMI-1] can be operated without endangering the health and safety of the public . . ." ALAB-772, 19 NRC at 1202-03 (1984). Similarly, it noted that the findings that were anticipated from the reopened hearings on the April 1981 cheating incidents were important to its overall findings on the issues of Licensee management integrity, the quality of the Licensee's operating personnel, the Licensee's ability to staff the facility, its training and testing program, and the NRC process for testing and licensing operators. *Id.* at 1204.

143. Although the Appeal Board noted the absence of specific standards for judging the integrity of Licensee's management and operation, *id.* at 1206, it found authority for its judgments in the Atomic Energy Act, § 103b, requirement that licensees comply with Commission requirements for the protection of the public health and safety, and in the provision in § 182a for consideration of a licensee's "character." *Id.* at 1206-07. Finally, it observed that the Commission earlier noted that "abdication of responsibility or abdication of knowledge . . . could form an independent and sufficient basis for revoking a license . . ." based on Licensee's competence or character. While noting the absence of "precise standards against which to measure licensee's conduct," the Appeal Board found the guidance there as a basis for appellate review. *Id.* at 1207-08.

144. Thus, when the Appeal Board found that an instructor of nonlicensed operators must have the ability to effectively communicate a sense of responsibility as well as information and respect for procedures, and used this criterion for requiring, as a condition on the Licensee (GPU Nuclear), that Mr. Husted "have no supervisory responsibilities insofar as the training of non-licensed personnel is concerned," *id.* at 1223-24, it was doing so on the bases of the Licensee's responsibilities to protect the health and safety of the public and to demonstrate "character."

145. The Appeal Board in imposing the condition upon the Licensee, which disqualified Mr. Husted from continuing in the position he held, cited the authority under which it acted and the considerations it employed. The Commission in instituting this proceeding expected the same standards to be applied to the factual determination reached here. They are so applied.

146. Although the condition imposed by the Appeal Board attached to the license, and the Licensee was required to fulfill it, the condition also directly affected Mr. Husted. Because of that consequence, this case was considered in the nature of an enforcement proceeding and Mr. Husted was afforded the protections provided for under the Administrative Procedure Act, 5 U.S.C. § 551, *et seq.* At no time during the course of the hearing did Mr. Husted raise any objections to the adequacy of the hearing provided him. Considering the case in the nature of an enforcement proceeding did nothing that would alter the

standard used by the Appeal Board in imposing the condition and applying it in this proceeding.

Conclusion: The Appeal Board's condition barring Mr. Husted from supervisory responsibilities insofar as the training of nonlicensed personnel is concerned should not be vacated.

147. In applying the Appeal Board's standard for imposing the condition barring Mr. Husted from supervisory responsibilities for the training of nonlicensed personnel to Mr. Husted's conduct as disclosed by this hearing, it is concluded that the condition imposed should not be vacated.

148. Although the record did not show that Mr. Husted solicited an answer to an exam question during the April 1981 NRC examination or that he concealed knowledge of cheating at the July 29, 1981 interview, it did establish that he had failed to cooperate with the NRC investigators. It also established that his testimony before the Special Master lacked forthrightness and that he had a poor attitude toward the hearing on the cheating incidents. Also, it showed that he continued to display some of the same elements of lack of regard for the NRC hearing process that led to the finding that he had a bad attitude toward the hearing on the cheating incidents.

149. Mr. Husted has been unable or unwilling to change his attitude toward the NRC's regulatory process sufficiently for it to be found acceptable. The potential continues to exist that this unacceptable attitude toward the NRC regulatory process can adversely affect his teaching performance or the exercise of his management responsibilities contrary to public health and safety.

150. The record has established that in Mr. Husted's regular job performance his attitude has been professional and appropriate to his responsibilities; this attitude extends to safety, the NRC, and the regulatory requirements. The Appeal Board standard for imposing the condition cannot be viewed as so inflexible that it would deny Mr. Husted the ability to requalify for his former position considering his positive on-the-job attitude, if he had shown that he had rid himself of his poor attitude for the regulatory process. He failed to do this and the condition imposed by the Appeal Board should stand.

151. Because the license condition has not been lifted, Mr. Husted is unable to regain his position as Supervisor, Nonlicensed Operator Training. This is not done as a sanction, nor is done to forever bar him from that position. It is a matter of providing reasonable assurance for the protection of public health and safety. Mr. Husted cannot regain the position until he demonstrates that he is qualified under the Appeal Board standard, as previously discussed.

152. There is no basis to come to a different finding in regard to Mr. Husted serving in those licensed capacities in which the Licensee and the Commonwealth of Pennsylvania stipulated that he should not serve.

153. On the basis of the foregoing, I find in TMIA's favor as to its two contentions because of a demonstrated poor attitude on the part of Mr. Husted and against GPU Nuclear on its single contention.

Ultimate Conclusion and Order

Based upon all of the evidence of record in this proceeding and in light of the foregoing findings and discussion, I hereby find:

That the conduct and attitude of Charles Husted requires that he not be permitted to serve as a supervisor of nonlicensed operator training, or as an NRC licensed operator or licensed operator instructor or training supervisor.

It is hereby ordered that the condition regarding Charles Husted imposed in ALAB-772, 19 NRC at 1224, requiring that he have no supervisory responsibilities insofar as the training of nonlicensed personnel is concerned, shall not be vacated.

In accordance with 10 C.F.R. § 2.760, this Initial Decision will constitute final action of the Commission thirty (30) days after its date, unless an appeal is taken in accordance with 10 C.F.R. § 2.762. Pursuant to 10 C.F.R. § 2.785, the Commission, in the Notice of Hearing, has authorized the Atomic Safety and Licensing Appeal Board to exercise authority and perform the review functions which would otherwise be exercised and performed by the Commission.

Morton B. Margulies
ADMINISTRATIVE LAW JUDGE

Dated at Bethesda, Maryland,
this 2d day of April 1987.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR REACTOR REGULATION

Harold R. Denton, Director

In the Matter of Docket No. 50-400

CAROLINA POWER & LIGHT
COMPANY and
NORTH CAROLINA EASTERN
MUNICIPAL POWER AGENCY
(Shearon Harris Nuclear Power
Plant)

April 2, 1987

By Petition dated October 17, 1986, submitted pursuant to 10 C.F.R. § 2.206, Robert Epting, Steven P. Katz, and Joseph T. Hughes, Jr., on behalf of the Coalition for Alternatives to Shearon Harris, and Wells Eddleman (Petitioners), requested the Nuclear Regulatory Commission (NRC) to institute a proceeding to modify, suspend, or revoke the construction permit for the Shearon Harris Nuclear Power Plant and to deny or delay issuing an operating license for the plant. Petitioners alleged deficiencies in Carolina Power & Light Company's (Licensee) quality assurance program for safety-related electrical components, that the Licensee lacked the requisite character and technical capability to operate Shearon Harris as demonstrated by alleged discrimination against two employees, and that the Licensee improperly documented and performed certain construction procedures.

By letter dated November 12, 1986, the Director of the Office of Nuclear Reactor Regulation (the Director) acknowledged Petitioners' requests and informed them that the NRC had issued a low-power operating license for Shearon Harris on October 24, 1986. The NRC considered the issues raised in the Petition in accordance with the Commission's Policy for Handling of Late Allegations (50 Fed. Reg. 48,506 (1985)) and determined that the Petition did not raise any significant safety concerns that the NRC would have to resolve before issuing the full-power license. The Commission, in approving the full-power authorization,

concluded that the Petition did not appear to raise any substantial, significant safety issue or to show a basis for delaying full-power operation.

The Director denied all of Petitioners' requests. Because the NRC knew of the evidence that Petitioners submitted to document the alleged breakdown in quality assurance and the NRC had already confirmed that the Licensee had satisfactorily implemented its quality assurance program at Shearon Harris, the Director found that basis for Petitioners' requests unsubstantiated. Because Petitioners' evidence of Licensee discrimination against employees showed only isolated incidents of possible discrimination, and did not suggest that the Licensee lacked the character or technical capability to operate the plant, the Director rejected that basis for Petitioners' requests. Finally, because the NRC found Petitioners' allegations of improperly documented or improperly conducted construction activities either untrue or devoid of safety significance, the Director rejected that basis for Petitioners' requests.

RULES OF PRACTICE: PETITIONS UNDER 10 C.F.R. § 2.206

The Nuclear Regulatory Commission, having already considered and resolved a technical issue that a petitioner raises, need not reconsider that issue if the petitioner provides no new information. *See Northern Indiana Public Service Co.* (Bailly Generating Station, Nuclear-1), CLI-78-7, 7 NRC 429, 434 (1978), *aff'd sub nom., Porter County Chapter of the Izaac Walton League of America v. NRC*, 606 F.2d 1363 (D.C. Cir. 1979).

RULES OF PRACTICE: PETITIONS UNDER 10 C.F.R. § 2.206

When a petitioner submits a petition pursuant to 10 C.F.R. § 2.206 requesting suspension or revocation of a construction permit and the Nuclear Regulatory Commission has already begun considering whether to issue an operating license for the facility, the Commission will consider the issues raised in the petition according to the Commission's Policy for Handling of Late Allegations. 50 Fed. Reg. 48,506 (1985). If the issues do not present significant safety concerns, the Nuclear Regulatory Commission may issue the low-power or full-power operating license.

RULES OF PRACTICE: PETITIONS UNDER 10 C.F.R. § 2.206

The Nuclear Regulatory Commission will examine in depth any petitioner's allegations of defective construction in a nuclear power plant, even if the alleger remains confidential. If the Nuclear Regulatory Commission finds that those allegations have no basis in fact, or, if the allegations are true, that they do

not adversely affect safety, the Nuclear Regulatory Commission will deny the petitioner's requests.

DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206

Introduction

By a petition dated October 17, 1986 (Petition), Messrs. Robert Epting, Steven P. Katz, and Joseph T. Hughes, Jr., on behalf of the Coalition for Alternatives to Shearon Harris (CASH), and Mr. Wells Eddleman (Petitioners), requested, pursuant to 10 C.F.R. § 2.206, that the Director of the Office of Nuclear Reactor Regulation institute a proceeding under 10 C.F.R. § 2.202 to modify, suspend, or revoke the construction permit for the Shearon Harris facility and deny or delay issuance of an operating license for the facility in light of issues raised in the Petition. As a basis for the requested action, the Petitioners alleged (1) deficiencies in Carolina Power & Light's (CP&L or Licensee) quality assurance program for electrical safety-related components, (2) lack of requisite character and technical capability to operate the Shearon Harris facility as evidenced by two recent employee discrimination cases before the Department of Labor, and (3) improper documentation and performance of certain construction procedures.

On November 12, 1986, I acknowledged receipt of the Petition and informed the Petitioners that the NRC had issued a low-power operating license for the Shearon Harris facility on October 24, 1986. Prior to issuing that license, the issues raised in the Petition were considered in accordance with the Commission's Policy for Handling of Late Allegations (50 Fed. Reg. 48,506 (1985)), and it was determined that the issues did not present significant safety concerns which needed to be resolved prior to the issuance of that license. Subsequently, on January 12, 1987, CP&L was authorized to operate the Shearon Harris facility at full power. The Commission, in approving the full-power authorization, also was briefed on the specific issues raised in the Petition and concluded that they did not appear to have substantial safety significance or otherwise provide a basis for delaying full-power operation.[1]

On December 15, 1986, CP&L filed a response to the Petition, which I have also considered. As explained in the discussion which follows, I have determined that the Petition should be denied.

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[1] CLI-87-1, 25 NRC 1, 5 (1987).

Discussion

I. QUALITY ASSURANCE PROGRAM FOR ELECTRICAL SAFETY-RELATED COMPONENTS

The Petition alleges a systematic breakdown in CP&L's Quality Assurance Program in the area of electrical safety-related components, as evidenced by a pattern of violations and failed implementation of the program. The electrical safety-related concerns encompassed by the Petition are the installation and fabrication of safety-related electrical cable tray supports, the fire protection separation requirements for individual electrical cables, and the installation of electrical panels which, if they were to fall, could damage safety-related electrical components. In addition, the Petition addresses several quality programs that are used in the processing and resolution of Licensee-identified nonconformances and review of nondestructive testing data for adequacy, and which are also used by the Harris plant architect-engineer to preclude interaction between safety- and nonsafety-related equipment.

The NRC has reviewed the documentation provided by the Petitioners to support this allegation and has concluded that the information provided is not new and that all issues raised were previously reviewed and resolved by the NRC Staff. All issues raised under this allegation are either NRC- or Licensee-identified and have been documented and resolved through NRC inspection reports. In each instance, appropriate corrective actions have been required of CP&L, evaluated by the NRC Staff, and found acceptable.

In addition, the NRC has a programmatic system for evaluating performance of a facility, whereby the results of inspections performed over a period of time are assessed to determine if quality assurance breakdowns have occurred. This program is the Systematic Assessment of Licensee Performance (SALP) and has been conducted six times for the Shearon Harris facility between 1979 and 1986. The NRC Staff has reexamined the reports of these six SALP assessments, specifically focusing on the electrical and quality assurance functional area. All inspection activity on electrical cables and components is documented in the electrical equipment and cable SALP functional area. The SALPs identify any programmatic breakdown in quality assurance in SALP sections entitled "Quality Programs and Administrative Controls Affecting Quality."

Focusing on the area of electrical equipment and cables, SALP Report 400/83-10, covering January 1, 1982, to January 31, 1983 (SALP #3), identified three violations in the area of cable tray supports and vendor welds in electrical panels. *See* Inspection Reports 400/81-25 and 400/82-05.

In addition, as identified in the next SALP Report 400/84-18, covering February 1, 1983, to April 30, 1984 (SALP #4), an additional cable tray

support violation was identified in Inspection Report 400/83-16. During this SALP period, two violations were identified against the installation of cables. *See* Inspection Reports 400/83-26 and 400/83-37. In the next assessment period, with the cable tray support and seismic installation problem identified and corrected, SALP Report 400/85-41, covering May 1, 1984, to October 31, 1985 (SALP #5), identified three violations, specifically addressing cable and cable tray separation. *See* Inspection Reports 400/85-08, 400/84-24, and 400/85-04. Also during this period, an NRC headquarters construction appraisal team inspection identified cable separation problems in Inspection Report 400/84-41. In the latest SALP report covering November 1, 1985, to July 31, 1986, the NRC identified that the cable separation problem identified in SALP #5 had not been fully corrected, which resulted in escalated enforcement action being taken against the Licensee for failure to take adequate corrective action. Inspection Report 400/86-66, dated November 21, 1986.

Based on Inspection Reports 400/86-62 and 400/86-66, for inspections conducted in July 1986 and August 1986, respectively, two management meetings conducted on August 29 and September 25, 1986, and an enforcement conference on October 9, 1986, the NRC determined that although the Licensee's quality assurance program partially broke down in identifying and correcting deficiencies in cable separation, the Licensee had resolved this problem sufficiently to warrant allowing completion of the cable separation rework after issuance of the low-power license. The Licensee's corrective actions were reviewed, inspected, and accepted by the NRC in Inspection Report 400/86-88. Accordingly, this issue was closed.

To assess whether problems in the electrical area had broader implications, the Licensee conducted an analysis of root causes identified with the electrical separation problems and concluded that no similar problems existed in other construction areas. To verify this conclusion, Region II initiated a team inspection in other construction areas to determine if similar deficiencies existed. Specific areas inspected were in structural steel and electrical supports (*see* Inspection Report 50-400/86-69, dated November 14, 1986). The Staff concluded that the electrical separation issue was an isolated case and did not extend to other portions of the Licensee's Quality Assurance Program.

In conclusion, the NRC has reviewed the documentation provided by the Petitioners and concludes that the information is not new and that all issues have been previously reviewed and resolved by the NRC Staff. The NRC Staff review confirms that the Quality Assurance Program at Shearon Harris has been satisfactorily implemented over the construction life of the facility, and permitted the NRC to find that construction of the facility had been completed in conformity with the construction permit and the rules and regulations of the Commission (*see* 10 C.F.R. § 50.57(a)(1)), and that the operating license should be issued.

II. HARASSMENT OF EMPLOYEES

In its Petition, the Petitioners describe two cases brought by employees of CP&L or employees of CP&L contractors before the Department of Labor (DOL) alleging discriminatory action taken against the employees for raising safety issues at the Shearon Harris facility. Petitioners assert that these two incidents of alleged discriminatory behavior indicate that the Licensee lacks the requisite character and competence to operate a nuclear plant and also calls into question the adequacy of the work performed by the individuals or others similarly situated.

One of the cases cited involved John J. McWeeney, who filed a complaint with DOL pursuant to § 210 of the Energy Reorganization Act, 42 U.S.C. § 5851, claiming he was terminated for raising concerns about the acceptability of several safety-related issues concerning engineering design calculations. Following DOL's initial investigation, the Area Director found that Mr. McWeeney had been discriminated against for engaging in protected activity. The Licensee requested a hearing, but on December 3, 1986, Mr. McWeeney and CP&L entered into a settlement agreement resolving all employment issues between them.

The technical issues raised by Mr. McWeeney related to adequacy of the electrical supports in the reactor building. These issues were analyzed by CP&L and, in some cases, modifications of specific supports were made in the facility from August to November 1986. (*See* Affidavit of Michael D. Holveck, submitted as part of the Licensee's December 15, 1986 Response to the Petition). The NRC Staff has reviewed the actions taken by the Licensee and is satisfied that CP&L's actions adequately resolved the technical concerns.

The second instance of discriminatory conduct raised by the Petitioners concerned Mr. Marvin Lloyd Van Beck, an employee of the Daniel Construction Company, a contractor of the Licensee at the Shearon Harris facility. He was terminated from his employment at the site in January 1986 when he refused to perform inspection work inside containment during hot functional testing because of fears for his personal safety. An Administrative Law Judge (ALJ) for DOL found that Mr. Van Beck was engaging in protected activity when he refused to work. The ALJ concluded that his refusal to work was reasonably based upon a belief that unsafe conditions existed in the containment and that the inspector's anxiety about those unsafe conditions could impair his ability to perform adequate inspections of electrical raceways. The Licensee has informed the NRC that the Daniel Construction Company intends to appeal the ALJ decision. (*See* Licensee Response at 16.)

In its Response to the Petition of December 15, 1986, CP&L provided the affidavit of Mr. R.A. Somers, who was a Construction Inspection Superintendent during the time Mr. Van Beck was employed as an electrical raceway inspector. In his affidavit, Mr. Somers described the program of supervisor audits that,

on a sampling basis, reverified inspections done by Mr. Van Beck and others. A review of records of these audits for the time of inspections in containment during hot functional testing found no indications of inadequate inspection. Statements provided by each of the lead inspectors for electrical raceways indicate that none of them received any indication from inspectors reporting to them that inadequate inspections were being performed. Consequently, technical concerns that were raised by the workers have been examined and have been satisfactorily resolved.

The NRC has also concluded that these two instances of alleged discrimination do not represent any pattern or practice of discriminatory conduct against workers for raising safety concerns. The NRC Office of Investigations (OI) has received five additional allegations of intimidation or harassment of workers at the Shearon Harris facility during the past 4 years. In three of these cases, investigations by OI did not substantiate harassment or intimidation of workers. (OI Reports No. 2-83-006, 2-84-021, 2-85-011). A fourth individual later reported his concern resolved. In the fifth case, a group of eleven individuals filed DOL complaints. One of these individual cases was investigated by DOL and no discrimination was found. Six other individuals settled their cases with the Licensee and the cases of the four remaining individuals were dismissed by DOL for untimely filing. Another case was examined by CP&L's Q-1 program, which concluded no harassment occurred.

Additionally, the Atomic Safety and Licensing Board for the operating license proceeding for the Shearon Harris facility, in its consideration of a contention alleging harassment of employees at the facility to discourage them from bringing forward safety concerns, concluded that there might be employees at the site with information about acts of harassment of workers.[2] The Board directed the Licensee to post a notice at the Shearon Harris site which invited employees who wished to provide information about any harassment incident related to nuclear safety to send it to the Board.[3] The Board received two letters in response to its posted notice which were referred to OI. These two instances were investigated and no harassment was substantiated by OI. *See* OI Report No. 2-85-011.

Overall, the NRC Staff concludes that, while there may have been isolated instances of intimidation and harassment at Shearon Harris, no problem or practice of discriminatory conduct existed during the construction of the facility. It was on this basis that the NRC Staff supported issuance of an operating license to CP&L. In all instances where intimidation and harassment were alleged, the technical concerns raised by the individuals were examined and resolved by the

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[2] The contention was dismissed by the Board without reaching the merits. *See* Transcript of Telephone Conference Call, June 4, 1986, at 7756, lines 7-9.

[3] ASLB Memorandum and Order, January 14, 1985.

NRC Staff. A number of cases were investigated and intimidation or harassment could not be established. Isolated instances of intimidation and harassment do, however, appear to exist, and the NRC is considering what additional actions should be taken in these cases to preclude recurrence. No technical issues remain outstanding, and the limited nature of the problem can be resolved through actions less severe than your requested delay in issuance or a denial of an operating license.

III. CONFIDENTIAL SOURCE'S ALLEGATIONS

In support of their request for relief, Petitioners raise a number of safety concerns based on disclosures made to them by a confidential source. Petitioners allege that

(1) the wrong individuals approved design of shear plates for traveling screens in the emergency water intake structure (Petition at 12);
(2) the Licensee compromised the integrity of Phillips expansion anchors in the reactor auxiliary building by installing them incorrectly (*id.* at 12, 13);
(3) the Licensee used unapproved material in some safety-related components or structures (*id.* at 13);
(4) craft persons falsified design documents by which construction inspectors approved some construction work (*id.* at 13, 14);
(5) the Licensee failed to check anchor bolt hole undercut tolerances in the emergency service water intake structure (*id.* at 14);
(6) craft persons installed material other than that approved for use in the emergency service water intake structure (*id.*);
(7) craft persons changed the elevation and location of shear plates in the emergency service water intake structure without design engineering approval (*id.*); and,
(8) the Licensee used 1411 concressive epoxy (nonload-bearing) grout to bear loads under base plates in the diesel generator building.

Based on these allegations, the Petitioners conclude that the Licensee's quality assurance program failed to guarantee that the Licensee built the plant's critical safety-related components according to design specifications and NRC regulations.[4] The Petitioners request the NRC to revoke, suspend, and modify the Licensee's construction permit to alleviate this concern. Because, as described

[4] On December 18, 1986, the NRC interviewed the confidential source, who clarified the Petition's concerns. While the NRC considered and inquired into all the confidential source's allegations, this Decision addresses those concerns that the Petition raises. *See* Inspection Report 50-400/87-01.

below, I find that Petitioners' allegations either have no factual basis or have no safety significance, I deny the requested relief.

In order to confirm the above allegations, most of which relate to concrete expansion anchors and baseplates, the Licensee tested concrete expansion anchors and inspected concrete expansion baseplates. NRC resident inspectors observed these tests and inspections. Based on these tests and inspections, discussions with Licensee engineers, review of Licensee quality control inspection records and procedures, review of the Licensee's response to the Petition and review of previous NRC inspections, the NRC Staff finds no safety significance in the allegations for the following reasons.

A. Emergency Service Water Shear Plate Design Approval

Petitioners allege improper design approval for installation of steel plates that provide lateral support to traveling screens in the emergency service water cooling water intake structure. Concrete expansion anchors hold the plates to the intake structure. Petitioners allege that the wrong persons signed the design approval block on certain concrete expansion anchor placement reports (APR).

The Licensee's work procedure WP-33, "Installation of Wedge Expansion Bolt Anchors," specifies that the area or discipline engineer must sign the design approval block on the APR. Inspection Report 50-400/87-01 at 5. For the shear plate APRs in question, the discipline engineer's supervisors, the Licensee's discipline managers, signed the APRs. Signature of the design approval block does not indicate approval of the design, however, but verifies that the APR refers to the appropriate design documents, i.e., drawings, procedures, and specifications. *Id.* Craft personnel used the APRs to install expansion anchors. The individuals who signed these APRs had the authority to do so, and the area or discipline engineer's failure to sign them did not violate the Licensee's procedure nor did it carry any adverse safety consequences. *Id.* Furthermore, NRC Region II inspectors randomly reviewed forty-two (42) other APRs, as well as those the confidential source referred to, and verified that those APRs referred to the correct design documents. *Id.* at 4. The NRC identified no discrepancies or violations of regulatory requirements.

B. Anchor Bolt Installation

The Petition alleges that the Licensee installed anchor bolts incorrectly in the reactor auxiliary building (the Petition refers to this alleged incorrect installation as "sandbagging"). Specifically, the Petition alleges that the Licensee erroneously drilled some anchor holes too large and poured fine sandblasting

sand in the anchor hole alongside the anchor body, so that the anchor would bind against the sand when it was tightened and torqued to minimum values.

Normally, the Licensee used the following procedure to install an anchor. The Licensee would follow the manufacturer's installation procedures that specified the size and depth of the anchor hole by carefully selecting the appropriate drill bit to drill the correct-size anchor hole. The Licensee would then drive the anchor into the hole with a hammer and set the anchor by torquing the nut on the anchor to a minimum torque value set in the manufacturer's procedures. The Licensee's application of torque to the anchor nut causes the anchor to expand into the side of the hole, thus securing the anchor to the concrete. Inspection Report 50-400/87-01 at 6.

The Petition alleges that the Licensee improperly installed certain concrete expansion anchors that are no longer accessible for testing, due to their proximity to installed electrical equipment. Although inaccessible for testing, NRC inspectors were able to examine those anchors visually, and reviewed their associated quality control installation records. *Id.* at 9. The inspectors' review found discrepancy report number DR-C-1761 that addressed problems with the installation of these anchors, among others. The discrepancy report revealed that anchor installation in the same baseplate adjacent to formerly installed anchors caused relaxation of those formerly installed expansion anchors, and that oversized drill holes did not cause the problem. The anchor relaxation problem occurred because the Licensee installed between ten (10) and eighty (80) expansion anchors in the same large plate that supports electrical cabinets in the reactor auxiliary building. *Id.* This problem was corrected when the anchors in these placements were reset to the proper torque value. *Id.*

Because the Petition questions the integrity of expansion anchors that are no longer accessible for testing, the Licensee developed a sample test program. The Licensee set concrete expansion anchors into concrete walls following the procedure the Petition described. The Licensee then tested these sample anchors. The NRC Senior Resident Inspector observed this test program. When the Licensee tested the sample anchors to 115% of their design capacities, as the original anchors had been tested, none of them failed. No anchor failed until the Licensee increased the test load to 140% of the allowable design capacity. *Id.* at 7. The Licensee conducted further testing on January 6 and 7, 1987, for which NRC Region II inspectors prescribed test methodology that more closely duplicated the practices described by the confidential source during a December 18, 1986 interview. These tests, which NRC inspectors observed, confirmed the conclusion that anchors installed according to the alleged procedure perform at least as well as correctly installed anchors. *Id.* The Licensee installed four anchors according to the Petitioners' and the confidential source's procedures. Although the Licensee could not torque one of these anchors to minimum values, under the Licensee's quality control program, this failure would have mandated that

the anchor be rejected and replaced. The other three anchors satisfied the design tension requirements. *Id.* at 7-9. Thus, even if the Licensee incorrectly installed anchor tests as alleged, there would be no effect on the integrity of the concrete expansion anchors.

C. Material Substitution

The Petition alleges that unnamed persons substituted other grades of material for material approved for use in safety-related components or structures (Q material). These persons allegedly stamped non-Q material with metal stamps that identified the material as Q material. The Petitioners allege that the Licensee then used this falsely identified material in places where only Q material should have been used, including pipe hangers and the fuel handling building.

The Licensee's quality assurance program required the Licensee to acquire all Q material from approved vendors and to maintain quality assurance records that would demonstrate that all Q materials delivered to the site met their respective purchase specification requirements. Inspection Report 50-400/87-01 at 10. The Licensee's quality assurance/quality control inspectors inspected all Q materials delivered to the site to verify that those materials complied with purchase specifications and were undamaged when delivered. *Id.* The Licensee's quality control inspectors exercised rigid control over metal stamp custody and use. If craftsmen used the Licensee's metal stamps to mark metal components as Q material, the Licensee's quality control inspectors supervised them and observed or possessed the stamps at all items. *Id.* at 11.

All the A-36 steel on the site complied with the quality assurance program's requirements. While the Licensee had identified a problem with its material control for seismic pipe hangers and issued a discrepancy report in July 1983, the Licensee resolved that problem with NRC approval. Inspection Report 50-400/86-21 at 2. The Licensee accepted the use of the suspect material because the allowable stresses in the pipe hanger design in which the Licensee substituted material were lower than the minimum yield strength of any postulated substitute material. *Id.* On numerous occasions, Region II inspectors have inspected the Licensee's program by examining its procurement receipts, its material storage and handling, and its material tracing procedures and records. With a few minor exceptions, the NRC has found the material control procedures and practices in construction of the plant adequate. Inspection Report 50-400/87-01 at 12. The NRC inspected the fuel handling building and found no large steel structural frames other than the fuel-cask-handling bridge crane. Because the Licensee did not fabricate this crane on the site, craft persons could not have substituted non-Q steel for Q steel in the manner the Petition alleges. *Id.* Petitioners allege no other specific violations that the NRC could investigate. Based on the NRC's review

of its previous investigations and the Licensee's material control procedures, the Petitioners' allegation is not substantiated.

D. Document Control

The Petitioners allege that craft persons falsified the applicable design documents by altering them to reflect the work they had done before giving them to the Licensee's quality control inspectors. The Petitioners further allege that the inspectors relied on those falsified documents to inspect construction. Allegedly, the craft persons replaced the authentic unaltered design documents after the Licensee completed each of its inspections. According to the Petitioners, the craft persons did this because the Licensee denied approval, on occasion, for cutting rebar, moving anchors, and altering plate sizes.

The Licensee's quality assurance program manages distribution of these controlled documents, which include field change requests, engineering change notices, permanent waivers, field modifications, etc., in accordance with the requirements of the Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants, 10 C.F.R. Part 50, Appendix B, Criterion VI (1986). Inspection Report 50-400/87-01 at 13. The Licensee's program precludes individuals from copying or changing these documents. NRC Region II inspectors extensively inspected the Licensee's document control system and with the exception of some minor violations, none of which concerned falsified documents, this system complied with NRC requirements. *Id.*

NRC investigation further revealed that the Licensee's QC inspectors did use, in some instances, craft personnel's copies of design documents in order to perform inspections. *Id.* The investigation also showed that the Licensee routinely changed the design of baseplates when needed, by relocating anchors or baseplates, by cutting rebar, and by changing baseplate dimensions, among other things. When craft persons found that they could not install a piece of hardware in accordance with the design requirements, they would contact the Licensee's engineering department for help. The Licensee's engineering department would then make any design change required, and would issue the appropriate paperwork to document the change. Because craft persons were responsible for design documents at times, the possibility remains that those craft persons could have falsified some design documents. *Id.* at 13, 14. In order to evaluate this allegation, the Licensee reviewed 1166 APRs that cover installation of safety-related expansion anchors in 1982 and 1983. Only fifty (50) anchor placements required craft persons to cut rebar. In each of these fifty cases, the APR and the QC inspector's records showed that the craft persons had cut rebar to install the anchor, and the associated design documents confirmed that the craft persons made no error by cutting the rebar. *Id.* at 14. The NRC reviewed this item by examining procedures and specifications by which the

craft persons installed the anchors. The NRC's review of the APRs referred to by the confidential source and 300 other APRs revealed no unauthorized rebar cutting. *Id.* The Licensee's procedures did not require its construction inspectors (CIs) to document encounters with rebar while installing anchors until October 1982, and did not require the CIs to document rebar cutting until April 1984, but the CIs always documented rebar cutting and rebar encounters. *Id.* The NRC found no evidence tending to prove that any person falsified any of these documents. *Id.* at 15.

E. Emergency Service Water Intake Structure Allegations

Petitioners allege deficiencies in the emergency service water intake structure because the Licensee (1) did not check undercut tolerances for "maxi-bolt" anchor bolt holes; (2) did not prevent the craft workers from substituting materials; (3) did not prevent craft workers from changing shear plate elevation and location and surveyed field location reference lines; and, (4) did not properly approve field location.

The NRC reviewed inspection records and procedures for "maxi-bolt" anchor holes and found that the Licensee's QC inspectors had properly inspected the undercuts. Inspection Report 50-400/87-01 at 16, 17. Furthermore, the Licensee installed three sample maxi-bolts without any undercut and tested their tensile strengths. The NRC Senior Resident Inspector observed these tests in which all three bolts performed as required. At the Senior Resident Inspector's instruction, the Licensee tested one bolt to almost twice the required acceptance load before exceeding the testing device's capacity. *Id.* at 17. The NRC found that the Licensee had properly inspected the undercut of maxi-bolt holes and that lack of undercut carries no safety significance.

In order to determine whether any craft persons had substituted materials, the Licensee checked its inspection records and performed tests on the allegedly substituted material. The Licensee drained the intake structure and tested twenty of the shear plates for hardness in place. Law Engineering Test Company independently verified the results of this in-place testing program. *Id.* at 18. Furthermore, the Licensee cut samples from eight of the approximately forty-five shear plates in the intake structure. The NRC Senior Resident Inspector selected the sample location at random. The Licensee cut 1-inch × 6-inch samples from these shear plates, cut these samples in half, and delivered one set of specimens to the NRC, while retaining the other set on which to conduct tensile strength and chemical tests. *Id.* All test results, with the exception of one safety-insignificant tensile strength test, showed that the shear plate material met the requirements for A-36 steel, which the Licensee was required to use in this application. *Id.* at 19. The NRC found no evidence of material substitution in the shear plates.

As for the Petitioners' allegation that craft workers changed shear plate position in this intake structure, the Licensee's QC inspectors verified that the craft persons installed the shear plates in the correct places when the craft persons originally installed them and documented a survey of as-built shear plate location. *Id.* at 20. The Licensee documented these inspections with inspection records. When the Licensee drained the intake structure to check for material substitution, it also checked the locations and sizes of eight shear plates by measuring from known reference points in the intake structure. The NRC's Resident Inspectors observed and verified these measurements. *Id.* The NRC further confirmed the location of the shear plates by observing the shear plates in the intake structure above water. *Id.* Furthermore, all persons who signed off on these items had the authority to do so. *Id.* Neither the Licensee nor the NRC could detect any discrepancies in the location or placement of these shear plates.

F. Alleged Improper Use of Concressive 1411 Epoxy Grout

Petitioners allege that the Licensee installed concressive 1411 epoxy grout under baseplates to bear loads, and that such grout is incapable of bearing loads because of the effects of heating encountered during welding. While the latter part of the statement is true, with one limited exception noted below, the NRC could find no evidence tending to prove the former part. Petitioners specifically refer to baseplates in which the Licensee placed anchor bolts according to placement numbers 1 DG 2610136 through 166. Inspection Report 50-400/87-01 at 23. Some of these baseplates required load-bearing support but others required no such support. The Licensee's QC inspection records show that the Licensee used Portland cement grout under those baseplates that required load-bearing support. *Id.* Those records also show that the Licensee used concressive 1411 epoxy grout under only fifteen (15) baseplates under which no bearing was required, with one exception. The Licensee reanalyzed that exceptional baseplate assuming a gap underneath it, and found the stresses in the plate well below allowable values. *Id.* Furthermore, the Licensee installed ¼-inch minimum thickness shims (i.e., load-bearing shims) under baseplates not needing load-bearing support. The NRC concludes that the Licensee did not use concressive 1411 epoxy grout to bear loads under baseplates installed using concrete expansion anchors, with the aforementioned exception, and that exception has no safety significance. Based on the above, I find no basis to conclude that the Licensee's quality assurance program failed to guarantee that the Licensee built the plant's critical safety-related components according to design specifications and NRC regulations.

Conclusion

I have considered the allegations of the Petition. For the reasons presented and discussed above, the allegations are not substantial and do not raise substantial health or safety issues and I have concluded that initiation of show-cause proceedings is unwarranted.

The NRC will place a copy of this Decision in the Commission's Public Document Room at 1717 H Street, NW, Washington, DC 20555 and in the local public document room for the Shearon Harris Nuclear Power Plant located at the Richard B. Harrison Library at 1313 New Bern Ave., Raleigh, NC 27610. A copy of this Decision will also be filed with the Secretary of the Commission for its review in accordance with 10 C.F.R. § 2.206(c) (1986) of the Commission's regulations.

In accordance with 10 C.F.R. §2.206(c) of the Commission's Rules of Practice, this Decision will constitute the final action of the Commission twenty-five (25) days after the date of issuance, unless the Commission on its own motion institutes review of this Decision within that time.

Harold R. Denton, Director
Office of Nuclear Reactor
Regulation

Dated at Bethesda, Maryland,
this 2d day of April 1987.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS

Hugh L. Thompson, Jr., Director

In the Matter of Docket No. 40-8027

SEQUOYAH FUELS
CORPORATION
(Gore, Oklahoma Facility) April 21, 1987

The Director of the Office of Nuclear Material Safety and Safeguards denies petitions of Barbara Synar, Native Americans for a Clean Environment (NACE), Paula Strachan, David Singer Burtner, and Ed Henshaw requesting action with regard to the Sequoyah Fuels facility. The petitions raised concerns regarding the Licensee's ammonium nitrate fertilizer program and adequacy of security.

RULES OF PRACTICE: SHOW-CAUSE PROCEEDING

Section 2.206 of 10 C.F.R. requires that the petitioner set forth sufficient facts to provide a basis for the requested action.

AEA: RIGHT TO HEARING

Absent a request for a hearing on an amendment to a materials license, there is no requirement that one be held.

AEA: SCOPE OF INTERESTS PROTECTED

Absent any basis for application of financial protection under § 170, protection of economic interests is not within the scope of the Atomic Energy Act.

DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206

INTRODUCTION

By Memorandum and Order dated October 10, 1986 (unpublished), Judge Frye, the presiding officer in a proceeding to authorize operation of the Sequoyah Fuels Corporation (SFC) to convert depleted uranium hexafluoride (UF_6) to depleted uranium tetrafluoride (UF_4), referred several matters to the Staff for consideration under 10 C.F.R. § 2.206. The matters referred to the Staff were raised in a motion filed on June 8, 1986, by Barbara Synar in the UF_6 to UF_4 proceeding. In that motion, entitled "Response to Order of May 22, 1986," Ms. Synar requested that the NRC deny SFC's application for a UF_4 facility, close the existing facility, and require the decommissioning of the SFC operation. As grounds for her request, she raised, among other matters, concerns regarding SFC's ammonium nitrate fertilizer program. Similar concerns regarding SFC's fertilizer program were raised in letters to the Commission by Native Americans for a Clean Environment (NACE), dated May 22; Paula Strachan, dated June 10; and David Singer Burtner, dated June 26 and September 23, 1986. All of these individuals requested that the Commission hold formal public hearings on SFC's fertilizer program.[1]

In his October 10 Memorandum and Order, Judge Frye referred the portion of Ms. Synar's motion concerning SFC's ammonium nitrate fertilizer program and the above-referenced letters to the Staff for consideration under § 2.206.

On July 18, 1986, Ed Henshaw filed a motion in the UF_6 to UF_4 proceeding entitled "Motion to Accept Specific Complaints" in which, among other matters, he raised concerns regarding the adequacy of security at the Sequoyah Fuels facility and requested that guards be required to have background, drug, and National Crime Investigation Center (NCIC) checks. In the conclusion of his complaint, he asserted that the performance of SFC and the NRC before and after the accident that occurred at Sequoyah Fuels facility on January 4, 1986, has been substandard and unacceptable, and requested that certain actions be taken with regard to the facility. In his October 10th Memorandum and Order, Judge Frye referred these portions of Mr. Henshaw's motion to the Staff for consideration under § 2.206.

By letters dated November 14, 1986, the NRC acknowledged receipt of these petitions and informed the Petitioners that their petitions would be treated under

[1] Mr. Burtner requested that such hearings be held on Sequoyah Fuels' waste disposal policies, practices, and plans. He further requested that SFC's license be suspended, dumping of waste be halted, and that an independent test be conducted to determine how badly the area in which such dumping has been allowed has been contaminated.

§ 2.206 of the Commission's regulations and that a decision would be issued within a reasonable amount of time.[2]

I have now completed my evaluation of the matters raised by the Petitioners and have determined that, for the reasons stated in this Decision, the Petitioners' requests are denied.

DISCUSSION

Petitioners' Concerns Regarding SFC's Ammonium Nitrate Fertilizer Program

Ms. Synar, NACE, Ms. Strachan, and Mr. Burtner object to what they allege is the expansion of SFC's ammonium nitrate fertilizer program to entail the surface application of treated raffinate on certain property (Monsanto Farms) which Ms. Synar asserts is located southwest, south-southeast, and east of her property, and which she alleges has devalued her property.

These Petitioners raise several issues as grounds for their requested relief. First, they assert that the application of raffinate to this property will pose a threat to surface streams, ground water, and other waterways.

The threat perceived by Petitioners does not in fact exist as has already been demonstrated by careful environmental reviews already performed. By letters dated May 16 and August 15, 1980, Kerr-McGee requested an amendment to its license which would allow unlimited use of treated raffinate as commercial fertilizer and the controlled release of hay grown on land fertilized with treated raffinate. The NRC thoroughly reviewed SFC's proposal prior to taking action on these requests. The environmental impacts of the proposed actions were evaluated in the "Environmental Impact Appraisal of the Proposed Amendments for Use of Raffinate" (March 1982) (EIA), and a Safety Evaluation Report (SER) was prepared on June 30, 1982. The EIA included a consideration of the effects of SFC's proposal upon surface water and ground water. As explained in the SER, no significant radiological health and safety concerns were identified in connection with the use of barium-treated neutralized raffinate as a nitrogen fertilizer. The concentrations of radionuclides in the treated raffinate were found to be well below the 10 C.F.R. Part 20 limits for unrestricted release of radionuclides in water. The concentration of radium-226 was found to be below levels for drinking water specified by the Environmental Protection Agency

[2] In our letter to Mr. Henshaw, we indicated that, from our review of the portion of his complaint referred to the Staff by Judge Frye, it appeared that, with the exception of his concerns regarding plant security, he had failed to set forth facts in support of his request for action with the specificity required by 10 C.F.R. § 2.206, and that for this reason any issues raised in his complaint, with the exception of the plant security issue, would not be considered. *See, e.g., Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), DD-85-11, 22 NRC 149, 154 (1985).

(EPA) in 40 C.F.R. Part 141 (Interim Primary Drinking Water Regulations).[3] Calculated dose commitments that could result from the use of treated raffinate as fertilizers and human consumption of food products grown using treated raffinate as fertilizer were determined to be far below the limits in 10 C.F.R. Part 20 and those established by the EPA in 40 C.F.R. Part 190.

The NRC was concerned, however, that the treated raffinate contained impurities in the form of heavy metals, which, if no controls were imposed, could conceivably be harmful to plant and animal life. For this reason, specific conditions were imposed as part of the license amendment which was issued on June 20, 1982, authorizing use of barium-treated neutralized solvent extraction raffinate for fertilizer and the release of crops grown on land fertilized with this raffinate. These conditions were imposed to ensure that raffinate would be processed and used so that heavy-metal application from this source to fertilized land would be low enough such that no harm would occur. These license conditions included a license condition (License Condition 1) providing that barium-treated neutralized solvent extraction raffinate be used as fertilizer only for crops that are not used directly as human food, such as animal forage or seed production, and license conditions (License Conditions 5, 6, and 7) mandating continued testing and monitoring of the fertilizer program. The fertilizer program is thus closely controlled by SFC, which submits to the NRC, as is required, the results of controlled testing on a routine basis.

Contrary to the Staff's understanding that irrigation runoff remains on SFC's property, Mr. Burtner speculates, without any specific supporting information, that irrigation during heavy rainstorms goes "down river." However, Mr. Burtner does not allege, or even suggest, that the runoff, if any, exceeds any regulatory limits or is otherwise prohibited. In any event, 10 C.F.R. § 2.206 requires that the petitioner set forth sufficient facts to provide a basis for the request action. *See Limerick, supra*, 22 NRC at 154. Since Mr. Burtner has failed to provide any such specific information in support of his speculation, further action is not warranted.

Petitioners also assert that the application of raffinate to this property will contaminate the food chain. They claim that domestic and livestock feed grown on the fertilized area will be contaminated and as a result, heavy metals will be concentrated in the food chain. In this connection, Mr. Burtner alleges that SFC has been dumping fifty semitrailer loads of raffinate a day since July, and that the only studies ever conducted on cattle raised "on the dumpsite" involved only four cows raised on the dump area for 5 months. Moreover, he asserts that the results of this study were lost.

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[3] EPA's interim regulations presently allow up to 5 picocuries of radium per liter of water (pCi/l). The raffinate fertilizer contains approximately 1 pCi/l. Final regulations have not been promulgated.

As discussed above, the effects of raffinate on the food chain were considered in the 1982 EIA. Also as discussed, SFC is prohibited by license condition (License Condition 1) from using the ammonium nitrate on food crops consumed by humans, to ensure that no harm would result from heavy-metal application to fertilized land. Although SFC is authorized to use this fertilizer on land for forage or seed production, SFC is required by License Conditions 5, 6, and 7 to continue to monitor the amount of radioactivity in crops grown on land treated with the fertilizer and to submit the results of its analysis annually to the NRC, which it has done.

The "studies" referred to by Mr. Burtner consisted of an animal test program jointly undertaken by Kerr-McGee and Oklahoma State University Animal Disease Diagnostic Laboratory test program. Contrary to Mr. Burtner's assertion, the results of this study were not lost, and a copy of the results is available in the Local Public Document Room for Sequoyah Fuels Facility in Sallisaw, Oklahoma. The results of this study, which were submitted to the NRC in support of Kerr-McGee's application for unrestricted use of the raffinate as a fertilizer and which are summarized in the EIA, indicated that no uptake of heavy metals or radioactivity existed in the cattle that had grazed on forage grown on land treated with the ammonium nitrate fertilizer. The results of this study constituted only one factor considered by the NRC in reaching the determination that SFC's fertilizer program presents no undue risk to public health and safety and the environment.[4]

Ms. Synar further asserts that the raffinate surface disposition site is inadequately guarded against intrusion, and that trespassers, which may include children walking home from a school located near the property, may be exposed to contamination from raffinate mist. Moreover, she asserts that the guard station proposed by SFC would be out of sight of the existing facility if placed where it is proposed by SFC.

As discussed above, the radium concentration in the fertilizer meets the levels of radioactivity set by the EPA for drinking water. The uranium concentration in the fertilizer is less than 0.5% of the NRC limits specified for maximum permissible concentration for release to unrestricted areas specified in 10 C.F.R. Part 20, Appendix B, Table 2. Therefore, any radioactivity in mist from the fertilizer poses no substantial hazard to public health and safety. With regard to Ms. Synar's assertion that the guard station would be out of sight of the existing facility, there is no requirement that the guards in the guard station must have complete surveillance of the facility and grounds. Rather, such surveillance is provided by an intrusion detection system which the Licensee committed to maintain in its application for a license.

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[4] Other factors were that no radioactivity existed on grass, in soil, or in plant uptake.

Ms. Strachan and Mr. Burtner express concern that no independent testing of the SFC fertilizer program has been conducted.[5] Mr. Burtner claims that such testing is necessary because samples do not agree with the published data.[6]

Contrary to this assertion, independent testing of the SFC fertilizer program has been conducted by Oklahoma State Extension agronomists, pursuant to License Condition 11. As Mr. Burtner provides no basis for his claim that samples do not agree with the published data, further action need not be taken with regard to this claim. *See Limerick, supra*, 22 NRC at 154.

Mr. Burtner further claims that the Food and Drug Administration (FDA) had "pulled many samples back in March — but someone prevented the testing. Probably someone in the NRC." He claims that the FDA testing was stopped because the NRC Staff stated that the NRC had and would retain control.

The claim that the NRC probably prevented the FDA from conducting tests is pure speculation and unsupported by any facts. Nor is there evidence that the testing was stopped because the Staff claimed that the NRC had control. Consequently, this claim does not provide any basis for any action. *See id.*

In sum, the Petitioners' concerns do not provide an adequate basis for their requested relief. The use of ammonium nitrate raffinate to fertilize the Monsanto Farms property is a part of SFC's overall fertilizer program which has been evaluated and determined by the NRC to present no undue risk to public health and safety or the environment. The Petitioners present no new facts or data that afford an adequate basis for reevaluating this determination.[7]

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[5] Mr. Burtner also asserts that no one was aware of SFC's plans regarding its fertilizer program until long after it was approved and no public hearings have ever been held. As explained in DD-86-13 (an earlier Director's Decision regarding the Sequoyah Fuels facility), 24 NRC 587, 605 n.19 (1986), the NRC conducted an environmental assessment related to the use of raffinate as a fertilizer and issued a Negative Declaration which was published in the *Federal Register*. 47 Fed. Reg. 26,261 (June 17, 1982). The Environmental Impact Appraisal that supported the Negative Declaration was reviewed and accepted by the Food and Drug Administration, the Department of Agriculture, the Environmental Protection Agency, and the State of Oklahoma. There was no request for a hearing on this matter, and absent a request for such a hearing, there is no requirement that one be held. *See, e.g., Florida Power and Light Co.* (Turkey Point Nuclear Generating Station, Units 3 and 4), LBP-79-21, 10 NRC 183, 191-92 (1979).

[6] According to Mr. Burtner, "the latest" Kerr-McGee report to the Oklahoma Water Resources Board says the arsenic and selenium are higher than NRC limits. Since the NRC does not regulate arsenic or selenium, there are no regulatory "limits" with regard to these metals. However, SFC's license specifies limits for heavy metals, including arsenic and selenium. The levels of these metals in the ammonium nitrate fertilizer are well within these limits. Furthermore, Mr. Burtner has not specified the date of the Kerr-McGee report that allegedly contains this information. Without such additional specificity, further action with regard to this matter is unwarranted. *See Limerick, supra*, 22 NRC at 154.

[7] With regard to Ms. Synar's assertion that the fertilizer program has devalued her property, it should be noted that absent any basis for application of financial protection under § 170, protection of economic interests is not within the scope of the Atomic Energy Act. *See, e.g., Portland General Electric Co.* (Pebble Springs Nuclear Plant, Units 1 and 2), CLI-76-27, 4 NRC 610, 614 (1976); *Long Island Lighting Co.* (Jamesport Nuclear Power Station, Units 1 and 2), ALAB-292, 2 NRC 631, 638 (1975). As there is no evidence of any nuclear incident, any financial protection required under § 170 would not be available. Accordingly, any decrease in property value that may be incidental to the licensed activities by Sequoyah Fuels does not afford a basis for taking the action requested by the Petitioner.

Concerns Regarding Security at the Sequoyah Fuels Facility

Mr. Henshaw refers in his petition to several incidents involving plant security which he alleges have occurred at the Sequoyah Fuels facility.[8] Petitioner first refers to a break-in which had occurred at the facility involving removal of sod and a guard shooting. He claims that there are "several oddities" pertaining to the shooting which do not appear to have been fully investigated.[9] He next refers to another incident in which he claims a guard was hit over the head, and which he asserts has left more questions about security at the Sequoyah Fuels facility. Finally, he refers to a recent incident that he claims had been reported as a possible break-in but which in reality involved a fertilizer spreader running into a fence which the operator initially did not report. Petitioner expresses concern that publicity about security will have the net effect of attracting terrorists to the facility, and requests that guards be required to have background, drug, and NCIC checks.

The NRC previously was informed of the incidents referred to by the Petitioner.[10] By way of background, following an accident that occurred at the facility on January 4, 1986, the Licensee stripped sod from the front lawn of the facility and piled it in an area surrounded by a fence. Subsequently, the fence was cut and some sod was removed. In a second incident, a guard investigating a movement in the plant area was shot. In addition, there was another incident in which a guard was hit over the head.

Contrary to the Petitioner's assertion, these incidents were fully investigated by the Kerr-McGee corporate security office, the Sequoyah County Sheriff's office and the Oklahoma State Patrol. The NRC did not conduct a formal investigation because NRC regulations pertaining to plant security do not apply to SFC. Specifically, the regulations in 10 C.F.R. Part 73, which regulate physical protection of plants and materials, apply only to the physical protection of

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[8] Apart from the issue of security, Mr. Henshaw also claims that the performance of SFC and the NRC before and after the January 4th accident is substandard and unacceptable, and requests that NRC require divestiture of the facility and entertain licensing of other owners of that facility and revoke SFC's license to operate the facility; that the facility be placed in another region of the inspection division of the NRC; that all reports and records of the plant restart and accident investigation be made available at a local location; and that rebuttal of false or misleading information in those documents be allowed in the licensing proceedings. As indicated *supra* note 2, Mr. Henshaw's claims and requests for relief, with the exception of the issues raised regarding security at the Sequoyah Fuels facility, are unsupported by facts asserted with the specificity required by 10 C.F.R. § 2.206, and therefore will not be addressed.

[9] Petitioner does not specify what these were.

[10] The Licensee reported these events to NRC headquarters and Preliminary Notifications were issued. *See* PNO-IV-86-06 (January 30, 1986), PNO IV-86-01 (February 24, 1986), and PNO IV-86-18 (May 27, 1986). As to the Petitioner's reference to the damage of a perimeter fence by a fertilizer spreader, this incident did not involve a breach of security. However, the incident was reported by the Licensee to the onsite inspector. The operator of the fertilizer spreader inadvertently damaged the fence as a result of having the boom of the spreader lowered too far over the fence in the northwest area of the perimeter. Although the barbed wire and a section of pipe on top of the fence were damaged, the integrity of the fence was not compromised. The Licensee conducted an investigation, which was terminated the following day when the operator reported the incident.

production and utilization facilities licensed pursuant to Part 50, plants in which activities licensed pursuant to Part 70 are conducted, the physical protection of special nuclear material, and certain spent fuel. *See* 10 C.F.R. § 73.1(b). However, SFC committed in its application to maintaining a TV surveillance system, perimeter fence intrusion system, and guard force at the facility. During NRC inspections following the accident, the NRC did find that electronic surveillance and intrusion systems in use prior to the accident on January 4 were not properly maintained. No deficiencies in guard force personnel or procedures were identified.[11]

During the shutdown period at the plant following the accident, Sequoyah Fuels management upgraded its security capabilities. All new job applicants are now required by SFC to take drug tests before being hired. Moreover, the surveillance and intrusion detection systems have been modernized. Finally, it should be noted that the Kerr-McGee corporate security division requests a local state law enforcement agency to perform background checks of individuals during the selection process. The state may use checks when state criminal records show such checks are necessary.

Consequently, the NRC Staff believes that the security system now in place at SFC is adequate for this type of facility, and no further action is warranted with regard to the matters raised by the Petitioner.

CONCLUSION

For the reasons stated above, the matters referred to the Staff by Judge Frye and the other concerns raised by Petitioners do not warrant the relief requested. The petitions, therefore, are denied. As provided in 10 C.F.R. § 2.206(c), a copy of this Decision will be filed with the Secretary for the Commission's review.

Hugh L. Thompson, Jr., Director
Office of Nuclear Material
Safety and Safeguards

Dated at Bethesda, Maryland,
this 21st day of April 1987.

[11] This deviation was documented in Inspection Report 40-08027/86-02. However, it was determined not to be of substantial significance to public health and safety, and no escalated enforcement action was taken.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS

Robert M. Bernero, Acting Director

In the Matter of Docket No. 30-18618

CHEM-NUCLEAR SYSTEMS, INC.
(Midwest Facility) April 30, 1987

The Acting Director of the Office of Nuclear Material Safety and Safeguards denies a petition filed by Mrs. Gisela Topolski of Joliet, Illinois, requesting the suspension of the license of Chem-Nuclear Systems, Inc. Petitioner's request appeared to be based on allegations that (1) the Licensee failed to disclose to local authorities its real intent to use a supercompactor; (2) the Licensee failed to make environmental studies which would have revealed a number of problems with the operation of the supercompactor in what Petitioner deems to be an unsuitable residential area; (3) the Licensee's change of name to Chem-Nuclear Systems, Inc., did not change its character and that its character is indicated by the conduct of its majority stockholder, Waste Management, Inc., which (a) left thirty-seven states with leaking landfill sites and (b) failed to train its employees; (4) the Licensee's technology and equipment is from the 1950s; and (5) employees who report violations lose their jobs.

RULES OF PRACTICE: SHOW-CAUSE PROCEEDING

Where a petitioner has not provided the factual basis for his request with the specificity required by 10 C.F.R. § 2.206, action need not be taken on the request.

DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206

INTRODUCTION

By two substantially identical letters dated February 4, 1987, Mrs. Gisela Topolski of Joliet, Illinois, petitioned the Director, Office of Nuclear Material Safety and Safeguards, pursuant to 10 C.F.R. § 2.206, to suspend the license of Chem-Nuclear Systems, Inc. (Chem-Nuclear or Licensee).

Petitioner's request appears to be based on allegations that (1) the Licensee failed to disclose to local authorities its real intent to use a supercompactor; (2) the Licensee failed to make environmental studies which would have revealed a number of problems with the operation of the supercompactor in what Petitioner deems to be an unsuitable residential area in Channahon, Illinois; (3) the Licensee's change of name to Chem-Nuclear Systems, Inc., did not change its character and that its character is indicated by the conduct of its majority stockholder, Waste Management, Inc., which (a) left thirty-seven states with leaking landfill sites and (b) failed to train its employees; (4) the Licensee's technology and equipment is from the 1950s; and (5) employees who report violations lose their jobs.

For the reasons discussed below, I have decided that Petitioner's request should be denied.

DISCUSSION

NRC License No. 39-23004-03 authorizes Chem-Nuclear Systems, Inc., to possess byproduct material incident to the decontamination, service, and repair of shipping casks, vehicles, trailers, and equipment at its Midwest Facility near Channahon, Illinois. On June 20, 1986, Chem-Nuclear applied for an amendment to its license to authorize the receipt, temporary storage, and supercompaction of radioactive waste in 52- or 55-gallon drums incident to transfer to a licensed disposal facility. On December 9, 1986, the NRC issued an amendment authorizing the receipt and temporary storage of radioactive waste incident to transfer to a licensed disposal facility. The license contains a condition that the supercompaction of waste is not authorized until Chem-Nuclear submits additional information to and receives express approval from the NRC.

Petitioner's first allegation is that Chem-Nuclear, under false pretenses, failed to disclose in its initial contacts with local authorities its real intent to use a supercompactor at the Midwest Facility. There are no specific requirements under NRC regulations that Chem-Nuclear notify local authorities regarding its intent to use a supercompactor. Nevertheless, in connection with Chem-Nuclear's application for use of the supercompactor, the NRC asked the Licensee

to contact authorities such as the local police and fire departments to discuss qualifications of personnel and equipment for handling potential incidents at the facility that could involve radioactive materials, and the Licensee has done so. Moreover, the NRC has required Chem-Nuclear to submit a preemergency response plan in connection with the use of the supercompactor which requires specific coordination, training, and practice drills with the local police and fire departments. The NRC Staff has concluded that the Licensee has now adequately notified local authorities of its planned use of the facility. In sum, there is no specific NRC requirement that the Licensee inform the local authorities regarding its intent to use a supercompactor, the Licensee nevertheless has now informed the local authorities of its intent, and the Staff concludes that no further action is appropriate.

Petitioner's second allegation is that Chem-Nuclear failed to make environmental studies which would have revealed a number of problems with the operation of a supercompactor in an "unsuitable" residential area where there are shallow wells and the zoning is incorrect.[1]

The Midwest Facility of Chem-Nuclear is located in a small industrial area approximately 1 mile from the village of Channahon, Illinois. The NRC Staff has considered the location of the proposed use of the supercompactor and has concluded that operation of the supercompactor facility will not have a significant effect on public health and safety. "Nuclear Regulatory Commission [Docket No. 030-18618], Chem-Nuclear Systems, Inc., Midwest Facility, Channahon, Illinois, Environmental Assessment and Finding of No Significant Impact" (Environmental Assessment).

No environmental assessment was prepared for the December 9, 1986 licensing action because, without the supercompactor, receipt and storage brokerage operations meet the criteria covered by a categorical exclusion pursuant to 10 C.F.R. § 51.22(c)(14)(xii). However, in connection with the application for use of the supercompactor, the Staff has completed an Environmental Assessment in accordance with the provisions of 10 C.F.R. § 51.21. The major areas addressed in the Environmental Assessment include environmental impacts, radiation doses to workers, and potential for radiological exposure to transport workers and to members of the general public. On the basis of the Environmental Assessment, the Staff has concluded that the supercompaction operation will not have a significant effect on the quality of the human environment. Notice of issuance of the Environmental Assessment has been published in the *Federal Register*. 52 Fed. Reg. 13,546 (Apr. 23, 1987).

As to the Petitioner's allegations concerning shallow wells, NRC's contacts with state authorities revealed the following: (1) there is one water well on the

[1] We understand that the zoning of the property is being litigated. Zoning of the property where licensees operate is a matter for local authorities.

Chem-Nuclear site and several wells within ½ mile of the facility that traverse a depth of about 30-40 feet below the ground surface, (2) the ground water may be as close as within 10 feet of the ground surface, and (3) the predominant geology is sand and gravel to a depth of 40-50 feet. (Illinois State Geological Survey and Illinois State Water Survey.)

In order to ensure that the use of the supercompactor does not result in any significant environmental impact on ground water, the NRC has determined that Chem-Nuclear's license will be limited to the receipt, storage, and supercompaction of *dry* waste containing no transuranic or special nuclear radioactive material, except as incidental to the receipt, storage, and supercompaction of byproduct radioactive material. This will limit the potential effect on surrounding ground water to only that arising from the generation of small amounts of liquid during the compaction process. This liquid will be fully contained within the compaction cell area and no floor drains will be allowed in the compaction cell area.

Additionally, the NRC has required Chem-Nuclear to install a foam fire suppression system and liquid collection system for the supercompactor facility and to coordinate the use of the foam fire suppression system with the Channahon, Illinois Fire Department when responding to a potential fire encompassing radioactive waste in drums stored outside the facility.[2]

In conclusion, an Environmental Assessment has been prepared, and it is the NRC's intent to limit Chem-Nuclear's license respecting use of a supercompactor in order to preclude adverse effects on ground water. The NRC Staff has determined that operation of the supercompactor will not have a significant effect on the public health and safety.

Petitioner's third allegation is that the Licensee's change of name to Chem-Nuclear Systems, Inc., did not change its character and that its character is indicated by the conduct of a corporate predecessor, Waste Management, Inc., which left several states with leaking landfill sites, and which inadequately trains its personnel.

Waste Management, Inc., acquired Chem-Nuclear Systems, Inc., in 1982. Since that time the NRC has issued four (4) licenses to Chem-Nuclear for the use of radioactive materials. There is no history of significant violations under any of these active licenses which would indicate that Chem-Nuclear poses a threat to the public health and safety sufficient to warrant suspension of a license as requested by the Petitioner. In fact, there has been only one minor violation relating to the location of required records.

Notwithstanding Petitioner's general allegations of past leakage problems experienced by Waste Management, Inc., the Petitioner has not presented specific

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[2] The Staff believes that the potential for this type of fire is negligible in view of the license requirement to store waste only in secure, steel drums.

information to demonstrate that the operation of the supercompactor at the Midwest Facility would be conducted improperly. Petitioner has not shown that Waste Management, Inc.'s alleged record is related to Licensee's performance under its NRC license. Where a petitioner has not provided the factual basis for a request with the specificity required by 10 C.F.R. § 2.206, action need not be taken on the request. *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), DD-85-11, 22 NRC 149, 154 (1985).

Moreover, the Staff notes that the alleged problems experienced by Waste Management, Inc., appear to stem from leakage of hazardous chemicals from the land disposal of hazardous waste. Since Chem-Nuclear's NRC license authorizes storage and waste processing, not disposal or burial, of radioactive waste at the Midwest Facility, land disposal problems similar to those allegedly experienced by Waste Management, Inc., at other sites do not indicate that such problems are likely to occur at the Midwest Facility.

The NRC has carefully reviewed the training for the Chem-Nuclear staff who will be responsible for overseeing the NRC-licensed program at the Midwest Facility, and concludes that it is adequate. The Petitioner has not provided information that indicates that members of the Chem-Nuclear staff are untrustworthy or otherwise unqualified to handle the supercompaction program.

In conclusion, the Staff has reviewed Chem-Nuclear's history of violations under its licenses issued since 1982, when Waste Management, Inc., acquired Chem-Nuclear, and has found no basis for suspension of its license. Moreover, the Staff has carefully reviewed Chem-Nuclear's training for its Staff overseeing its supercompactor program and concluded that it is adequate. Petitioner has failed to provide the factual basis for her request with adequate specificity, and it is the Staff's conclusion that there is no reason to believe Chem-Nuclear will not perform its activities in compliance with its license.

Petitioner's fourth allegation is that Chem-Nuclear's technology and equipment is not from the 1980s, but from the 1950s. Petitioner has failed to identify any piece of equipment or technology that is allegedly outmoded, relying instead on a general allegation unsupported by a single fact. Petitioner has failed to provide any factual basis for suspension, much less a factual basis with the specificity required by 10 C.F.R. § 2.206, so no action on her request is required. *Limerick*, *supra*, 22 NRC at 154.

Independent of Petitioner's allegation, however, in the process of issuing the December 9, 1986 amendment to Chem-Nuclear, the NRC carefully reviewed the Licensee's radiation protection procedures, radiation detection equipment, inventory systems, fire and security protection systems, and supercompactor device. In all these areas, Chem-Nuclear meets all applicable NRC regulations and requirements. Moreover, the fire protection systems have been inspected by the Channahon, Illinois Fire Department, and Chem-Nuclear has incorporated the Fire Department staff's suggestions for making the system meet current industry

standards. Further, some of the radiation detection instruments, the supercompactor, and the computer system for tracking inventory have been developed only in the last few years. Finally, the NRC Region III staff recently inspected the facility and determined that all safety systems function as designed. Special tests were conducted with nonradioactive drum compaction and all systems functioned normally. In sum, the Staff has no basis to conclude that Chem-Nuclear's equipment and technology fails to meet regulatory requirements by reason of obsolescence.

Petitioner's fifth allegation is that employees who report violations lose their jobs. The Petitioner has not presented specific information to support her allegation that employees who report violations lose their jobs. She supplies neither the names nor positions of any such employees, nor the dates nor general circumstances surrounding her allegation that employees have been fired for reporting violations. Where a petitioner has not provided the factual basis for her request with the specificity required by § 2.206, action need not be taken on the request. *Limerick, supra*, 22 NRC at 154.

During recent inspections of the facility, when Licensee's employees were asked by NRC inspectors what they would do if they saw violations of NRC requirements, none indicated any reluctance to report safety violations to his or her management or the NRC. In fact, they are trained to report such violations. The NRC has not received any other allegations regarding Chem-Nuclear's terminating employees for reporting violations. The Staff has concluded, absent any specific information to the contrary, that employees are not reluctant to report safety violations.

CONCLUSION

For the reasons discussed above, I have concluded that no adequate basis exists for suspending the license of Chem-Nuclear Systems, Inc. Accordingly, the Petitioner's request for action pursuant to § 2.206 is denied.

As provided in 10 C.F.R. § 2.206(c), a copy of this Decision will be filed with the Secretary for the Commission's review and the Decision will constitute

the final action of the Commission 25 days after the date of issuance, unless the Commission on its own institutes review of this Decision within that time.

Robert M. Bernero, Acting
Director
Office of Nuclear Material Safety
and Safeguards

Dated at Silver Spring, Maryland,
this 3[illegible] day of April 1987.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Alan S. Rosenthal, Chairman
Gary J. Edles
Howard A. Wilber

In the Matter of

Docket Nos. 50-443-OL
50-444-OL
(Offsite Emergency Planning)

PUBLIC SERVICE COMPANY OF
NEW HAMPSHIRE, *et al.*
(Seabrook Station, Units 1
and 2)

May 1, 1987

The Appeal Board in the offsite emergency planning phase of this operating license proceeding grants intervenors' joint motion for directed certification of a Licensing Board's scheduling order. The Appeal Board concludes that the hearing schedule in question did not provide the intervenors with a fair opportunity to prepare for trial and orders adjustments in the schedule.

RULES OF PRACTICE: INTERLOCUTORY APPEALS

Except as specifically provided, the Commission's Rules of Practice prohibit appeals from interlocutory licensing board rulings. 10 C.F.R. 2.730(f).

RULES OF PRACTICE: INTERLOCUTORY REVIEW

It is well-settled that the Appeal Board will exercise its discretionary power to review an interlocutory ruling by way of directed certification only if that ruling

either (a) threatens the party adversely affected with immediate and serious irreparable harm that could not be remedied by later appeal, or (b) affects the basic structure of the proceeding in a pervasive or unusual manner. ALAB-858, 25 NRC 17, 20-21 (1987).

RULES OF PRACTICE: INTERLOCUTORY REVIEW (SCHEDULING ORDER)

The Appeal Board ordinarily will review a licensing board scheduling order only upon a showing that the schedule deprives the complaining party of its right to procedural due process. ALAB-858, 25 NRC at 21.

RULES OF PRACTICE: DUE PROCESS

Fundamental fairness is at the root of procedural due process.

RULES OF PRACTICE: DUE PROCESS

There is no litmus paper test for determining whether, in a particular case, the fundamental fairness standard of due process is satisfied. *Palmer v. Columbia Gas of Ohio, Inc.*, 479 F.2d 153, 165 (6th Cir. 1973).

RULES OF PRACTICE: DUE PROCESS

Assessment of whether the fundamental fairness standard of due process has been met must be made on the basis of the totality of the relevant circumstances disclosed by the record. *See Goldberg v. Kelly*, 397 U.S. 254 (1970).

RULES OF PRACTICE: DUE PROCESS

Among the factors to be considered in determining if a hearing scheduling order meets the fundamental fairness test are: (1) the amount of time allotted for prehearing activity; (2) the number, scope and complexity of the issue(s) to be tried; and (3) any established need for expedition. Expediency, however, cannot serve to justify a hearing schedule that is so abbreviated as to make adequate trial preparation a practical impossibility. *Fitzgerald v. Hampton*, 467 F.2d 755, 767 (D.C. Cir. 1972).

RULES OF PRACTICE: DUE PROCESS

Due process in administrative hearings does not yield to administrative "convenience or expediency, or because of a natural desire to be rid of harassing delay." *Id.* at 767, *quoting Ohio Bell Telephone Co. v. Public Utilities Commission of Ohio*, 301 U.S. 292, 305 (1937).

EMERGENCY PLANNING: FEMA FINDING (REBUTTABLE PRESUMPTION)

A rebuttable presumption of correctness attaches to FEMA findings on questions of the adequacy and implementation capability of emergency response plans. 10 C.F.R. 50.47(a)(2).

APPEARANCES

Donald S. Bronstein, Boston, Massachusetts, for James M. Shannon, Attorney General of the Commonwealth of Massachusetts.

Robert A. Backus, Manchester, New Hampshire, for the Seacoast Anti-Pollution League.

Diane Curran, Washington, D.C., for the New England Coalition on Nuclear Pollution.

Paul McEachern, Portsmouth, New Hampshire, for the Town of Hampton, New Hampshire.

Thomas G. Dignan, Jr., Boston, Massachusetts (with whom **George H. Lewald** and **Kathryn A. Selleck,** Boston, Massachusetts, were on the brief), for the applicants Public Service Company of New Hampshire, *et al.*

Gregory Alan Berry for the Nuclear Regulatory Commission staff.

William S. Lord, Amesbury, Massachusetts, filed a memorandum on behalf of the Town of Amesbury.

MEMORANDUM AND ORDER

Before us is the joint motion of several intervenors[1] for directed certification of the Licensing Board's March 20, 1987 memorandum and order (unpublished) in the offsite emergency planning phase of this operating license proceeding involving the Seabrook nuclear facility located on the New Hampshire seacoast.[2] In that order, the Board below reaffirmed in its entirety the schedule, established in its January 9, 1987 memorandum and order, for the hearing on the New Hampshire Radiological Emergency Response Plan (hereafter the "New Hampshire Plan").[3] According to the intervenors, that "schedule is so compressed that it will deny the parties to this proceeding a fair hearing," contrary to both 10 C.F.R. 2.718[4] and the constitutional requirement of due process.[5] Thus, intervenors maintain, our "prompt intercession is essential to assure" that the parties "are provided with the minimum opportunity to prepare for and to participate at a hearing in a complex area in a manner consistent with the Commission's rules and due process."[6]

For the reasons set forth below, we conclude that (1) the schedule in question did not provide the intervenors with a fair opportunity to prepare for trial; and (2) neither the history of the litigation of New Hampshire emergency planning issues nor current circumstances justify such severe curtailment of the intervenors' procedural rights. Accordingly, we grant directed certification and order adjustments in the schedule.

A. The Commission's Rules of Practice prohibit appeals from interlocutory licensing board rulings of the type involved here.[7] And, as we recently had occasion to observe anew in this proceeding, it is well-settled that we will exercise our discretionary power to review an interlocutory ruling by way of directed certification only if that ruling either (a) threatens the party adversely affected with immediate and serious irreparable harm that could not be remedied by a later appeal, or (b) affects the basic structure of the proceeding in a pervasive or unusual manner.[8] We went on to stress that "[w]here a scheduling

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[1] The Attorney General of Massachusetts on behalf of that Commonwealth; the Town of Hampton; the Seacoast Anti-Pollution League (SAPL); and the New England Coalition on Nuclear Pollution (Coalition).

[2] *See* 10 C.F.R. 2.718(i); *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-271, 1 NRC 478, 482-83 (1975).

[3] Unless otherwise indicated, this term embraces New Hampshire state and local plans.

[4] Intervenors refer to the provision in section 2.718 to the effect that "[a] presiding officer [e.g., a licensing board] has the duty to conduct a fair and impartial hearing according to law."

[5] Joint Intervenor Appeal by Motion for Directed Certification (March 27, 1987) at 2.

[6] *Ibid.*

[7] *See* 10 C.F.R. 2.730(f).

[8] ALAB-858, 25 NRC 17, 20-21 (1987) (*citing Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-405, 5 NRC 1190, 1192 (1977)).

order is involved, that standard ordinarily requires a showing that the schedule deprives the complaining party of its right to procedural due process."[9]

Thus, the question at hand is whether, as intervenors insist but the applicants and NRC staff dispute, the challenged hearing schedule on the New Hampshire Plan was so abbreviated as to deny intervenors a fair opportunity to be heard on their contentions admitted for litigation. For, as implicitly, if not explicitly, recognized by the Commission both in its Rules of Practice and elsewhere, fundamental fairness is at the root of procedural due process.[10]

There is, of course, no litmus paper test for determining whether, in a particular case, the fundamental fairness standard is satisfied.[11] As the courts have stressed, that assessment must be made on the basis of the totality of the relevant circumstances disclosed by the record.[12] Among the factors to be considered are the amount of time that has been allotted for prehearing activity and the number, scope and complexity of the issues to be tried. In addition, any established need for expedition can be taken into account, although that factor cannot serve to justify a hearing schedule that is so abbreviated as to make adequate trial preparation a practical impossibility.[13]

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[9] *Id.* at 21 (*citing Houston Lighting & Power Co.* (South Texas Project, Units 1 and 2), ALAB-637, 13 NRC 367, 370-71 (1981)). *See also Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-863, 25 NRC 273, 277 (1987); *Wisconsin Electric Power Co.* (Point Beach Nuclear Plant, Unit 1), ALAB-719, 17 NRC 387, 391 (1983); *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-468, 7 NRC 465, 468 (1978); *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-459, 7 NRC 179, 188 (1978); *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-295, 2 NRC 668, 670 n.2 (1975); *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-212, 7 AEC 986, 991 (1974). In the *San Onofre* case, we overturned a Licensing Board scheduling determination on the ground that it violated procedural due process; i.e., because it deprived a party "of a fair chance to prepare and present its case on all of the issues ripe for adjudication." 7 AEC at 994.

[10] Beyond the duty specifically imposed by section 2.718 to conduct a fair hearing (*see supra* note 4), the Commission had this to say in its 1981 *Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452, 453:

> Individual adjudicatory boards are encouraged to expedite the hearing process by using those management methods already contained in [10 C.F.R.] Part 2 of the Commission's Rules and Regulations. The Commission wishes to emphasize though that, in expediting the hearings, the board should ensure that the hearings are fair, and produce a record which leads to high quality decisions that adequately protect the public health and safety and the environment.
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> * * * *
>
> The Commission's Rules of Practice provide the board with substantial authority to regulate hearing procedures. In the final analysis, the actions, consistent with applicable rules, which may be taken to conduct an efficient hearing are limited primarily by the good sense, judgment, and managerial skills of a presiding board which is dedicated to seeing that the process moves along at an expeditious pace, consistent with the demands of fairness.

[11] *Palmer v. Columbia Gas of Ohio, Inc.*, 479 F.2d 153, 165 (6th Cir. 1973) ("due process varies with the subject matter and the requirement of each situation," *citing Fuentes v. Shevin*, 407 U.S. 67, 82 (1972), and "[t]here is no table of weights and measures for ascertaining what constitutes due process," *quoting Burns v. Wilson*, 345 U.S. 137, 149 (1953)). *See also Fitzgerald v. Hampton*, 467 F.2d 755, 764 (D.C. Cir. 1972) ("'due process' cannot be imprisoned within the treacherous limits of any formula").

[12] *See Goldberg v. Kelly*, 397 U.S. 254 (1970).

[13] *Fitzgerald v. Hampton*, 467 F.2d at 767 ("due process in administrative hearings does not yield to administrative 'convenience or expediency, or because of a natural desire to be rid of harassing delay,'" *quoting Ohio Bell Telephone Co. v. Public Utilities Commission of Ohio*, 301 U.S. 292, 305 (1937)). As just seen, *supra* note 10, the

(Continued)

B.1. With these principles in mind, we turn to the challenged hearing schedule on the New Hampshire Plan. So that the schedule may be viewed in proper perspective, it is necessary first to refer briefly to events preceding its adoption.

This operating license proceeding began in late 1981 — more than five years ago. Some nineteen months later, in May 1983, the NRC staff forwarded copies of a New Hampshire state plan to the Licensing Board and the parties.[14] Several intervenors submitted contentions addressed to that plan and, on August 30, 1983, the Licensing Board ruled on their admissibility. Additionally during 1983, local plans surfaced for all but one of the New Hampshire municipalities within the ten-mile Seabrook plume exposure pathway emergency planning zone (EPZ). These plans also were the subject of intervenor contentions.

None of the contentions on either the state or local plans reached the hearing stage in 1983 — or for that matter, in 1984, 1985 or 1986.[15] This was not due, however, to any foot-dragging on the part of the intervenors. We need not set forth at great length the tortuous path that the litigation regarding New Hampshire offsite emergency planning for Seabrook took during the period between the summer of 1983 and early 1987. Suffice it to say that the intervenors were not responsible for it.

As acknowledged by applicants' counsel at oral argument, the emergency planning contentions submitted on the state and local New Hampshire plans given in 1983 to the Federal Emergency Management Agency (FEMA) were not promptly litigated because the applicants' financial problems brought about a halt in plant construction.[16] In December 1985, however, a replacement New Hampshire Plan — covering both state and local participation — was submitted to FEMA and, the following month, obtained by the staff and the other parties to the proceeding. Given this development, the applicants asked the Licensing Board to call for fresh contentions. As they pointed out, by taking this step and dismissing as moot all prior contentions offered with respect to the superseded plans, the Board would eliminate any need to compare one plan with another.[17]

The Board in essence adopted the applicants' suggestion and established a litigation schedule that provided for the commencement of the hearing on any admitted new contentions on July 21, 1986.[18] Thereafter, the start of the

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Commission itself has emphasized that expedition in the hearing process must be "consistent with the demands of fairness." *See also Limerick*, 25 NRC at 286 (Kohl, concurring).

[14] The staff apparently transmitted the copies shortly after its receipt of the plan from the Federal Emergency Management Agency.

[15] Contentions dealing with a previous study performed by the applicants of evacuation time estimates (ETE) were litigated in August 1983 but no decision was rendered by the Licensing Board.

[16] App. Tr. 207-08.

[17] Applicants' motion (January 14, 1986) at 2-3.

[18] January 17, 1986 memorandum and order at 2-3.

hearing was postponed first until August 4,[19] and then indefinitely.[20] Although the Board did not assign a reason for the indefinite postponement, it was apparently prompted by FEMA's statement that its review of the December 1985 New Hampshire Plan would not be completed before October 1986.

On September 8, 1986, New Hampshire submitted a second revision to its December 1985 Plan. (The first revision had been supplied on June 3.) Revision 2 made numerous, significant changes in the Plan.[21] On November 4, the Licensing Board set December 1 as the deadline for the submission of contentions arising out of Revision 2.[22]

On December 4, 1986, the Board announced that it would rule on the admissibility of the newly submitted contentions by January 16, 1987, at which time discovery would commence. The Board went on to direct that discovery be concluded by February 3, with the hearing to start on or after April 27. Two weeks after that schedule was established, however, the applicants filed a petition with the Licensing Board under 10 C.F.R. 2.758(b), seeking to be relieved of the requirement in 10 C.F.R. 50.47(c)(2) that it plan for an EPZ of approximately ten miles in radius.[23] This development led the Licensing Board to enter the January 9, 1987 order later ratified in the March 20 order under present attack. In the January 9 order, the Board provided this revised schedule for the litigation of Revision 2 of the New Hampshire Plan:

Date	Deadlines
February 13, 1987	Board Order ruling on contentions, discovery commences.
March 6, 1987	Discovery closed (last discovery request due).
March 19, 1987	Answers to last interrogatories due within 14 days after the close of discovery.
March 26, 1987	Deadline for motions for summary disposition on late-filed Rev. 2 Contentions admitted or for other con-

[19] April 29, 1986 memorandum and order at 101.

[20] July 11, 1986 order at 2.

[21] The portion of Revision 2 that pertains to Seabrook (rather than to the Vermont Yankee facility located across the Connecticut River from New Hampshire) consists of 29 volumes containing over 8000 pages (including text, procedures, figures, and tables.) A cursory examination reveals that the portion of this revision directed to state undertakings has effected changes in such areas as public alerting methods; evacuation and sheltering criteria and procedures; allocation of responsibilities between state and local police authorities; and transportation requirements. Perhaps the most notable change relates to the evacuation time estimates. As applicants conceded at oral argument, the ETE study embraced in Revision 2 is essentially new. App. Tr. 205-06.

The portion of Revision 2 directed to the functions of the local governments reflects alterations in the treatment of such subjects as public alerting, emergency communications, protective response, radiological exposure control, recovery/re-entry, and the training of emergency response personnel.

[22] November 4, 1986 memorandum and order at 37.

[23] According to the applicants, a one-mile EPZ would adequately ensure the protection of the public health and safety. As will be seen, the Licensing Board has just denied the petition.

Date	Deadlines
	tentions as to which circumstances have changed such that summary disposition is now appropriate.
April 16, 1987	Response opposing or supporting motions due within 20 days.
April 27, 1987	Opposing parties may file responses to new facts and arguments presented in statements supporting motions for summary disposition.
May 11, 1987	Board Order ruling on motions for summary disposition.
May 21, 1987	Prefiled testimony due 10 days after Board ruling on motions for summary disposition.
No sooner than May 28, 1987	Hearings commence. (Date depends on arrangements for space and location.)

Subsequently, the Board advised the parties that the hearing would start on June 1 in the courtroom of the United States District Court in Concord, New Hampshire, and would continue for that week and the week of June 22-26.[24]

As it turned out, the Licensing Board did not meet its self-imposed February 13 deadline for ruling on the intervenors' contentions on Revision 2 of the New Hampshire Plan. Rather, the Board's order admitting twenty-one such contentions and rejecting numerous others was not rendered until February 18.[25] It was not received by the intervenors until February 23.[26] As a consequence, the period for seeking discovery was cut almost in half, to a mere eleven days (i.e., February 23 to March 6).

On February 25, the intervenors filed a motion with the Licensing Board seeking an amendment of the hearing schedule to enlarge the discovery period to four months and to adjust the other portions of the schedule accordingly. While subscribing to that motion, on March 2 the Massachusetts Attorney General submitted a separate request for a schedule adjustment that focussed upon the

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[24] February 18, 1987 memorandum and order at 6. On April 2, the week of July 20-24, at the same location, was added to the hearing schedule.

[25] Seventeen of the admitted contentions were sponsored by the Coalition, SAPL or Hampton; the other four were advanced by the Town of Kensington, New Hampshire (which has not joined in the motion for directed certification). Although the Massachusetts Attorney General, who is participating in the proceeding as the representative of an interested state under the provisions of 10 C.F.R. 2.715(c), did not submit any contentions of his own respecting Revision 2 of the New Hampshire Plan, he intends to be an active participant in the litigation of eleven of the admitted contentions concerned with sheltering, evacuation time estimates and compensatory plans. App. Tr. 145. All of those contentions were sponsored by the Coalition, SAPL or Hampton. *See* Attorney General Shannon's Notice of Intention to Participate (March 2, 1987) at 1.

It should be further noted that the Licensing Board also has before it for trial twelve contentions directed to the December 1985 version of the New Hampshire Plan that were admitted to the proceeding in April 1986 and not superseded by Revision 2. Three of these contentions were sponsored by the Coalition. The remaining nine were presented by the Towns of Kensington, Rye, Hampton Falls, and South Hampton, New Hampshire.

[26] *See* App. Tr. 111.

assertedly inadequate period between the filing of prepared testimony and the June 1 date for the commencement of the hearing.

In its March 20 order, the Board denied both motions, prompting the request now before us for interlocutory review.

2. The short of the matter is that, after several years during which the litigation of New Hampshire emergency response planning issues was held in abeyance for reasons not attributable to the intervenors, the Licensing Board imposed upon them a hearing schedule of extreme tightness. Beyond that, the Board manifested an arbitrary unwillingness to make any adjustments in that schedule even when its own failure to meet the established deadline for ruling on contentions had the effect of reducing the period for the submission of discovery requests to eleven days.[27]

a. *Discovery.* Given the number and scope of the Revision 2 contentions admitted by the Licensing Board, we deem totally unreasonable the limited opportunity provided the intervenors to invoke the discovery procedures specified in the Commission's Rules of Practice.[28] This is particularly so in light of the Board's lack of an explanation respecting why it has now become necessary to conduct prehearing activities at a breakneck pace. Nor is any possible explanation readily discernible. To be sure, Unit 1 of the Seabrook facility is fully built and the applicants are understandably eager to obtain a full-power operating license for it. But it is equally apparent that, even if all New Hampshire emergency response planning issues are resolved in the applicants' favor, formidable obstacles remain in the path of the achievement of that objective.

A substantial portion of the ten-mile EPZ is located within the Commonwealth of Massachusetts and its governor has made clear that that state will not participate in emergency planning activities. Although a grant of the applicants' pending petition seeking a reduction of the EPZ to one mile would leave Massachusetts outside of its boundaries, the Licensing Board recently concluded that the requisite *prima facie* showing that such relief is warranted had not been made.[29] As matters currently stand, then, before Seabrook can be licensed for

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[27] We note in passing that the Licensing Board's February 18, 1987 order ruling on the contentions directed to Revision 2 of the New Hampshire Plan did not explain why particular contentions were admitted or rejected. Consequently, the Board was required to state in the order (at 1) that it would "not accept any motion concerning these rulings prior to [the issuance of] the [m]emorandum explaining the bases of its rulings."

As of this writing, the memorandum has not been issued. Thus, the five-day period provided by 10 C.F.R. 2.752(c) for the filing of objections to the rejection of certain contentions has still not begun to run. Yet, until the objections are received and ruled upon, neither the parties nor the Licensing Board will know for certain precisely what issues pertaining to the New Hampshire Plan are to be tried.

[28] *See* 10 C.F.R. 2.740 et seq.

[29] LBP-87-12, 25 NRC 324 (1987). *See also* 10 C.F.R. 2.758(c). Although the Licensing Board may not have known on March 20 that it would reach that conclusion, it was then aware that the staff would not complete its review of the applicants' proposed EPZ reduction until late this year. *See* Staff Response (January 28, 1987) at

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full-power operation there must be acceptable emergency planning for the several Massachusetts communities within the ten-mile EPZ.

Accordingly, barring a change in position on the part of the Massachusetts governor, it would appear that the applicants must count on the Commission's adoption of a proposed amendment to its emergency planning regulations. More specifically, a subsection (e) would be added to 10 C.F.R. 50.47 providing that:

> The Commission may issue a full power operating license for a facility notwithstanding non-compliance with other requirements of this section and 10 CFR Part 50, Appendix E if non-compliance arises substantially from a lack of participation in the development or implementation of offsite emergency planning by a State or local government, and if the applicant demonstrates to the Commission's satisfaction that: (1) The non-compliance could be remedied, or adequately compensated for by reasonable State or local governmental cooperation; (2) Applicant has made a good faith and sustained effort to obtain the cooperation of the necessary governments; (3) Applicant's offsite emergency plan includes effective measures to compensate for the lack of cooperation which are reasonable and achievable under the circumstances and which take into account a likely State or local response to an actual emergency; and (4) Applicant has provided copies of the offsite plan to all governments which would have otherwise participated in its preparation or implementation and has assured them that it stands ready to cooperate should they change their position.[30]

Whether the Commission will promulgate subsection (e) after its evaluation of the plethora of public comments it has received remains to be seen.[31] Even if it does, however, the applicants will still have the burden of demonstrating, *inter alia*, that their offsite emergency plan "includes effective measures to compensate for the lack of cooperation which are reasonable and achievable under the circumstances and which take into account a likely State or local response to an actual emergency." It is fair to assume that the applicants' endeavor to satisfy this burden will not go unchallenged and that substantial time and effort will be required to resolve such issues.

It does not necessarily follow from these considerations that a protracted schedule for the hearing of the New Hampshire emergency planning issues would be justified. But, once again, we are not presented with such a schedule here but, rather, with one that is the precise opposite. Insofar as discovery requests are concerned, for example, the question is whether, in the totality of circumstances, there was any *practical* reason why this important phase of pretrial activity had to be compressed into such a fleeting period. We think that question must be answered in the negative. Moreover, in contrast to the situation

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5; Staff Response (February 27, 1987), Affidavit of Scott Newberry at 8. At the time of the entry of the March 20 order, the Board thus must have appreciated that in no event would an early grant of the applicants' petition be likely.

30 *See* 52 Fed. Reg. 6980, 6984 (1987).

31 As extended in an April 27 notice, the period for public comments on the proposal will expire on June 4, 1987. To date, over 2100 such comments have reached the Commission.

addressed in the recent *Limerick* decision,[32] we are additionally satisfied from their uncontroverted representations at the oral argument that the intervenors have suffered serious prejudice by reason of the failure of the Licensing Board to establish a more reasonable discovery period.

b. *Prepared testimony and start of hearing.* We find equally, if not more, troubling the portion of the Licensing Board's schedule calling for the submission of all prepared testimony within ten days of its ruling on the pending motions for summary disposition and the commencement of the evidentiary hearing five business days thereafter (the period between May 21 and June 1 includes two weekends and the Memorial Day holiday). In the absence of the most dire necessity, and none was or could have been demonstrated here, such compression is simply unacceptable.[33]

Perhaps most disturbing of all was the Licensing Board's explicit decision not to provide an opportunity for prepared rebuttal testimony. In denying reconsideration of its schedule, the Board opined that the proceeding would not be benefitted by allowing such testimony. Rather, according to the Board, "[t]he filing of testimony simultaneously serves to promote fairness for all parties."[34] We believe that exactly the converse is the reality: in the circumstances of this case at least, the lack of an opportunity for prepared rebuttal testimony patently and seriously intrudes upon the intervenors' hearing rights.

This point is readily illustrated by a single example. Revision 2 is now before FEMA for its consideration and evaluation. According to staff counsel, FEMA has given assurance that it will meet the May 21 deadline for the submission of its prepared testimony.[35] When that testimony is filed, the intervenors will learn for the first time whether FEMA finds Revision 2 acceptable and, if so, the reasons for its finding.

By virtue of 10 C.F.R. 50.47(a)(2), a *rebuttable* presumption of correctness attaches to FEMA findings on questions of the adequacy and implementation capability of emergency response plans. Under the Licensing Board's schedule, however, how will intervenors be able to attempt to rebut through *affirmative evidence of their own* any FEMA finding(s) with which they disagree? The short answer is that, as staff counsel ultimately conceded,[36] that opportunity will be entirely denied to them because, by the time they obtain the FEMA testimony, the period for the filing of their own prepared testimony will have

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[32] *See Limerick*, 25 NRC at 277-78.

[33] We recognize that, in telephone conferences with the parties on April 13 and 14, the Licensing Board announced that it was summarily denying the applicants' motion for summary disposition on seven of the Revision 2 contentions. *See* April 15, 1987 memorandum and order. But the applicants had moved for summary disposition on all thirty-three admitted contentions (*see* supra note 25 and App. Tr. 189) and presumably the parties will not know until May 11 whether they need to prepare for trial on the remaining twenty-six.

[34] March 20, 1987 memorandum and order at 2 n.2.

[35] App. Tr. 209.

[36] App. Tr. 209-16.

expired. Inasmuch as prefiled testimony is a precondition to a witness taking the stand, the Licensing Board has effectively precluded the intervenors from attacking the presumptively correct FEMA finding other than through cross-examination. If anything more than lip service is to be accorded the principle that every litigant is entitled to a fair hearing — in the context of the matter before us, a fair opportunity to present its case — that result cannot be tolerated.

C. For the foregoing reasons, we conclude that, without sufficient assigned or apparent justification, the challenged hearing schedule was so grossly abbreviated in several respects as to impinge upon the intervenors' hearing rights and thus to be violative of due process. That schedule must therefore be modified by the Licensing Board to cure the infirmity. That modification shall be consistent with the following:

1. The parties are to be given an opportunity for further discovery on the admitted Revision 2 contentions of SAPL, Hampton, and the Coalition. A period of at least fifteen days shall be provided for the submission of additional discovery requests and a period of at least like duration provided for responses to those requests.
2. On the assumption that FEMA will furnish to the parties a *full* statement of its position on the New Hampshire Plan prior to June 1, 1987 (either through prefiled testimony or in response to a discovery request),[37] the prefiled testimony of all parties to the proceeding on the SAPL, Hampton, and Coalition contentions shall be due on or after July 1, 1987, as the Licensing Board may specify. In the event that a full statement of the FEMA position is not furnished to the parties by June 1, the deadline specified for the filing of the parties' prefiled testimony on those contentions shall be no less than thirty days after the statement becomes available.
3. The hearing on the SAPL, Hampton, and Coalition contentions shall not be scheduled to commence on a date less than fifteen days after the filing and service of the prepared testimony.[38]

Inasmuch as the Towns of Kensington, Rye, Hampton Falls, and South Hampton did not join in the directed certification motion, the Licensing Board remains free to apply the schedule set forth in the January 9 order to the contentions of those intervenors. The Board may conclude, however, that it is preferable to have prehearing activity on all New Hampshire emergency planning issues proceed on the same timetable. If so, the Board may decide to make the above-required modifications in the January 9 schedule applicable to the totality of the contentions before it.

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[37] In light of staff counsel's representation that FEMA has given its assurance that its prepared testimony can be available by May 21, this assumption seems fully justified.

[38] *See* 10 C.F.R. 2.743(b).

Motion for directed certification *granted;* cause *remanded* to the Licensing Board for further proceedings in conformity with this opinion. It is so ORDERED.

FOR THE APPEAL BOARD

Barbara A. Tompkins
Secretary to the
Appeal Board

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Alan S. Rosenthal, Chairman
Gary J. Edles
Howard A. Wilber

In the Matter of

Docket Nos. 50-443-OL-1
50-444-OL-1
(Onsite Emergency Planning
and Safety Issues)

PUBLIC SERVICE COMPANY OF
NEW HAMPSHIRE, *et al.*
(Seabrook Station, Units 1
and 2)

May 8, 1987

The Appeal Board in this operating license proceeding denies the requests of the intervenors and the Massachusetts Attorney General for a stay *pendente lite* of a Licensing Board partial initial decision authorizing the issuance of a license for low-power operation at the Seabrook nuclear facility.

RULES OF PRACTICE: STAY OF AGENCY ACTION (CRITERIA)

The four factors to be considered in deciding whether to grant a stay, as set forth in 10 C.F.R. § 2.788(e), are: (1) whether the moving party has made a strong showing that it is likely to prevail on the merits; (2) whether the party will be irreparably injured unless a stay is granted; (3) whether the granting of a stay would harm other parties; and (4) where the public interest lies.

RULES OF PRACTICE: STAY OF AGENCY ACTION (CRITERIA)

Although none of the factors to be considered in granting a stay is necessarily dispositive, the potential for irreparable injury and the likelihood of prevailing on the merits generally get primary attention.

RULES OF PRACTICE: STAY OF AGENCY ACTION (CRITERIA)

The strength of a movant's showing on one of the four stay factors determines how strong the showing must be on other factors. *Cuomo v. NRC*, 772 F.2d 972, 974 (D.C. Cir. 1985).

RULES OF PRACTICE: STAY OF AGENCY ACTION (IRREPARABLE INJURY)

The most significant factor as well as the first question often turned to in deciding whether to grant a stay request is "whether the party requesting a stay has shown that it will be irreparably injured unless the stay is granted."

RULES OF PRACTICE: STAY OF AGENCY ACTION (IRREPARABLE INJURY)

The risk of harm to the general public or the environment flowing from an accident during low-power testing is insufficient to constitute irreparable injury.

RULES OF PRACTICE: STAY OF AGENCY ACTION (IRREPARABLE INJURY)

Mere injuries, however substantial, in terms of money, time and energy expended in the absence of a stay, are not enough to establish irreparable injury. *Toledo Edison Co.* (Davis-Besse Nuclear Power Station, Units 1, 2 and 3), ALAB-385, 5 NRC 621, 628 (1977).

RULES OF PRACTICE: STAY OF AGENCY ACTION (IRREPARABLE INJURY)

Change in the environmental status quo as a result of low-power testing does not constitute irreparable injury. *Cuomo*, 772 F.2d at 976.

RULES OF PRACTICE: STAY OF AGENCY ACTION (BURDEN OF PROOF)

To justify the granting of a stay, a movant need not always establish a high probability of success on the merits. Probability of success is inversely proportional to the degree of irreparable injury evidenced. A stay may be granted with either a high probability of success and some injury, or vice versa. *Cuomo*, 772 F.2d at 974.

RULES OF PRACTICE: CHALLENGE TO COMMISSION REGULATION

When Commission regulations are believed to violate the hearing requirements of the Atomic Energy Act, any issues raised must be directed to the Commission; the regulations are not subject to challenge before the Appeal Board. 10 C.F.R. 2.758(a).

RULES OF PRACTICE: REOPENING OF PROCEEDINGS

To prevail on a motion to reopen an evidentiary record, a movant must show that: (1) the motion is timely, although an exceptionally grave issue may be considered in the discretion of the presiding officer even if not timely presented; (2) the motion addresses a significant safety or environmental issue; and (3) a materially different result would be or would have been likely had the newly proffered evidence been considered. 51 Fed. Reg. 19,535, 19,539 (1986).

RULES OF PRACTICE: NONTIMELY SUBMISSION OF CONTENTIONS

When reviewing a Licensing Board determination declining to admit a late-filed contention, the Appeal Board accords it wide latitude.

TECHNICAL ISSUE DISCUSSED

Safety Parameter Display System (SPDS).

APPEARANCES

Diane Curran, Washington, D.C. (with whom Andrea Ferster and Ellyn R. Weiss, Washington, D.C., were on the brief) for the New England Coalition on Nuclear Pollution.

Paul McEachern, Portsmouth, New Hampshire (with whom **Matthew T. Brock,** Portsmouth, New Hampshire, was on the brief) for the Town of Hampton, New Hampshire.

Robert A. Backus, Manchester, New Hampshire, for the Seacoast Anti-Pollution League.

Donald S. Bronstein, Boston, Massachusetts (with whom **Carol S. Sneider,** Boston, Massachusetts, was on the brief) for Massachusetts Attorney General James M. Shannon.

Thomas A. Dignan, Boston, Massachusetts (with whom **George H. Lewald** and **Kathryn A. Selleck,** Boston, Massachusetts, were on the brief) for the Public Service Company of New Hampshire, *et al.*

Sherwin E. Turk for the Nuclear Regulatory Commission staff.

United States Senator Gordon J. Humphrey of New Hampshire, Washington, D.C., filed a brief amicus curiae pro se.

MEMORANDUM AND ORDER

The New England Coalition on Nuclear Pollution (the Coalition), the Town of Hampton, New Hampshire, the Seacoast Anti-Pollution League (SAPL), and Massachusetts Attorney General James M. Shannon each seek a stay *pendente lite* of the Licensing Board's March 25, 1987 partial initial decision[1] authorizing the issuance of a license for low-power operation (up to five percent of rated power) of the Seabrook nuclear facility.[2] United States Senator Gordon J. Humphrey of New Hampshire (the state within which the facility is located) has submitted a brief amicus curiae in support of the requests for a stay. The applicants Public Service Company of New Hampshire, *et al.* and the Nuclear

[1] LBP-87-10, 25 NRC 177.

[2] SAPL, the Attorney General, and the Town of Hampton seek a stay only pending resolution of issues they plan to raise on appeal of LBP-87-10. The Coalition asks us to stay the Licensing Board's decision until the Commission has reached a determination as well on the application for a full-power license. Motion for Stay on Behalf of the Seacoast Anti-Pollution League (April 8, 1987) [hereafter SAPL Stay Motion]; Attorney General James M. Shannon's Application for a Stay of Licensing Board's Order (April 6, 1987) [hereafter Attorney General's Motion for Stay]; Town of Hampton Notice of Appeal and Application for a Stay (April 8, 1987); and New England Coalition on Nuclear Pollution's Motion for a Stay of a Low Power Operation Pending Full Power Decision or Appellate Review (April 8, 1987) [hereafter Coalition's Motion for Stay]. In a document dated May 5, 1987, and received by us on May 7, the Town of Hampton seemingly modified its stay request to embrace the relief sought by the Coalition.

Regulatory Commission staff oppose the motion. As explained below, we deny all stay applications.

I.

As we recently had occasion to observe, this operating license proceeding has been in litigation since 1981.[3] Although the State of New Hampshire has tendered a radiological emergency response plan for that portion of the ten-mile plume exposure pathway emergency planning zone (EPZ) that falls within its borders, the Commonwealth of Massachusetts has declined to submit a plan covering its portion of the zone or otherwise to cooperate in emergency planning matters. The effect of that refusal was the subject of earlier appeals by SAPL and the Attorney General.

Late last year, they sought reversal of the Licensing Board's October 7, 1986 memorandum and order (LBP-86-34, 24 NRC 549) authorizing the issuance of an operating license allowing fuel loading and precriticality testing at Seabrook. The Attorney General argued that the Commission's regulations[4] require the submission of an emergency response plan for the entire EPZ before any license may be issued. SAPL joined in that argument but raised other issues as well. In ALAB-853 and ALAB-854, we rejected those assertions.[5] In particular, we found, in ALAB-853, that an applicant need not submit an offsite emergency response plan as a condition precedent to issuance of a license authorizing fuel loading and precriticality testing.

In an unpublished order issued on January 9, 1987, the Commission announced its intention to review ALAB-853. It decided to consider whether the applicants must submit a governmental or utility radiological emergency plan before issuance of *any* operating license, including one limited to fuel loading or low-power operation. The Commission did not alter the schedule for fuel loading or precriticality testing. But, anticipating that the Licensing Board was about to issue a decision addressing the applicants' request for issuance of a low-power license, the Commission stayed the authority of the Director of Nuclear Reactor Regulation to issue such license until its review was completed.

In an opinion issued on April 9, 1987, the Commission decided that special policy considerations favored requiring the filing of a state, local, or utility plan for Seabrook before any license could be issued.[6] Shortly before the announcement of the Commission's decision, however, the utility filed its own offsite emergency plan for that portion of the EPZ located in Massachusetts. It

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[3] *See* ALAB-864, 25 NRC 417, 422 (1987).
[4] 10 C.F.R. 50.33(g).
[5] ALAB-853, 24 NRC 711 (1986); ALAB-854, 24 NRC 783 (1986).
[6] CLI-87-2, 25 NRC 267.

also filed a motion suggesting that the issues before the Commission were now moot and urging that the stay be lifted. In the circumstances, the Commission is now considering whether the filing of that plan satisfies the requirement imposed in its April 9 decision. Until it reaches a decision on that issue, its stay remains in effect.[7]

II.

Consideration of stay applications requires us to apply the traditional stay criteria enunciated by the courts and incorporated into the Commission's regulations.[8] Those criteria are (1) whether the moving party has made a strong showing that it is likely to prevail on the merits; (2) whether the party will be irreparably injured unless a stay is granted; (3) whether the granting of a stay would harm other parties; and (4) where the public interest lies. None of these factors is necessarily dispositive, but the potential for irreparable injury and the likelihood that a movant will prevail on the merits generally get primary attention. Moreover, the strength of a movant's showing on one of these factors determines how strong the showing must be on other factors to justify a stay.[9]

When reviewing requests to stay licensing board decisions authorizing only low-power operation, we do not write on a clean slate. The Commission, this Board, and the courts have evaluated issues bearing on the four stay criteria in connection with similar proceedings, particularly the *Shoreham* litigation.[10] In that case, as here, intervenors argued that a stay was proper to preserve the status quo until appellate review could be completed because there was a possibility that full-power operations would never be authorized or conducted. That argument was rejected.

The Massachusetts Attorney General presses the point that this case can be distinguished from *Shoreham*.[11] In particular, he asserts that the degree of uncertainty that Seabrook will ever operate is greater than at Shoreham. He notes

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[7] The Attorney General urges us to defer ruling on his stay petition until the Commission lifts the stay now in effect (assuming it does so) or, in the event we conclude that a stay is not warranted, to delay the effect of our ruling to permit the filing of a stay request with the Commission or the court. We eschew either course but issue our decision promptly in order to accord parties an opportunity to seek further relief from the Commission. Our action is intended to permit the Commission to review any additional stay applications at the same time it considers the issues already pending before it.

[8] *See* 10 C.F.R. 2.788(e). *See generally Texas Utilities Electric Co.* (Comanche Peak Steam Electric Station, Unit 1), CLI-86-4, 23 NRC 113, 121-22 (1986) (*citing Virginia Petroleum Jobbers Ass'n v. FPC*, 259 F.2d 921, 925 (D.C. Cir. 1958), and *Washington Metropolitan Area Transit Comm'n v. Holiday Tours, Inc.*, 559 F.2d 841 (D.C. Cir. 1977)).

[9] *Cuomo v. NRC*, 772 F.2d 972, 974 (D.C. Cir. 1985).

[10] *See, e.g., ibid.; Long Island Lighting Co.* (Shoreham Nuclear Power Station), CLI-85-12, 21 NRC 1587 (1985); *id.*, CLI-85-1, 21 NRC 275 (1985); *id.*, CLI-84-9, 19 NRC 1323 (1984); *id.*, CLI-83-17, 17 NRC 1032 (1983); and ALAB-810, 21 NRC 1616 (1985).

[11] *See* App. Tr. 14-26, 25, 98-102.

that it is two years since the stay decisions were made in the *Shoreham* litigation, and it seems no more likely today that either Shoreham or Seabrook will eventually receive a full-power license. But the gist of the *Shoreham* opinions is that, assuming there are no other impediments, low-power operation should be authorized unless the uncertainties surrounding offsite emergency planning make it relatively clear that full-power operation will never be authorized. In explaining an earlier *Shoreham* decision, the Commission recently indicated in this proceeding that

> [it] did not discount the possibility that a license for fuel loading and low-power testing could be held up if it were established, beyond significant doubt, that there were truly insuperable obstacles to issuance of a license for operation at any substantial power level.[12]

That high level of certainty — "beyond significant doubt" that there are "truly insuperable barriers" — concerning Seabrook's eventual operation is simply not present on the facts before us. In our view, assessing any differences in the likelihood of full-power operation in the context of the current *Seabrook* litigation as compared with the *Shoreham* case of two years ago is simply a guessing game and not decisionally relevant.[13]

III.

A. Irreparable Harm

The Commission has observed that the most significant factor in deciding whether to grant a stay request is whether irreparable injury will result in the absence of a stay.[14] As a consequence, we often turn first to that question.[15] The movants assert that a variety of injuries will result from low-power testing. They observe, for example, that there is the potential for harm to the public in the event of an accident during low-power testing. However, the Commission has found that certain factors contribute to a "substantial reduction in risk and potential accident consequences for low-power testing as compared to the

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[12] CLI-87-2, 25 NRC at 271.

[13] The court in the *Shoreham* litigation characterized the likelihood of full-power operation at Shoreham as "a matter for speculation." *Cuomo*, 772 F.2d at 977. We believe the same can be said for Seabrook. Counsel for the applicants, in fact, argues that Seabrook is a somewhat more promising candidate for licensure. Among other things, unlike Shoreham, Seabrook is located within a state which has filed an offsite emergency plan and is, to some extent at least, cooperating with the applicants. The opposition from governmental parties comes largely, although not exclusively, from neighboring Massachusetts. App. Tr. 65-69.

[14] *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), CLI-84-17, 20 NRC 801, 804 (1984).

[15] *See Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), ALAB-820, 22 NRC 743, 746 (1985); *United States Dep't of Energy* (Clinch River Breeder Reactor Plant), ALAB-721, 17 NRC 539, 543 (1983).

higher risks in continuous full-power operation."[16] First, the fission product inventory generated during low-power testing is much less than during full-power operation. Moreover, there is a reduction in the required capacity of systems designated to mitigate any consequences of an abnormal occurrence when a reactor operates at low power. Finally, there is more time available to take actions to identify accident causes and to mitigate accident consequences.[17] Even the movants acknowledge that the potential for an accident with serious consequences during low-power operation is considered extremely small.[18] Simply stated, the risk of harm to the general public or the environment flowing from an accident during low-power testing is insufficient to constitute irreparable injury.

The intervenors point to other forms of injury that allegedly will also result if a stay is not granted. Among other things, they claim that irradiation of the reactor will result in a change in the status quo, that they will effectively lose their appellate rights if the reactor is allowed to operate before their claims are fully considered on appeal, and that workers may be exposed to radiation during testing. These assertions were expressly evaluated by the court in the *Shoreham* litigation and either rejected or found insufficient to justify grant of a stay. We have considered them in the context of this case and can find no basis on which to distinguish the arguments from those resolved in the *Shoreham* proceeding.

The movants assert that one argument they now present was not explicitly raised in the *Shoreham* litigation — i.e., that the critical transition from fuel loading to low-power operation contaminates much of the plant and reduces the range of options available to the utility for use of the facility in the event full-power operation is eventually precluded. Among other things, the salvage value of the fuel and plant component parts is reduced and arrangements will need to be made for the storage of the irradiated fuel.[19] In *Shoreham*, however, the Commission weighed the environmental effects of low-power testing, including, expressly, "moderate irradiation of the core and contamination of the remainder of the primary coolant system."[20] One might reasonably infer from this that the Commission was aware of — although it did not expressly discuss — both the reduction in salvage value and the need to store irradiated fuel.

In any event, these drawbacks are largely economic. The courts and the Commission have long held that economic effects are not generally sufficient to

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[16] 46 Fed. Reg. 61,132 (1981).

[17] *Id.* at 61,132-33. *See also* 47 Fed. Reg. 30,232-33 (1982).

[18] *See* Coalition Motion for Stay at 9 n.11 (the risk of an accident exists, although the Commission considers it "insignificant"); SAPL Stay Motion at 6 ("nuclear operation presents the risk of an accident, however remote").

[19] The Attorney General "primarily relie[s]" on this argument in support of his claim of irreparable injury. App. Tr. 98-99.

[20] CLI-85-12, 21 NRC at 1590.

establish irreparable injury.[21] To be sure, some economic costs could eventually be borne by the ratepayers, but that is far from certain. An allocation of burdens in the event that the Seabrook plant is unable to operate at full power will be meted out in due course by the state agencies with responsibility in this area.[22] Thus, any economic injury that may result generally to ratepayers, including the intervenors, is in no sense irreparable.

We fully appreciate that the storage of the waste generated by low-power operation is not entirely a matter of economics. There are potential safety and environmental consequences that might not result if low-power testing were simply foreclosed at this juncture. But the problem of waste disposal is generic to nuclear power plant operation and is being addressed on a nationwide basis.[23] While we cannot entirely discount the possibility that some radioactive waste may have to be stored at the Seabrook site, the movants have not shown that waste generated during low-power testing at Seabrook must inevitably be housed there indefinitely or that, if so housed, it would pose serious health or safety problems to the facility's neighbors.

The Attorney General concedes that the waste storage problem will be small but argues that irreparable injury occurs because there is no justification for *any* contamination of the plant and the consequent need for waste storage, given the uncertainty that Seabrook will ever be licensed.[24] In *Shoreham*, however, the Commission rejected the notion that no changes in the environmental status quo should be permitted simply because there is uncertainty as to whether a full-power license will ever be issued.[25] Similarly, the court acknowledged that low-power testing represents "an irreversible change from the status quo," but nonetheless declined to conclude that the significance of the change amounted to irreparable harm.[26] In our view, the question of whether waste storage rises to the level of irreparable injury is properly resolved on the basis of these earlier Commission and court decisions. Given those decisions, we cannot conclude that the contamination of the plant and the possibility that waste may need to be stored at Seabrook constitute irreparable injury.

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[21] *See Toledo Edison Co.* (Davis-Besse Nuclear Power Station, Units 1, 2 and 3), ALAB-385, 5 NRC 621, 628 (1977) (*quoting Virginia Petroleum Jobbers Ass'n v. FPC*, 259 F.2d at 925) ("[m]ere injuries, however substantial, in terms of money, time and energy expended in the absence of a stay, are not enough").

[22] *See generally Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-789, 20 NRC 1443, 1447 (1984) (*citing Public Service Co. of New Hampshire* (Seabrook Station, Unit 2), CLI-84-6, 19 NRC 975 (1984)).

[23] *See Baltimore Gas & Elec. Co. v. Natural Resources Defense Council, Inc.*, 462 U.S. 87 (1983).

[24] App. Tr. 100.

[25] CLI-83-17, 17 NRC 1032.

[26] *Cuomo*, 772 F.2d at 976.

B. Likelihood of Success on the Merits

Because the movants have been unable to demonstrate that they will be irreparably harmed if the stay is denied, they bear a heavy burden of showing that they are likely to succeed on the merits of their appeal. As the U.S. Court of Appeals for the District of Columbia Circuit has explained:

> To justify the granting of a stay, a movant need not always establish a high probability of success on the merits. Probability of success is inversely proportional to the degree of irreparable injury evidenced. A stay may be granted with either a high probability of success and some injury, or *vice versa*.[27]

The movants here have not met that burden.

A number of the legal arguments advanced in support of the stay request have already been addressed and rejected in the *Shoreham* proceeding or earlier phases of this case. As an example, the Attorney General and the Coalition assert that the Licensing Board erred in failing to require the preparation of a supplemental environmental impact statement to assess the costs and benefits of low-power testing where it appears that no full-power license may issue.[28] The Commission and the court expressly rejected this claim in the *Shoreham* proceeding.[29]

The Attorney General and the Coalition also argue that issuance of a low-power license pursuant to 10 C.F.R. 50.47(d) and 50.57(c) prior to resolution of offsite emergency planning issues deprives them of their right to a hearing under section 189(a) of the Atomic Energy Act. But section 50.47(d) gives applicants an unqualified right to a low-power license if certain prerequisites are met even if the Commission has yet to resolve all offsite emergency planning issues.[30] To the extent that the movants believe that the Commission's regulations themselves violate the hearing requirements of the Atomic Energy Act, they must raise that issue with the Commission; the regulations are not subject to challenge before us.[31]

The Attorney General and the Coalition also maintain that a low-power license cannot be issued until offsite emergency plans have been submitted for the Massachusetts portion of the EPZ in accordance with 10 C.F.R. 50.33(g). As

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[27] *Id.* at 974.

[28] SAPL joins in arguments presented by the Attorney General. *See* SAPL Stay Motion at 2.

[29] CLI-85-12, 21 NRC at 1589; CLI-84-9, 19 NRC at 1326; *Cuomo*, 772 F.2d at 974-76.

[30] CLI-85-1, 21 NRC at 278. *Cf.* ALAB-854, 24 NRC at 790-91, where we approved the issuance of a license authorizing fuel loading and precriticality testing despite the pendency of full-power issues.

[31] 10 C.F.R. 2.758(a); *Duke Power Co.* (William B. McGuire Nuclear Station, Units 1 and 2), ALAB-669, 15 NRC 453, 464 (1982). *See also American Nuclear Corp.*, CLI-86-23, 24 NRC 704, 707 (1986). The Coalition claims that the requirement in section 50.47(d) of a finding concerning certain aspects of offsite emergency planning has not been satisfied. As we explained in ALAB-854, however, all necessary requirements in this regard have been fulfilled. *See* 24 NRC at 790-91.

noted at the outset of this opinion, we concluded in ALAB-853 that section 50.33(g) does not impose any such requirement. Although the Commission did not reject our legal analysis and construction of the regulations, it nevertheless decided that special policy considerations, "which ultimately [the Commission] alone should decide," warrant the filing of a state, local or utility plan before issuance of *any* operating license for the Seabrook reactor.[32] The applicants have tendered a utility offsite emergency plan and the Commission is now actively considering whether its policy requirements have been satisfied. This matter, therefore, now rests exclusively in the Commission's hands.

Certain arguments advanced in support of the stay requests have not been the subject of earlier determinations. But we find them unavailing as well. First, the Attorney General claims that the Licensing Board improperly granted the applicants' motion for summary disposition of SAPL Contention 3, which claimed that the requirements of the Commission's Policy Statement on the consideration of accidents under the National Environmental Policy Act of 1969 have not been met. Specifically, he asserts:

> The [environmental impact statement] for Seabrook did not include any analysis of consequences of a Class 9 accident; did not consider site-specific data; included no discussion of external events, such as sabotage, which could affect the risks; and did not quantify the uncertainty bounds.[33]

We find no support for the Attorney General's attack on the staff's analysis. Contrary to his assertion, the environmental statement does contain a lengthy evaluation of severe, or so-called Class 9, accidents.[34] That evaluation includes an examination of site-specific data,[35] makes reference to external events and explains why they are not separately analyzed,[36] and makes an effort to quantify analytical uncertainties.[37] As a consequence, we are satisfied that the Attorney General is not likely to succeed with his claim that the staff failed to include an analysis of Class 9 issues. We take no position on the adequacy of the staff's analysis or the overall propriety of the Licensing Board's summary disposition determination — matters not pressed by the Attorney General at this stage of the litigation.

The Attorney General next argues that the Licensing Board improperly rejected two late-filed contentions concerning the adequacy of siren sound levels in certain portions of the EPZ. The Board first refused to admit a contention that

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[32] CLI-87-2, 25 NRC at 271.
[33] *See* Attorney General's Motion for Stay at 6.
[34] *See* NUREG-0895, Final Environmental Statement Related to the Operation of Seabrook Station, Units 1 and 2 (December 1982) at 5-47 to 5-71.
[35] *Id.* at 5-43, 5-44.
[36] *Id.* at 5-48.
[37] *Id.* at 5-70, 5-71.

only two sirens, rather than three, had been installed in the Town of Merrimac, Massachusetts, and that the two sirens were not operational.[38] The Board then declined to entertain a contention alleging that a test of sirens in the Town of East Kingston, New Hampshire, called into question the reliability of the siren system.[39] Finally, it rejected a second effort by the Attorney General to introduce the Merrimac contention, this time to show that the sirens did not comply with applicable regulations.[40] In reaching its conclusion on both contentions, the Licensing Board evaluated the three criteria for reopening a record set out in 10 C.F.R. 2.734 and balanced the five factors contained in 10 C.F.R. 2.714(a) against which late contentions must be measured. To convince us that he is likely to prevail on the merits, the Attorney General must persuasively demonstrate that both the Board's decision not to reopen the record and its determination not to admit the late-filed contentions were wrong. We do not believe that he has done so.

To prevail on a motion to reopen the record a movant must show that (i) its motion is timely, although an exceptionally grave issue may be considered in the discretion of the presiding officer even if not timely presented; (ii) the motion addresses a significant safety or environmental issue; and (iii) a materially different result would be or would have been likely had the newly proffered evidence been considered.[41] Insofar as the East Kingston sirens are concerned, the Board concluded that the motion was timely filed but that the movant had not shown that a significant safety issue was involved. Although the motion alleged that the East Kingston sirens did not perform as expected, the Board (relying on an affidavit submitted by the NRC staff) concluded that the "test" of the sirens did not conform to the approved Seabrook test procedure (among other things, the sirens were activated for only 15, rather than 30, seconds and thus did not complete a full rotation). As a consequence, the Board was unprepared to rely on the test as a demonstration that a significant safety issue was present so as to warrant a reopening of the record. The Board went on to note that the NRC staff gave assurances that the sirens would be retested in accordance with proper procedure and any needed corrections would be made. In the circumstances, the Attorney General has failed to show that he is likely to prevail on the merits of his claim that the Board acted unreasonably in declining to reopen the record.

Insofar as the Merrimac sirens are concerned, the Board found, first of all, that the Attorney General had not demonstrated good cause for failing to raise the matter in a timely manner. In the Board's view, the Commonwealth should have been aware for more than six months that the Town of Merrimac had refused

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[38] LBP-87-3, 25 NRC 71 (1987).
[39] Licensing Board March 23, 1987 Memorandum and Order (unpublished).
[40] Licensing Board March 25, 1987 Memorandum and Order (unpublished).
[41] 51 Fed. Reg. 19,535, 19,539 (1986).

to permit the electric connection of the sirens and had ordered the immediate cessation of all work on the sirens.[42] Equally important, the Board (again relying on a staff affidavit) indicated that two of the three sirens would be equipped with batteries and that those sirens can produce noise levels sufficient to meet or exceed standards accepted by the NRC and the Federal Emergency Management Agency (FEMA). The Board thus found that no significant safety issue had been raised.

The Attorney General thereafter resubmitted his request to reopen the record and late-file the same Merrimac siren contention, this time asserting as its basis that the sound levels produced by the sirens did not satisfy NRC/FEMA standards (the Attorney General apparently abandoned the earlier bases for his late-filed contention). The Board again found that the request was not timely submitted. In this regard, it rejected the assertion that the Commonwealth was "lulled into inaction" because the applicants had installed two sirens and publicly announced that they would be operational before initial criticality.[44] After reviewing various arguments and affidavits, the Board also found that the siren design coverage in the Merrimac area met NRC/FEMA requirements.[45]

The Attorney General objects that, in reaching its decision, the Board improperly resolved factual disputes purportedly raised in conflicting affidavits. As we read the Board's opinion, it recognized that compliance with NRC/FEMA criteria may be demonstrated by showing either that the expected sound level coverage is at least 60 dBC, or that the expected sound pressure level exceeds the average measured summer daytime ambient sound pressure levels by 10 dB.[46] Everyone agrees that the applicants did not satisfy the first criterion. The Board went on to conclude, however, that there are two alternative means of taking measurements to fulfill the second criterion. To satisfy regulatory requirements, the ambient background noise level should be measured in the full *or* one-third octave band containing the predominant tone of the sirens used. The Attorney General's consultant utilized the full octave band. But the applicants applied the one-third octave band and demonstrated that the criterion was met. The Board relied on that latter demonstration.[47] In the circumstances, we cannot conclude that there is a factual dispute or that there is a substantial likelihood that the At-

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[42] LBP-87-3, 25 NRC at 75.
[43] *Id.* at 75 n.5, 77.
[44] Licensing Board March 25, 1987 Memorandum and Order at 7-9.
[45] *Id.* at 14-16.
[46] The pressure level of sound is measured relative to a small reference pressure and is reported in units called decibels (dB). These measurements can be weighted by different filter circuits in the measuring equipment. One such measurement is weighted by so-called "filter C" and is referred to as decibels C, or dBC. *See, e.g.*, A. Parrish, *Mechanical Engineer's Reference Book*, pp. 15-19 to 21 (11th ed. 1973).
[47] March 25, 1987 Memorandum and Order at 14-16.

torney General will prevail on the merits of his claim that the Board improperly declined to reopen the record.[48]

We also believe that the Attorney General has a difficult challenge in seeking to overturn the Board's judgment that a proper balance of the fi[illegible] lateness factors weighed against the movants. When reviewing a Board determination declining to admit a late-filed contention, we accord it wide latitude. We will not overturn its decision absent a showing of abuse of discretion.[49] We need not at this juncture finally determine whether the Board properly weighed all five factors in 10 C.F.R. 2.714. Indeed the parties are entitled to amplify their presentations in this regard in their briefs on appeal. For the present, we are satisfied that the Attorney General has not pointed to any glaring deficiencies in the Board's analyses so as to justify a conclusion of a strong likelihood that he will succeed on the merits.

Finally, SAPL complains that the Board improperly failed to require a "fully compliant" Safety Parameter Display System (SPDS) as a condition to issuance of the low-power license. Basically, an SPDS is designed to provide a concise display in the control room of all critical safety parameters. Although all the information available on the SPDS is displayed elsewhere in the control room as well, the SPDS provides control room operators with a central display of critical plant variables to aid them in rapidly and reliably determining the safety status of the plant.[50] The key purpose of the SPDS is to aid control room personnel during abnormal or emergency conditions.[51]

Supplement 1 of NUREG-0737 sets out various requirements for the SPDS. Among other things, it must display critical plant variables, be located in a place that is convenient to control room operators, be isolated from safety-related systems, and be designed to incorporate accepted human factors principles.[52] Supplement 1 to NUREG-0737 also provides that SPDS requirements be implemented on a schedule to be negotiated between a licensee or applicant and the NRC staff.[53] As far as Seabrook is concerned, the SPDS is not in total compliance with each of the requirements set out in the Supplement. To bring it into full compliance, the staff proposed a schedule to remedy identified deficiencies

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[48] The Attorney General concedes that use of the one-third octave band is acceptable but argues that his measurements using the full octave band create enough uncertainty to justify evidentiary exploration. We disagree. There are no facts in dispute and the Board reasonably concluded that the applicants had satisfied applicable regulatory requirements.

[49] *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-806, 21 NRC 1183, 1190 (1985).

[50] Eckenrode, fol. Tr. 822 at 2; Tr. 931. *See generally* LBP-87-10, 25 NRC at 197.

[51] *See* NUREG-0737, Clarification of TMI Action Plan Requirements (November 1980) at I.D.2-1; *id.*, Supplement 1 (December 1982) at 7.

[52] Eckenrode, fol. Tr. 822 at 2-3.

[53] *Id.* at 3.

which, in the main, would require completion of outstanding items by the end of the first refueling outage.[54]

During the course of the proceeding below, the Board decided that all such corrections could not be deferred until the first refueling outage. At the same time, it rejected SAPL's assertion that all items have to be corrected before a low-power license is issued. Instead, it mandated certain actions concerning three deficiencies before plant operations exceed five percent of rated power and found that, with such actions, the public will be adequately protected. The bases for the Board's conclusions are fully explained in its partial initial decision.[55] SAPL challenges the reasonableness of the Board's determination but fails to address the Board's specific findings. Instead, it continues to assert that NUREG-0737 requires that all elements of the SPDS be in place before any license is issued.

We disagree. Section 50.57(a)(1) provides generally that an operating license may be issued if construction of the facility has been substantially completed in accordance with statutory and regulatory requirements. Supplement 1, which sets out the requirements applicable to the SPDS, does not impose any fixed schedule for implementation of the SPDS. Rather, the schedule is left essentially to the staff's discretion. Contrary to SAPL's assertion, we find no requirement that all elements of the SPDS must be completed before low-power operation is authorized. Thus, SAPL has failed to satisfy its heavy burden of demonstrating that the Licensing Board's determinations concerning the SPDS are wrong.[56]

The foregoing conclusions do not mean that the intervenors' appeals from the March 25 partial initial decision are necessarily doomed to failure. To begin with, even on the issues raised in the stay applications, it is possible that a full briefing will persuade us that the intervenors should prevail. All that we now decide is that the stay papers do not themselves demonstrate the requisite high probability of such success. Moreover, we do not consider on a stay application any possible Licensing Board error not asserted by the movants. Presumably, the intervenors will advance in their appellate briefs claims of error that, perhaps because of the ten-page limit imposed by 10 C.F.R. 2.788(b), were not included in their stay applications.

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[54] *Id.* at 4-5. *See also* Safety Evaluation Report Related to the Operation of Seabrook Station Units 1 and 2, S[illegible]ment No. 6 (October 1986) at 18-5 to 18-6.

[55] [illegible] 1 NP-87-10, 25 NRC at 183-87, 199-205.

[56] [illegible] that the Board erred in failing to direct the staff to produce a witness who would explain [illegible] schedule agreed [illegible] the applicants had not been enforced. Although testimony by such a witness [illegible] have [illegible] on the reas[illegible] of the schedule ultimately established, and the safety implications, if [illegible] schedule, it would [illegible] rejection of SAPL's argument that NUREG-0737 requires a "fully co[illegible] before a low[illegible] may be issued. Thus, it does not bear on our disposition of SAPL's [illegible] particularize its objection to the reasonableness of the Board's decision [illegible]

C. Harm to Other Parties

The applicants argue generally that the loss of the ability to conduct low-power testing at the earliest time possible constitutes a genuine deprivation. Relying on an affidavit by his consultant, Dale G. Bridenbaugh, the Attorney General contends that low-power testing requires only three to four months and that there is little or no advantage to such testing where, as here, there is likely to be a lengthy delay between completion of such testing and the commencement of full-power operation. Indeed, in Mr. Bridenbaugh's view, "the initial operating phase at a new nuclear unit can be most efficiently performed if a smooth transition is made from fuel loading to low power operation and on to the power testing above 5%."[57]

The Commission has indicated that the primary benefit of prompt low-power testing is "the early discovery and correction of unforeseen but possible problems which may prevent or delay full-power operation at an enormous expense to [the utility] and/or its customers."[58] In the typical case, we would be inclined to weigh this factor in an applicant's favor. In this instance, however, all issues related to a low-power license were litigated in 1983, yet the Licensing Board did not issue its decision for almost four years. Had it issued its decision in a more timely fashion, appellate review of pertinent issues would undoubtedly have long been concluded, obviating any stay request. At oral argument, counsel for the applicants pointed out that financial difficulties led to a temporary halt in the Seabrook project and, as a consequence, the applicants did not press the Board to move promptly to resolve the pending matters.[59] Thus, the applicants bear some responsibility for the urgency they now attach to the need for immediate low-power testing. Although we do not question the reasonableness or necessity of the applicants' decision not to have urged earlier resolution of issues related to the low-power license, we find that any harm to the applicants would be to some extent attributable to their own inaction.

D Public Interest

The Coalition asserts that the issues raised are important and novel and that the "balance of equities" favors issuance of a stay to preserve the status quo "pending a decision on the full power license or further review."[60] The

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[57] Attorney General's Motion for Stay, Exhibit 1 at 4.

[58] CLI-85-12, 21 NRC at 1590.

[59] App. Tr. 194-95 ("Nobody was pushing that Board for a decision at that point. Certainly I was not."). It was not until June 1986 that the applicants tendered a motion requesting issuance of a low-power license. *See* Applicants' Motion for Incorporation of Certain Materials in Record; for Closing of Record; and for Issuance of Partial Initial Decision Authorizing Issuance of Operating License for Operation Not in Excess of 5% of Rated Power (June 17, 1986).

[60] Coalition Motion for Stay at 10.

other movants raise similar arguments. The applicants contest the movants' assertions and claim, instead, that there is an affirmative public interest in testing the readiness of the plant for operation as quickly as possible. The NRC staff believes that the Commission recently addressed the public interest issue implicitly when it decided in CLI-87-2 to stay issuance of a low-power license pending the submission of emergency plans for Massachusetts.[61] The staff urges us to await the Commission's resolution of the applicants' motion to vacate that stay before reaching any overall public interest conclusions.

We have decided not to defer ruling on the public interest question until the Commission completes its review of issues raised in CLI-87-2. The staff argues that, if the Commission lifts the stay, we should be governed by its judgment that the public interest favors issuance of a low-power license. But the Commission's determination will be limited to the single issue concerning the filing of an emergency plan for Massachusetts. It will not represent a judgment on the overall balance of public interest considerations. Thus, we see no reason to delay disposition of the stay requests before us.

Turning therefore to the merits, we note that the Commission in the *Shoreham* case provided an analysis of the public interest costs and benefits of low-power testing in circumstances where it is unclear whether full-power operation will ever be authorized. The Commission observed:

> So long as an applicant is willing to invest the substantial effort and money necessary to attempt to obtain a full-power license, the possibility of full-power operation at a future date gives substantial value to low-power testing. Moreover, wherever a low-power motion has been filed where full-power issues are also pending (a common occurrence), there is always uncertainty over the outcome of the full-power proceeding. Delaying the low-power license until that uncertainty is eliminated irretrievably deprives the applicant and its customers of the substantial benefits of early low-power testing.[62]

The Commission observed that section 50.57(c) of its regulations, authorizing the issuance of a low-power license, is premised on the idea that "the inherent benefits of early low-power testing outweigh the uncertainty that a full-power license may be denied."[63] We are bound by that determination absent, at least, some demonstration that circumstances unique to Seabrook warrant a different result.[64] There has been no such demonstration.

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[61] *See* 25 NRC 267.

[62] *See* CLI-85-12, 21 NRC at 1590.

[63] *Id.* at 1591.

[64] The Court of Appeals in *Shoreham* was of the view that the public interest did not either strongly favor or disfavor the grant of a stay. *See Cuomo*, 772 F.2d at 978. Significantly, the court did not conclude that the public interest required a maintenance of the status quo.

The applications for stay of LBP-87-10 are *denied*.
It is so ORDERED.

FOR THE APPEAL BOARD

Barbara A. Tompkins
Secretary to the
Appeal Board

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Herbert Grossman, Chairman
Richard F. Cole
A. Dixon Callihan

In the Matter of

Docket Nos. 50-456-OL
50-457-OL
(ASLBP No. 79-410-03-OL)

COMMONWEALTH EDISON COMPANY
(Braidwood Nuclear Power Station, Units 1 and 2)

May 13, 1987

In this Partial Initial Decision, the Board rules on all outstanding emergency planning issues, finding in favor of the Applicant, provided that certain conditions are met concerning information to be provided to the public in Applicant's emergency planning booklet.

RULES OF PRACTICE: PROPOSED FINDINGS

When a board requires proposed findings to be filed, the failure of a party to file findings on an issue may be deemed a default by the party, and the board may refuse to rule on the issue.

EMERGENCY PLANNING

An applicant does not have to prove that every individual within the planning area will be covered by the emergency plan under every conceivable set of

circumstances. The Commission requires not perfection but rather prudent planning calculated to meet the needs of the affected population.

APPEARANCES

On behalf of the Applicant: **George L. Edgar, Esq., Thomas Schmutz, Esq.,** and **Donald J. Silverman, Esq.,** Newman & Holtzinger, P.C., 1615 L St., NW, Suite 1000, Washington, DC 20036.

On behalf of the Nuclear Regulatory Commission Staff: **Stuart Treby, Esq.,** and **Elaine I. Chan, Esq.,** U.S. Nuclear Regulatory Commission, 7335 Old Georgetown Rd., Bethesda, MD 20014.

H. Joseph Flynn, Esq., Federal Emergency Management Agency, Washington, DC.

On behalf of the Intervenor: **Ms. Bridget Little Rorem,** 117 North Linden St., P.O. Box 208, Essex, IL 60935.

PARTIAL INITIAL DECISION ON EMERGENCY PLANNING ISSUES

In this Partial Initial Decision, the Board resolves all outstanding issues concerning offsite emergency planning favorably to the Applicant, Commonwealth Edison Company (CECo), subject to the condition that certain information specified by the Board be included in the next annual revision of Applicant's emergency information booklet.

PROCEDURAL HISTORY

As finally refined for hearing, Intervenor Bridget Little Rorem's single, two-part[1] contention concerning emergency planning stated:

> 1. Intervenor contends that an adequate emergency plan for the Braidwood Station should include the following:

[1] A third part of the original contention, 1(c), was dismissed by the Board. Prehearing Conference O gust 1, 1985 (unpublished), at 7.

(a) a program for informing the public within 10 miles of the Station of the means for obtaining instructions for evacuation or other protective measures in the event of a radiological emergency originating at the station;

(b) assurance that institutions within 10 miles of the Station, such as nursing homes, can be evacuated or adequately protected in the event of a radiological emergency.

In August of 1985, Applicant moved to particularize the first part of the contention (referred to as Contention 1(a)), pointing out that the language could be construed as referring to a public information program to be implemented prior to an accident; or to notification of the public at the time of an accident; or to both. A period of negotiations among the parties followed. When it became apparent that a stipulated particularization of Contention 1(a) could not be agreed upon, Applicant renewed its motion.

By Memorandum and Order dated October 18, 1985 (unpublished), the Board restricted Contention 1(a) to preaccident public education programs only. However, taking into account Intervenor's unfamiliarity with legal requirements concerning the full disclosure of her case, the Board made its ruling expressly subject to reconsideration if Ms. Rorem could present significant issues concerning public information programs other than at the preaccident stage. Ms. Rorem timely filed her request for reconsideration in the form of an offer of proof encompassing seven specific issues which were denominated Offer of Proof Issues 2-8.

When it became clear that Intervenor was unfamiliar with much of the factual background to these issues, as contained in Applicant's emergency plan, the Board directed the parties to embark on a schedule of filings and conferences aimed at resolving or clarifying the Offer of Proof issues for hearing. As a result of those efforts, Intervenor withdrew Offer of Proof issues 5, 7, and 8, and the remaining four issues were much more specifically defined and focused. By Memorandum and Order dated January 31, 1986 (unpublished), the Board accepted Offer of Proof Issues 2, 3, 4, and 6 for litigation.

Hearings on emergency planning issues were held on October 29, 1985, and March 11 and 12, 1986. The record was closed at the end of the third day's session. At the October 29, 1985 hearing, Applicant presented the testimony of Lawrence D. Butterfield, Jr. Mr. Butterfield is the manager of Applicant's Nuclear Technical Services Department, has been employed by Applicant for about 19 years; and has been involved in emergency planning for at least the last 6 years. Testimony of Lawrence D. Butterfield, Jr., Concerning Contention 1(a), ff. Tr. 465-B (hereafter Butterfield) and Supplemental Testimony of Lawrence D. Butterfield, Jr., on Rorem Contention 1(a), ff. Tr. 465-B (hereafter Butterfield Supp.). Staff presented the testimony of Gordon Wenger. Mr. Wenger is an Emergency Planning Specialist at FEMA Region V and has held that position for the last six years. He is the Federal Team Leader for Radiological Emergency

Preparedness Planning for Illinois and Indiana. Testimony of Gordon Wenger Regarding Rorem Contention 1(a), ff. Tr. 518 (hereafter Wenger, ff. Tr. 518).

At the hearings in March 1986, Applicant presented the joint testimony of Mr. Butterfield and Jana Fairow, the Radiological Emergency Planning Supervisor of the Illinois Emergency Services and Disaster Agency. Ms. Fairow is responsible for developing, maintaining, and supervising the Illinois Plan for Radiological Accidents (IPRA) for all seven nuclear power stations in Illinois. Testimony of Lawrence D. Butterfield, Jr., and Jana S. Fairow Regarding Contentions 1(a) and 1(b) (Emergency Planning), ff. Tr. 690 (hereafter Butterfield/Fairow). Staff presented additional testimony by Mr. Wenger (hereafter Wenger, ff. Tr. 931). Intervenor sponsored no witnesses of her own, electing to develop her case through cross-examination.

Proposed findings on all issues were filed by the Applicant and Staff. Intervenor submitted findings only on Contention 1(a) and Offer of Proof Issue 2. Applicant, supported by the Staff, has moved for dismissal of Contention 1(b) and Offer of Proof Issues 3, 4, and 6.

RULING ON CONTENTION 1(b) AND OFFER OF PROOF ISSUES 3, 4, AND 6

At the close of the prehearing conference conducted on July 23, 1985, the Board advised the parties that

> Proposed findings pursuant to 10 C.F.R. section 2.754 are indeed required by this Board, and . . . failure to file proposed findings is a default on any issue.

Tr. 272. Again, at the close of the hearings on March 12, 1986, at the urging of the Staff, we reminded the parties of their obligation to file such findings, and we specifically put Intervenor on notice that a failure to do so would result in penalties. Tr. 1055.

As indicated in our discussion above of the procedural background to the adoption of the pending emergency planning issues, the Board has been fully aware of the difficulties faced by a *pro se* intervenor not fully conversant with our proceedings. We have endeavored to assure that Ms. Rorem has been advised of her obligations and has had ample opportunity to comply with them. In light of our repeated instructions concerning the filing of proposed findings, we must assume that Intervenor intentionally omitted findings on Contention 1(b) and Offer of Proof Issues 3, 4, and 6, and that those issues have now been abandoned. Under such circumstances, the Commission's *Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452, 457 (1981), authorizes us to refuse to rule on the abandoned issues, and 10 C.F.R. § 2.754(b)

permits a finding that on those issues Intervenor is in default. Accordingly, we hold that Contention 1(b) and Offer of Proof Issues 3, 4, and 6 need not be further considered by this Board, and Applicant's motion to dismiss those issues is *granted*.

STANDARD FOR DECISION

Applicant has the burden of proving that its offsite emergency plan complies with the Commission's rules and guidance. *Consumers Power Co.* (Big Rock Point Plant), LBP-82-77, 16 NRC 1096 (1982). The regulations governing emergency planning are set forth in 10 C.F.R. § 50.47 and 10 C.F.R. Part 50, Appendix E. Guidance for compliance with those rules is contained in NUREG-0654/FEMA-REP-1, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedne s in Support of Nuclear Power Plants" (November 1980). Applicant does not have to prove that every individual within the planning area will be covered by the plan under every conceivable set of circumstances. *See Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), LBP-85-12, 21 NRC 644, 653 (1985). The Commission requires not perfection but rather prudent planning calculated to meet the needs of the affected population.

With this standard in mind, we consider the remaining issues requiring decision.

CONTENTION 1(a)

Contention 1(a), as restricted by the Board, focuses on the adequacy of Applicant's plans for informing the public within the Emergency Planning Zone (EPZ), *prior* to the occurrence of an accident, of the proper steps to be taken in the event of an emergency originating at the Braidwood Station. Reduced to a syllogism, Intervenor's case on this contention can be stated as follows:

> The only vehicle planned for the preaccident dissemination of information to the public within the EPZ is the booklet entitled "Emergency Information — Braidwood."[2] "Intervenor's Proposed Findings on Emergency Planning Issues," Finding 1.[3] The booklet is inadequate because (a) it is inaccessible to those who are illiterate or visually impaired (*id.*, Finding 2); (b) it does not address the nature of the danger of a

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[2] Applicant's Emergency Planning Exhibit No. 1, admitted at Tr. 465-B, referred to hereafter as "the booklet," and cited as "Booklet at ___."

[3] Intervenor filed 13 proposed findings numbered 1 through 12, with two findings numbered "9." The first Finding 9 relates to Contention 1(a); the second to Offer of Proof Issue 2.

radiological accident (*id.*, Finding 3); (c) it does not provide adequate information concerning the nature of a radioactive plume (*id.*, Findings 4-7); (d) it contains misleading language concerning the provision of information and instructions over the radio in the event of a sounding of the Public Notification System sirens (*id.*, Finding 8); and (e) the plan for its distribution does not cover all possible EPZ residents (*id.*, Finding 9). Therefore, Applicant's preaccident public information program is inadequate.

Our first observation is that Intervenor's major premise is overstated. Witnesses for both the Applicant and Staff testified that the overall public information program required by the Illinois Plan for Radiological Accidents includes provision for annual press briefings and the posting of signs giving information concerning the appropriate Emergency Broadcast Frequencies to be tuned to in the event of a sounding of sirens.[4] These additional elements of the program both supplement and draw attention to the material provided in the booklet. The booklet itself is not the only means for preaccident education of EPZ residents.

Nevertheless, the same witnesses make it clear that the booklet is the cornerstone of the public information program.[5] If it were seriously deficient, the program itself would almost certainly be inadequate as Intervenor asserts. The Board finds, however, that the booklet is adequate to meet the requirements of 10 C.F.R. § 50.47(b)(7).

Visually Impaired and Reading-Handicapped Adults

Intervenor questions whether individuals who are visually impaired or illiterate, and therefore unable to read the booklet directly, will receive the preaccident information they need. A number of provisions in the Applicant's plan for information dissemination suggest that they will; no evidence in the record indicates that they will not.

Applicant's program clearly does depend on some degree of cooperation among friends, relatives, and co-workers that is beyond CECo's ability to control, but there is nothing in the record to suggest such reliance is unreasonable. Mr. Butterfield testified that he expected neighbors and members of the same household would share the information contained in the booklet with others needing help. Tr. 478, 482. The preface to the booklet itself encourages members of households to share and discuss the information provided, and also encourages employers to advise their employees of its contents. Booklet at 3. The distribution plan for the booklet calls for multiple copies to be delivered an-

[4] Butterfield Supp. at 5-A to 6-A; Wenger, ff. Tr. 518, at 7.
[5] *See, e.g.*, Butterfield at 7-8.

nually to major employers, schools, health care facilities, and senior citizen centers. Butterfield at 13.

We find that these measures provide reasonable assurance that EPZ residents who are visually impaired or reading handicapped will receive adequate preaccident information concerning measures to be taken in the event of a radiological emergency at Braidwood.

Explanation of the Danger of a Radiological Accident

Section 7 of the booklet explains that waste products resulting from the production of energy by a nuclear power plant "could be hazardous and must be kept sealed away from the environment." Booklet at 14. If they were to escape the plant's containment, they would emit radiation into the environment. *Ibid.*

Section 8 warns that "scientists believe that any amount of radiation, no matter how small, carries some risk" and "very large radiation doses . . . may be directly harmful or even deadly." If a nuclear plant accident were serious, it advises, "state plans call for protection of the public by taking shelter indoors or by evacuation." Booklet at 15.

We find this to be a reasonably balanced discussion of the danger of radiation resulting from an accident. Mr. Wenger testified that the information provided was sufficient to meet the requirements of NUREG-0654. Wenger, ff. Tr. 518, at 3. We agree.

Information Concerning a Radioactive Plume

At the hearing on March 12, 1986, Mr. Butterfield testified that he had developed language concerning the potential for radioactivity to move off site in the form of a plume or cloud, and that he proposed to include this information in the final paragraph of § 8 of the booklet. Tr. 1026-27. In her proposed findings, Ms. Rorem asserts that this information is so important that it ought to have a paragraph of its own (Finding 5); that it should be cross-referenced to other sections (Finding 7) and that additional information describing the physical characteristics of the plume should be added (Finding 6).

The Board strongly agrees that inclusion in the booklet of more complete information concerning the nature and movement of a radioactive plume is essential, and will serve to maximize the likelihood of public compliance with emergency instructions. For example, despite the fact that § 8 of the booklet warns that radiation is "invisible, silent, tasteless and odorless," the terms "plume" and "cloud" ordinarily connote visible phenomena. It is conceivable, therefore, that some individuals considering disregarding evacuation instructions (such as parents with children in nearby schools or recreation areas) (*see*

Tr. 1016) might be tempted to do so by the absence of any sign of a "radiation cloud."

Mr. Butterfield testified that plume movement is dependent on wind direction and that weather is the primary factor in deciding upon appropriate evacuation routes. Tr. 488-89. Unless this nexus is explained in the booklet, logically selected routes may appear totally irrational to the members of the public expected to abide by them. Some reference to the manner in which evacuation routes are chosen should be included in § 3 of the booklet where evacuation instructions are given.

Applicant has committed to include in the next revision of the booklet additional information concerning the potential for movement of radiation in the form of a cloud or plume and the importance of wind direction in determining that movement. Tr. 1026-27. The Board will require as a condition to its ruling on this issue that Applicant abide by that commitment; that additional language be included to explain the possible characteristics of the plume; and that information about the relationship between weather and evacuation routes be included specifically in the section of the booklet dealing with evacuation (currently § 3).

Misleading Language Concerning Emergency Broadcasts

In her Finding 8, Intervenor argues that because Mr. Wenger testified that there would be no case in which the Public Notification System sirens would be sounded without followup information being broadcast over the Emergency Broadcast System (EBS) (Tr. 536), the statement in § 1 of the booklet that instructions will be broadcast "if there is a real call for concern" is misleading. In the context of the full line of questioning in which his comment occurs, however, it appears that Mr. Wenger is talking about a deliberate initiation of the sirens in response to an occurrence that might require emergency action (*see, e.g.*, Tr. 533). The "real call for concern" language, on the other hand, when read in the context of the entire § 1 of the booklet, seems intended to differentiate between an emergency activation of the system and a test or other nonemergency sounding. Since only activation of the system for a genuine emergency would be a "real call for concern," and only such emergency siren soundings would be accompanied by information broadcast over EBS stations, the booklet is not misleading.

In fact, the real problem with the language complained of by Intervenor is that it is accurate. If sirens are activated deliberately for test purposes or inadvertently because of human error or equipment malfunction, no information will necessarily be broadcast over EBS stations because there is no "real call for concern." This is unfortunate. The Public Notification System is intended to convey a sense of emergency. Such a message necessarily creates

anxiety. The public deserves relief from that anxiety, when possible, just as it deserves assistance when the emergency is real. Moreover, repeated soundings without followup might well have a "cry wolf" effect, eventually diminishing the effectiveness of the system.

Nevertheless, because the system is the responsibility of the State of Illinois and not the Applicant, and because there is no basis in the record for our concluding that the information dissemination policy as presented is contrary to Commission regulations or otherwise inimical to safety, we can order no change. We do, though, strongly urge the Applicant as a user of the system to seek to modify that policy.

Distribution of the Booklet

Despite extensive cross-examination on this issue, Intervenor identified only one situation in which an individual might not receive a mail-distributed booklet: if the owner of a property were subletting, and still paying the electric bill, and were having all mail to the property forwarded, and were not disposed to advise the subtenant of the booklet, then the subtenant might never receive a copy. Tr. 512-13. This unlikely possibility becomes even more implausible when the person's opportunity to obtain the booklet through his or her employer, school, or health care facility is taken into account. Butterfield at 13. We find that the Applicant's plan provides reasonable assurance that individuals within the EPZ will receive copies of the booklet.

OFFER OF PROOF ISSUE 2

As admitted for hearing, Offer of Proof Issue 2 reads:

> Applicant must develop and demonstrate its capability to provide through scripts and/or other media information, substantive emergency information to adequately inform the public of emergency information in the event of an accident at the Braidwood Station through all radio, TV or EBS stations in the ingestion pathway zone, so as to enable the public to effectively evacuate in the event of an emergency and to effectively re-enter the affected zone in the event of an emergency.

Intervenor's Proposed Findings 9-12[6] focus on the adequacy of warnings contained in the booklet and in pre-scripted broadcasts to deter individuals responsible for schoolchildren or persons in hospitals, nursing homes, or recreational areas from attempting to pick them up when instructions to evacuate are given. Ms. Fairow, on cross-examination, acknowledged that despite these

[6] This reference is to the second of the two findings numbered "9."

warnings, it was not unreasonable to assume that some parents might attempt to pick up their children at school or recreational areas. Tr. 851, 1016.

As we stated above, the Commission's regulations require the formulation of a plan providing *reasonable* assurance that appropriate protective measures can and will be taken in the event of a radiological emergency. They cannot and do not require contingencies to accommodate every conceivable set of circumstances. In this case, the warning language used in the booklet, and mimicked in the pre-scripted broadcasts, directs parents not to attempt to pick up their children; warns them that they will probably miss connections if they do try; and assures them that the children are being cared for by trained personnel. Booklet at 7. Intervenor suggests that the danger of noncompliance with instructions might be emphasized, but there is no record evidence that this approach would be more effective, and it is at least as plausible that an emphasis on danger would exacerbate parental fears and provoke irrational action.

Regardless, the language in question has been drafted by individuals experienced in emergency planning and has been found to be appropriate by FEMA (Wenger, ff. Tr. 580, at 3). We find no basis in the record for requiring that it be modified.

CONCLUSION

The Board concludes that with respect to all matters in controversy, the offsite emergency response plan for the Braidwood Station complies with the applicable provisions of 10 C.F.R. § 50.47 and 10 C.F.R. Part 50, Appendix E, and provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency; *provided*, that Applicant shall include in the next annual revision of its booklet, "Emergency Information — Braidwood" a discussion of (a) the physical characteristics of a radioactive plume; (b) the significance of wind speed and direction in the movement of the plume; and (c) the relationship between weather conditions and the selection of optimum evacuation routes, the latter topic to be covered in the section of the booklet dealing with evacuation.

Pursuant to 10 C.F.R. § 2.760 of the Commission's Rules of Practice, this Partial Initial Decision shall become effective immediately. It will constitute the final decision of the Commission forty-five (45) days from the date of issuance, unless an appeal is taken in accordance with 10 C.F.R. § 2.762 or the Commission directs otherwise. *See also* 10 C.F.R. §§ 2.764, 2.785, and 2.786.

Any party may take an appeal from this Decision by filing a Notice of Appeal within ten (10) days after service of this Partial Initial Decision. Each appellant must file a brief supporting its position on appeal within thirty (30) days after filing its Notice of Appeal (forty (40) days if the Staff is the appellant). Within

thirty (30) days after the period has expired for the filing and service of the briefs of all appellants (forty (40) days in the case of the Staff), a party who is not an appellant may file a brief in support of or in opposition to the appeal of any other party. A responding party shall file a single, responsive brief *only* regardless of the number of appellants' briefs filed. (*See* 10 C.F.R. § 2.762.)

THE ATOMIC SAFETY AND
LICENSING BOARD

Herbert Grossman, Chairman
ADMINISTRATIVE JUDGE

Richard F. Cole
ADMINISTRATIVE JUDGE

A. Dixon Callihan
ADMINISTRATIVE JUDGE

Bethesda, Maryland,
May 13, 1987.

APPENDIX A

APPLICANT'S EXHIBIT LIST

Exhibit No.	Title	Marked for ID	Offered	Admitted
1	Emergency Information Brochure, Braidwood Station	465A	465A	465B
2	Testimony of Lawrence D. Butterfield, Jr., and Jana S. Fairow Regarding Contentions 1(a) and 1(b) (Emergency Planning)	683	689	690
3	Illinois Plan for Radiological Accidents (IPRA), Volume 1, State General Plan, Rev. 2, June 1985	683	693	693
4	IPRA, Volume VII, Preminary Rev. 0, August 1985	684	693	693
5	IPRA, Volume VII, Standard Operating Procedures, Preliminary Rev. 0, August 1985	684	693	693
6	Commonwealth Edison Co., Generating Stations Emergency Plan (GSEP), Rev. 5, July 1985	685	693	693
7	GSEP, Braidwood Annex, Rev. 0, October 1984	685	693	693
8	GSEP, Braidwood Annex, Rev. 1, March 1986	685	693	693

INTERVENOR'S EXHIBIT LIST

	NUREG-1026, "Braidwood Final Environmental Statement," June 1984, at 5-58 and Appendix F	750	Not offered Tr. 1058	

STAFF'S EXHIBIT LIST (None)

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Herbert Grossman, Chairman
Dr. A. Dixon Callihan
Dr. Richard F. Cole

In the Matter of **Docket Nos. 50-456-OL**
50-457-OL
(ASLBP No. 79-410-03-OL)

COMMONWEALTH EDISON COMPANY
(Braidwood Nuclear Power Station, Units 1 and 2)

May 19, 1987

In this Concluding Partial Initial Decision, the Board finds in favor of the Applicant with respect to a single remaining contention involving allegations of harassment and intimidation of quality control inspectors.

QUALITY ASSURANCE

The quality assurance process is no more immune from error than the underlying construction program. Quality assurance failures should be considered grounds for denial of an operating license only if they are so pervasive as to require a finding that there has been a breakdown in quality assurance procedures of such dimensions as to raise legitimate doubt as to the overall integrity of the facility and its safety-related components and structures.

QUALITY ASSURANCE

In considering whether or not quality assurance personnel are restrained in the performance of their duties by cost and schedule considerations, the question is not whether they are absolutely free from such considerations, but whether they have sufficient independence from cost and schedule when opposed to safety considerations.

APPEARANCES

On behalf of Applicant, Commonwealth Edison Company: **Michael I. Miller, Joseph Gallo, Elena Z. Kezelis, Phillip P. Steptoe III, Michael Gill, Peter Thornton,** and **Dean Issacs, Esquires.**

On behalf of the Nuclear Regulatory Commission: **Elaine I. Chan, Gregory Alan Berry,** and **Stuart Treby, Esquires.**

On behalf of Bridget Little Rorem, *et al.*: **Robert Guild, Douglas W. Cassell, Jr.,** and **Timothy Wright, Esquires.**

TABLE OF CONTENTS

		Page
I.	INTRODUCTION AND PROCEDURAL HISTORY	463
II.	LEGAL STANDARDS	466
III.	SUMMARY OF THE DECISION	467
IV.	ORGANIZATIONAL INDEPENDENCE	468
V.	PRODUCTION PRESSURE, HARASSMENT, AND DISCRIMINATION	471
	A. Worley O. Puckett	471
	1. Stop Work on Welding of A-36 Steel to A-446 Sheet Steel	474
	2. Weld Rod Issue	477
	3. Stop Work on Stainless Steel Welding	477
	4. Puckett's Termination	478
	B. John Seeders, Richard Saklak, and Richard Snyder	479
	C. Gregory Archambeault	485

D. Richard Martin 488
E. Other Considerations 490
VI. REINSPECTION EVIDENCE 492
VII. GRID INSPECTIONS 499
VIII. CONCLUSIONS 500
IX. CONCLUSIONS OF LAW 503
X. ORDER 504
APPENDIX 506

CONCLUDING PARTIAL INITIAL DECISION

I. INTRODUCTION AND PROCEDURAL HISTORY

Commonwealth Edison Company ("Applicant" or "CECo" or "Edison") is the Applicant for operating licenses for Braidwood Station, which is located at Braidwood, Illinois, approximately 60 miles southwest of Chicago. The Station consists of two Westinghouse pressurized water nuclear reactors, each designed to generate a net electrical output of approximately 1120 megawatts. Permits to construct the Station were issued in 1975.[1]

In December of 1978, the Commission published in the *Federal Register* (43 Fed. Reg. 58,659) a notice of opportunity for hearing in connection with the application for operating licenses for Braidwood Station. The notice provided that any person whose interest may be affected by this proceeding may file a petition to intervene. In response to that notice, petitions to intervene were filed by Bridget Little Rorem *et al.* and Bob Neiner Farms, Inc. The petitions and requests for hearing were granted with respect to certain contentions. The Neiner Farms' contentions were ultimately disposed of in August 1985; one was settled with the Board's approval, and the other was dismissed upon Applicant's motion for summary disposition.[2]

Hearings in the Braidwood proceeding dealt with two contentions sponsored by Ms. Rorem each involving a number of subissues. The first of these, Contention 1(a) concerned emergency planning and was the subject of our Partial Initial Decision issued May 13, 1987 (LBP-87-13, 25 NRC 449). The second,

[1] LBP-75-74, 2 NRC 972 (1975).

[2] Order Approving Settlement of Neiner Farms Contention 4 (Railroad Explosion), August 12, 1985 (unpublished); Order Granting Commonwealth Edison's Motion for Summary Disposition of Neiner Farms Contention 1, August 12, 1985 (unpublished).

Contention 2.C, deals with issues of harassment and intimidation of quality control inspectors, and is the subject of this Decision.

On March 8, 1985, long after the deadline for filing of contentions had passed, Intervenors filed a substantial, multipart contention alleging deficiencies in the Braidwood quality assurance (QA) program. In a Special Prehearing Conference Order dated April 17, 1985 (LBP-85-11, 21 NRC 609), the Board rejected the contention but granted Intervenors leave to file an amended version meeting certain stated requirements for specificity and basis.

An amended QA contention was submitted on May 24, 1985, and, except for two parts that were rejected outright and Part 2.C on which the Board deferred its ruling, the contention was admitted as revised.[3] Subsequently, Contention 2.C was also admitted by the Board pursuant to stipulation of the parties.[4]

In April of 1986, the Commission reversed the Board, ordering all of Intervenors' QA contentions except Part 2.C to be dismissed for failure to meet the late-filing requirements of 10 C.F.R. § 2.714(a)(1).[5] The Commission also held that § 2.714(a)(1) should have been applied to Contention 2.C, notwithstanding the parties' stipulation, and it returned the issue to the Board to perform the five-factor balancing test required by that section.[6] Upon remand, the Board found that those factors favored admission,[7] and Contention 2.C was admitted in the following form:

QC INSPECTOR HARASSMENT CONTENTION

Contrary to Criterion I, "Organization" of 10 C.F.R. Part 50, Appendix B, and 10 C.F.R. Section 50.7, Commonwealth Edison Company and its electrical contractor, L.K. Comstock Engineering Company have failed to provide sufficient authority and organizational freedom and independence from cost and schedule as opposed to safety considerations to permit the effective identification of and correction of quality and safety significant deficiencies. Systematic and widespread harassment, intimidation, retaliation and other discrimination has [sic] been directed against Comstock QC inspectors and other employees who express safety and quality concerns by Comstock management. Such misconduct discourages the identification and correction of deficiencies in safety related components and systems at the Braidwood Station.

Instances of harassment and intimidation include at least the following:

1. At various times since at least August 1984, including in March 1985, more than twenty-five (25) Comstock QC inspectors have complained to the NRC about harassment and intimidation by Comstock supervisors. Such harassment and intimidation has been carried

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[3] Memorandum and Order Admitting Rorem *et al.* Amended Quality Assurance Contention, LBP-85-20, 21 NRC 1732 (1985).

[4] Prehearing Conference Order, August 1, 1985 (unpublished) (confirming rulings made July 28, 1985).

[5] CLI-86-8, 23 NRC 241 (1986).

[6] *Id.* at 250-51.

[7] Memorandum and Order (Admitting Harassment and Intimidation Issues on Five-Factor Balance), May 2, 1986 (unpublished).

out or participated in by QC Manager Irv DeWald, Assistant QC Manager Larry Seere, QA Manager Bob Seltmann and QC Supervisor R.M. Saklak.

Such harassment included widespread pressure to approve deficient work, to sacrifice quality for production and cost considerations and to knowingly violate established quality procedures. Harassment and retaliatory treatment included threats of violence, verbal abuse, termination of employment, transfer to undesirable jobs or work in areas where quality deficiencies could not be noted, assignments to perform burdensome or menial "special projects" and other adverse treatment. Such discriminatory action was taken because of the victim's expression of quality or safety concerns. Former Level II QC inspector John D. Seeders has knowledge of these widespread instances of harassment. By letter of August 17, 1984, Seeders complained to the NRC, Edison and Comstock management regarding instances of harassment directed against him. Subsequently, Mr. Seeders was involuntarily transferred to the position of Engineering Clerk in retaliation for his expression of quality concerns. Such assignment was intended by Comstock to keep Mr. Seeders away from sensitive work areas. Although QC Supervisor R.M. Saklak was finally terminated in 1985 for his mistreatment of QC inspectors and other misconduct, the effects of his harassment remain uncorrected and systematic harassment continues at Comstock to the present. The existence of widespread harassment impugns the integrity and effectiveness of on-going corrective action programs designed only to address other widespread QA failures at Comstock.

2. Comstock management, including QC Manager Irv DeWald and Corporate QA Manager Bob Marino harassed, discriminated and retaliated against, and ultimately terminated Level III QC Inspector Worley O. Puckett because Mr. Puckett made numerous complaints about safety and quality deficiencies which he identified in the course of his duties at Braidwood.

Mr. Puckett was hired by Comstock in May 1984 in the newly created position of Level III QC Inspector whose duties included conducting a review of Comstock procedures, tests requirements for the more than 50 Level II QC Inspectors, review of the Level II's inspection work, and the resolution of inspection disputes. Mr. Puckett was highly qualified with 20 years' nuclear Navy and nine years' nuclear power experience. *See*, Resume, Exhibit B. During the course of his employment with Comstock Mr. Puckett was shocked by the widespread deficiencies in procedures, qualifications and workmanship. He identified numerous instances of improper construction procedures, improper qualification of welders, and material traceability deficiencies. He ultimately recommended a complete stop work order for all welding activity to permit effective corrective action. *See*, Memos of August 10 and August 17, 1984, Exhibits C and D.

Finally, he warned QC Manager Irv DeWald that "we are approaching a complete breakdown in our QC program." August 22, 1984 Memo, Exhibit E. Puckett was subjected to harassment and retaliation because he raised these safety and quality concerns and was terminated on August 27, 1984 by DeWald on the pretext that he should have scored higher than his 86% on a qualification test. He filed a complaint with the U.S. Department of Labor, alleging violation of the employee protection provisions of the Energy Reorganization Act, 42 USC 5851. Letter, September 5, 1984, Exhibit F. The U.S. Department of Labor Area Director sustained Mr. Puckett's complaint finding unlawful discrimination by Comstock against Puckett and ordered relief. Notes of Decision, November 6, 1984, Exhibit G. Mr. Puckett presented his case at a hearing before an Administrative Law Judge on Comstock's appeal. *See*, Complainants' Prehearing Exchange, Exhibit H. Comstock settled Mr. Puckett's claim before putting on its case. The terms of settlement are subject to a non-disclosure agreement between Comstock and Mr. Puckett.

The evidentiary hearings on Contention 2.C began on May 6, 1986, required almost 100 hearing days, and concluded on December 17, 1986. Sessions were conducted in Kankakee, Markham, Joliet, and Chicago, Illinois (all within 50 miles of the Braidwood Station). The oral testimony of some sixty witnesses occupies approximately 18,000 pages and the record includes over 500 exhibits.

II. LEGAL STANDARDS

The task of the Board is to determine, with respect to the issues placed in controversy in this proceeding, whether the Braidwood Station has been constructed and will be operated in conformity with the rules and regulations of the Commission; and whether there is reasonable assurance that the activities authorized by an operating license can be conducted without endangering the health and safety of the public. 10 C.F.R. § 50.57(a). This is not an enforcement action. We are not charged with meting out punishment for alleged past violations of Commission regulations. We are concerned with specific instances of improper conduct only insofar as they may influence the primary determination we must make — the present existence or not of a "reasonable assurance" of safety.

The Commission has long recognized that a major construction project such as a nuclear power plant cannot be completed free from error. *Union Electric Co.* (Callaway Plant, Unit 1), ALAB-740, 18 NRC 343 (1983). That is why NRC regulations require the establishment and implementation of quality assurance programs designed to provide "adequate confidence that a structure, system, or component will perform satisfactorily in service." 10 C.F.R. Part 50, Appendix B. But the quality assurance program itself is a major undertaking involving large numbers of personnel making inspections, reporting findings, developing solutions to problems identified, and ensuring that those problems are corrected. This complex process is no more immune from error than the underlying construction program. As the Appeal Board has stated, "there inevitably will be some construction defects tied to quality assurance lapses," but such quality assurance failures should be considered grounds for denial of an operating license only if they are so pervasive as to require a finding that "there has been a breakdown in quality assurance procedures of sufficient dimensions to raise legitimate doubt as to the overall integrity of the facility and its safety-related structures and components." *See Callaway*, ALAB-740, *supra*, 18 NRC at 346.

In light of the foregoing, the Board will consider whether allegations of violations of Commission regulations raised by Contention 2.C have been proven, and if proven, whether they demonstrate a pervasive breakdown of the Applicant's quality assurance program such as to warrant denial of an operating

license, or whether notwithstanding such violations there is now reasonable assurance that the activities authorized by such a license can be conducted without endangering the public health and safety.

III. SUMMARY OF THE DECISION

The issue in the proceeding concerns the administration of quality assurance and quality control programs of one of the Applicant's contractors and the effect of those practices on the eventual safe operation of the Station. The Intervenors state that the Applicant is in violation of the provisions of 10 C.F.R. Part 50, Appendix B, Criterion I, and 10 C.F.R. § 50.7. These NRC regulations pertain to quality assurance criteria for nuclear power plants and employee protection, respectively. The allegations upon which these charges are based deal with both general and specific instances of harassment, intimidation, threats, and pressure to increase the quantity of inspections allegedly at the expense of inspection quality. In the nearly 100 days of evidentiary hearing, both sides of the story were told. Our findings can best be summarized by response to several questions which we believe thrust to the heart of the matter. With respect to Appendix B, the questions are:

1. Did the Commonwealth Edison Company intentionally and unreasonably pressure Comstock's quality control managers to increase inspection productivity?
2. As a result of this pressure, or for whatever reason, did Comstock quality control managers systematically engage in conduct intended to pressure quality control inspectors to overlook deficiencies and accept discrepant work?
3. Assuming production pressure was imposed, did the inspectors succumb to the pressure?

A fourth question brings us to the ultimate issue as to whether there was a sufficiently large breakdown in quality assurance procedures that there is no "reasonable assurance" provided that the safety systems at Braidwood will perform their functions and the public health and safety will be protected.

To each of the first three questions, we respond with a qualified no. The evidence indicates that there was production pressure, but it was not undue pressure and there was adequate justification which was related to the overall goal of a well-constructed and safe plant. We found considerable evidence that the inspectors even under production pressure would strongly resist any management attempts to circumvent procedures. In every instance, the Quality Control inspector's testimony regarding their overall approach to their job was consistent with their denial of any effect of management pressure on job performance. That is, each seemed conscientious, proud of his work and well

aware of the corporate and regulatory mechanisms that protect employees at nuclear power plants from unlawful production pressure or retaliation for raising safety concerns.

With respect to the fourth question, we find that there is reasonable assurance that the Braidwood plant has been properly constructed and can be operated without endangering the public health and safety. Our finding is buttressed by the results of two large and independent reinspection programs which statistically confirm the adequacy of the performance of Comstock's Quality Control inspectors and provide statistical backup to statements attesting to the ability of the Braidwood plant to operate safely.

Evidence concerning inspector transfers and terminations occupy a considerable portion of the record. While we found that certain of the actions of Comstock Quality Control management indicated poor judgment and a lack of appropriate communicative skills, there seemed to be at least the semblance of a reasonable justification for the actions discussed in the hearing. We find none of the indiscretions to be of sufficient severity to warrant license denial or a recommendation for civil penalty. We find no violation of 10 C.F.R. § 50.7. We find in favor of Applicant and authorize the Director of Nuclear Reactor Regulation to issue the requested licenses.

IV. ORGANIZATIONAL INDEPENDENCE

Under the Commission's regulations, an Applicant for an operating license bears the burden of proving that there is "reasonable assurance" that the nuclear facility for which a license is sought has been properly constructed and can be operated without endangering the public health and safety. 10 C.F.R. § 50.57. The Commission's regulations require all applicants to establish and carry out a quality assurance program designed to provide "adequate confidence" that those systems, structures, and components having safety-related functions "will perform satisfactorily in service." 10 C.F.R. Part 50, Appendix B (Introduction). Although an owner of a nuclear facility bears the ultimate responsibility that a quality assurance program is established and implemented, it "may delegate to others, such as contractors, agents, or consultants, the work of establishing and executing the quality assurance program." Part 50, Appendix B (Criterion I). The regulations also require that the persons performing quality assurance functions be able to perform their duties free from the pressure of cost and schedule. *Id.* Quality assurance functions include identifying and reporting quality problems; initiating, recommending, and providing solutions; and verifying that appropriate solutions are implemented. *Id.* To ensure that QA/QC individuals are not restrained improperly in the performance of their duties by cost and schedule considerations, Criterion I does not permit such

individuals to be supervised by those only concerned with cost and schedule matters. *Id.* The question is not whether the Applicant's quality assurance personnel are absolutely free from cost and schedule considerations, but whether they have "*sufficient* independence from cost and schedule *when opposed to safety considerations*." *Id.* (emphasis added).

Daniel Shamblin, Applicant's Construction Superintendent, administers the Comstock contract as well as those of the other major onsite contractors. He oversees the production, engineering, and quality departments in Comstock and other contractors. The issue of organizational independence arose in the hearing as a result of Mr. Shamblin's involvement with the Comstock Quality Control Department at Braidwood.

The oversight of Comstock Quality Control by CECo's construction superintendent is, according to Intervenors, contrary to the requirements of Criterion I. We disagree.

The contractor performing electrical construction at Braidwood is L.K. Comstock & Co., Inc. (LKC). In order to ensure organizational freedom and independence from cost and schedule concerns, the QA/QC functions are performed by Comstock Engineering, Inc. (Comstock), a corporation organized separately from and independent of the construction activities conducted by the Production Department of L.K Comstock & Co., Inc.

Neither Mr. DeWald, Comstock's Quality Control Manager, nor Mr. Seltmann, Comstock's QA Manager on site, report to Mr. Rolan, LKC's Project Manager and top onsite production person. Comstock's QA and QC managers report to Comstock's Regional Manager, QA/QC Services, who is located in Chicago. The Regional Manager reports to the head of Comstock Engineering, Inc. Seltmann, ff. Tr. 1960, at 4; DeWald, ff. Tr. 1700, at 3; Shamblin, ff. Tr. 16,274, at 6; Int. Exhs. 4, 7. None of these individuals is subordinate to, or directed by, anyone on the "production" side. Comstock's Quality Control Department is responsible for identifying and reporting conditions adverse to quality and is also responsible for verifying that such conditions have been corrected. Shamblin, ff. Tr. 16,274, Attach. 4. These responsibilities have never been delegated to LKC *production* personnel.

Within the Comstock QA/QC organization at Braidwood, the chain of command is such that there exists the required "sufficient independence" from cost and schedule to provide comportment with the requirements of 10 C.F.R. Part 50, Appendix B. *See Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), ALAB-788, 20 NRC 1102, 1150 (1984).

CECo site QA and CECo corporate QA conduct audits of the contractor QC departments and also of Construction Superintendent Shamblin's department. CECo site QA does not report to Mr. Shamblin's department but to CECo corporate QA, which reports directly to Edison's Chairman and President. Shamblin, ff. Tr. 16,274, at 6.

Intervenors do not argue strongly that the QA/QC organizational structure is contrary to Appendix B but that Mr. Shamblin's instructions in June 1984 directing Mr. DeWald to report to him weekly on the activities of the Comstock Quality Control Department, and Mr. Shamblin's other actions, such as ratifying the Puckett termination and the Mr. Seeders transfer, and directing the investigation of the complaints by the twenty-four Comstock inspectors to the NRC, all added up, in Intervenors' view, to exercising day-to-day control over the performance of Comstock's quality control functions. Intervenors further allege that Mr. Shamblin took advantage of his position to apply regular and direct production pressure on Comstock Quality Control supervisors, who in turn transmitted those pressures to Quality Control inspectors in the field. They allege that this production pressure emphasized quantity of inspections over thoroughness and quality of inspections. We disagree.

While it is true that Mr. Shamblin took an active interest in the affairs of Comstock's Quality Control Department, neither Applicant nor Staff agree that his actions constitute a violation of Criterion I of Part 50, Appendix B. To ensure that the required freedom is maintained, an applicant is required to make sure that quality assurance personnel not be subordinate to construction or production personnel.

It is also true that Mr. Shamblin directed Mr. DeWald to report to him weekly on the status of certain activities within his jurisdiction. Mr. Shamblin's weekly status meetings with Mr. DeWald were a direct result of Applicant's commitment made to the NRC that its Project Construction Department would monitor Comstock's progress in eliminating the inspection backlog as well as its ability to perform the other responsibilities within its scope of work. The Board finds Mr. Shamblin's actions consistent with, not contrary to, regulatory requirements of Part 50, Appendix B (Criterion II). Shamblin, ff. Tr. 16,274, at 10, 15.

The elimination of the backlog was of great importance because an expanding volume of installed work of indeterminate quality was being created and because adverse quality trends in ongoing work might not be identified soon enough to be corrected in a timely fashion. *Id.* at 8-9. Mr. Shamblin took a number of steps to assist the Quality Control workforce in eliminating the backlog. With Mr. DeWald's assistance, he developed a list of inspection priorities and took measures to reduce the pressure on Comstock's Quality Control Department by reallocating and reducing its workload. He monitored quality by reviewing audits and by consulting with CECo QA to ensure that the quality of inspections remained high during the backlog reduction effort. *Id.* at 9-14, 20-21; Int. Exh. 7. As a result of the Comstock reduction effort, and with Mr. Shamblin's cooperation, the inspection backlog was eliminated in September 1984. Shamblin, ff. Tr. 16,274, at 16-17. There is no doubt that considerable pressure was put on Mr. DeWald by Mr. Shamblin, including the possibility of a

work shutdown if progress on reducing the backlog was not made. In the Board's opinion, this was a necessary action considering the potential consequences of not reducing the backlog. Consideration of this circumstance leads us to conclude that there was no unreasonable pressure on Comstock management or Quality Control inspectors nor is there any evidence in the record of any denial of the necessary resources to carry out the work. In fact, on more than one occasion, Applicant extended the target date for completion of the backlog and approved Comstock's request to hire additional inspectors. *Id.* at 15-17.

V. PRODUCTION PRESSURE, HARASSMENT, AND DISCRIMINATION

This section deals principally with four Comstock Quality Control inspectors chosen from the group to which at least passing reference has been made in these proceeedings. Their experiences are recounted in some detail in this section. They, Worley Puckett, John Seeders, Richard Martin, and Gregory Archambeault, have figured rather prominently in the contention and particularly in the hearing itself. We consider them to be representative of the dozen or so who did appear as witnesses and of the group of twice that many who publicly raised concerns about their employment. Reference is made, of course, to additional inspectors in the extent that it is fitting to discuss their interface with other principals of the case.

A. Worley O. Puckett

Intervenors contend that Level III Welding Inspector Worley O. Puckett was fired for raising numerous safety and quality complaints regarding Comstock s welding and weld inspection programs. Intervenors further contend that the alleged retaliatory dismissal operated to discourage other quality control inspectors from identifying and reporting safety concerns.

Applicant contends and NRC Staff agrees that Comstock had legitimate reason for firing Mr. Puckett. Based on the evidence in this record the Board agrees that while it may not have been the best course of action, a case has been made that justifies dismissing Mr. Puckett from his post as a Level III welding inspector. The Board further finds the firing has no implications as regards the safety of operation of the Braidwood plant.

Considerable hearing time was spent on the Puckett issue and each of Mr. Puckett's allegations was discussed. None of the allegations remain as safety issues. The items raised to the NRC by Mr. Puckett were either resolved

or determined not to be a violation of NRC regulations. Puckett, Tr. 6663; Schapker, ff. Tr. 10,954, at 5-45; Tr. 11,425; Appl. Exh. 51.

It is undisputed that Puckett identified quality problems and recommended that welding be stopped and that thereafter he was fired. The determination that must be made is whether he was fired because of those actions. The following is a summary of the main points surrounding the termination of Mr. Puckett.

Early in 1984, as a result of NRC concerns about their weld inspection program, Comstock corporate officials reviewed their Braidwood weld procedures and identified inconsistencies which required correction. Following that review, Comstock decided to hire a Level III welding inspector to resolve these problems. Level III is the highest level of certification attainable, and candidates must have considerable experience and expertise. DeWald, ff. Tr. 1700, at 41. The new inspector was to devote full time to the welding program, identify additional problems and correct them, and interpret procedures, codes, and contractual specifications. *Id.* at 40-41; Tr. 1763-64. Puckett was hired for this job on May 15, 1984. DeWald, ff. Tr. 1700, at 42. The evidence presented demonstrates that Mr. Puckett did quite well at identifying potential problems, but it was his reluctance or inability to correct them, and his limited ability to interpret codes and procedures that caused his fall from grace and ultimate dismissal.

On the surface it would appear that Mr. Puckett had the necessary credentials. His resume reflected that he had 20 years' experience as a welder in the nuclear navy and approximately 9 years in progressively responsible positions in the civilian nuclear industry. Int. Exh. 26. Comstock did not contact any of Mr. Puckett's previous supervisors to provide assurance that they were selecting the right man. Mr. Puckett's experience at the Zimmer Nuclear Plant is of some interest in an evaluation of Puckett's capabilities to run a welding program. Had Comstock taken the time to contact Mr. Puckett's supervisors at Zimmer it would have obtained information that cast considerable doubt as to Mr. Puckett's ability to interpret and apply correctly the AWS D1.1 Code, the applicable welding code at Braidwood. Kostal, ff. Tr. 12,881, at 4; Kurtz, ff. Tr. 12,881, at 6-9; Appl. Exhs. 43 through 47; Appl. Exh. 187 at 37, 101-05. DeWald, Tr. 1772. Manfred Goedecke, Mr. Puckett's supervisor at Zimmer, flatly stated that Mr. Puckett was not qualified for the position at Braidwood. Appl. Exh. 187 (Goedecke Deposition) at 103. In discussing Mr. Puckett's abilities, he stated that while his practical experience as a welder would unquestionably qualify Puckett to make judgmental calls of acceptance or rejection on visual examination of weldments, he was not qualified to perform the functions of a Level III Weld Inspector in that he was not able to make decisions on his own and did not have full knowledge of code requirements or the ability to interpret codes. *Id.* at 37, 102-05. Mr. Goedecke was brought in at Zimmer to manage the welding program which up to that time was being handled by Mr. Puckett as Chief Welding Engineer. Early on at Zimmer, Mr. Goedecke observed how Mr. Puckett ran the

welding department, and he appointed a task force which determined that all of the welding procedures had to be rewritten because none of them satisfied applicable code requirements. *Id.* at 33, 34, 41, 42. The NRC had identified serious deficiencies in the welding program at Zimmer during Puckett's tenure. In fact, Goedecke was brought in to resolve problems identified in an NRC survey that resulted in civil penalty. *Id.* at 32. For other comments on Puckett at Zimmer, see Shamblin, Tr. 16,338.

Mr. Puckett worked at Braidwood for 90 days. As with any newly hired quality control inspector, Mr. Puckett's initial task was to get certified in the discipline he would be inspecting. DeWald, Tr. 1651; Puckett, Tr. 6418-31. This entailed attending orientation lectures, attending classes relating to the welding inspection program, reviewing inspection procedures, receiving on-the-job training, and passing written and practical examinations. Mr. Puckett successfully completed everything except the practical exam. *Id.*; DeWald ff. Tr. 1700, at 41; Tr. 1651; Puckett, Tr. 6421. He never became certified as a Level III inspector because he failed to pass the practical exam, which consisted of evaluating the quality of actual welds. Mr. Puckett took the required practical examination for Level III inspector at least three times. He apparently passed the exam once but it was invalidated because none of the items he inspected was rejectable. Puckett, Tr. 6428; DeWald, ff. Tr. 1700, at 44; Tr. 1673. Mr. Puckett claims to have taken an additional practical test administered in the field and graded by Joseph Hii, then a Level II welding inspector. Puckett, Tr. 6442-47. Mr. Hii denied knowledge of any such exam. Hii, ff. Tr. 16,608, at 7. Puckett was fired on August 27, 1984. The stated reason was poor performance on his certification tests. Puckett, Tr. 6455. This was, however, only part of the reason why Mr. Puckett was terminated.

During the course of his brief tenure at Braidwood, Mr. Puckett identified a number of problems and inconsistencies, or what he regarded as such, in the Comstock welding program. The majority of Mr. Puckett's concerns were not documented, but Mr. Puckett claims he mentioned them to Quality Control Manager Irving DeWald as he discovered them. Puckett, Tr. 5567, 5577, 5660, 6201-12, 6223. It is Applicant's position that the manner in which Mr. Puckett handled these concerns caused both Applicant and Comstock management to lose confidence in his ability to manage the welding program. Gieseker, ff. Tr. 2771, at 23, 24; Tr. 2867, 2895-96; DeWald, ff. Tr. 1700, at 50; Shamblin, ff. Tr. 16,274, at 32-34. We will discuss a few of these concerns because they serve as the real basis for firing Mr. Puckett. The A-36/A-446 issue will be discussed first since it is the issue that seems to be of prime significance.

1. Stop Work on Welding of A-36 Steel to A-446 Sheet Steel

On August 9, 1984, Mr. Puckett recommended that all welding of A-36 steel to A-446 sheet steel be stopped pending completion of a procedure qualification test. Mr. DeWald authorized the work stoppage. Appl. Exh. 52. Mr. Puckett had NCR 3099 issued to document the discrepancy. *Id.* Subsequent to the work stoppage, James Gieseker, a CECo electrical engineer with responsibility for working with Comstock's Quality Control Department, determined that the problem might be solved by revising the weld procedure. He reviewed the AWS Code D1.1-1975 and concluded that under ¶ 5.5.1.1, a Procedure Qualification Record ("PQR") which qualified the welding of A-500 steel to A-446 steel also qualified the welding of A-36 to A-446. Attachments H and O to Comstock Procedure 4.3.3 had qualified the welding of A-500 to A-446 but did not list A-36 as a qualified metal as required by the Comstock procedure. Mr. Gieseker concluded that all that was required to correct the problem was to revise the procedure attachments to include reference to the qualification of A-36 material. Gieseker, ff. Tr. 2771, at 2, 21-22; Tr. 2934.

Because Mr. Gieseker did not consider himself an expert on welding codes, he reviewed the matter with CECo QA and Sargent & Lundy. Both agreed with his interpretation. Mr. Gieseker arranged a meeting on August 22, 1984, to resolve the concerns documented in NCR 3099 so that the Stop-Work Order could be lifted. Gieseker, ff. Tr. 2771, at 22. Present were representatives of Comstock, CECo, and Sargent & Lundy. *Id.* Mr. Gieseker chaired the meeting and proposed his solution to the problem. Mr. Gieseker's position was consistent with that of Louden, an expert in welding metallurgy with Sargent & Lundy. All the other participants, including Mr. Puckett, agreed that the appropriate corrective action was to add A-36 to the applicable list of materials under Attachments H and O to the welding procedure. Mr. Louden indicated that while it would not be proper to list A-36 steel on the PQR, it would be appropriate and proper to add A-36 to the list of materials on the welding procedure because it was qualified through the A-500 to A-446 PQR. *Id.* at 21, 22; Louden, ff. Tr. 2984, at 3-4; Tr. 3040.

Mr. Puckett stated that he would agree with Mr. Gieseker's resolution if CECo were to put that resolution in writing. Mr. Gieseker agreed to do so and later that day issued a "speed memo" authorizing Comstock to continue welding A-36 and A-446 pending revision of Procedure 4.3.3 (Rev. C). Seltmann, ff. Tr. 1960, at 19; Gieseker, Tr. 2912.

Although no testimony indicates that Mr. Puckett raised concern about Attachment O at the August 22, 1984 meeting, the ultimate disposition of NCR 3099, made the following day, appears to have taken account of it. The disposition concerned only Attachment H and lifted the Stop Work only on welds larger than 3/8 inch. Appl. Exh. 55. At the hearing, Puckett testified that

his true concern when he recommended that welding of A-36 and A-446 be stopped was that the revised Attachment O had not been approved by Sargent & Lundy, and therefore welds under 3/8 inch were not qualified. Puckett, Tr. 5463-64. That this was his main concern at the time of the Stop-Work Order does not appear to be borne out by the evidence. The two memos Mr. Puckett wrote concerning Stop Work on A-36/A-446 and NCR 3099 do not limit his concern to smaller welds but refer to *all* welding, and those who talked to Puckett about his concern did not understand it to be limited to smaller welds. The common understanding was that Puckett believed that it was improper to have qualified welding under the AWS D1.1 Code rather than AWS D1.3. Appl. Exh. 52, 53, 54; Louden, ff. Tr. 2984, at 5; Gieseker, ff. Tr. 2771, at 22; Tr. 2863, 2866-67; Simile, ff. Tr. 3305, at 8; Schapker, Tr. 10,962-67, 10,972, 10,979, 10,982, 11,311; Weil, ff. Tr. 11,948, at 7.

The record also indicates that Attachment O was an acceptable procedure at the time of the meeting. One of Puckett's first assignments at Braidwood was to review Sargent & Lundy's "status 2" comments to Comstock Welding Procedure 4.3.3 (Rev. C). Status 2 is a term used when a Sargent & Lundy evaluation is conditional but work using that procedure *with* the Sargent & Lundy condition is allowed. The conditionally approved procedure is accompanied by "Status 2 Comments." These comments accompany and become part of the procedure, and LKC has 30 days within which to revise the proposed revision to officially incorporate Sargent & Lundy's comments. Seltmann, ff. Tr. 1960, at 9-10. With respect to Comstock Procedure 4.3.3 (Rev. C), Sargent & Lundy determined, *inter alia*, that Attachments O1, O2, O3, and O4 to Attachment O needed to be revised because the procedure authorized the making of 1/8-inch welds in the field, but the test data set forth in Attachments O1 through O4 limited the minimum weld size to 3/8 inch. Sargent & Lundy gave Comstock 30 days, or until July 6, 1984, to act upon this comment. The responsibility for taking the necessary actions to address this comment was given to Mr. Puckett. DeWald, Tr. 1828. On July 5, 1984, Mr. Puckett resubmitted Attachment O to PTL for approval. The revised Attachment O indicates that it was approved by PTL on July 6, 1984. Puckett, Tr. 5368-69, 6717-18; Appl. Exh. 77.

On August 22, 1984, following the meeting, Mr. DeWald received from Mr. Puckett a memo that recommended that all welding, including A-36 to A-446, be stopped because Comstock was "dangerously approaching a complete breakdown" in its Quality Control Program. In this memo Mr. Puckett stated that procedures involving A-446 "were qualified using the cryteria [sic] of AWS D1.1-1975 and it should never have been done." The memo further stated that AWS D1.1 was never intended to be used to weld materials less than 1/8-inch thick and that "all of our procedures that involve A-446 should have been qualified using the cryteria [sic] of D1.3 which has a completely different set of test requirements and a completely different set of essential

varaibles [sic]." Appl. Exh. 56; DeWald, ff. Tr. 1700, at 49; Tr. 1751-52. Among other things, this memo made it clear to Mr. DeWald that Puckett had not understood the discussion at the meeting that day. In particular, Mr. Puckett had not understood that AWS D1.3 did not exist when work began at Braidwood and that Comstock followed AWS D1.1-1975 as allowed. DeWald, Tr. at 4950.

At the hearing, Mr. Puckett stated that he did not intend to imply that it was wrong for Comstock to use the AWS D1.1-1975 Code, only that it would be "better" to use the more recent AWS D1.3 Code. The AWS D1.3 Code did not exist prior to 1978. Louden, ff. Tr. 2984, at 5. The Comstock welding procedures are governed by Sargent & Lundy specifications which in turn were based on AWS D1.1-1975, the only appropriate code in existence when Sargent & Lundy developed the designs and specifications for Braidwood. Comstock's adherence to that code for the duration of the project was acceptable, since it is the contractor's option to adopt subsequent codes or to adhere to the code in effect when the original contract was issued. *Id.* In May 1984, Comstock considered using the AWS D1.3 Code but declined because welders would have had to be requalified under its requirements. DeWald, Tr. 1824-25. Also on August 1, 1984, the American Welding Society (AWS) issued an interpretation confirming that the code in effect at the time contractual agreement is reached is the applicable code. *Id.*; Board Exhs. 3, 4, and 5. Thus, to switch from the AWS D1.1-1975 to the AWS D1.3 would entail a substantial and needless expenditure of time and resources.

On August 23, at a meeting of the Procedure Review Board, Mr. Puckett reasserted his opinion that the A-36/A-446 weld combination had not been properly qualified. According to Mr. Gieseker and others who attended the meeting, Mr. Puckett acted as if the previous day's meeting had never taken place. This behavior caused Mr. Gieseker to lose even more confidence in Mr. Puckett's technical ability to manage the welding program. Gieseker, ff. Tr. 2771, at 23, 24; Tr. 2867, 2895-96.

A Stop-Work Order is appropriate where continued work would impair the ability of a safety-related system, structure, or component to perform satisfactorily in service. Based upon expert testimony, there was apparently no need for Mr. Puckett to recommend that welding of A-36 to A-446 be stopped. Louden, ff. Tr. 2984, at 8; Schapker Supplemental Testimony, ff. Tr. 10,960, at 3; Tr. 2906-07. Since the acceptability of the A-36/A-446 weld combination under AWS D1.1 was demonstrated, there was no threat to any safety system, structure, or component. It was a matter of having the Comstock welding procedure reflect what was already permitted under the umbrella welding specification — AWS D 1.1-1975. As the Level III Weld Inspector, it was Mr. Puckett's responsibility to evaluate the severity of procedural violations and recommend appropriate remedies. Recommending that work be stopped, thus idling hundreds of workers, pending a minor technical correction of a procedural violation that has

no adverse effect on the quality of the work being performed in the field is a remedy wholly disproportionate to the problem and is not a recommendation or judgment one reasonably is entitled to expect from someone reputed to be a welding and welding code expert.

2. *Weld Rod Issue*

On July 6, 1984, Mr. DeWald asked Mr. Puckett to review weld rod withdrawal slips for a certain time period to determine whether heat numbers were traceble to material receipt requests and to certification of filler metal. DeWald, ff. Tr. 1700, at 45-46; Puckett, Tr. 5594; Appl. Exh. 64. On August 15, Mr. Puckett documented his review in a memo. He found a violation of Comstock procedures by the clerk issuing the weld rods and stated that an NCR should be issued. Mr. Puckett made no attempt to issue an NCR nor did he take any steps to revise the relevant procedure to prevent repetition. Mr. DeWald regarded the issuance of a Nonconformance Report (NCR) and the resolution of the problem by revising the appropriate procedure to be Mr. Puckett's responsibility. DeWald, ff. Tr. 1700, at 46; Tr. 1721-23; Puckett, Tr. 5632-33; Appl. Exh. 65. Both of these steps were taken by Mr. Puckett's replacement after it was discovered that Puckett had not issued an NCR. DeWald, ff. Tr. 1700, at 46, 51; Simile, Tr. 3376-77, 3381.

3. *Stop Work on Stainless Steel Welding*

On August 10, 1984, the day after his Stop-Work recommendation on A-36/A-446 welding, Mr. Puckett recommended a Stop Work on all stainless steel welding because the weld procedure had not been qualified in all of the welding positions that could be used in the field. Simile, ff. Tr. 3305, Group Exh. 1 at 1. Comstock Procedure 4.3.14 governs stainless steel welding at Braidwood. The procedure was qualified in the "5G" position. Under the AWS D1.1 Code, qualification in the "5G" (fixed horizontal) position also qualifies a welder to weld in the "1G" (flat), "3G" (vertical), and "4G" (overhead) positions. It does not, however, qualify a welder to weld in the "2G" (horizontal) position. Not only did Mr. Puckett recommend that stainless steel welding in the "2G" position be stopped but that *all* stainless steel welding performed under Comstock Procedure 4.3.14 be stopped immediately. The day after he received this Stop-Work recommendation, Mr. DeWald sent Mr. Puckett a memorandum in which he expressed exasperation at Puckett's failure to offer a solution to the problems that had been brought to his attention. Int. Exh. 31 at 12. Mr. DeWald asked of Mr. Puckett: "What is your solution to the problem?" Mr. DeWald informed Mr. Puckett that it "is your responsibility to find these problems,

find solutions, and get them resolved." Mr. DeWald then issued the Stop-Work authorization. Similz, ff. Tr. 3305, Group Exh. 1 at 6, 14; Appl. Exh. 54.

4. Puckett's Termination

Needless to say, Mr. Puckett's recommendations to stop work did not make a favorable impression on CECo. Mr. DeWald, who actually issued the Stop-Work Order on the basis of Puckett's recommendation, was likely embarrassed to learn that the Stop-Work Order he issued was akin to junking a new car because it had a flat tire. Mr. Puckett was hired specifically to provide expert advice and judgments of this type. In light of this, Mr. DeWald's already shaky confidence in Mr. Puckett's expertise and judgment was further eroded. Imagine Mr. DeWald's reaction when later that day he received another memorandum from Mr. Puckett, this time recommending the stopping of all Comstock welding activities. In addition to reaffirming his position that AWS D1.1 was the wrong code and that AWS D1.3 should have been used, Mr. Puckett informed Mr. DeWald that there were so many "inconsistencies" in Comstock's other procedures that he was certain that their adequacy also would be considered "indeterminate." Appl. Exh. 56. Mr. Puckett neither identified the other procedures, explained in what respects they were indeterminate, nor suggested any way to remedy the "inconsistencies." It was this August 22 memo that made it apparent to Mr. DeWald that Mr. Puckett was not the knowledgeable practical problem solver he assumed him to be. It was apparent now that he had made a mistake in hiring Mr. Puckett as his Level III Weld Inspector. It was probably at this point, for what he perceived as good cause shown, Mr. DeWald decided to fire Mr. Puckett.

On Monday August 27, Mr. DeWald fired Mr. Puckett. The stated reason was poor performance on his certification tests. He did not tell Mr. Puckett that it was because he had lost confidence in his judgment and technical expertise. DeWald, Tr. 6454-61. Mr. Puckett was understandably suspect of the motive for his firing since he genuinely believed the issues he raised were important and significant. He took all his concerns about safety and quality to the NRC and his concern over his termination to the Department of Labor. NRC Inspector Jerome Schapker conducted a thorough investigation of each of Mr. Puckett's concerns and found only a single item of noncompliance with NRC requirements. Appl. Exh. 51. The single noncompliance involved minor clerical errors in Comstock's welder qualification records. These errors did not render the welder's qualifications indeterminate and thus had no adverse effect on the quality of the welds made by them in the field. In all other respects, Mr. Schapker found Comstock's welding program to be in compliance with regulatory and code requirements. In his testimony, Mr. Schapker found fault with Mr. Puckett not for raising quality concerns, but for failing to research

the problems adequately to determine whether they were safety significant and thus warranted stopping work. Mr. Schapker, like Mr. DeWald, believed that it was Mr. Puckett's responsibility to do a more thorough job in investigating his concerns. Schapker, Tr. 11,296.

The notion that Mr. Puckett was fired so that his allegations might be swept under the rug does not appear reasonable. His replacement, Anthony Simile, was immediately given a list of all of Mr. Puckett's allegations and was instructed to review the entire welding program to identify and resolve any problems. Simile, ff. Tr. 3305, at 9; Tr. 3358-59. Mr. Simile found that the welding procedures were adequate, but more cumbersome than necessary. He revised them by deleting unnecessary material and simpifying the presentation of necessary material. Simile, ff. Tr. 3305, at 11. He found that various discrepancies required the issuance and resolution of NCRs, and he supervised their resolution. NRC Inspector Schapker concluded that Comstock's management had addressed each and every one of Mr. Puckett's concerns and taken adequate corrective action where needed. Schapker, Tr. 11,425. Mr. Puckett testified that he knew of no instance where the safety of the Braidwood plant was compromised because of any problem he identified. Puckett, Tr. 6663.

It is the Board's conclusion that Comstock did not violate 10 C.F.R. § 50.7(a) in terminating Mr. Puckett but that he was terminated for legitimate reasons. Also, there is no evidence in the record to indicate that his firing had a "chilling effect" on the other inspectors in that they continued to bring quality concerns to the attention of NRC, CECo, and Comstock after Puckett's departure.

B. John Seeders, Richard Saklak, and Richard Snyder

John Seeders has been employed by Comstock at the Braidwood site since early August 1982.[8] His first position, as a Level I Quality Control Inspector for approximately 6 months, was followed by certification and promotion in early 1983 to a Level II Inspector and assignment to calibration. There he was responsible for the accuracy of tools, other measuring instruments, testing devices, and, at one time, of welding machines. A number of incidents occurred during his tenure, leading to an alleged verbal altercation between Mr. Seeders and his supervisor once removed, R.M. Saklak. The confrontation was witnessed by a number of Mr. Seeders' peers, including W.O. Puckett with whom he was in conversation. Puckett, Tr. 6238.

The outset of this interaction among Mr. Seeders and members of his management can be traced, in part, to an audit of the Comstock calibration

[8] Mr. Seeders had been discharged some months earlier by another Braidwood contractor for absenteeism. Seeders, Tr. 7293.

responsibilities by a member of the CECo Quality Assurance Department in May of 1984. (Appl. Exh. 83 (also known as Appl. Exh. 27); although this document was identified and discussed on the record, it was never offered into evidence.)

The audit disclosed the absence of a record of any examination and verification of inspections known to have been performed using tools or other instruments previously determined to have been out of calibration. Seltmann, ff. Tr. 1960, at 11.

Comstock procedures require close control and historical recording of each item of testing and measuring equipment. Appl. Exh. 24 at 1-2.

The receipt, storage, retention, and issuance of this equipment is the responsibility of the Comstock warehouseman. The calibration and recalibration is the function of an appropriate craftsman under observation by a Quality Control inspector who, in turn, shall retain all records identifying the status of each item to be subjected to the calibration-recalibration program. This Quality Control person shall verify adherence to the established recalibration schedule and the validity of inspections made by out-of-calibration and lost items. Appl. Exh. 24 at 2-4. In the present instance the Quality Control person is John Seeders.

As a consequence of the discovery, by the audit, of incomplete histories of calibrations and of their consequences, Mr. Seeders was directed by the Quality Control Manager to do a 100% review of the calibration files to establish the presence of additional irregularities in the administration of the equipment control procedures. A date for the completion of this review was established to conform to a schedule set in the CECo audit. DeWald, ff. Tr. 1700, at 35; Seltmann, ff. Tr. 1960, at 12.

Concurrently with the equipment record review, Larry Phillips, both Mr. Seeders' lead and the Quality Control inspector in receiving, was absent on personal matters, resulting in a shift of his receiving inspections to Mr. Seeders. Additionally, Mr. Seeders was a trainer of four potential inspectors — two in calibrations and two in receiving. Mr. Seeders considered the effort required in these several assignments to be beyond his capability, particularly when, on one occasion while in conversation with still another inspector, he was rebuked by Quality Control Supervisor Saklak, for what the latter deemed to be time wasting. These items, collectively and among others,[9] were construed by Mr. Seeders as harassment and intimidation and comprise the theme of a letter, Mr. Seeders

[9] In April 1984, shortly before the above occurrences, Comstock had inaugurated a salary scale for Level II inspectors whereby a base of $12 per hour was set. This sum was to be augmented by an additional 50 cents per hour for each certification, over one, earned by an individual. Additionally, a necessary increase in the number of well-qualified inspectors necessitated offering initial salaries greater than the above base with the excess to be "caught up" by certifications in additional disciplines. A result, at least temporary, was a lower wage for older employees. Further, the training of both new and advancing inspectors became the lot of older inspectors who allegedly became deprived of time and opportunity to seek additional certifications themselves.

to Mr. DeWald (QC Manager), dated August 17, 1984 (Int. Exh. 23). Mr. Seeders emphasized in his letter that "he maintain[ed] the highest level of professionalism" and that he "never did nor will falsify documentation for . . . any reason."

An investigation of the charges leveled by Mr. Seeders' August 17 letter at Comstock management was reported by Mr. DeWald on September 25, 1984 (DeWald, ff. Tr. 1700, at 37; *see also id.*, Attach. 2.C (DeWald-5)),[10] and documents a number of errors in the letter. Six, not thirty, Level II inspectors had left the Braidwood site since the establishment of the $12/hr wage scale. No disciplinary action had been threatened against reluctant trainers. The Seeders' statement, "[f]or . . . six months, we have been subjected to endless harassment and intimidation by . . . management to justify the incompetence and disregard for all company inspectors," may have arisen from Mr. Seeders' own experience with numerous (adverse) findings in calibration inspections.

One of the complaints voiced by Mr. Seeders in support of this claim of harassment was the assignment to him of inspection of received goods, added to calibrations, on the occasion of the absence of Phillips, the regularly assigned receiving inspector.

Joe Hii, the present Comstock vault supervisor charged with custody of all records, found Material Receipt Reports identifying thirteen shipments received at Braidwood during the interval August 8 through 17, 1984. Mr. Seeders' signature on each of the thirteen identified him as the responsible inspector. Hii, ff. Tr. 16,608, at 2-3; Tr. 16,610-13.

In response to a line of inquiry by Applicant's counsel, Mr. Seeders was indefinite in his recollection and estimation of the time required, within the 10-day period, to accomplish the inspection of the thirteen shipments he processed. He did opine, however, that each required less than 1 day (Seeders, Tr. 7400) and, in fact, testified that ½ to 1 hour sufficed for several. *Id.*, Tr. 7396 ff. It was noted that the usual inspection consisted of counting the number (the order of ten) of cartons or spools on a pallet or in an open-work crate (*id.*, Tr. 7399, 7412-13); also, the inspector was not required, nor even permitted, to physically handle any part of a shipment, such effort having been assigned to craftsmen (*id.*, Tr. 7407).

In summary, it becomes apparent that the assignment of receiving inspection could not have been burdensome to Mr. Seeders, certainly not a sufficient addition to his usual work to warrant a claim of harassment.

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[10] It is noted that in at least two copies of the transcript DeWald Attach. 2.C (DeWald-5) in its entirety is incorrectly bound and even bound differently in those two transcripts. Specific reference here is made to only four pages of DeWald-5. The first is identified by Bates stamp 00002012, a Comstock memorandum dated 9-25-84 from DeWald to distribution, subject: "Review of J. Seeders Letter Dated 8-17-84," and is followed by three pages of "J. SEEDERS LETTER OF ACCUSATIONS AND CONCERNS," pages 1, 2, and 3 of 11, bearing Bates stamps 00002013, 14, and 15. A complete copy of the DeWald Report is Appl. Exh. 4 withdrawn at Tr. 2953.

An extended colloquy between Mr. Seeders and Applicant's counsel and Mr. Seeders and the Board (found at Tr. 7417-91) centered around Mr. Seeders' letter of August 17, 1984, alleging harassment. The preparation of the letter, on the evening of August 17, was triggered by a verbal clash between Mr. Seeders and Mr. Saklak, earlier that day, when Mr. Saklak accused Mr. Seeders of wasting time, also interpreted by Mr. Seeders as harassment, and by a formal Employee Warning issued by Mr. Seese, Assistant Quality Control Manager, and Mr. Saklak during the afternoon of that day. Seeders, Tr. 7421-22, Seese, ff. Tr. 2330, Attach. 2.C (Seese-3).

As a consequence of the results of an audit of instrument/tool calibrations, the Applicant had requested from Comstock, on July 3, 1984, certain information, by July 20, which required a review of all recent calibration-inspection reports. The review was assigned to Mr. Seeders. Inquiry on the status of the review was made of Mr. Seeders by Robert Seltmann, then a Comstock QA Engineer, on July 20 and again on July 23, only to learn that the task had not been completed. On August 14, a partial response to the review requested some 5 weeks earlier was available. Upon request by Mr. Seltmann, CECo granted extensions of each of several intermediate target dates established after it became evident that those expected dates would not be met. Mr. Seltmann's effort to comply with good business practices by frequent inquiry into progress of a program to which there had been commitment was characterized by Mr. Seeders as harassment. (*See* Seltmann Response to Allegations by Seeders in August 17, 1984 Letter. The response is a part of an attachment to Mr. DeWald's testimony, ff. Tr. 1700, Attach. 2.C (DeWald-5) supporting Seese's Employee Warning Record dated 8/17/84. The Seltmann statement, dated 8/20/84, bears Bates number 00002035.)

Additionally to the allegation by Mr. Seeders of his subjection to harassment and work overload, the record cites a history of the quality of his performance. Of many, one responsibility of the calibrations inspector is to initiate Inspection Correction Reports (ICRs) or Nonconformance Reports (NCRs) of instances of out-of-calibration measuring devices. Seltmann, ff. Tr. 1960, at 11-12.

As noted, *supra*, absence of reports of defects and of repairs to defective instruments previously reported demand an investigation and inspection, as necessary, of all items tested by a particular instrument during any period of uncertainty in its capabilities. Comstock Procedure 4.9.1, Rev. C, Appl. Exh. 24, ¶¶ 3.3.7 and 3.3.7.1.

The CECo audit, in progress both before and after the preparation of Mr. Seeders' letter of allegation, disclosed a number of deficiencies in the calibration inspection effort. The matter of use of out-of-calibration instruments had surfaced in May and persisted into September 1984, in spite of additional

training of Mr. Seeders the previous June.[11] Seltmann, ff. Tr. 1960, Attach. 2.C (Seltmann-3) Form 101.

The various audits and document reviews disclosed, as examples of procedural deficiencies, ICR/NCR documents listing eighty out-of-calibration torque wrenches, half of which had been reissued to the field without correction, some individual ones as many as twenty-five times. An additional ten wrenches were found to have been observed as faulty in the June-August 1984 period, yet were not so reported on an ICR. Seltmann, ff. Tr. 1960, Attach. 2.C (Seltmann-3).

These examples and other procedural violations, such as submitting reports on forms that Mr. Seeders had photocopied after entering information prior to an inspection (Seese,[12] ff. Tr. 2330, at 18), absences of calibration reports from files and incompletely prepared reports, all traceable to the time of Mr. Seeders' tenure, characterize the quality of his work.

The altercation between Mr. Saklak and Mr. Seeders occurred early in the August 17, 1984, work day and, in Mr. DeWald's absence, was immediately reported to Mr. Seese. Until late afternoon Mr. Seese investigated the occurrence through conversation with witnesses and with Mr. Seeders' supervisors, including a review of Mr. Seeders' recent performance. Finally, late in the day, Mr. Seese in the presence of Mr. Saklak and Mr. Seltmann, issued to Mr. Seeders an "Employee Warning" of possible future termination. The warning was not solely the result of the encounter with Mr. Saklak earlier that day. Seese, ff. Tr. 2330. Attach. 2.C (Seese-3) including Mr. Seese's report of the day's activities to DeWald dated August 20, 1984, the following day. At the time of the "warning meeting," Mr. Seeders listed a number of complaints. During that evening he prepared the August 17 letter to Mr. DeWald.

Pursuant to a condition in the warning, Mr. Seeders' work performance was observed closely during the ensuing period while his management continued its investigation of the matter for several weeks, resulting in a report by Mr. DeWald. DeWald, ff. Tr. 1700, at 37 and Attach. 2.C (DeWald-5); *see also* Seltmann, ff. Tr. 1960, Attach. 2.C (Seltmann-3).

Persistence of procedural violations by Mr. Seeders into this post-warning period was disclosed during a September 1984 CECo audit (Seltmann, ff. Tr. 1960, Attach. 2.C (Seltmann-3)) including discovery of discrepancies which should have surfaced in Mr. Seeders' record review assigned to him in July. These cumulative infractions lead to a decision by Comstock management at a meeting

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[11] Much was made in the hearing of the observation that the June training period was 10 minutes. At the time of this refresher, Seeders had been a qualified Level II calibration inspector for some 18 months, obviously preceded by training. The 10-minute session could not have been insufficient as Intervenor implies. Int. Fdg. 305; *see also* DeWald, Tr. 1600-04. The Board is forced to inquire of the time required to refer to two short paragraphs in Appl. Exh. 24 and/or to instruct an individual to prevent use of a faulty tool.

[12] Mr. Seese is Comstock's Assistant Quality Control Manager at Braidwood. During the absence of Mr. DeWald on August 17, 1984, Seese served as Quality Control Manager.

where NRC and Applicant's personnel were present (DeWald, ff. Tr. 1700, at 38) to transfer Mr. Seeders, within Comstock, to a position less demanding and with fewer responsibilities without financial and benefits penalty. Appl. Exh. 95. An alternate presented to Mr. Seeders for choice was termination. In early October 1984 he became a clerk in Comstock Engineering. He subsequently received a promotion to Assistant Field Engineer and a salary increase. He has been complimented on his work. There has been no indication of his management's dissatisfaction of a degree affecting his tenure. In hearing, however, Mr. Seeder maintained he was transferred out of Quality Control because of the content of his August 17, 1984 letter to Mr. DeWald. Seeders, Tr. 7490-91.

Also, the Intervenor would have the Board believe that the transfer of Mr. Seeders from Quality Control inspection was a revengeful act. Int. Fdg. 301. The preponderance of evidence on the Seeders incident, however, points to his failure to comply with prescribed procedures necessary to his assignment and his inattention to the details of his operations, including a disrespect for necessary schedules of accomplishments.

The Board recognizes Mr. Saklak's scurrilousness and his correspondingly characteristic manner with associates. It is also aware that such behavior contributed to his being done in at Comstock. DeWald, ff. Tr. 1700, at 26-27. Mr. Saklak exercised this temperamental behavior by affronting a number of inspectors (DeWald, ff. Tr. 1700, at 26), not only Mr. Seeders, as his manner of instilling his aggressiveness into his subordinates. His demeanor was widely known among the inspectors where it was received with varying gravity (*see*, as examples, Snyder/Seeders, Tr. 4020-21; Snyder, Tr. 4038, 4196-97; Rolan, Tr. 4653-58; Mustered, Tr. 4969, 4973-75; Holley, Tr. 5101-02; Hii, ff. Tr. 16,608, at 4-5; Tr. 16,638.

Intervenors' witness Mr. Saklak himself gives some insight into his behavior in his description of the Quality Control organization into which he was brought as Supervisor in mid-1982. In his observation, Quality Control lacked organization and control of its own activities. He characterized the office as a "zoo" and its behavior as "a party . . . eight hours a day, five days a week . . . ." Saklak, Tr. 8014. He believes the trek to the NRC inspectors by more than twenty Comstock Quality Control inspectors in March 1985, when the pressure to unionize them was high, was an effort to strengthen that organizational process. Saklak, Tr. 8059, 8070-71, 8175-78. There is additional support for this cause of the March meeting with the NRC. Hii, ff. Tr. 16,608, at 6.

Additionally, Mr. Saklak observed individual problems within the Quality Control organization involving alcohol and controlled substances, obvious absenteeism, and union-organization meetings during working hours. Saklak, Tr. 8085-86, 8178, 8213.

The Board perceives Mr. Saklak as an overindustrious employee of Comstock interested in production and, in his way, in a productive inspection program. Unfortunately, his experiences as a supervisor were marred by his short temperability and a domineering manner. His demeanor and his drive suited his earlier position in construction, supervising crafts, better than being in charge of a group of independent workers — the inspectors.

About a dozen present and former Comstock Quality Control inspectors, including those now working for Comstock's successor companies, testified before this Board on various items of employee relations, work conditions, etc. Some of these appearances are particularly noteworthy and are included in this Decision. One concerned John Seeders whose letter to Comstock management, claiming intimidation in the form of excessive demands on his time and capabilities and allegedly leading to his transfer out of Quality Control, has been discussed, *supra*.

A second instance centered on Richard Snyder, who succeeded John Seeders as calibration inspector (DeWald, Tr. 1617), and who in early March 1985 found a Comstock weld machine out of calibration. Although the procedure governing weld machines was under revision to eliminate reporting such deficiencies,[13] the revision had not then been officially effected. Consequently, Mr. Snyder and Mr. Nemeth, his lead, persisted in reporting the machine deficiency contrary to Mr. Saklak's instruction. Snyder, Tr. 4182-83, 4185, 4195. Mr. Snyder was supported by the QA Manager, Robert Seltmann, who ruled Saklak in error. *Id.*, Tr. 4186. Mr. Saklak, in temper, threatened Mr. Snyder with bodily harm. *Id.*, Tr. 4196. Although Mr. Saklak later apologized to Mr. Snyder, the latter reported the incident to the NRC early on March 29, 1985, which led to the massive audience of Comstock inspectors before the NRC later that day (*id.*, Tr. 4201), which, in turn, at least contributed to the termination of Mr. Saklak a few days later. Saklak, Tr. 8033; Snyder, Tr. 4270-71.

C. Gregory Archambeault

A third alleged instance of harassment concerned a Comstock Level II Quality Control inspector certified and assigned to cable pull. The inspector's name is Gregory Archambeault who appeared as a witness for the Intervenors. His concerns/complaints, though connected, can be placed in two categories — one having to do with work product and the second being personal. No item was found to be of great consequence.

Mr. Archambeault was employed at Braidwood in early January 1986. Within 5 months he had reported to the NRC on alleged frustrations experienced

[13] This alteration was justified by the practice of inspecting all welds. Snyder, Tr. 4187.

by Quality Control inspectors at Braidwood because of the "general attitude that quality problems are ignored . . ." by Comstock. Appl. *in camera* Exh. 125. Subsequently, the Witness prepared a detailed review of the inspection deficiencies on which he based his allegations. This document is identified as Int. Exh. 108, not admitted into this record, but utilized, essentially in its entirety, to guide his oral testimony. The assortment of alleged deficiencies and irregularities will now be reviewed briefly and their disposition indicated.

An area above the control and adjacent rooms where electrical circuitry is distributed is known as the upper cable spreading room. Archambeault, Tr. 12,231. Within the spreading room are hundreds of cables of which Mr. Archambeault identified fifty-six discrepancies (Simile, Tr. 16,243) including cable damage, cable bends too short (or tight), cable separations, cables not orderly in trays (not trained). Archambeault, Tr. 12,232. Had this situation occurred in first or primary inspection, an NCR or ICR would have been written. In the somewhat unusual situation here, however, where the installation had been turned over to and accepted by the Applicant, thereby placing the cables beyond the jurisdiction of Comstock inspectors (*id.*, Tr. 12,247, 12,581), both the inspector and his lead were uncertain of the procedure they should follow until the lead requested preparation of a memo to elicit guidance from a higher authority in Comstock. *Id.*, Tr. 12,578-79. That guidance, from Mr. Simile, Comstock's Quality Control supervisor, was to prepare a generic NCR demanding that all cables in the spreading room be reinspected, contrary to Mr. Archambeault's insistence that an NCR be prepared for each deficiency he had observed. *Id.*, Tr. 12,580. In this way possible damages in the area not detected by Mr. Archambeault would be found. Simile, Tr. 16,206. Further, since the Applicant had accepted the cables, the expense of the NCRs, either generic or singly, need not fall on Comstock. A remark by his lead to Mr. Archambeault was construed to mean that ensuring quality was overly expensive. Archambeault, Tr. 12,410. The Applicant, having reviewed the cable room, prepared the ultimate NCR, making Mr. Archambeault's moot and accounting for his impression that nothing had been done. Simile, Tr. 16,238. Further, the investigation of the cable spreading was continuing in October 1986. *Id.*, Tr. 16,247. This disposition is now satisfactory to Archambeault. Archambeault, Tr. 12,246.

Another complaint concerned the absence of cable-length markers, spread along the cable at 2-foot intervals to facilitate obtaining sections of proper length. On an occasion the markers were not consecutive, a defect in manufacture, although, apparently, after an interruption the markings resumed in the proper sequence. *Id.*, Tr. 12,514.[14] When asked by the craft for an action, Mr. Archambeault consulted his supervisor with the suggestion that the irregu-

[14] At the same transcript page, line 15, the Witness says differently.

larity be referred to Comstock Engineering per the Comstock Cable Installation (Work) Procedure 4.3.8, ¶ 3.5.1.1. Appl. Exh. 124. The Supervisor pointed out that inspectors did not "work to work procedures"[15] and directed continuation of the cable-cutting operation. Archambeault, Tr. 12,198-204. The footage-number mixup was not detrimental to the cable and its quality was not affected (*id.*, Tr. 12,538); it could affect cable accountability (*id.*, Tr. 12,540) and traceability in case defects arise (*id.*, Tr. 12,545). The Witness ascribed the remark by his supervisor as a disregard for procedures. In any case, the issue is not safety significant.

Mr. Archambeault learned from another inspector that a CECo craftsman had walked on cables and had disregarded the inspector's admonition not to do so. The craftsman was verbally disciplined not to repeat the occurrence. *Id.*, Tr. 12,679-81. This is hearsay repeated by the Witness.

In another instance, Mr. Archambeault was directed to assist in a cable pull urgently needed by the Applicant which required 2 to 3 hours. The task is known colloquially as a "hot pull." The direction came after he had completed some field work but before he had finished the necessary documentation. Consequently, the records were not completed until the following day, then in a satisfactory manner. The inspector considered this sequence to be a procedural violation (Proc. 4.8.8, ¶ 3.6 (Appl. Exh. 124)) and an instance of putting production ahead of inspection — quantity over quality. Archambeault, Tr. 12,287-88, 12,602-12. In this instance cited there were no safety consequences. *Id.*, Tr. 12,612.

Another concern related to the required separation among cables in air and/or in cable trays. Mr. Archambeault cited forty-two items he believed to be in nonconformance with the requirements of Cable Installation Procedure 4.3.8, ¶ 3.13.1, at 14. Appl. Exh. 123. Although it developed that the concern was unfounded, having arisen from a misinterpretation of the procedure and some inconsistency with Inspection Procedure 4.8.8, ¶ 3.5.4.1 (Appl. Exh. 124), Comstock supervision took clarification of procedures under advisement. Archambeault, Tr. 12,295-310, 12,615-20; Int. Exh. 121.

The personal item is Mr. Archambeault's displeasure with working on the second (evening) shift because of interferences in his family life. His claim is that the first-shift union (Pipefitters, Local 306) steward, at the entrance interview, predicted Mr. Archambeault would soon be working on the first (day) shift. *Id.*, Tr. 12,655. The steward, Larry Bossong, denied having made such a promise and disclaimed any authority to do so. Bossong, ff. Tr. 16,252, at 3; Tr. 16,260-61. Tony Simile, the Comstock Quality Control Supervisor, confirmed that disclaimer. Simile, ff. Tr. 16,180, at 9.

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[15] The remark implies that inspectors "work to" Comstock Procedure 4.8.8, Cable Installation Inspection

On three occasions during the summer of 1986, Mr. Archambeault claims to have filed with his union steward (second shift) a written request for a shift transfer, only the third reached the responsible Comstock supervisor, Mr. Simile, on a timely schedule. Archambeault, Tr. 12,272, 12,328, 12,335; Simile, ff. Tr. 16,180, at 8. In the 1985-1986 period, cable pulling had been largely placed in the second shift, to avoid conflicts with other crafts, with a concomitant need for inspectors. For this reason newly hired inspectors and even some already on the first shift were assigned to the second. The Archambeault complaint was aggravated by a retransfer back to the first shift of two individuals selected by Mr. Simile from a June 1986 list of three, including Mr. Archambeault,[16] prepared by the second shift supervisor. More than two transfers would have overly depleted the second shift. The two transferees held seniority over Archambeault in company service and in date of request. One of them had a strong compelling personal reason and both had recently gone to the second shift, albeit reluctantly, to cover a need. Simile, ff. Tr. 16,180, at 2-5.

In late June, Mr. Simile received an indication from the NRC that it was Mr. Archambeault who had cited alleged inspection problems, thereby placing him (Simile) in a potentially awkward position that would be publicized — a transfer could be considered placative in view of this ongoing hearing; a denial could be considered retributory. *Id.* at 6-7. Nevertheless, Mr. Archambeault was transferred to the first shift in early September 1986. Archambeault, Tr. 12,498. A prerogative of an employer is certainly the assignment of employees to areas and at times of need.

There is no evidence that the quality of Mr. Archambeault's work suffered from the concerns and allegations he voiced. Archambeault, Tr. 12,404.

D. Richard Martin

Richard Martin was hired into the Braidwood site on May 18, 1981, as a Level I inspector. He remained at the site through the several changes in the contractor responsible for Quality Control inspection, i.e., Comstock, BESTCO, and now General Electric's Multicraft Installation Services. In each instance he was assigned to the inspection of L.K. Comstock's electrical construction. He was certified as a Level II inspector in a number of efforts, including cable pulling, welding, and configuration of hanger supports over a period beginning September 1, 1983. In early spring 1986, he was transferred to a position as Technical Statistician. It is the cause of this transfer and the events leading to it that are under consideration in this part of the Braidwood hearing. Martin, Tr. 8261-67. He was called as a witness by the Intervenors.

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[16] Through this medium, Mr. Simile had a first indication of Mr. Archambeault's desire for a transfer.

At the time of his most recent appearance before this Board, in September 1986, Mr. Martin was favorably anticipating his return to inspection on a schedule of his choice. *Id.*, Tr. 12,726.

The transfer from inspection was occasioned by a confrontation between Mr. Martin and a craft foreman named Krone. A news item reporting on this hearing linked Mr. Martin with a supposed 500 weld-inspections-per-day achievement which, according to Mr. Martin, may have arisen from an early practice of transcribing from field notes several days' accomplishments onto the official documents, the checklists, on a single day. Nevertheless, Krone took the value as a measure of Mr. Martin's efforts and used it as a topic for ridicule of Mr. Martin in front of his peers. He allowed Mr. Martin to offer no explanation. Harsh words and body contact subsequently led to Krone's discharge by Comstock and to Mr. Martin's assignment, a couple of weeks later, out of field inspection. *Id.*, Tr. 8376-94, 9590-92. According to Mr. Martin, he was removed from cable-pull inspection at the instigation of a union steward who reported that, after Krone's discharge, the cable pullers would not work with Mr. Martin. *Id.*, Tr. 8394.

Shortly before the Krone incident, Mr. Martin had been effectively removed from cable-pulling inspection following his persistent requests to his lead for assistance from other inspectors in effecting a continuous pull of a 350-foot-long cable through a tortuous path, a common request to permit an alternative to the more laborious method of pulling by sections called "pull-and-coil." Upon denial of his request for aid, Mr. Martin expressed that he "didn't feel comfortable doing it [that way]." Mr. Martin had never inspected a pull-and-coil operation at Braidwood. *Id.*, Tr. 12,765. Further, he believed helpful inspectors to be available. As a result, another inspector was assigned to the pull and Mr. Martin made work for himself during the next couple of weeks. *Id.*, Tr. 12,704-20.

From time to time since his initial employment in 1981, Martin encountered a number of irregularities in his work experience. His certifications were withdrawn on two separate occasions for periods of a few months because of large numbers of reversals, by PTL and CECo, of his inspection decisions. *Id.*, Tr. 9348-50. Martin attributed this increase in reversals to his misinterpretations of drawings, to inadequate training, and to his increased output which made for more rejects though his fractional reject rate remained about normal. *Id.*, Tr. 9547, 9582. After some retraining and investigation of previous work, the certifications were reinstated. *Id.*, Tr. 8326, 8329, 9344. Two record-keeping matters were addressed in Mr. Martin's testimony. One was his practice of recording field observations in notebooks, then subsequently transcribing them *en masse* to the official checklists, usually in the office. Mr. Martin, together with other inspectors, developed the practice of photocopying inspection forms on which largely generic information had been added, then filling in blanks of the copies with inspection-specific information. Signatures and dates were

original. *Id.*, Tr. 8330-31. This is to say, additionally, that the checklists were seldom taken to the field. *Id.*, Tr. 8370, 9576. The Witness asserted that in these manners he and other inspectors had been trained by Irving DeWald, the then and current Comstock QA manager. These irregular documentation practices were uncovered during a CECo audit and came to the attention of Walter Shewski, the CECo corporate QA manager, who ordered appropriate retraining. Immediately thereafter Mr. DeWald held a training session. *Id.*, Tr. 9574-77.

In spite of these and other somewhat similar occurrences, Martin retained a very open and understanding attitude toward his management. He testified that, whereas he perceived some actions were not in good taste, were unfair, and stemmed from mismanagement, he did not identify the actions as harassing or intimidating. On one occasion, in a meeting with Mr. DeWald and his assistant, Mr. Seese, he assured them he was aiming not to cause trouble, he "wanted to try to do better [at his job]" and asked "them for suggestions if there is anything I could do to better myself." *Id.*, Tr. 9595-96. Neither did he consider transfer to what he judged a less-interesting job to be retaliatory. *Id.*, Tr. 12,756-77, 12,773-78. He expressed strongly his enjoyment of and his satisfaction with his weld-inspector position. His industriousness even brought criticism from his peers. *Id.*, Tr. 9546. He was less sure of his responses to procedural requirements, a reaction he attributed to deficient training. To himself he adequately justified his practice of photocopying premature entries into checklists by noting that each list bore his signature in the original and that it vouched for the performance and acceptance of a weld. His problems with procedures and paper work he laid to his inadequate training. *Id.*, Tr. 9544-47. We state, succinctly, that he was proud of his work and of being a part of such a large effort as is Braidwood.

The Board cannot ascribe to Martin any support of the alleged harassment, etc., voiced as the principal contention in this case, particularly as it may relate to the ultimate safety of the operation of the Braidwood plant.

E. Other Considerations

Additionally to those Quality Control inspectors whose testimony has been reviewed in some detail above, about a dozen others appeared at the hearing either in person or through deposition. Among them are Larry Bossong, Francisco Rolan, Michael Mustered, Terry Gorman, Dean Peterson, Therman Bowman, Robert Wicks, Larry Perryman, Dan Holley, Robert Hunter, Herschel Stout, Joe Hii, and Mark Klachko. The concerns of many of these individuals with the inspector-management relations at Comstock had been taken to a meeting with the NRC in March 1985. Most were subsequently interviewed separately by NRC personnel. The tenor of their contributions to the history of the inspection program is resemblant both to that already recounted and consistent within themselves. With scarcely an exception, each inspector testified that he

had encountered or observed outbursts of temper from Quality Control Supervisor Saklak. These instances have been described in great detail by the Staff in its Findings of Fact and Conclusions of Law, ¶ 232 through ¶ 413. The Board adopts these paragraphs and the citations therein as an historic record of those encounters. Collectively, they strengthen the picture of that individual that we have drawn, *supra*. There were threats of discharge of Rolan, Martin, and Holley though Mr. Saklak's authority did not extend that far; accounts by Mr. Gorman of berating inspectors; the rebuff of Mr. Saklak's remarks by Mustered; a jestful response by Mr. Peterson to Mr. Saklak's directive; a counterthrust by Mr. Bowman to Mr. Saklak's aggressive behavior.

Other members of Comstock management, particularly Mr. DeWald, were the subject of complaints of poor communications, perceived aloofness, apparent work place and time discrimination including allocation of overtime and attempts to establish quotas for performance. Threats of discharge by Mr. DeWald were more meaningful due to his position in the organization.

During this period of contention and apparent unrest, three inspectors, Hunter, Arendt, and Stout, were discharged — Hunter and Arendt for improperly inspecting welds that had been previously painted and Mr. Stout for absenteeism and low productivity. (Truly, Stout resigned though his discharge was imminent.)

Applicant's witness Laney, a person of considerable experience in construction, management, and direction at diverse nuclear facilities including the Quincy (MA) shipyard, where nuclear-powered naval vessels are constructed, and the Argonne National Laboratory, where nuclear reactors are developed, testified at length on several aspects of the issues aired in this hearing. Laney, ff. Tr. 17,245; Tr. 17,246 ff. The topics were both site specific and more general. Of relevance here is Laney's judgment of Mr. Saklak's competence and behavior as a supervisor. On the basis of his review of summaries of depositions and oral testimony of a number of inspectors and interviews with individuals, largely at supervisory level, Laney concluded that inspectors considered Mr. Saklak a blusterer and, as such, a weak supervisor whose threats were not or could not be always carried out. He was looked upon as an irritant and a bother but not one whose promised intimidations were to be taken seriously. Laney, Tr. 17,361. Laney cited experiences by Inspectors Snyder, Martin, and Mustered who rolled with Mr. Saklak's punch only then to brush it off or to carry it to higher authority. *Id.*, Tr. 17,350, 17,355-57. These actions are consistent with Laney's experience with and belief in the position of an inspector who usually works alone at his task, utilizing his skills in a professional manner. To his task an inspector brings his two essential qualifications — his technical skills and his personal integrity — of which he is both proud and protective. These represent his job security and, more importantly, they are his badge of acceptance in the work area and he will scrupulously protect these basic assets, unaffected by external group dissension. As a group, however, having belief in complaints centered around supervisor-inspector fric-

tion, the expressed need to keep abreast of craft production, salary uncertainties, and perhaps inequities, likely pressure to support the then-ongoing unionization effort, the inspectors would be expected to voice their collective feelings as was their behavior here in the audiences with the NRC. Laney, ff. Tr. 17,245, at 24-25. The Board shares and subscribes to these observations.

Although the actions and remarks of the Quality Control personnel, both management and the inspectors, attest to a deteriorating esprit de corps at Comstock, the result was not as catastrophic as Intervenors would have us believe. Guild, Tr. 7915 ff.

VI. REINSPECTION EVIDENCE

In response to Intervenors' theory that alleged acts of harassment, intimidation, and production pressure impaired the effectiveness of Comstock Quality Control inspectors (Guild, Tr. 7903-04), Applicant presented the results of two separate reinspection programs. The first program was the Construction Sample Reinspection (CSR) which was part of the Braidwood Construction Assessment Program (BCAP). The CSR consisted of a visual reinspection of a sample of onsite, safety-related construction which had been completed, Quality Control inspected, and accepted by Comstock as of June 30, 1984. The second program consisted of the data obtained from the routine overinspections of Comstock Quality Control-accepted work by the Pittsburgh Testing Laboratory (PTL) during the period July 1, 1982, to June 30, 1986. Neither program was initiated in response to Intervenors' allegations but they were conducted for other reasons. The reinspection programs were unrelated and were carried out by Quality Control inspectors who were independent of the Comstock QA/QC organization. DelGeorge, ff. Tr. 16,740, at 6, 9; Kaushal, ff. Tr. 13,068, at 9; Marcus, ff. Tr. 15,568, at 1, 7.

A stated objective of the BCAP program of which CSR is a part was to ensure that no unidentified or unaddressed programmatic design-significant construction problems existed at Braidwood. Kaushal, ff. Tr. 13,068, at 3. A "design-significant" deficiency is one that affects the ability of a safety-related system, structure, or component to perform its intended safety function. *Id.* at 5; Thorsell, ff. Tr. 14,270, at 9. As regards structural components, "design significance" relates to the ability to carry all design loads within code-established allowable stresses. Kostal, ff. Tr. 14,270, at 16.

The CSR was carried out by an organization called the BCAP Task Force. Most of the BCAP engineering staff was drawn from Stone & Webster Engineering Corporation and all of the quality control inspection staff was drawn from the Daniel Construction Corporation. The BCAP Task Force Director was an Applicant employee. None of the individuals, including the Task Force Di-

rector, had any prior involvement with the work that was to be reinspected or reviewed under BCAP. Kaushal, ff. Tr. 13,068, at 9. The NRC Staff concluded that the BCAP Task Force personnel were "qualified for their assigned tasks with a good balance of education and experience in the nuclear industry." Gardner, ff. Tr. 17,606, at 12.

Sargent & Lundy, Applicant's architect-engineer, was assigned the task of evaluating the discrepancies found by BCAP CSR inspectors. Kaushal, ff. Tr. 13,068, at 7. Because Sargent & Lundy is responsible for developing the Braidwood design, including all drawings and specifications, it has the greatest expertise in evaluating the significance of Braidwood construction discrepancies.

BCAP Task Force activities, including the CSR, were overviewed by the BCAP QA group established within Applicant's Quality Assurance Department. BCAP QA personnel, none of whom had any prior responsibility for construction at Braidwood, were drawn from Applicant, Gilbert Commonwealth, and Pittsburgh Testing Laboratories. The BCAP Task Force, BCAP QA group, and Sargent & Lundy were overviewed by an independent expert overview group (IEOG) which was assembled by the Evaluation Research Corporation and consisted entirely of individuals outside of the Commonwealth Edison Company. Smith, Tr. 14,196-97; Appl. Exh. 137; Kaushal, ff. Tr. 13,068, at 9, 10. All of the various groups including the IEOG were, in turn, overviewed by a resident NRC inspector who dedicated full time to reviewing the BCAP program. Kaushal, ff. Tr. 13,068, at 11.

The CSR sample program was set up to assure with at least a 95% confidence level that at least 95% of the work in each construction category is free of design-significant discrepancies. *Id.* at 6.

The BCAP/CSR was a large reinspection program and involved more than 90 man-years of direct engineering and reinspection effort in addition to the engineering evaluation of identified discrepancies by Sargent & Lundy and the support services provided by the various construction contractors on site. *Id.* at 7. The CSR data base includes the results from reinspections of 733 electrical items including more than 10,000 welds and 276,000 inspection points. DelGeorge, ff. Tr. 17,082 at 19.

The PTL data base includes more than 7200 components and over 28,000 welds, approximately 28% of the total number of components and 10% of the total number of welds completed and Quality Control–accepted by Comstock during the 4-year period from July 1982 through June 1986. Marcus, ff. Tr. 15,568, at 12; DelGeorge, ff. Tr. 16,740, at 17, 32.

Using the data collected from both the CSR and the PTL reinspection programs, the Applicant prepared a computerized data base that matched the reinspection results with the names of Comstock Quality Control inspectors whose work was reinspected along with the dates of such "first-line" inspections. The computerized data base permitted comparison of Comstock Quality Control in-

spector performance over time with episodes of alleged harassment, intimidation, and undue production pressure. As shown in the following sections, the data show no trends or correlations between inspector performance (as measured by agreement rates with CSR and PTL overinspections) and episodes of alleged harassment, intimidation, and undue production pressure.

Dr. Martin R. Frankel, a noted statistical sampling expert, participated in the design of the CSR program and analyzed the results of both the CSR and PTL reinspection programs. Frankel, ff. Tr. 17,082, at 1-4, 12-27. The CSR sampling program made use of both probability samples and nonprobability samples in six different electrical construction categories. *Id.* at 9-10. The total sample for each category consisted of three parts. The first or "random" portion was chosen in such a manner that each item in the population had an equal chance of inclusion in the sample. This is the probability sample. The number of items in the random portion of the CSR sample was sufficient to support a conclusion with 95% confidence that a minimum of 95% of the population is free of design-significant defects, assuming no defects were found in the sample. For the second portion, engineering judgment was used to determine sample size and to select items. This portion emphasized areas of plant construction that had previously exhibited discrepancies or are parts of the safe-shutdown and emergency core cooling systems. About half of this engineering judgment sample portion was selected using random methods. The other half of this portion focused on items that comprise, support, or enclose some of the most significant safety systems. The third portion of the CSR sample was identified as "more highly stressed" items. This included items where structural stress is a significant design factor. A total of sixty-eight "more highly stressed" items was included in the third portion. Kaushal, ff. Tr. 13,068, at 13-16.

No design-significant discrepancies were found in any of the six CSR construction categories and using only the results from the first or random portion of the CSR sample one can conclude with a 95% confidence level that at least 95% of the electrical construction population at Braidwood is free of design-significant defects. *Id.* at 14; Frankel, ff. Tr. 17,082, at 11. Even higher levels of reliability and confidence will result when the reinspection data are combined across all electrical populations. Further, the results of the additional CSR sampling (the engineering judgment sample and the additional sampling of "more highly stressed" items), adds even more confidence to the inferences that may be drawn from the probability sample. Frankel, ff. Tr. 17,082, at 11; Tr. 17,145-47.

Dr. Frankel also looked at Quality Control inspector "agreement rate" data. Agreement rate is defined as the ratio of the number of inspection points within a particular interval determined by CSR inspections to be acceptable (i.e., nondiscrepant), to the total number of inspection points reinspected in the same interval. Since all of the inspections reevaluated in the CSR had been inspected

and approved by Comstock Quality Control in their first-line inspection, it was possible from the agreement rates derived from the CSR data to obtain a measure of the quality of the product of Comstock inspectors. The CSR agreement rates used in the evaluation represented points first inspected during time periods before, during, and after incidents of alleged harassment. Dr. Frankel found that the CSR agreement rates were statistically independent of the time period when the first-line inspections were made. In particular, taking July 1, 1982, when Mr. Saklak became Quality Control Supervisor for Comstock as a dividing point, Frankel observed that the CSR agreement rates prior and subsequent to that date were essentially the same. This comparison, being sensitive to a 1% difference with a 99% probability, says that Mr. Saklak's entrance into the Comstock Quality Control organization had no effect on the quality of the product of his inspectors. Frankel, ff. Tr. 17,082, at 12-20. Dr. Frankel also compared the agreement rates before and after August 1, 1983 (DeWald started as Quality Control Manager) and similarly found no statistically significant difference. *Id.* at 20-21. In examining the results of the PTL overinspections, Dr. Frankel concluded that while there are variations in agreement rate over time, there does not appear to be a strong trend over time. He stated that while there was some indication of increasing agreement rate, the linear relationship between agreement rate and time was quite small. *Id.* at 25-27.

Applicant presented the results of a review of the combined and individual PTL overinspection results of each of the 100 Quality Control inspectors included in the 4-year period from July 1982 through June 1986. Applicant selected an agreement rate of 90% as a threshold for acceptable work by the inspector. Applicant used a fifty-inspection minimum for calculating combined monthly agreement rate averages. Marcus, ff. Tr. 15,568, at 13, 14. For 8 months the agreement rates were below 90%. During four of those months, the agreement rate was within a couple of percentage points of the 90% threshold, and for 1 month there was insufficient overinspection data to draw a conclusion. *Id.* at 17. On only three occasions, the monthly Comstock agreement rate dropped significantly below the 90% threshold level. No single inspector contributed to more than one of the dips in the 7 months where sufficient inspections were made and the agreement rate dropped below 90%. For each of these 7 months, there was a single, technical reason that caused the drop in agreement rate. Each of the seven technical reasons occurred only one time in the 4-year period. *Id.* at 18. None of these technical reasons was related to harassment, intimidation, or undue production pressure. *Id.* at 18-33.

Mr. DelGeorge also reviewed agreement rate data for both the CSR and PTL reinspection programs with particular attention to the class of twenty-four Comstock inspectors who complained of harassment to the NRC on March 29, 1985. From his study of the CSR results, Mr. DelGeorge concluded that the variation in results over time does not reveal any apparent relationship between

Comstock Quality Control inspector performance and the incidents of alleged harassment, intimidation, and production pressure. DelGeorge, ff. Tr. 16,740, at 27-32. As regards the PTL overinspection results, his evaluation of the twenty-four Quality Control inspectors as a class, and individually, also did not reveal any trends over time which would support Intervenors' claim of a pervasive problem. *Id.* at 34-35.

Intervenors presented no witnesses to controvert Applicant's case analyzing the CSR and PTL data. Rather, there was extensive cross-examination of Applicant's witnesses. Intervenors question the independence of the BCAP CSR program even though not a single person on the BCAP task force had any prior involvement with electrical construction work at Braidwood. The only specific point raised by Intervenors was that the Director of the BCAP Task Force was an Edison employee and he reported to Edison's Braidwood Project Manager. Kaushal, ff. Tr. 13,068, at 10. No evidence was presented as to how that relationship compromised the validity of the data collected. The intense regulatory spotlight and the built-in overviews under which the CSR program was conducted would make compromise extremely unlikely.

Question was raised as to the applicability of 10 C.F.R. Part 50, Appendix B criteria to the activities of BCAP. The question is of academic interest only, since it appears that the program was conducted in accordance with the general principles and requirements of Appendix B. Certainly the manner in which the NRC BCAP inspector managed his activities indicated stringent adherence to the requirements of Appendix B. Gardner, Tr. 17,685-88.

Intervenors also questioned the role of Sargent & Lundy, arguing that because it had been responsible for Braidwood's original design and for evaluating and accepting departures from that design, it had a vested interest in accepting its past design and evaluative work. There is no evidence to indicate that Sargent & Lundy's participation in evaluating BCAP discrepancies was anything less than highly professional and impartial. Sargent & Lundy did not perform construction, and there is no reason why it would be adversely affected by identified construction defects. Gardner, ff. Tr. 17,6[illegible]. Additionally, and as mentioned previously, the overall regulatory atmosphere surrounding the BCAP program with virtually continuous oversight by BCAP QA, IEOG, and a full-time resident NRC inspector assigned only to BCAP activities reduced the possibility of lenient treatment of discrepancies to virtually zero. In fact, there is considerable evidence in the record, attesting to the zealousness of the overinspectors, wherein 30 to 40% of the "discrepancies" found by overinspectors were determined not to be discrepancies at all. Marcus, ff. Tr. 15,568, at 17; Kaushal, Tr. 13,338-47.

One of the principal reasons why no design-significant discrepancies were identified is that Sargent & Lundy has provided large design margins in the Braidwood electrical work, over and above code requirements. These margins

arise due to the standardization of components and due to the engineer's recognition that construction work is not always perfect. The record is replete with examples of the design conservatism and much hearing time was spent discussing the subject. Tr. 14,453-60, 14,477-90, 14,641-86, 14,755-805, 15,517, 16,675-76. One example that is illustrative of the conservatism used by Sargent & Lundy is the design for conduit hangers. There are approximately one dozen standard designs for conduit hangers. Each is based on conservative assumptions of maximum conduit size, maximum cable weight, maximum hanger length, and maximum space between hangers, even though all of these conditions will seldom, if ever, be present in any field installation. As regards seismic design, peak seismic accelerations are used even though more refined analyses based on actual component frequencies would result in considerably lower seismic design forces. A further conservatism is provided by manufacturers who typically provide materials that exceed minimum strength requirements to avoid the potential expense of scrapping substandard material. Kostal Revised (Appl. Exh. 179), at 7-9, 17-18, 24-29. There are additional design margins for which no credit was taken in the design-significance evaluations. These are the code-required margins. The code writers typically use a margin of two between failure and code allowable. *Id.* at 18. Moreover, the AWS D1.1 Code indirectly provides additional margin by requiring minimum sizes and lengths for welds. *Id.* at 25. Considering the conservatism in the design, it was not surprising to find very large safety margins even in the presence of discrepancies. For those construction categories where notable discrepancies were found, the average design margin remaining for all welds with discrepancies ranged from 300% above code-allowable stress for cable pans to 900% for conduit hangers. Electrical equipment and cable pan hangers were found to be an average of 500% and 800% above code-allowable, respectively. No notable subjective discrepancies were found in the cable or conduit construction categories. *Id.* at 18-21.

Intervenors wanted the reinspection results stated in terms of items rather than inspection points. Since many items have thousands of inspection points, the Intervenors' method would reject the entire item if one or more discrepant points was found. This is clearly unreasonable and would be misleading. On the other hand, presentation of data on an attribute or inspection point basis with, for example, one weld having seventeen attributes might also be misleading by presenting what might appear to be a high agreement rate. Applicant presented results on both a weld basis and an inspection point basis. Applicant defends its inspection point basis by stating that it permits judgment and meaningful comparison of inspector and inspection performance particularly with respect to items of differing complexity. The strongest argument that Applicant makes in defense of its method of reporting results is that each individual inspection point represents a necessary check of a potentially "design-significant" attribute. On an inspection point basis the CSR results show that over 98% (actually 98.7%)

of the inspection judgments made by Comstock Quality Control inspectors were correct. Analysis of the CSR results a weld basis, produced an agreement rate of about 85%. The corresponding value for PTL overinspections during the period July 1, 1982, through June 30, 1986, is 93%. For the period in which the CSR and PTL data overlap (July 1, 1982, to June 1984) the agreement rates were 89% and 90%, respectively. DelGeorge, ff. Tr. 16,740, at 37-38; Tr. 16,802.

Intervenors argue that agreement rate is not a measure of inspector performance and the exercise revealed nothing except a large number of defects. The Board disagrees. While a direct comparison of inspector accuracy would be desirable, the possibility of a direct comparison is long gone. The discrepancies identified in first-line inspections are referred back to the craft for remedial action and work is not considered complete until accepted by a Quality Control inspector. What Applicant is trying to determine is any change in QC inspection effectiveness (the identification and rejection of bad work) over time to ascertain whether such changes can be correlated with Intervenors' allegations. Applicant's witness Hulin concluded that agreement rates were "the best available behavioral trace measure" and further stated that the CSR and PTL data analyses do a reasonably good job of capturing the accuracy of Comstock's Quality Control inspector performance. Hulin, ff. Tr. 17,924, at 17; Tr. 17,934-35, 18,231-32. The results of the analyses of the reinspection data for the entire period show no significant change in agreement rate. Frankel, ff. Tr. 17,082; DelGeorge, ff. Tr. 16,740; Marcus, ff. Tr. 15,568.

Intervenors say the agreement rates are meaningles because nothing is known of the craft error rate and efficiency of overinspection, and each can have an effect on the agreement rate. The Board disagrees. While there exists the possibility that there might have been changes in either or both craft error rate and reinspector efficiency, there is no information in the record to substantiate any conclusions as to whether there was an effect. Since there was little or no change in agreement rate over considerable periods of time, some imagination is required to foresee that these effects (craft error and overinspection efficiency effects) masked the pervasive effects of intimidation and production pressure described by Intervenors. The more logical explanation is that neither craft error rate, overinspection efficiency, nor agreement rate changed appreciably over the period of study.

Intervenors refer to the problems at Comstock as programmatic, systematic, pervasive, widespread, massive, etc., and "on a scale which distinguishes Braidwood from any recorded case in the annals of licensing proceedings." The reinspection evidence presented covered a 6-year period ending in mid-1986 and encompassed all of the specific acts of intimidation and production pressure that allegedly occurred. There apparently were some mistakes made and there is evidence of some production pressure. There is, however, no evidence of any effect of these on the quality of the Comstock Quality Control inspection

work. Of all t' Quality Control inspectors testifying at the hearing, not one indicated that int...idation or production pressure had an effect on the manner in which he did his work. The CSR and PTL reinspection programs were relatively large as sampling programs go. Even Intervenors' witness Arvey stated that a 10% random sampling program would be very precise if the sampling size were of the order of 10,000. Arvey, Tr. 4435-42, 4447. Each of the reinspection programs greatly exceeded 10,000 observations, the bases upon which inferences may be drawn. In the CSR program, 98.7% of all observations were found to have been correct. Of the 1.3% found to be discrepant, the vast majority was insignificant, and not a single discrepancy was such as to have an effect on the capacity or ability of the component to perform its safety function. Kostal Revised (Appl. Exh. 179) at 22.

VII. GRID INSPECTIONS

Early in the period addressed in these proceedings, that is, in the first part of the 1980s, electrical-related welding was inspected on a grid-area basis in which a designated area of the plant, specified within a local coordinate system, was assigned for inspection. During that period there were few Quality Control inspectors, less than five. All relevant entities within that area were then reviewed by one or more inspector, at a 35% sampling. DeWald, ff. Tr. 1700, at 7. The results were recorded in the inspector's notebook and, at some later time, several days' worth of inspection results were entered into the official report. *Id.* at 24; Holley, Tr. 5176; Martin, Tr. 8285-89. In this grid-inspection procedure, large numbers of inspections were lumped on one inspection report, bearing a single date. That practice is in contrast to the present method in effect since November 1, 1982, when CECo directed that the installations of 100% of safety-related items be inspected and, further, a copy of the inspection report be placed in the file or package for each component, say a cable-pan hanger.[17]

The increased work load reflected in the inspector population which progressively increased to 36 in August 1983, to 77 in May 1985, and to nearly 100 in August 1985. Shamblin, ff. Tr. 16,252, at 28; DeWald, ff. Tr. 1700, at 10.

In the early scheme, as noted, *supra*, many welds located on many components, could have been reported on a single sheet, resulting in a confusing record which, when coupled with the likely changes in item designations, made difficult an identification of an item in the field with an entry on an inspection report. Hunter, Tr. 8892. It was virtually impossible to even correlate the number of welds in a grid with the number on the corresponding inspection report, a

[17] The older method resulted in an apparent record that could be construed as reporting a large number of welds inspected on a single day. Bowman, Tr. 6933-35.

necessary exercise to verify that all welds had been inspected. These discrepancies could have been due to design changes, welds added or removed. They were aggravated by the fact that this exercise extended back into the era when Ernst, the predecessor of Comstock, held the Quality Control inspection contract.[18] Hunter, Tr. 8738-43; Gorman, Tr. 5863.

Although Walter Shewski, the CECo corporate QA manager, was unable to contribute to the discussion, there was agreement between Applicant and Intervenor counsel that the essence of the above grid-system inspection procedure and the confused reporting were correct. Tr. 10,202-07.

In a discussion of the validity of results from samples of various size taken from large populations, Intervenors' witness Arvey testified that a 10% random sample from a population of 10,000 would yield very reliable results with the proviso that if that first sample of, say, welds showed a large number of discrepancies, the sample size should be increased. Arvey, Tr. 4434-36, 4449.

As noted, the program of inspections of electrical items followed in the grid-area scheme consisted of a 35% sample with an enlargement if an inordinate number of discrepancies were found. The weld population sampled was large. Additionally, this pre-November 1, 1982 work was caught in the BCAP reinspection program.[19] As noted elsewhere in this Decision, the BCAP reinspection revealed no discrepancy sufficiently severe to affect the capacity or ability of an item to perform its safety function. *See*, for example, Kaushal, Appl. Exh. 179, at 22. Accordingly, the Board discerns no cause to be concerned about the utility of that Braidwood construction which was initially inspected by the "grid-area" scheme.

VIII. CONCLUSIONS

This case involves many questions of perceptions and credibility in addition to questions of pure fact. It is not the typical type of case brought before a licensing board. The Board is not asked to judge the adequacy of the design or the suitability of the materials used in the construction of Braidwood. We are asked to evaluate the quality of the electrical systems installed by Comstock only insofar as the quality might have been affected by poor quality control inspection. We are asked to determine whether Comstock Quality Control inspectors were harassed, intimidated, threatened, or pressured from adequately performing

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[18] The time and effort required to review and remedy these ancient historical records together with the increased work load, 100% sample up from 35% (Int. Exh. 205, Attach. III), contributed to the infamous "backlog" of inspection data alleged to have been the cause of undue work pressure put on inspectors more recently. DeWald, ff. Tr. 1700, at 7. This work backlog, which at one time was composed of 14,000 welds and 50,000 documents to be reviewed, was eliminated in September 1984. Shamblin, ff. Tr. 16,274, at 17.

[19] The BCAP reinspection program reviewed all safety-related construction at Braidwood which had been completed as of June 30, 1984. Kaushal, ff. Tr. 13,068, at 3.

their duties in accordance with applicable requirements. The harassment allegations are directed toward both Applicant CECo and Comstock managements and center around three questions. Did the Commonwealth Edison Company intentionally and unreasonably pressure Comstock's Quality Control managers to increase productivity? Second, as a result of this pressure or for whatever reason, did Comstock Quality Control managers systematically engage in conduct intended to pressure Quality Control inspectors to overlook deficiencies and accept discrepant work? Lastly, assuming production pressure was imposed on the inspectors, did they succumb to that pressure? There are some other issues but they are all related to the above three questions which constitute the heart of the harassment matter. The issue of discrimination is also related to the above three questions and involves only a few of the inspectors, notably Messrs. Puckett, Seeders, Martin, and Archambeault, although others might be included.

In answering the first question, the record clearly indicates that there was substantial pressure imposed on Comstock Quality Control management to reduce the backlog of inspections. Not reducing the backlog would inevitably result in an inability to ascertain the quality of a rapidly expanding volume of installed work. Such a consequence made reducing the backlog an absolute necessity. Given the requirement of reducing the backlog, the actions of Mr. Shamblin, Applicant's principal instrument on site, appeared to be necessary and reasonable. Comstock Quality Control management performance is not quite as readily characterized. From the privileged position of looking back at other's actions, there is little doubt in the Board's view that some things should have been done differently. Mr. Saklak was obviously better suited to ride herd over production workers than safety inspectors. Although he might not have had any more success with welders than he had with Comstock's inspectors, his bullying tactics are almost universally rejected and it is not surprising that such actions resulted in his termination. The transfer of John Seeders following a complaint letter to Quality Control Manager DeWald was viewed as a vengeful act by Intervenors. The issue was fully ventilated in the hearing with the result that the transfer appeared to be in the best interest of all parties. Mr. Seeder's work performance record in the months immediately preceding his transfer show a plethora of procedural violations and an inattention to detail combined with a disdain for compliance with schedules. His performance after transfer has been exemplary. As to Worley Puckett, he should have been hired for the position he originally applied for. He went to Braidwood for a job as a Level II Quality Control weld inspector, possibly the most qualified man in the country for that job. Based on the evidence in this record, his strength was not in interpreting weld procedures or welding codes, a task for which he was hired as a Level III inspector at Braidwood by Comstock. Because he was ill-suited for the task, his performance was not what Comstock needed and he was fired. While the Board is of the opinion that Comstock management had sufficient justification to re-

move Mr. Puckett from his position as a Level III at Braidwood, its handling of Mr. Puckett from the initial mistake of hiring him for that post to his termination bespeaks of a management lacking in judgment and communicative skills. The firing of two other Quality Control inspectors for inspecting welds through paint contrary to procedure appeared to be justified. Mr. Archambeault's allegations were both personal and quality related. All of his QC-related allegations were found without substance or were resolved. His personal complaint was his objection to working the night shift. There appeared to be good and sound reason for night-shift assignment and there is no reason why the issue should have been before the Board. Most of the cable-pulling operations were conducted at night so as not to interfere with other craft operations. He was eventually transferred to day shift when the work load permitted.

Although we agree that some actions taken in dealing with Quality Control inspectors crossed the line of acceptable behavior even for a large construction site, on balance and in consideration of the overall environment in which all of the actual or perceived instances of harassment or production pressure took place, we do not find these indiscretions of sufficient severity to warrant the precipitous action of license denial. The severity and consequences of such unacceptable behavior might reach for civil penalty but the majority of this Board, in a close call, declines to do so. There is no evidence that any of the demonstrated instances of harassment or production pressure was intended to have an effect on the quality of the inspection or to promote the failure to observe defects in workmanship. A consideration of the union organizing activity which was concurrent with many of the allegations, the inspector shortage, wage and work hour considerations, and *inter alia*, the notion that an inspector should provide a day's work for a day's pay are all included in our decision not to pursue a recommendation for license denial or civil penalty. That is not to say that some other arm of the Commission might see the issues in another light and move accordingly.

With respect to the third question, "Did the inspectors succumb to the pressure?", even our dissenting colleague agrees that they did not. We find that the Quality Control inspectors, in spite of management harassment and schedule pressure, performed their inspection duties in a professional manner, and the fruit of their labors was not poisoned by management's actions. The Board subscribes to the judgment of a witness who described the inspectors as members of a group that are proud and protective of their technical skills and personal integrity. Their technical skill and integrity represent their job security and their families' livelihood, but even more importantly, these are their badge of acceptance in the work arena. The witness suggested that an inspector working alone at his job will scrupulously protect these, his most basic assets, unaffected by external group dissension. We agree. Our personal observations of the demeanor and the testimony of more than a dozen Comstock Quality

Control inspectors confirms those impressions. The Board notes the position taken by the Intervenors on the value of testimony by witnesses describing their professional behavior when under the alleged work pressure and subjection to harassment. The Intervenors deprecatorily dismiss the sworn statements by inspectors asserting that, though the conditions in their workplace may have been clouded by strained management-employee relations, the quality of the inspections was unaffected and that there was no compromise in the construction of Braidwood. Intervenors claim such evidence to be self-serving, that, under the circumstances, nothing different could have been expected and, therefore, it should be heavily discounted. On the other hand, the Board observes that not one shred of information was presented to it describing and authenticating any significant shortcoming in the Braidwood construction that has not been identified, evaluated, and corrected as necessary.

The Board finds reasonable assurance that the Braidwood Plant has been properly constructed and can be operated without endangering the public health and safety. Our finding in that regard is buttressed by the results of two large reinspection programs presented as rebuttal evidence in this proceeding. The major thrust of this evidence established that there was no discernible difference in the inspection agreement rates between Comstock inspectors and the reinspectors before, after, or during periods of alleged harassment. If harassment and intimidation occurred on a scale commensurate with Intervenors' allegations, it should have manifested itself in the results of both reinspection programs. No effect was observed. Additionally, and of assistance to the Board in reaching a conclusion on the ultimate issue, is the fact that not a single one of the discrepancies found in either reinspection program was such as to have an effect on the capacity or ability of the component to perform its intended safety function.

IX. CONCLUSIONS OF LAW

In reaching this Decision, the Board has considered all the evidence submitted by the parties and the entire record of this proceeding. That record consists of the Commission's Notice of Hearing, the pleadings filed by the parties, the transcripts of the hearing, and the exhibits received into evidence. All issues, arguments, or proposed findings presented by the parties, but not addressed in this Decision, have been found to be without merit or unnecessary to this Decision. Based upon our findings which are supported by reliable, probative, and substantial evidence as required by the Administrative Procedure Act and the Commission's Rules of Practice, and upon consideration of the entire evidentiary record in this proceeding, the Board, with respect to the issues in controversy before us:

CONCLUDES that the Applicant, Commonwealth Edison Company, has met its burden of proof on each of the issues decided in this Initial Decision. As to these issues, there is reasonable assurance that the Braidwood Station, Units 1 and 2, can be operated without endangering the health and safety of the public.

X. ORDER

WHEREFORE, in accordance with the Atomic Energy Act of 1954, as amended, and the rules of the Commission, and based on the foregoing, IT IS ORDERED THAT:

The Director of Nuclear Reactor Regulation is authorized, upon making the findings on all applicable matters specified in 10 C.F.R. § 50.57(a), as to each respective reactor unit, to issue to the Applicant, Commonwealth Edison Company, a license or licenses to operate the Braidwood Station, Units 1 and 2; provided, that prior to authorizing operation beyond 5% of rated power, the Director shall assure compliance with the conditions stated in our Partial Initial Decision on Emergency Planning issues dated May 13, 1987.

Pursuant to 10 C.F.R. § 2.760 of the Commission's Rules of Practice, this Partial Initial Decision shall become effective immediately. It will constitute the final Decision of the Commission forty-five (45) days from the date of issuance, unless an appeal is taken in accordance with 10 C.F.R. § 2.762 or the Commission directs otherwise. *See also* 10 C.F.R. §§ 2.764, 2.785, and 2.786.

Any party may take an appeal from this Decision by filing a Notice of Appeal within ten (10) days after service of this Partial Initial Decision. Each appellant must file a brief supporting its position on appeal within thirty (30) days after the period has expired for the filing and service of the briefs of all appellants (forty (40) days in the case of the Staff); a party who is not an appellant may file a brief in support of or in opposition to the appeal of any other party. A responding party

shall file a single, responsive brief *only* regardless of the number of appellants' briefs filed. *See* 10 C.F.R. § 2.762.

IT IS SO ORDERED.

THE ATOMIC SAFETY AND
LICENSING BOARD

Dr. Richard F. Cole
ADMINISTRATIVE JUDGE

Dr. A. Dixon Callihan
ADMINISTRATIVE JUDGE

Bethesda, Maryland
May 19, 1987

APPENDIX

Exhibit No.	Description	Marked	Received
	APPLICANT'S EXHIBIT LIST		
1	5/12/84 Memo from DeWald to Mennecke re L 2790.	1823	1840
2	9/27/84 DeWald memo re Seeders termination.	1905	1906
3	LKC Proc. 4.11.3 (stop work), 3/31/83.	2213	2221
4	DeWald 9/25/84 review of Seeders 8/17/84 letter.	2946	2946
5	DeWald evaluation of Puckett's 8/22/84 test.	3084	16,579
6	Vogt test key.	3086	16,580
7	Excerpts of S&L 2790 plus Am. 40 718-84.	3324	3529
8	Am. 48 excerpt for S&L 2790, 11/4/85.	3324	3529
9	S&L Form 1701.	3324	3529
10	LKC Proc. 4.3.3, Rev. C.	3324	3529
11	LKC Proc. 4.3.3, Rev. F.	3324	3529
12	AWS D1.1-1975.	3324	3529
13	NCRs 3710, 4649 thru 4656, 4795, 5014 thru 5018, 5028-29, 5044.	3499	3529
14	AWS D1.3-1978.	3525	3530
15	AWS D1.3-1981.	3525	3530
16	S&L Spec. 2790 thru Am. 39, 6/13/77 (and 5/84).	3527	3530
17	Am. 40 to S&L Spec. 2790, 7/18/84.	3527	3530
18	Am. 41 to S&L Spec. 2790, 8/31/84.	3527	3530
19	Am. 42 to S&L Spec. 2790, 11/9/84.	3527	3530
20	LKC Proc. 4.3.10, Rev. C (12/20/83 eff.).	3532	3551
21	LKC Proc. 4.3.10, Rev. D (9/11/84 interim).	3532	3551

Exhibit No.	Description	Marked	Received
22	LKC Proc. 4.3.10, Rev. E (interim approval).	3532	3551
23	LKC Proc. 4.3.3, Rev. D.	3650	3652
24	LKC Proc. 4.9.1, Rev. C, Seeders Dep. #4 (12/30/83).	3966	4053
25	LKC Proc. 4.9.4 (5/22/81).	3984	4053
26	7/28/84 (Upper right-hand corner), Seeders' writing/Snyder's writing work day (7/21/84 Saturday).	3989	7497
27	CECo QA 20-84-528 audit, 5/21/84 (calibr. audit).	3997	
28	27-Page calibr. audit report, 9/27/84, Snyder, Sproull, Coss.	4053	4175
29	Portions of LKC ICR log, Jan. 18, 1983, thru Dec. 14, 1984 (ICR 2293 thru 7574).	4079	
30	Package of materials — Form 77s for torque wrench A872; torque wrench calibr. records PGCo, 3/24/83; 6/29/84.	4095	4175
31	Form 77s torque wrench A985, and a Form 23.	4115	4175
32	Form 77s T.W. A1366; PGCo calibr. certificate, 7/13/84.	4118	4175
33	Form 77s T.W. 9702; PGCo calibr. certificates.	4136	4175
34	Form 77 T.W. 6018; PGCo calibr. certificates.	4143	4175
35	Form 77s T.W. A174, 8/15/83.	4147	4175
36	LKC NCR 3406, 10/9/84.	4149	4175
37	LKC NCR 3419 — 1st 5 pp., 10/11/84.	4160	4175
38	LKC Proc. 4.9.1, Rev. D.	4165	4175
39	NRC Form 3 (Notice to Employees).	4402	4439

Exhibit No.	Description	Marked	Received
40	LKC Proc. 4.11.2, Rev. B (ICRs).	4543	4616
41	Saklak to DeWald, 10/17/84 (commendation to terminations inspectors).	4742	4921
42	Seltmann to QC inspectors, 8/24/84 (backlog completion and OJR delay).	5146	5256
43	Employee performance appraisal and development plan for Puckett, July 1, 1980, to May 1, 1981.	5313	5357
44	Memo from Goedecke to Geri Keegan, 10/29/81.	5313	5357
45	Performance evaluation for Puckett, 10/5/81 to 4/15/82.	5313	5357
46	Memo from Goedecke to Don Biller, 4/20/82.	5313	5357
47	Performance evaluation for Puckett, 5/15/82 to 4/1/83.	5313	5357
48	Metals Engineering Institute course/tests and certificate of Puckett's completion.	5329	5357
49	NRC Inspection Report on CG&E, 3/25/83, No. 32-10.	5335	
50	LKC Form 58 — Puckett's required reading log.	5358	5520
51	NRC Inspection Report on Braidwood, 11/21/85, No. 85-09.	5362	
52	Memo from Puckett to DeWald, 8/9/84 (recommending stop work on A-36 to A-446).	5390	5520
53	Memo from Puckett to DeWald, 8/13/84 (recommending stop work on A-36 to A-446).	5391	5520
54	LKC (Rolan?) memo stopping work on A-36 to A-446.	5393	5520

Exhibit No.	Description	Marked	Received
55	Another version of Int. Exh. 28, LKC NCR 3099 (Miner's NCR per Puckett instructions).	5395	5520
56	"Personal letter" from Puckett to DeWald, 8/22/84.	5441	5520
57	LKC Proc. 4.3.14, eff. 9/17/80, until 5/85 (stainless steel welding).	5501	5520
58	LKC NCR 3145, dated 8/24/84.	5532	5605
59	LKC NCR 3145 (later version — through on bimetallic weld reference).	5554	
60	Group LKC NCRs (LKC NCR 388, 10/23/81; NCR 2552, 5/22/84; NCR 2536, 6/13/84; NCR 2571, 6/19/84; NCR 2572, 6/19/84; NCR 3423, 10/12/84).	5559	
61	Memo to Puckett from Tier dated July 12, 1984.	5583	5605
62	Response from Puckett, dated July 26, 1984.	5583	5605
63	Inspection Report 84-13, August 7, 1984.	5595	
64	DeWald to Puckett, dated 7/6/84.	5626	5678
65	Puckett to Saklak "April 1st, 1984," rec'd 8/17/84.	5626	5678
66	Puckett to Saklak, August 17, 1984.	5626	5678
67	CMTR for Heat No. 401S7441, 402S9011, 3S202061.	5643	
68	Puckett's review of welder qualification records.	5678	
69	Memo from Simms/Seltmann to _____, 8/6/84, re fab shop audit.	6146	
70	(Indoctrination) weld test facility, 3 pp.	6189	6314
71	Rules for LKC test facility, Puckett's 2 pp.	6189	6314
72	McGregor to Weil, August 28, 1984.	6279	6314
73	Comstock Proc. 4.7.1, Rev. A.	6297	6314

Exhibit No.	Description	Marked	Received
74	LKC NCR 3276.	6297	6314
75	LKC welder qualification log.	6297	6314
76	Puckett's welding practical exam with Nemeth's notes, 7/6/84.	6681	6721
77	PTL QC document transmittal re Report Nos. MWQ-530, MWQ-531, MWQ-532, MWQ-533.	6716	
78	Memo from T. Bowman to DeWald, dated 12/8/84.	6813	6846
79	Memo from DeWald to Mennecke, dated 12/10/84.	6824	6846
80	LKC audit of Aug. 15-17, 1983.	7295	9469
81	CECo Audit Report 20-83-59.	7298	
82	LKC written warning to Seeders, 12/5/83.	7308	7499
83	CECo QA audit 20-84-528, dated 5/21/84 (same as Appl. Exh. 27).	7314	
84	7-Page memo — virtually all Seeders' handwriting, A960 Pyrocon, 5/22/84.	7324	
85	Memo from Seltmann to Mazur, 7/23/84.	7343	7506
86	Memo from Seltmann to Mazur, 8/14/84.	7348	
87	Memo from Dominique to DeWald, 8/21/84.	7355	
88	Memo from Seeders to DeWald with Saklak/ Seese notes re overtime, dated 8/16/84.	7371	7510
89	September request for overtime by Seeders.	7381	7510
90	MRRs for 1-week period of Seeders' August 1984 work load.	7385	16,608
91	LKC Proc. 4.10.2, Rev. B — procedure for material inspections.	7410	
92	Memo to file from Gieseker, dated 8/22/84, re Seeders.	7465	
93	Memo to file from Gieseker, dated 8/23/84, re meeting with Seeders and Tapella.	7470	

Exhibit No.	Description	Marked	Received
94	Memo from DeWald to Seeders re termination and voiding by DeWald 9/27/84 (9/28/84).	7489	
95	Memo from DeWald to Seeders re transfer of 9/28/84.	7489	
96	Memo from Marino to file re Saklak, dated 4/8/85.	8146	8236
97	DeWald training session Form 101s of all QC department re production pressure, dated January 1985.	8171	8190
98	Memo from Corcoran to Saklak/Kast, files dated 12/21/82, re certification of supervisors.	8182	8217
99	Request for inspection #532 re hanger 12 H 35, and signed by R.D. Hunter, 3/10/86.	8942	9042
100	Form 19 by R.D. Hunter, 3/10/86, for hanger 12 H 35.	8952	9042
101	Tom Skidmore's April 16, 1986 memo re Hunter/Arndt termination.	8996	
102	Photograph of a portion of hanger 12 H 35 taken on 3/24/86.	9004	
103	Group exhibit — copies of Martin weld inspection notebook I-VIII.	9384	9396
104	Martin notes of Saklak tape incident.	9404	9560
105	May 7, 1985 request by Perryman to Lamb & Landers for transfer out of walkdown.	9759	9788
106	Letter from Shamblin to DeWald, dated 5/21/85, with attachment, Rev. 2, to dispositioning of NCR 708/709 and cable pan walkdown.	9763	9788
107	Letter from Shamblin to DeWald, dated 5/27/85, with Rev. 3 of cable pan walkdown procedure and dispositioning NCR 708/709.	9766	9788

Exhibit No.	Description	Marked	Received
108	Memo to DeWald from Schriner & Simile with personnel log form for 5/28/85 re Rev. 3 of cable pan walkdown.	9768	9788
109	Memo from McGregor and Schulz, 3/29/85 (with McKirnan notes).	10,277	10,392
110	Memo from Weil to Norelius, 4/5/85 (with McKirnan notes).	10,277	10,392
111	Memo from McGregor and Schulz to Warnick & Williams, 3/29/85 (with McKirnan notes).	10,277	10,392
112	Excerpt from Holley deposition, pp. 86-91 (with McKirnan notes).	10,277	10,392
113	Perryman deposition excerpt, pp. 82-85 (with McKirnan notes).	10,277	10,392
114	Excerpt from Snyder deposition, pp 78-83 and Snyder deposition Exh. 5 (with McKirnan notes).	10,277	10,392
115	Excerpt from T. Stewart deposition, pp. 41-57 (with McKirnan notes).	10,277	10,392
116	Shewski excerpt of deposition, pp. 1-3 and 185-90.	10,419	10,420
117	Memo from Weil to Norelius re allegation regarding qualifications of LKC inspectors.	11,717	11,718
118	Letter from Shamblin to Wallace re steps of LKC re address inspector morale problems; and, 1.0.0 policy statement and personnel instruction logs.	11,845	
119	Memo from Wm. Dircks, Director of Operations, to BDO office, Directors Reg. Administrators.	11,955	11,956
120	S&L Spec. L 2790, Amendments through 42.	12,465	12,883
121	S&L Spec. L 2790, Amendments through 48.	12,465	12,883
122	Group exhibit, volumes I-V, excerpts from CECo Spec. L 2790 original contract.	12,472	12,882
123	Proc. 4.3.8, Rev. G.	12,570	12,661

Exhibit No.	Description	Marked	Received
124	LKC cable installation, Proc. 4.8.8, Rev. D.	12,570	12,661
125	LKC procedure tracking sheet, Proc. 4.3.8, Rev. G, *in camera*.	12,623	12,624
126	9/2/86 Memo from Weil to Norelius, re employment discrimination allegation involving the L.K. Comstock Company at Braidwood, *in camera*.	12,637	12,637
127	Chart prepared by Guild, rescinded (forerunner of Int. Exh. 145).	13,389	—
128	O'Conner to Keppler, 8/30/84.	13,757	13,758
129	Extract from Gardner deposition.	13,814	13,822
130	Observation CSR-R-M-1-005 (red line).	13,828	13,833
131	BCAP does re cable selection.	13,835	13,849
132	History of CBL 001.	13,849	14,254
133	Warry-Patterson, 1/2/85.	13,907	14,139
134	List of attributes excluded.	13,908	13,916
135	Conduit support reverification.	13,927	13,940
136	BCAP observation CSR-R-E-CND-110.	13,948	13,968
137	Paper V-1 to V-3 from BCAP program document.	13,967	13,967
138	ERC report.	13,973	—
139	8/13/86 Surveillance 5624; NCR 451 attached.	13,979	13,981
140	10/6/86 Orlov to Guild.	13,988	14,253
141	9/30/86 Steptoe to Guild.	13,995	13,995
142	Invalid and out-of-scope compilation by G. Orlov.	14,035	
143	10/9 Wozniac's drawing of an "easy" item WS-conduit hanger.	—	15,140
144	Mr. Shevlin's "hard" item cable pan.	15,141	

Exhibit No.	Description	Marked	Received
145	Kostal sketch of SCC weld.	14,332	14,333
146	Kostal sketch of weld cross-section.	—	15,142
147	Thorsell sketch of cable array.	—	15,142
148	Thorsell sketch of cable cross-section.	—	15,143
149	Kostal sketch of conduit hanger and table.	14,516	15,143
150	Kostal sketch of conduit hanger discrepancy; out of position.	14,533	15,143
151	S&L proposal tach. data for 600-volt cables.	14,627	15,144
152	S&L elec. cable installation info drawing 0-30008.	14,627	15,144
153	Bending-radius observations.	14,964	14,978
154	Thorsell sketch limit switch and min. bend radius of conductors.	14,963	15,145
155	Thorsell letter to Okonite, dated 10/13/86, re Cable IVP004.	14,977	14,970
156	Okonite letter to Thorsell, dated 10/14/86, re Cable IVP004.	14,979	—
157	Kostal sketch of stress planner.	15,031	15,516
158	Kostal sketch of CPH 104 for seismic analysis.	15,031	15,516
159	Sketch tray loads: comparison of "original analysis and new analysis."	15,036	15,145
160	Conduit hangers: more highly stressed, revised.	15,056	15,074
161	Hanger support loads over 90%.	15,064	15,074
162	S&L Design Proc. 19.3.1, 9/25/85.	15,138	15,140
163	Kostal's sketch of material "cents" failure graph.	15,485	15,516
164	S&L trend analysis — tables and text.	15,496	15,514

Exhibit No.	Description	Marked	Received
165	BRIMOIX PTL overinspection painted/ nonpainted.	15,825	15,850
166	Correspondence from Cordell Reed to Keppler re SALP IV (late 1984).	15,834	15,851
167	Four Simile photos of hanger (AR002187-2190).	16,037	
168	Puckett weld coupons.	16,507	16,579
169, 170, 171		16,507	16,579
172	S&L procedure for weld recount.	16,670	16,691
173	____ counting from CBH 104-004 (4 pp.)	16,670	16,691
174	BCAP verification pading CPH 104-004.	16,670	16,691
175	Struct. eng. div. calculation CPH 014-004.	16,670	16,691
176	Summary of changes in weld discrepancies and disc. weld.	16,678	16,691
177	Kaushal Attach. 3, Rev. 2, 10/30/86.	16,680	16,691
178	Kaushal Attach. 4, Rev. 2, 10/30/86.	16,681	16,691
179	Kostal testimony with revised weld counts.	16,683	16,691
180	Seismic calc. CPH 104.	16,685	16,691
181	Int. Exh. 145 with revised weld counts.	16,687	16,691
182	DelGeorge recalculation of agreement rate — case 1.	16,918	17,047
183	DelGeorge recalculation of agreement rate — case 2.	16,959	17,047
184	DelGeorge recalculation of agreement rate — case 3.	16,961	17,047
185	Excerpts from NRC Inspection Report 8203.	17,483	
186	Interviews of a.. QC inspectors except Kimball.	18,296	18,296

Exhibit No.	Description	Marked	Received
187	Designated portions of Goedecke deposition, 3/12/86.	—	—
188	8/1/83 CECo response/closeout of GO audit of contractors' records (referred to in Int. Exh. 225).	—	—
	INTERVENORS' EXHIBIT LIST		
1	March 2, 1983 memo to Kast and Saklak from Corcoran.	1232	1238
2	1/17/83 Letter to Spessard from Wallace.	1239	1243
3	1/31/84 Specific trouble report and letter to Reed from Spessard, 1/27/84, plus 1/27/84 NRC I.R. 83-18.	1244	1245
4	QA manpower recap.	1260	1260
5	3/19/84 Memo to Paserba from DeWald; 3/16/84 Memo to Cosaro from Wallace.	1266	1267
6	3/2/84 Letter to Keppler from Swartz.	1278	1278
7	3/23/84 Letter to Keppler from DelGeorge.	1297	1297
8	6/9/84 Letter to Rolan and DeWald from Shamblin.	1316	
9	5/18/84 Memo to Mennecke from DeWald.	1304	1316
10	5/21/84 Memo to Mennecke and Quaka from DeWald.	1326	1326
11	11/6/84 DOL letter to Trumble from Daniel P. New re *Puckett v. Comstock.*	1328	1328
12	6/5/84 Memo to Rolan from DeWald re BR-PCD 84.	1341	1343
13	2/6/85 Letter to Rolan from Shamblin re LKC Proc. 4.13.1 and 4.13.2.	1364	1364

Exhibit No.	Description	Marked	Received
14	3/8/85 Memo to Shamblin from DeWald.	1369	1369
15	4/19/85 Memo to Rolan from DeWald re manpower.	1379	1379
16	2/7/85 Memo to distribution-attendees from DeWald re site meeting minutes, 2/7/86.	1385	1386
17	DeWald — certificate of qualifications.	1432	1434
18	1/2/85 Memo to Mennecke from DeWald re Asmussen letter dated 12/14/84.	1475	1475
19	DeWald checklist.	1493	1509
20	LKC forms.		
21	Comstock QC evaluation form (Martin), 1/30/85.		
22	4/29/85 Letter to DeWald from Quaka re BR/PCD 85-288, 3/29/85.	1599	1580
23	8/17/84 Letter to DeWald from Seeders.	1583	1584
24	Nonconformance reports.	1584	1596
25	9/5/84 Handwritten letter to Dept. of Labor.	1596	1637
26	Resume of Worley O. Puckett.	1651	1651
27	Discharge forms — Worley Puckett.	1658	1659
28	Nonconformance report — LKC 3099+ documents.	1688	1699
29	Weld procedure meeting, 8/22/84.	1704	1705
30	7/6/84 Memo to Puckett from DeWald re NRC finding on weld rod control.	1704	1706
31	Various LKC memoranda to DeWald, Saklak, Puckett, Rolan.	1704	1714
32	R. Saklak personnel file review.	1760	1760
33	Larry Seese's diary.	2388	2473
33-A		2472	2473

Exhibit No.	Description	Marked	Received
34	LKC NCR 4762.	2450	2451
35	Perryman's requests for transfer (three memos in May 1985).	3428	3440
36	Paserba (LKC) letter to Shamblin, 4/1/85.	3870	3872
37	Saklak's letter to Shamblin re termination.	3878	3879
38	Shamblin letter to Saklak, 6/6/85.	3883	3886
39	Shamblin letter to Marino, 6/6/85.	3883	3886
40	Form addressed to Preston, 8/20/85, re Saklak — laid off.	3883	3886
41	March 13, 1985, NRC to Forney from from McGregor.	4322	4322
42	Group exhibit (3/29/85, 3/29/85, 4/5/85), expurgated version.	4601	4604
42A	Same as Int. Exh. 42, except unexpurgated and *in camera*.	4602	4604
43	Handwritten notes [DeWald] of 11/20/84 meeting involving Saklak and Rolan.	4780	4810
44	DeWald memo to R. Saklak file, 11/20/84.	4800	4810
45	Written warning to Saklak, dated 11/20/84.	4809	4810
46	Evaluation of Puckett by Kaiser at Zimmer.	6357	6359
47	Summary of W.O. Puckett history.	6421	—
48	August 2, 1983 Corcoran allegation to NRC.	6756	
49	Seese memo, dated 12/3/83 (Wicks).	7124	7124
50	DeWald memo, dated 12/5/83 (Wicks).	7124	7124
51	August 20, 1982 evaluation of Saklak by Brown.	8001	8006
52	September 14, 1983 evaluation of Saklak by DeWald.	8007	8010

Exhibit No.	Description	Marked	Received
53	December 22, 1983 "6-month evaluation" of Saklak by DeWald.	8011	8016
54	Wage rate change effective January 1, 1984, signed by Marino re Saklak.	8016	8018
55	Annual review by DeWald of Saklak, January 30, 1984.	8019	8021
56	January 5, 1985 review of Saklak by DeWald.	8022	8025
57	January 1985 payroll change notice for Saklak from Paserba and Marino.	8025	8027
58	January 20, 1984 payroll change notice for Rick Martin.	8264	8317
59	September 1982 memo to Kast/Corcoran re Level II and Martin certs.	8304	8316
60	Kast/Corcoran memo re Martin certs, dated December 7, 1982.	8321	8327
61	October 6, 1983, from DeWald to Martin re certs removal based on CECo audit [pre-copies checkmarks; inspections while uncertified].	8327	8334
62	Memo to DeWald from Hii and Seese re Martin evaluation, dated November 17, 1983.	8396	8415
63	Memo dated 2/6/84 from Seese to McGuigan file re Martin reinspection.	8418	8422
64	Memo dated 2/13/84 from DeWald to Netzel re reinstatement of Martin certs.	8424	8431
65	Memo dated 2/4/85 by Seese — read and reply re Martin certs and upgrade to Rev. C.	8437	8437
66	Group exhibit of Hunter speedy memos requesting training.	8507	8515
67	R.D. Hunter's review of the thirteen hangers he had previously inspected.	8598	8618

Exhibit No.	Description	Marked	Received
68	Two-page letter authored by R.D. Hunter (handwritten), dated 3/25/86.	8606	8618
69	VW[illegible]C 2-page handout from CECo.	8621	8628
70	Two-page letter to Quality First.	8636	8679
71	Request for inspection on hanger 13 H 13 and Bowman's analysis.	9064	9066
72	Employee warning to R. Martin, 1/7/82.	9159	9162
73	Employee warning to R. Martin in 7/82 by Mike Kast.	9162	9165
74	Employee warning to R. Martin on 10/6/83 by Saklak for documentation practices.	9166	9173
75	D[illegible]ald memo to file re R. Martin de[illegible]ication of 10/83.	9173	9177
76	12/4,[illegible] Work performance memo from Seese to Martin.	9178	9186
77	Handwritten note from Martin, dated 10/29/84 and 10/30/84.	9182	9188
78	1/5/85 Memo between Seese and DeWald.	9197	9199
79	1/29/85 Warning to Martin for reading college book.	9202	9202
80	Cover sheet of Int. Exh. 21 plus Attach. A.	9205	9469
81	Memo dated 4/8/85 from Seese re Martin talking to Nemeth during Nemeth working hours (7:52 a.m.).	9206	9208
82	Group beginning 4/10/85 memo from Rolan, Sr. (5 pp.) and at end is another warning to Martin dated 4/85 (4:22 clocked out).	9208	9213
83	Threatening notes to Rick Martin a/k/a "Opie" of 2/84.	9252	9270

Exhibit No.	Description	Marked	Received
84	OI investigation of Rick Martin threats from craft in 2/84.	9264	
85	Drawing of Martin weld stamp.	9586	9586
86	Letter from Keppler to J.J. O'Conner, dated 2/2/83, re NRC I.R. 82-05.	10,001	10,028
87	Subject: Braidwood technical support group evaluation, signed by Maily and Wallace.	10,015	10,028
88	Letter from Keppler to O'Conner, dated 5/7/84.	10,051	10,095
89	BPI's FOIA request to NRC of 11/21/85.	10,610	10,613
90	July 11, 1985 memo from Schulz to McGregor.	10,618	11,669
91	9/25/84 Memo to Forney from Schulz re QC inspector concerns (0119-1).	10,659	10,663
92	USNRC Outgoing transmission service request, 12/28/84, to Forney from Schulz (re meeting with CECo Project Manager and Construction Superintendent, who then met with LKC Manager.	10,706	10,706
93	9/13/85 NRC memo from Weil to Norelius (0119-3).	10,707	10,713
94	2/24/86 NRC memo from Pelke (tracker of allegations) to Region III file (0119-5).	10,714	10,718
95	NRC memo from Gardner to Warnick and Weil re LKC QC inspector who may discredit mang. (125).	10,722	10,723
96	4/17/85 NRC memo by Pelke of allegation review board minutes and assignment of investigation to Mendez (66).	10,723	10,912
97	Memo from DeWald to Mennecke and Quaka, dated 5/12/84, re L 2790.	11,078	11,079
98	Dave Thomas LKC checklist located by Mendez.	11,339	11,340

Exhibit No.	Description	Marked	Received
99	NRC memo to Little from Hayes, dated 3/16/84, re Braidwood followup.	11,458	11,463
100	NRC memo to Knop from Hayes re comments for second meeting with CECo on QA problems.	11,458	11,477
101	2/6/84 Memo from McGregor to Weil with 4-page attachment ("Opie" materials) (*see* Int. Exh. 83).	11,492	11,503
102	NRC memo to McGregor and Schulz from Forney re division of responsibilities and assignment as SRI.	11,507	11,509
103	NRC memo to McGregor and Schulz re modification of responsibilities, dated 10/31/84.	11,522	11,528
104	NRC memo from Schulz and McGregor to Greenman re ACRS Conference 2/7/85 (?).	11,528	11,546
105	NRC memo from Little to Schulz re BCAPs, dated 7/19/85.	11,614	11,627
106	NRC memo from Schulz to Little in response dated 7/23/85.	11,635	11,642
107	NRC memo from Little to DRS inspectors re final walkdowns, dated 3/19/86 with attachments from Schulz and McGregor.	11,682	11,696
108	Memo by Archambeault shortly before going to NRC in 6/86, re Archambeault allegations.	12,141	—
109	Resume of Gregory Joseph Archambeault.	12,14?	12,173
110	Cable Card Attach. "A1" to insulation procedure, re Archambeault.	12,150	12,173
111	Division-Color-Segregation Code Table Attach. "C1," re Archambeault.	12,154	12,173
112	LKC — Cable Raceway Release Attach. "B," re Archambeault.	12,160	12,173

Exhibit No.	Description	Marked	Received
113	LKC — QC cable-pulling checklist, re Archambeault.	12,172	12,173
114	LKC Kellum grid, Attach. J-1 of the installation procedures (photograph).	12,214	12,214
115	Memo from Archambeault to Revels, 3/4/86, re cable violations.	12,233	12,261
116	NCR 4987, 3/19/86, originator Archambeault, QC Mgr. Seese, re cable installation.	12,252	12,261
117	List of damaged cable prepared by Archambeault, re NCR 4987.	12,256	12,261
118	6/2/86 Handwritten letter from Archambeault to Nemeth, re shift change.	12,273	12,276
119	6/10/86 Memo with attachments from Mennecke to Deress, re one of forty-two cable separation conflict reports (B511).	12,288	12,290
120	8/7/86 S&L memo from Regan to Elias, cable separation report BRCSR No. 62.	12,295	12,296
121	9/9/86 Hand drawing by Archambeault of remote shutdown panel unit #1.	12,308	12,310
122	6/4/86 Handwritten memo from Archambeault to NRC, re Archambeault allegations.	12,326	12,328
123	7/10/86 Second request for shift transfer from Archambeault to Cartelli and Nemeth.	12,328	12,329
124	8/7/86 Third request for shift transfer by Archambeault. Middle of page is Nemeth's response supporting the transfer, dated 8/11/86. Bottom of page is Simile's denial for transfer, dated 8/27/86.	12,336	12,336
125	8/19/86 Handwritten document by Archambeault to LeSarge, re outlining problems in obtaining transfer.	12,368	12,394

Exhibit No.	Description	Marked	Received
126	Handwritten document from Barels to Simile re Revel's understanding of the circumstances and his displeasure with Archambeault's absence.	12,387	12,394
127	Typewritten document by Archambeault in response to memo by Dougherty and Gieseker, 8/27/86.	12,401	12,416
128	8/27/86 Memo from Dougherty and Gieseker re Archambeault, reference only.	12,412	12,412
129	Archambeault questionnaire.	12,418	12,425
130	Last page of Int. Exh. 129, typed paragraph attached to questionnaire explaining its purpose, offer of proof only.	12,422	
131	Group exhibit of completed Archambeault questionnaires.	12,424	
132	Questionnaire filled out by Archambeault.	12,477	12,479
133	8/27/86 Union grievance filed by Archambeault.	12,493	12,496
134	8/28/86 Memo from Shamblin to Maiman, DelGeorge, Wallace, Preston, Marcus, Gieseker, Dougherty, re Gieseker/ Dougherty memo of 8/28/86.	12,499	12,503
135	9/8/86 NCR 841 and attachment, 4/15/82, recommended guidelines for field examination of suspected nonconformed cable-bending radius.	12,504	12,507
136	Extract of response to 83-09.	12,935	12,938
137	CSR database corrections, 9/10/86.	13,040	—
138	CSR database corrections, 9/27/86.	13,040	—
139	Notes: NRC enforcement conf., 3/7/84.	13,097	13,108

Exhibit No.	Description	Marked	Received
140	7/27/84 Keppler to O'Conner re BCAP.	13,115	13,125
141	BCAP CSR inspection points by S&L.	13,124	14,277
142	8/13/84 Kaushal to Maiman *et al.*	13,201	13,230
143	BCAP Proc. 06.	14,170	13,390
144	Quaka to Kaushal, 2/28/86, NCR 6145.	14,173	13,390
145	Table of percentage discrepant conditions by item.	13,390	
146	NRC report extract 8502.	13,422	13,940
147	3/7/85 Kaushal to Maiman.	13,425	13,486
148	1/23/85 Kaushal to Byers.	13,428	13,488
149	NRC report extract 8506.	13,488	—
150	9/12/85 Orlov to Kaushal.	13,504	13,531
151	BCAP observation CSR-I-E-CPH-001-02.	13,534	13,552
152	CECo NCR 451, 12/21/82.	13,539	—
153	ERC (Hansel) to Kaushal, 1/30/85.	13,568	13,585
154	3/19/85, Smith-Kaushal Air 09.	13,603	
155	CPH 104 observation package	13,756	
155-A		13,686	13,756
155-B		13,696	13,756
156	Palladino-Dingell, 2/1/82, w/attachment.	13,731	—
157	Weiss handwritten comments on BCAP.	13,736	13,736
158	Pages II-3 to II-5 of BCAP draft program doc.	13,738	13,755
159	Memo re sample selection for other five electrical populations.	14,563	
160	Cable pan hangers packet.	14,141	14,141
161	S&L procedure — design single calculations.	14,346	14,353
162	CBL observation CSR-1-E-CBL-130-02.	14,417	14,471

Exhibit No.	Description	Marked	Received
163	7/13/85, Bojan to Bartulucci.	14,580	14,581
164	NU-22 coordinate system sketch.	14,759	14,768
165	Sketch — local & global ____ system.	14,759	14,768
166	NU-7 coordinate system sketch.	14,760	14,768
167	Response spectra diagram.	14,768	14,778
168	CSR population: list of R values and design margin (except for cables and conduits).	14,799	14,804
169	CSR-I-E-CPH highly stressed hangers (4 pp.).	14,807	14,844
170	Conduit hangers more highly stressed.	14,839	14,844
171	Highly stressed electrical equipment (2 pp.).	14,851	14,862
172	May 8, 1985 meeting notes, inspection point counting.	14,864	14,919
173	List of reconstituted COH ____ .	15,338	15,338
174	Sketch of CND observation package 1503 plus observation package from NCR 6145, subparts 02, 03, and 04.	15,339 17,725	15,341
175	S&L trend process and summaries of trend evaluation.	15,343	
176	S&L trend guidelines.	15,394	15,399
177	Excerpts from IR 86-03.	15,478	—
178	COH pages — summary of missing welds COH-69-002 diagram plus complete observation package.	15,524	16,709
179	72 Undersize weld CPH observation.	15,530	16,709
180	PTL "good news story."	15,584	15,632
181	Excerpts from QCIRP.	15,632	15,653
182	10% visual weld inspection memo and other related memos.	15,702	15,714
183	Memos relating to LKC getting inspectors from PTL on loan.	15,715	15,733

Exhibit No.	Description	Marked	Received
184	Inspecting-through-paint documents.	15,738	15,749
185	First page of PTL instruction sheet.	15,855	15,856
186	AVO1419.	15,958	15,958
187	S&L BCAP CSR inspection/discrepancy points (Revised Int. Exh. 141).	16,702	16,706
188	BPI Tables #1, 2, and sample calculation.	16,808	16,841
189	Intervenors' redo of bar chart on weld discrepancies.	15,738	15,799
190	Revisions of Int. Exh. 189.	16,878	16,895
191	DelGeorge timeline of harassment events.	17,020	17,041
192	Frankel CSR database printout.	17,104	—
193	Hulin interview outline.	17,994	17,995
194	Hulin interview notes.	17,998	
195	Kimball interview.	18,191	18,120
196	Excerpts of Noble interview.	18,134	18,137
197	3/3/82 Comstock memo, Corcoran to installation reports indicating incomplete fabrication.		—
198	3/29/82 Comstock memo, Brown to all personnel, re documentation requires (i.e.) black ink.	18,440	—
199	7/12/82 Comstock memo re correction of quality documents (no whiteout, etc.).	18,440	—
200	7/19/82 Comstock memo, Brown to Cosaro re QC inspection status as of 7/19/82.	18,442	18,442
201	8/17/82 Tapella memo re cable separation (same as HR00031).	18,445	18,445

Exhibit No.	Description	Marked	Received
202	8/18/82 Comstock memo, Saklak/Kast to all QC inspectors re NCR/ICR closeout action to be complete in 2 days.	18,446	18,446
203	7/16/82 Comstock memo, Stiles to all QC personnel re documentation and correction of documents.	18,448	—
204	9/17/82 Comstock memo, Corcoran to QC supervisors re supervisor duties/ authorities.	18,449	—
205	10/25/82 CECo surveillance report 2466 re 35% inspection to 100% inspection.	18,451	18,451
206	9/29/82 Comstock memo, Corcoran to all employees re Saturday, 10/2/82 overtime.	18,452	18,452
207	10/28/82 Comstock memo, Rolan to Brown re 100% inspection requirements effective 11/1/82.	18,454	—
208	11/8/82 Comstock memo, Corcoran to Saklak/ Kost re elimination of daily summary reports.	18,455	—
209	11/15/82 Comstock memo, Corcoran to Sommerfield re meaning of LI/LII signatures on quality documents.	18,467	18,467
210	Comstock memo to all employees re jobsite work rules.	18,468	18,468
211	12/27/82 Comstock memo, Tapella to Rolan re inspection of system control hangers.	18,470	18,470
212	4/11/83 Comstock memo, Rolan to Corcoran re non-SR cable ends stored in turbine bldg.	18,477	18,477
213	6/16/83 Comstock memo, Kast to all welding inspectors re hanger installation reports.	18,480	18,480

Exhibit No.	Description	Marked	Received
214	8/16/8? Comstock memo, DeWald to Lechner/ Saklak/Brown/Nolan/Phillips re daily inspection status reports.	18,481	18,481
215	10/16/83 Comstock memo, DeWald to Marino re formulated plan to complete backlog/ document review.	18,481	18,481
216	2/27/85 Comstock memo, DeWald to all supervisors re field activity — inspectors not working.	18,481	18,481
217	2/20/85 CECo memo, Shamblin to all site contractor management re policy statement on servicing audit groups.	18,484	—
218	3/9/85 Comstock memo, DeWald to Worthington re supervisor responsibilities.	18,484	18,484
219	3/11/85 Comstock memo, DeWald to Saklak re supervisor responsibilities.	18,484	18,484
220	3/11/85 Memo, Tapella to DeWald/Quaka, re LKC to stop CPH configuration inspections unless per 705/70.	18,484	18,484
221	3/15/85 Comstock memo, DeWald to Supervisor Distribution re supervisions required by 6/1/85.	18,484	18,484
222	Saklak handwritten notes from staff meeting re Tyler inspection through paint.	18,484	18,484
223	10/8/82 Memo, Brown to Corcoran re definition of M-process inspection.	18,485	—
224	10/11/82 Memo, Sommerfield/Cosaro to Rubino/Brown/Patton/Pruitt re upgrade inspection personnel.	18,486	18,486
225	11/12/82 Comstock memo, Corcoran to Marcus re response to CECo G.A. audit.	18,489	18,489
226	1/11/83 Comstock read and reply re inspection of RRRs — no additional personnel.	18,492	

Exhibit No.	Description	Marked	Received
227	2/2/83 Comstock memo, Kast/Saklak/ Corcoran to QC personnel re QC production charts.	18,492	
228	3/10/83 Comstock memo, Corcoran to Kast/ Saklak re writing NCRs instead of ICRs.	18,492	18,492
229	5/11/83 Memo, Cosaro to site contractors re description of original QCIRP.	18,493	18,493
230	3/17/83 Comstock memo, Corcoran to Kast/ Saklak re in supervision responsibilities missing inspection records of LKC inspectors.	18,493	18,493
231	4/28/83 Comstock memo, Saklak/Corcoran to Marino re improper review by construction of installation procedures.	18,493	18,493
232	5/3/83 Comstock memo from Rolan to Corcoran, yes, re safety-related cable cards.	18,496	18,496
233	4/6/83 Comstock memo from Saklak/Brown to F. Rolan re safety-related cable-pull cards.	18,497	—
234	5/16/83 Comstock memo, Corcoran to Rolan/ Mennecke re weld in inspection nonreported backlog chart condition.	18,498	18,498
235	7/7/83 Comstock memo, Corcoran to Rolan re NCR for nonsafety-related work.	18,498	18,498
236	7/19/83 Comstock memo, Corcoran to Saklak/ Pysell re NCR 929, inspection of configuration and welding.	18,499	18,499
237	8/5/83 Comstock memo, DeWald to Saklak/ Phillips re weld rod control.	18,499	18,499
238	10/23/83 Comstock memo, Hii to all welding and configuration inspectors re welding and configuration meeting 9/22/83.	18,499	18,499
239	Sample daily inspection status report.	18,499	18,499

Exhibit No.	Description	Marked	Received
240	10/3/83 Comstock memo, Seltmann to Sommerfield/Rolan re trend analysis report 9/1/82–8/31/83.	18,502	18,502
241	10/5/83 Comstock memo, DeWald to training file re checklist/procedures in field during inspections.	18,503	18,503
242	10/11/83 Comstock memo, DeWald to Rolan re DeWald signature authorization to Saklak.	18,503	18,503
243	10/19/83 Comstock memo, Saklak/Baranowski to Mennecke re vendor welding hangers.	18,506	18,506
244	10/24/83 Speed letter, Hansen to Matz re continue installing hangers in Unit II wing walls.	18,506	18,506
245	11/1/83 Comstock memo, DeWald/Saklak to LKC construction/QC re stamping vendor welds by LKC weld inspection.	18,506	18,506
246	11/8/83 Comstock memo, DeWald to all QC inspectors re completing documentation in field and work hours.	18,506	18,506
247	1/12/84 Comstock memo, Seese to DeWald re backlog/phase II completion schedule 5/1/84).	18,506	18,506
248	1/23/84 Comstock memo, Rolan to area managers re limit ICRs open.	18,506	18,506
249	1/24/84 Memo, Hill to Shamblin/Mennecke re electrical bulk quantity curves.	18,509	18,509
250	1/25/84 Comstock memo, DeWald to Seese/ Brown/Saklak re ICRs — transmitting Rolan memo to QC supervisors.	18,509	18,509
251	Status from original QCIRP.	18,509	18,509
252	2/9/84 Comstock memo, DeWald to Seese re NCR/ICR closeout QA surveillance 3244.	18,509	18,509
253	2/27/84 Comstock memo, DeWald to Seese re identification requirements for QC supervisors.	18,509	18,509

Exhibit No.	Description	Marked	Received
254	4/18/84 Comstock memo, DeWald to all QC personnel re cross-training (on one's own time).	18,509	18,509
255	4/26/84 Saklak meeting notes re problems between QC and craft.	18,510	18,510
256	5/1/84 Comstock memo, DeWald to Seese/ Saklak/Selimann re T. Paserba memo (84-04-27-03).	18,512	18,512
257	5/2/84 Comstock memo, DeWald to Quaka re weld coupons with known defects for practical.	18,512	18,512
258	5/2/84 Comstock memo, Seese to Saklak re rework program started.	18,512	18,512
259	5/5/84 Comstock memo, DeWald to Seese/ Saklak re Cosaro request for matrix of QC special projects.	18,512	18,512
260	5/5/84 Comstock memo, DeWald to Rolan re AVD review — estimated completion date.	18,515	18,515
261	5/8/84 Comstock memo, DeWald to Seese/ Saklak/Klacko/Hii re QC-US reports and 4-inch × 6-inch × 1/2-inch laminated plate surveillance.	18,518	18,518
262	5/10/84 Comstock memo, DeWald to Rolan re safety-related cable-pulling stopped.	18,520	18,520
263	5/12/84 Comstock memo, Seese to Saklak re new daily inspection status report — Saklak comments.	18,521	18,521
264	5/12/84 Comstock memo, Seese to DeWald re QC matrix.	18,521	18,521
265	5/16/84 QA memo, Quaker to all site personnel re MRR processing.	18,523	18,523
266	4/19/83 CECo letter to Comstock, Getschow & Pullman from Cosaro re installation clearance.	18,526	18,526

Exhibit No.	Description	Marked	Received
267	6/9/84 Comstock memo, DeWald to all leads re daily inspection assignments.	18,527	18,527
268	6/13/84 Comstock memo, Saklak to Nelson re beam stiffener installation.	18,528	18,528
269	6/16/84 Comstock memo, DeWald to Worthington/Saklak re improving inspection productivity.	18,528	18,528
270	6/23/84 Comstock memo, DeWald to Saklak re rework review — turnaround time is 1 day.	18,529	18,529
271	6/27/84 Comstock memo, Klena to Rolan re BCAP meeting attendance.	18,532	—
272	6/27/84 Comstock QC staff meeting -- DeWald/Worthington/Saklak/Seese.	18,533	18,533
273	6/30/84 Comstock memo, DeWald to Worthington/Saklak re inspectors directing craft.	18,534	—
274	7/9/84 Comstock memo, DeWald to Worthington/Seese/Saklak re suggestions from 7/30/84 meeting with QC inspectors, open-door policy.	18,536	18,536
275	7/21/84 Comstock memo, Seese to DeWald re weekly status reports — 7/13/84–7/19/84.	18,536	18,536
276	7/30/84 Comstock memo, DeWald to Saklak re Saklak — expedite training in areas he supervises.	18,536	18,536
277	8/16/84 Comstock memo, DeWald to Saklak re NCR for ECE DCRs — Saklak response.	18,536	18,536
278	7/23/84 Comstock memo, DeWald to Worthington re drop in number of inspections performed.	18,536	18,536
279	8/10/84 Comstock QC staff meeting attendance, DeWald/Seltmann/Saklak/Seese/ Nash/Worthington.	18,536	18,536

Exhibit No.	Description	Marked	Received
280	8/1/84 Comstock memo, Worthington to DeWald re backlog counts.	18,536	18,536
281	8/1/84 Comstock memo, Seese to DeWald re Worthington memo 84-08-01-05.	18,536	18,536
282	8/22/84 Comstock QC meeting re Puckett/ Hii practical, 72-hour shift.	18,536	18,536
283	10/4/84 Seese memo re steady increase in number of inspections.	18,536	18,536
284	10/23/84 Comstock memo, DeWald to Saklak/ Simile re were any welds inspected through paint?	18,536	18,536
285	1985 Quality First file re BCAP AR007388-7480.	18,572	18,572
	NRC STAFF EXHIBIT LIST		
1	Cover letter to Snyder re transmittal by NRC of 4/8/85.	4617	4618
2	Cover letter to Rolan re transmittal by NRC of 4/8/85.	4830	4831
3	Cover letter to Mustered re transmittal by NRC of 4/8/85.	5071	5072
4	4/8/85 Letter, Weil to Gorman, transmitting memo.	5871	5889
5	4/8/85 Letter, Weil to Peterson, transmitting memo.	5970	5972
6	12/4/85 Letter, Weil to Puckett, transmitting inspection report.	6485	6637
7	9/6/84 Letter, Weil to Spessard/Norelius, Puckett allegations.	6528	11,931
8	9/26/84 Letter, Weil to Puckett, transmitting transcript of 9/11/84 meeting at Region III.	6532	6637
9	9/6/84 Letter, Weil to Puckett, re meeting at Region III.	6579	6637

Exhibit No.	Description	Marked	Received
10	Transcript of 9/11/84 meeting at Region III re Puckett concerns.	6629	—
11	4/8/85 Letter, Weil to Bowman.	6963	6963
12	8/29/84 Letter from Weil to Seeders re 8/17/84.	7743	7756
13	1/21/85 Letter from Weil to Seeders enclosing Schulz inspection report.	7748	7756
14	NRC inspection report.	7748	—
15	4/8/85 Letter, Weil to Martin, transmitting memo.	9508	9560
16	4/10/85, portion of Intervenors' 42A transmittal from McGregor to Weil.	9508	9560
17	11/11/85 I.R. 85-21.	10,437	10,943
18	Memo from Forney to Weil, 8/23/84, re allegations — Braidwood.		11,941
19	Memo from Weil to Norelius, 8/27/84, re harassment and intimidation of QC inspectors.		11,941
20	Memo from Pawlik to Weil, 1/2/85, re 1/21/85 memo re allegation on L.K. Comstock at Braidwood.		11,941
21	Memo from Weil to Spessard and Pawlik, 10/26/84, re allegation regarding welding by LKC at Braidwood.		11,941
22	Memo from Pawlik to Weil, 12/16/85, re allegations regarding welding by LKC at Braidwood.		11,941
23	Memo from Weil to Pawlik, 11/7/85, allegation re harassment of LKC inspectors at Braidwood.		11,941
24	Weil to Hii, 4/8/84.	16,637	—
25	NRC Inspection Report 86-03.	17,566	17,607
26	Prefiled testimony of William Little.	18,290	18,290

Exhibit No.	Description	Marked	Received
	LICENSING BOARD EXHIBIT LIST		
1	5/14/86 NRC memo for Region III files from B. Stapleton re OI status of Puckett.	6732	—
2	*Chicago Tribune* article dated Sunday, July 6, 1986, re QC inspectors' fears about visiting NRC.	6732	—
3	CECo request by Chris Hayes for AWS interpretation.	9097	9130
4	AWS authorized interpretation, signed Moss V. Davis.	9102	9130
5	Excerpt from 10/84 *Welding Journal* re D1.1 applicability and D1.3.	9109	9130
6	*Chicago Tribune* article, 9/15/86, re investigation of Braidwood media leaks.	12,868	—
7	*In camera* memo, Weil from R.B. Landsman, Project Inspector, DRP re Braidwood allegations.	13,225	—
8	Regulatory Guide 161.	16,693	16,693
9	Memos: 1/27/86, Little to McGregor and Schulz; 1/30/86, McGregor to Little; 1/30/86, Schulz to Little; 3/19/86, Little to Moffett *et al.*	17,388	17,388

Dissenting Opinion by Herbert Grossman, Chairman

TABLE OF CONTENTS

		Page
I.	MINORITY OPINION	538
	A. Matters of Dissent	538
	B. Background	539
	C. Organizational Pressure	540
	D. Incidents of Harassment, Intimidation, and Retaliation	543
	1. Worley O. Puckett	543
	2. John Seeders	549
	3. Other Instances of Alleged Harassment	550
	E. Grid-Area Weld Inspections	553
	F. Applicant Sampling Reinspection Programs	555
	G. NRC Staff's Review	559
	H. Conclusion	560
II.	MINORITY FINDINGS OF FACT	5[illegible]
	A. Organization	560
	B. Nature of LKC's Quality Control Work	563
	C. Alleged Instances of Harassment, Intimidation, and Production Pressure	572
	1. Worley O. Puckett	572
	2. John Seeders	600
	3. Richard Snyder	618
	4. March 29, 1985 Incident	619
	5. Larry Perryman	634
	6. Therman L. Bowman	636
	7. Gregory Archambeault	638
	8. Richard Martin — Cable-Pulling Inspection Incident	6[illegible]4
	9. Miscellaneous Findings	647
	D. Grid-Area Weld Inspections	648
	E. Applicant's Sampling Reinspection Programs	652
III.	MINORITY ULTIMATE FINDINGS OF FACT AND CONCLUSIONS OF LAW	666

I. MINORITY OPINION

A. Matters of Dissent

I cannot agree with a number of conclusions reached in the majority opinion. In this Minority Opinion and underlying Minority Findings of Fact and Conclusions of Law I find, contrary to my colleagues, that 10 C.F.R. Part 50 was violated by certain practices and in certain instances: Commonwealth Edison Company's Project Construction Department improperly asserted production pressure on its electrical contractor, Comstock, which, in turn, improperly asserted pressure on its Quality Control inspectors; Comstock improperly appointed Irving DeWald as Quality Control Manager to orient the Quality Control Department away from good quality control practices to production; Comstock management improperly gave supervisory authority to Richard Saklak for the purpose of promoting quantity over quality; Commonwealth Edison Company and Comstock improperly terminated Level III Quality Control welding supervisor Worley Puckett for raising legitimate quality concerns; and, Comstock management harassed and attempted to intimidate Quality Control Inspectors Perryman, Archambeault, and Martin, and retaliated against them for raising quality concerns.

I also find that the complaints of twenty-four inspectors to the NRC on March 29, 1985, evidenced improper production pressures asserted on them by their management; that the grid system of weld inspection in effect prior to October of 1983 totally lacks credibility as an inspection program; that the sampling reinspection programs (BCAP and PTL overinspection) were inadequate to support the efficacy of the quality assurance program or the soundness of the electrical system installation; and that NRC Staff's approval of the Comstock Quality Control effort should be afforded little weight.

Notwithstanding my findings of improper production pressure and instances of harassment, intimidation, and retaliation, I find that the Quality Control inspectors properly performed their inspections for the period in issue (post-1983) and that there is reasonable assurance that the electrical system was properly installed. However, contrary to my colleagues, I cannot find reasonable assurance of the safety of the plant without further evidence of the efficacy of the grid system welding inspections performed prior to October 1983, and I would recommend the imposition of civil penalties on Applicant and Comstock under 10 C.F.R. § 50.7(c)(2) for the Puckett, Archambeault, Martin, and Perryman matters.

B. Background

Intervenors' harassment contention asserts that, contrary to 10 C.F.R. § 50.7 and Criterion I of Appendix B to 10 C.F.R. Part 50, Applicant and L.K. Comstock Engineering, Inc. ("Comstock" or "LKC"), the organization that performed the Quality Control inspections of the electrical work at Braidwood, failed to provide Quality Control inspectors with sufficient authority and organizational freedom and independence from cost and schedule, as opposed to safety considerations, to permit the effective identification and correction of quality and safety-significant deficiencies. The contention also asserts the existence of systematic and widespread harassment, intimidation, retaliation, and discrimination by Comstock Quality Control management against inspectors who expressed safety and quality concerns.

Three bases for the contention are recited, namely that:

1. Comstock QC inspectors have been subjected to harassment and intimidation by Comstock QC management, Messrs. DeWald, Seese, Seltmann and Saklak, from at least as early as August 1984 through the present. Such harassment, it is asserted, included widespread pressure to approve deficient works, to sacrifice quality for production and cost considerations and to violate knowingly established quality procedures.
2. QC inspector John Seeders was subjected to harassment about production pressure and was the subject of retaliation and discrimination by virtue of an involuntary transfer to Comstock's engineering department some six weeks after he wrote a letter of complaint to Comstock management (with a copy to the NRC resident inspector).
3. QC inspector Worley Puckett was subjected to harassment and discrimination and improperly terminated by Comstock management, Messrs. DeWald and Marino, because he raised safety and quality concerns.

The time frame for determining when alleged occurrences of harassment are within the scope of the contention was purposely left vague at the time the stipulated contention was accepted by the Board. The early date of interest was characterized with the Board's approval as "at various times since at least August 1984." The end date was stipulated as being the "present." Our purpose was to allow Intervenors the opportunity during discovery to identify as many relevant instances of harassment as possible to buttress their allegation that Comstock's Quality Control inspectors were subject to "systematic and widespread harassment, intimidation, retaliation, and other discrimination."[1] Intervenors have had that opportunity, and the scope of the contention is now defined by the evidence received in this record.

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[1] Tr. 254-59 and 266-68.

The evidence as to whether or not a pattern of harassment existed at Comstock centers on its Quality Control Manager, Mr. DeWald. Evidence involving Mr. DeWald's predecessor or events occurring prior to the date of Mr. DeWald's arrival at the Braidwood site as Quality Control Manager was limited to its historical value for purposes of perhaps providing insight as to the motives for actions taken during DeWald's tenure as Quality Control Manager. I, therefore, find that the alleged acts of harassment more relevant to the contention are those that occurred after Mr. DeWald's appointment as Quality Control Manager at Braidwood in August 1983.

The end date is less easy to define. The evidence adduced indicates that the alleged events of harassment carry on through March 1985. Thereafter, in 1985, only one alleged act of harassment and discrimination was considered on the record. We made it clear that the "present" as we approved its use in the contention was not intended as a continuum. Rather, it allowed Intervenors to pursue and use alleged new instances of harassment as they were discovered.[2] It was on this basis that we admitted the issues involving Quality Control Inspectors Hunter, Martin, and Archambeault which arose in March and September 1986, respectively. No other issues have been identified. Accordingly, I limit the reach of the contention, in terms of the "present," to these issues.

C. Organizational Pressure

Intervenors perceive two violations of Criterion I. One involves the suggestion that Comstock's Quality Control organization lacks the requisite organizational independence from cost and schedule considerations, an issue prompted by Applicant's Construction Superintendent's involvement with the Comstock Quality Control Department in 1984. The second issue is whether actions instigated by the management of the Comstock Quality Control Department constituted a pervasive pattern of harassment, intimidation, and production pressure that destroyed the independence of Comstock's Quality Control inspectors.

L.K. Comstock was awarded the electrical contract for Braidwood Units 1 and 2 by Applicant on February 5, 1979. Prior to L.K. Comstock's involvement, the electrical work had been performed by E.C. Ernst Company.

Until November 1982, LKC performed its Quality Control inspections on a 35% sampling basis. Only thirty-five welds out of a population of 100 welds would be inspected by Quality Control inspectors. The remaining sixty-five welds would not be inspected unless deficiencies identified in the sample population indicated the need to expand the inspection sample. In November 1982, CECo required LKC to perform inspections of 100% of all activities

[2] T. 268

requiring Quality Control inspectors because of errors in LKC's sampling methodology. This change in inspection policy required LKC to go back and inspect all electrical, safety-related work performed prior to November 1982. At this time, Comstock's Quality Control organization was inadequately staffed in that there were only three or four Quality Control inspectors to cover 100 welders. As a consequence, an immediate and substantial backlog of approximately 14,000 inspections was created.

In November 1983, the NRC conducted an inspection of the Braidwood facility, including LKC's Quality Control Department. As a result of that inspection, the NRC expressed serious reservations regarding LKC's ability to perform the inspections necessary to eliminate the backlog created by the change in inspection policy while simultaneously keeping pace with current inspections. Accordingly, the Staff contemplated ordering Applicant to cease all electrical installation work until the backlog was eliminated or reduced considerably.

In May 1984, CECo selected Daniel Shamblin to replace Richard Cosaro as Project Construction Superintendent at Braidwood. Shortly thereafter, Mr. Shamblin held a number of discussions with Comstock regarding inspection backlog problems. In response to Mr. Shamblin's concerns, LKC Quality Control Manager Irving DeWald submitted a plan on June 5, 1984, pursuant to which the backlog of inspections in the welding, cable pan, and cable tray, conduit, and terminations disciplines would be targeted for completion by July 12, 1984. Under the plan, however, the backlog of inspections of junction boxes and small equipment would exist until September 1984. Mr. Shamblin was not entirely satisfied with that completion date of September 1984 and, in a letter dated June 9, 1984, informed Mr. DeWald and DeWald's superior Mr. Rolan that, according to CECo's records, the amount of all backlog inspections exceeded 6000 in number. The letter stated that the reduction in this backlog "must be the *first* priority of LKC Production, Engineering and Quality Control Personnel" (emphasis in original). Mr. Shamblin also indicated in the letter that "positive results (i.e., significant current inspection backlog reductions) must be seen *very shortly*" (emphasis in original). If such results were not soon forthcoming, Mr. Shamblin was prepared to suspend LKC's operations. Finally, Mr. Shamblin directed Mr. Rolan and Mr. DeWald to report to him every Monday on the progress in eliminating the backlog that had been made the previous week.

L.K. Comstock had replaced its prior Quality Control Manager, Thomas Corcoran, with Mr. DeWald in August 1983, because Mr. Corcoran had been too quality conscious and not sufficiently construction oriented. Prior to that, in July 1982, Comstock had appointed 24-year-old Richard Saklak as Quality Control Supervisor charged with the mission by Comstock construction of trying to bring the Quality Control Department under control and to organize a production system for responding to the installation reports from the Production

Department. Mr. Saklak had previously been employed as a cost and scheduling engineer at Edison's LaSalle station and immediately prior to his Quality Control reassignment had been a planning and scheduling engineer for Comstock production at Braidwood. He had no prior quality control work experience. Very quickly after Mr. DeWald's appearance as Quality Control Manager in August 1983, DeWald evaluated Mr. Saklak as a "very aggressive individual" who had taken on added responsibilities under him, duties that would have been performed by an assistant quality manager "with great enthusiasm and zest." Mr. DeWald concluded that "Rick is a real asset to the Braidwood QC department." When Mr. Saklak became a Quality Control Supervisor in July of 1982, he shared his supervisory position with another individual. At about the time Mr. DeWald became Quality Control Manager, Mr. Saklak became the sole supervisor of Quality Control inspectors.

In May 1984, at the time Mr. Shamblin became CECo Project Construction Superintendent at Braidwood and began overseeing the Comstock Quality Control Department, Comstock's Quality Control management developed a status tracking system. Under this system, each Quality Control inspector was required to complete and submit to his lead inspector a report documenting the numbers of inspections he had completed that day. The lead inspector would then use this information to compile a daily inspection status report for his group and submit that report to his supervisor. Each supervisor, in turn, was to use this information to compile a daily status report for each of the inspection disciplines under his jurisdiction to be submitted to Quality Control management. The Quality Control inspectors were concerned that the daily status report they turned in to their lead inspectors might be used by management to establish quotas or to punish them if they failed to perform a certain average number of inspections, although Comstock management assured them that that was not the case.

Also during this time Mr. DeWald would meet with the LKC Quality Control inspectors each Friday to discuss LKC's inspection activities. During these meetings, inspectors frequently were exhorted to redouble their efforts to eliminate the inspection backlog and perform current inspections in a timely fashion. It was also at these meetings that Mr. DeWald, on more than one occasion, stated that Comstock was in danger of losing its contract if it failed to satisfy certain promised completion dates. The threatened loss of Comstock's contract was shoptalk among the Quality Control inspectors at that time. At one meeting in the summer of 1984, Comstock Quality Control Manager Robert Seltmann indicated that if the backlog of inspections were not eliminated, it could mean that the livelihood of Comstock at Braidwood would be lost. Assistant Quality Control Manager Larry Seese indicated at another meeting that things were looking very critical for Comstock and that everyone's help was needed to eliminate the backlog. Mr. DeWald acknowledged such a rumor that Comstock was in jeopardy of losing its electrical contract. However,

he recalled the rumor circulating in January 1985. Ultimately, Comstock did lose its contract for a portion of the electrical work on Unit 2 to the Gus K. Neuberg Company.

It is against this background that we must consider the alleged instances of harassment, intimidation, and production pressure. The main instances involved the termination of Worley E. Puckett as a Level III Welding Inspector in August of 1984, the transfer of John Seeders from a Level II Quality Control inspector's position to a clerk's position in the engineering department of Comstock in October 1984, and the March 29, 1985 incident in which twenty-four Quality Control inspectors complained to the NRC of harassment, intimidation, and production pressure. Other, lesser incidents involved Quality Control Inspectors Perryman, Bowman, Archambeault, Martin, Hunter, Peterson, Rolan, Mustered, and Stout.

D. Incidents of Harassment, Intimidation, and Retaliation

1. Worley O. Puckett

In the spring of 1984, faced with the enormous backlogs of inspections and quality documents requiring review, Comstock interviewed and hired Worley O. Puckett as a Level III Weld Inspector to address NRC-identified problems in the welding inspection area. Mr. Puckett's background as reflected in the interview and his resume demonstrated qualification for this position. Mr. Puckett brought with him almost 20 years' experience as a welder in the U.S. Navy. He had graduated with honors from the Navy's year-long welding school. After retirement from the Navy, Mr. Puckett was hired at the Zimmer Nuclear Power Station by the Henry J. Kaiser Company where he worked in a variety of positions for some 9 years until the project was cancelled in January 1984. He was initially hired and qualified as a Level II Mechanical Quality Assurance Inspector, a position he held for approximately 18 months. Thereafter, he was promoted to the position of Lead Mechanical Inspector and then later transferred from the quality assurance to the construction department where he was promoted to the position of Chief Weld Engineer. In that capacity he was responsible for all of the weld-related activities at the Zimmer project. Mr. Puckett received favorable evaluations in these positions.

However, in April 1982, Mr. Puckett received the first critical evaluation that he had received at any time in his Navy or civilian nuclear program experience. As part of a site-wide management restructuring, in which new management was brought into virtually all departments including quality and construction, Mr. Puckett had been displaced in the senior weld engineering position by Mr. Manfred Goedecke, who gave him the critical evaluation. Although he was evaluated as meeting the requirements overall, Mr. Puckett sought and re-

ceived clarification of the adverse aspects of this evaluation. Five days later, Mr. Goedecke clarified the performance evaluation in a more extensive memorandum to acknowledge many of Mr. Puckett's exceptional abilities and to indicate that his deficiencies were attributable to the extensive work load that prevented Mr. Puckett from keeping up with new construction requirements.

Mr. Puckett subsequently took a course taught by Mr. Goedecke on the American Welding Society Code. Tests were administered after each day's lecture, of which there were at least fourteen in number, and Mr. Puckett scored the highest in the class. Thereafter, Mr. Puckett received his last performance evaluation at Zimmer from Mr. Goedecke, which indicated that Mr. Puckett had "improved tremendously," had passed all examinations with excellent marks in the in-house course, and had attained knowledge from seminars and courses in the areas of code applications, procedure preparation, interpretation of codes, standards and specifications requirements, and the practical application of welding and nondestructive examination processes. The evaluation further indicated that Mr. Puckett "needs to reassume a supervisory position," and "will be placed in a supervisory position as soon as one becomes available."

During the course of Mr. Puckett's brief tenure at Comstock (which lasted 89 days), he undertook wide-ranging activities to review the work of the welding and welding inspection program at Comstock and he identified numerous areas for improvement or revision. One of the duties assigned to Mr. Puckett by Quality Control Manager DeWald involved the review of Comstock's welding procedures.

At the beginning of August 1984, Mr. Puckett made three written recommendations to Quality Control Manager DeWald for the issuance of Stop-Work directives that led to Mr. Puckett's termination. The first recommendation, on August 9, 1984, was that all welding be stopped involving the welding of A-446 sheet metal to A-36 structural steel; the second recommendation, on August 10, 1984, was that all stainless steel welding be stopped until the welders are qualified in the "2G" (horizontal) position; the third recommendation, on August 22, 1984, was that all welding, including the welding of A-446 to A-36, be stopped because Comstock was "dangerously approaching a complete breakdown in its QC program." In this third Stop-Work memo to Mr. DeWald, Mr. Puckett stated that procedures involving A-446 "were qualified using the criteria of AWS D1.1-75 and it should never have been done" because that code was never intended for thin-gauge materials like A-446, and all procedures involving A-446 "should have been qualified using the criteria of D1.3."

Comstock management issued Stop-Work directives for the first two Stop-Work requests by Mr. Puckett, but issued them only in informal memoranda that were not made a part of a permanent log, in violation of Comstock procedures which required the issuance of formal documentation that is logged into the company's files. Mr. Puckett, however, followed these informal Stop-Work

directives with NCRs to document his concerns, which he persuaded a certified Quality Control inspector to issue since Mr. Puckett was not, himself, certified at the time. No Stop-Work directive was ever issued in response to Mr. Puckett's third recommendation, and Mr. Puckett was terminated before taking any further action on it.

With regard to the subject of the first Stop-Work recommendation, the welding of A-446 to A-36, Mr. Puckett was correct that no company procedure qualified the welding of those two materials to each other. Applicant and NRC Staff appeared to take the position that this omission was only a technical violation of the procedures and that the joining of these two metals could have been qualified by merely adding A-36 material to the welding procedure specifications that already authorized the welding of A-446 to A-500, since A-36 and A-500 are similarly prequalified metals under AWS Code D1.1. There is some doubt on reading D1.1 whether a prequalified metal such as A-36 can be added to a welding procedure specification covering another prequalified metal, A-500, if that specification includes a nonprequalified material such as A-446. That proposed resolution is even more questionable from the language of Comstock's welding procedures which appear to offer only the alternatives of qualifying a welding procedure on the basis of its having either all prequalified joints and prequalified materials, or of utilizing a qualification test for each joint in which any of the metals or procedures are not prequalified. Since A-446 was not a prequalified material under Code D1.1, a qualification test might have to be run for each particular joint with every identifiable material to be welded in the field. Company procedures did not authorize the addition of any material to a Welding Test Record that had not actually been welded in the test, and Welding Procedure Specifications covering nonprequalified metals or joints merely summarized the Welding Test Record.

Furthermore, as Mr. Puckett pointed out in meetings held to resolve this concern, there was no valid welding procedure in effect at that time to which A-36 could be added that would cover welds smaller than 3/8 inch, which constituted the bulk of Comstock's welding. The Welding Procedure Specification covering the welding of A-36 to A-500 for welds of less than 3/8 inch was invalid because the test that was utilized to qualify the procedure did not meet the requirements of the welding procedures.

But whether or not Mr. Puckett's concerns regarding the welding of A-446 to A-36 could be simply resolved, as alleged by Applicant and NRC Staff, by the addition of A-36 to the Welding Procedure Specifications qualifying the joining of A-446 to A-500, Mr. Puckett had raised a valid concern. Furthermore, Mr. Puckett did not object to the proposed resolution of adding A-36 to the existing procedure specification, if the disposition were in writing. It was Engineering, not the Quality Control Department, that was responsible for dispositioning the concern, and Mr. Puckett's concurrence was not even required.

Neither Staff nor Applicant dispute the correctness of Mr. Puckett's concern reflected in his second Stop-Work recommendation, concerning the welding of stainless steel in the 2G position. The welders had not been qualified in the 2G position. The NCR that Mr. Puckett had instigated was subsequently dispositioned on the basis of requalifying the weld procedure and welders to include the 2G position for welding, removing the previously installed horizontal welds, and replacing the welds after requalification.

With regard to Mr. Puckett's third Stop-Work recommendation, concerning the conversion to AWS Code D1.3 from AWS D1.1-1975, the parties have differences in both opinion and fact. According to Applicant, Mr. Puckett insisted that it was improper to weld to AWS Code D1.1-1975 because that code was not intended to cover thin materials that the company was welding, such as A-446. According to Intervenors and Mr. Puckett, Mr. Puckett had not insisted that the utilization of Code D1.3 was mandatory but only that D1.3 should be adopted as an improved alternative to D1.1-1975 since the existing Comstock welding procedures were fundamentally flawed and would have to be revamped in any event. AWS Code D1.1-1975 specifically addressed only structural steel. Structural steel materials such as A-36 and A-500 were specifically listed in D1.1 as prequalified materials that could be welded without performing qualification testing provided the joints to be welded were also prequalified in that code. Code D1.1-1975, however, was applied to all welding and, if the welding involved thinner materials such as A-446, tests would have to be run involving those materials in order to qualify the procedure. The American Welding Society adopted Code D1.3 and incorporated it into Code D1.1 on September 1, 1978. AWS Code D1.3 addressed thin materials such as A-446 and gave them prequalification status by listing them specifically, much as the older version of D1.1 had specifically listed structural metals such as A-36 and A-500.

Applicant's position that it need not adopt a version of D1.1 later than the 1975 edition was founded on the contract specifications for Braidwood having been adopted before September 1, 1978, their specification of being bound by the latest edition of the applicable codes in effect at the time of contract, and the American Welding Society's permission to companies to continue utilizing an older edition of the code than currently in effect if specified by the contract. The main thrust of Applicant's criticism of Mr. Puckett at hearing was that he demonstrated his incompetence in failing to recognize that Comstock had not committed itself to a later edition of AWS D1.1 that included AWS D1.3 and, consequently, that Comstock had the option of utilizing either the early edition of AWS D1.1 or a later one if it so desired.

As the testimony of Applicant's witnesses further indicated, however, the contract documents specifying the use of the latest edition of the applicable codes then in effect were not executed by Comstock until February 5, 1979,

after AWS Code D1.3 had already been incorporated into Code D1.1. It was Comstock's predecessor, Ernst, that had committed itself only to the earlier edition of Code D1.1. If Applicant and Comstock had intended to carry that provision over to the new contract, they had failed to incorporate it in their documents. Had Mr. Puckett familiarized himself with the contract documents when he assumed the position as a Level III, as Applicant's witnesses believed he should have, he would not have concluded that Comstock was not bound to Code D1.3 with regard to thin material.

Moreover, even if the Ernst specification had been carried over, the situation regarding Comstock's option to use either D1.1-1975 or a later edition of D1.1 which included D1.3 was not all that clear to the experts at the time. Although at hearing they denigrated Mr. Puckett's competence for allegedly not recognizing Comstock's option to use either code, shortly after Mr. Puckett's termination, CECo's Quality Control Engineer requested (on October 17, 1984) a formal interpretation from the American Welding Society on whether the welding on material of less than $\frac{1}{8}$ inch could be accomplished under the earlier editions of Code D1.1.

Even ignoring the contract specification that may have required Comstock to adopt AWS Code D1.3, Mr. Puckett's recommendation to adopt that later code appears eminently reasonable. The situation of Comstock's welding of sheet metal under the old edition of Code D1.1 appeared to be an anomaly. Most of the time under AWS Code D1.1, contractors use prequalified procedures and stay with the materials listed in the code. AWS Code D1.1-1975 did not give a prequalified status for any sheet metals. Consequently, any company utilizing the early editions of Code D1.1 would have to end up doing qualifications for all the sheet metals, and the qualification requirements are very stringent. The problem Comstock encountered with qualifying A-446 to A-36 was an uncommon problem that resulted from Comstock's not using D1.3, which would have prequalified the sheet metal.

Nor does it appear that Mr. Puckett's proposal to adopt D1.3 would have created a difficult burden. The welding procedures at the Zimmer nuclear plant were requalified from the earlier editions of AWS D1.1 to D1.3, and at Braidwood, the heating, ventilating, and air-conditioning (HVAC) contractor completely requalified its procedures and welders to D1.3. It would have taken only a week of qualification of welders and the weld procedures to make that conversion, and there is no indication that welding under the older edition of D1.1 could not have gone forward while the conversion was being made.

In summary of the three matters raised in Mr. Puckett's recommendations for Stop Work — the A-446/A-36 welds, the welding in the 2G position, and the adoption of AWS Code D1.3 — Mr. Puckett's analyses and recommendations had much merit. He may not have been fully correct in the final analysis (although he appears to have been), but his raising of these issues cannot

be faulted and certainly cannot be considered as reflecting adversely on his competence. Nor was there any suggestion that he was insubordinate with regard to the proposed dispositioning of these issues. The record is clear that, while Mr. Puckett may not have agreed with the proposed dispositions, he was willing to accept them provided that they were in writing. That these issues may not have had safety significance in the sense that the welds created were not done poorly should not detract from his raising the issues. Mr. Puckett was assigned the task of correcting the procedures and no restriction was placed on him with regard to raising only safety-significant issues.

At various times Applicant offered reasons other than Mr. Puckett's alleged incompetence to support his termination. These reasons were all pretextual. To the Department of Labor, Comstock claimed that Mr. Puckett was dismissed because of his low score on the Weld Inspector Proficiency Exam. Mr. Puckett's score of 88 exceeded both the established passing score of 80 and even the score of 85 achieved by Level III Weld Inspector and Quality Control Manager Irving DeWald on the same exam.

In defense of Mr. Puckett's claim for unemployment compensation, Comstock asserted he was fired because of "falsification of his credentials during his interview." Mr. DeWald disclaimed any knowledge of this assertion by Comstock and agreed that Mr. Puckett had neither falsified his credentials nor inaccurately presented his work experience in his resume. Applicant has failed to demonstrate that Mr. Puckett's resume contained any misstatements, concealments, omissions, distortions, inaccuracies, falsifications, or exaggerations, or was, in any way, misleading.

At hearing, Applicant offered a considerable amount of testimony to suggest that Mr. Puckett was terminated because of his failure to become certified in welding by not having passed his practical examination by his 89th day on the job, when he was terminated. But Comstock attached little or no importance to whether Level III supervisors passed their qualification tests and became certified. Mr. Saklak, Mr. Puckett's predecessor as Quality Control Supervisor over welding (from August 1983 until May 1984), never became certified. Mr. Puckett's successor, Mr. Tony Simile, who supervised weld inspection activities from September 1984 onward, did not become certified until July 12, 1985, a period of over 10 months. Similarly, other supervisors supervised Quality Control disciplines for many months without becoming certified.

During his tenure at Braidwood, Worley Puckett appeared to have been highly respected by the Quality Control inspectors who were familiar with his work. For example, welding inspector Danny Holley volunteered:

> Well, I could say Mr. Puckett was, you know — maybe I'm out of line, but the welding inspectors that were around when Mr. Puckett was here really respected his — his professionalism and his background and really felt that he was doing a good job.
>
> When he was let go, a lot of people, you know, brought to their own mind, "Why was he let go?"
>
> There was talk, like I said, that was going on around the office.

Mr. Puckett testified over a number of days at hearing. Despite grueling examination by Applicant's and Staff's counsel, who had been well prepared by their respective experts, Mr. Puckett demonstrated an extensive knowledge of the welding procedures and codes, and a clear grasp of the issues discussed. Although he did not speak as an educated man in the traditional sense and his syntax suffered, his positions and opinions were expressed clearly and logically. On the basis of his testimony, Mr. Puckett appeared to be a highly conscientious, knowledgeable, and competent welding authority — certainly as competent in his area as any of the other experts who testified. On the other hand, we have no way of knowing how much of Mr. Puckett's knowledge and insight into the welding procedures and issues before us was acquired after his termination.

Applicant has failed to sustain its burden of proving that Mr. Puckett was not terminated for raising quality concerns. In fact, the preponderance of evidence is that Mr. Puckett was terminated for raising legitimate concerns and requiring that they be dispositioned in writing. Nor is this an instance in which Applicant, Commonwealth Edison Company, has only derivative liability for Mr. Puckett's improper termination by its contractor, L.K. Comstock. In addition to Commonwealth Edison's placing production pressure on Comstock because of Comstock's backlog in inspections and documentation at that time, which made Comstock inhospitable to Mr. Puckett's proposed revamping of inadequate procedures, CECo had direct responsibility in Mr. Puckett's termination. Mr. Gieseker, a CECo official, had played a large part in the Stop-Work conferences that led to Mr. Puckett's termination and had disparaged Mr. Puckett at those conferences. At one point, when the issue of the use of the AWS D1.1 Code arose, Mr. Gieseker told Mr. Puckett to "Shut up. I don't want to hear [any] more about it." The decision to terminate was a joint one between Comstock and CECo and was finalized in a conference on August 27, 1984, attended by D. Shamblin, CECo Project Superintendent for Braidwood; J. Gieseker; and Irving DeWald, Comstock Quality Control Manager.

2. John Seeders

For the most part I agree with Applicant, NRC Staff, and my colleagues that John Seeders was transferred from Quality Control to a clerk's position in the

Engineering Department because he failed to discharge his duties properly as a calibrations inspector. Comstock had a legitimate reason for transferring him even though the record suggests that he was treated unfairly with regard to a dispute with his supervisor, Richard Saklak.

Although Mr. Seeders may not have been treated fairly by his supervisor, Mr. Saklak, and by other Comstock management in reviewing his dispute with Mr. Saklak, he was not transferred for raising quality concerns. That one of the reasons for his transfer may have been unreasonable behavior on the part of his supervisor Saklak is not the Board's concern because we are not here to examine Comstock's management practices, except to the extent that they affect quality control requirements. The major reason for Mr. Seeders' transfer was the poor quality control practices within his department, and L.K. Comstock was justified in transferring him for that reason. However, Comstock management is not blameless for the poor quality practices that existed in the Calibration Department. Not only did they assign poorly trained Seeders to be the sole calibrations inspector, but they also assigned Mr. Saklak to supervise the department when he was uncertified and unqualified in that discipline. The lack of certification of Comstock Quality Control supervisors was in violation of LKC Procedure 4.1.2 and later became the subject of NCR 4528. Despite the problems encountered in the Calibration Department because of lack of knowledgeable supervision, not only by Mr. Seeders but also by his successor, Richard Snyder, Comstock was inexplicably permitted to disposition NCR 4528 by eliminating the requirement from its procedures that the Quality Control Supervisor obtain certification prior to assuming his responsibility.

3. *Other Instances of Alleged Harassment*

On the morning of March 29, 1985, six Comstock Quality Control inspectors walked into the NRC Braidwood office and raised a number of complaints against LKC Quality Control management. One of these complaints concerned a threat made against one of the inspectors, Richard Snyder, the previous day by his supervisor Richard Saklak. Other inspectors also complained about Mr. Saklak's conduct. In addition, the Quality Control inspectors raised a number of other complaints against Quality Control management. Among these complaints were that Edison's "Quality First" program was not effective, that unqualified persons were awarded lead inspector positions, that certain of LKC's Quality Control management team harassed and intimidated Quality Control inspectors, and that management was more concerned with the quantity rather than the quality of the inspectors' inspections.

After the meeting adjourned, the two NRC Senior Resident Inspectors present, Leonard McGregor and Robert Schulz, contacted their superiors in the Regional Office to bring to their attention the events that transpired that

morning. Mr. McGregor and Mr. Schulz recommended to the Region that someone from the Regional office be sent to Braidwood immediately to take sworn statements from the Quality Control inspectors.

Mr. Weil, Mr. McGregor's supervisor in the Region, asked Mr. McGregor to arrange a telephone conference with the six Quality Control inspectors. Mr. McGregor in turn contacted some of the inspectors and asked them to attend a meeting in his office during their lunch break. He also indicated that any other inspectors who wanted to attend should feel free to do so.

At approximately 12:00 noon, twenty-four inspectors, including the six that had visited the NRC office previously that day, were present in the NRC office for a conference with the NRC Region. The Quality Control inspectors reiterated the complaints made earlier by the six inspectors with regard to production pressure by LKC management. At some point during the meeting a request was made for a show of hands to determine how many Quality Control inspectors agreed that Comstock Quality Control management was emphasizing quantity over quality. Senior Resident Inspector McGregor recalled that the twenty-four inspectors' agreement with the statement was unanimous, without abstentions or denials, and that he or Mr. Schulz relayed that agreement to the Region during the conference call.

Despite Mr. Schulz and Mr. McGregor's recommendation that the Regional office send an inspector immediately to take sworn statements from the Quality Control inspectors, an NRC inspector was not sent until a month later. That inspector had not been trained in investigating allegations of wrongdoing.

Much of the testimony given during the hearing was presented by some of the twenty-four inspectors who complained about Comstock's emphasizing quantity over quality. The examination of these witnesses was directed toward establishing whether there were concrete instances of harassment, intimidation, or retaliation by Comstock management because of quality concerns raised by Quality Control inspectors. Testimony was also presented with regard to alleged acts of harassment, intimidation, or retaliation occurring after the March 29, 1985 complaints to the NRC that, Intervenors assert, show a continuing improper Quality Control management practice of harassment and intimidation. Staff and Applicant find only two instances of harassment and intimidation in a quality sense. Those were perpetrated by Quality Control Supervisor Richard Saklak: one was against Mike Mustered and the other against Richard Snyder. In the first instance, Mustered successfully resisted Saklak's attempt to intimidate him into improperly closing some ICRs he had written to document discrepancies. In the other instance, Mr. Saklak was terminated for threatening Mr. Snyder.

Having found that Mr. Puckett was properly terminated, Mr. Seeders was properly transferred, Mr. Saklak was properly disciplined for his later act of harassment and intimidation, and there were no other instances of established acts of harassment and intimidation, Applicant and Staff conclude that the Quality

Control inspectors were not harassed, intimidated, threatened, or pressured into failing to perform their duties in accordance with the applicable regulatory and procedural requirements.

I do not agree that only concrete acts of harassment and intimidation can evidence improper production pressure by management in violation of Criterion I of Appendix B to Part 50. Exhortations by management to increase production at the expense of quality, even if not accompanied by harassment and intimidation, constitute improper production pressure. Under that circumstance, Quality Control inspectors might cooperate with Quality Control management in adopting improper inspection practices without any threatened retaliation. I did not find any evidence in this proceeding of such a general Quality Control management practice of encouraging inspectors to disregard quality for quantity. However, there is evidence, as discussed above, that Edison's project construction manager did improperly assert pressure on Comstock's Quality Control management at weekly meetings to speed production under threat of loss of contract and that Comstock Quality Control management, in turn, improperly transmitted that message of increased production under threat of loss of contract to its Quality Control inspectors at weekly meetings. That twenty-four Quality Control inspectors also gathered *en masse* to the NRC onsite office to complain of improper production pressure also establishes its existence notwithstanding that there may not have been concrete instances of harassment and intimidation to compel the inspectors to succumb to the production pressure and sacrifice the quality of their inspections. Moreover, I do find concrete instances of harassment and intimidation that further support the presence of improper production pressure and a failure to maintain the Quality Control organization's independence from cost and schedule required by Criterion I of Appendix B to Part 50.

In addition to the improper termination of Worley Puckett, discussed above, significant acts of harassment and intimidation against Quality Control Inspectors Perryman, Archambeault, and Martin are discussed in my Minority Findings, *infra*. Those acts of harassment and/or retaliation reflected the improper attitude and practice of Quality Control management in discouraging Quality Control inspectors from raising any large item that might interfere with production. Other, lesser acts of harassment and intimidation discussed in the Findings, such as incidents involving Mr. Bowman and Mr. Peterson, are ordinary occurrences on any construction site and cannot be assumed to be reflective of Quality Control management attitudes.

In addition to the enumerated instances of harassment and intimidation, Comstock management also appointed Mr. Saklak as a Quality Control Supervisor in July of 1982 and, later, under Quality Control Manager DeWald, expanded Mr. Saklak's supervisory authority in violation of Comstock's procedures and in contravention of good quality control practices. Mr. Saklak had no quality control background, had primarily a scheduling and production background, was

not knowledgeable about the disciplines he supervised, and was temperamentally suited only for driving his inferiors toward greater production. Even though he was removed from his position after the second concrete instance of his harassment and intimidation explored at the hearing, involving Richard Snyder, his lack of knowledge and experience in quality control and the disciplines he supervised was well known to his superiors before that time. He was retained in his position for the primary purpose of maintaining pressure on production. Comstock's violation of its regulations, which required Quality Control supervisors to be knowledgeable and certified in the disciplines they supervised, by maintaining Mr. Saklak in his supervisory position and expanding his authority when he was neither knowledgeable nor certified, contributed to poor quality control practices in at least the Calibration Department, for which John Seeders was disciplined. It was not merely a technical violation of Comstock's procedures; it was substantive.

Notwithstanding Edison's and Comstock's violation of Criterion I through the *de facto* change in organization by which Comstock Quality Control management reported weekly to Edison's Project Construction Manager, who asserted excessive production pressure on Comstock's Quality Control management, which in turn asserted improper pressure on its Quality Control inspectors and, notwithstanding the few major instances of Edison and/or Comstock harassment, intimidation, or retaliation against inspectors for raising quality concerns, the evidence indicates that the Quality Control inspectors continued to perform their inspection activities properly in the period from October 1983 onward. They withstood the improper production pressure and performed their inspections in a satisfactory manner.

For that period, October 1983 to present, I would apply the test in *Union Electric Co.* (Callaway Plant, Unit 1), ALAB-740, 18 NRC 343, 346 (1983), and determine that there has not been a breakdown in quality assurance procedures of sufficient dimension to raise legitimate doubt as to the overall integrity of the installation of the electrical system. There is reasonable assurance that the electrical system installed after October 1983 can be operated without endangering the public health and safety.

Because of the gravity of the violation of 10 C.F.R. § 50.7 by Comstock and Edison in the termination of Worley O. Puckett, I would recommend the imposition on Applicant of a substantial civil penalty under § 50.7(c)(2). A lesser penalty should be imposed for the Archambeault, Martin, and Perryman incidents.

E. Grid-Area Weld Inspections

Although neither the practice of grid-area weld inspections nor the period in which they took place, prior to October 1983, were in issue in this proceeding,

evidence was adduced with regard to that practice. The evidence was offered to support allegations of a poor quality attitude of Quality Control Manager Irving DeWald who was reputed to have inspected over a thousand welds in one day. Numerous Quality Control inspectors testified that they had seen a checklist by Mr. DeWald covering over a thousand welds. Other inspectors had heard rumors to that effect. No such checklist had been found during discovery and Mr. DeWald doubted that he had ever documented a thousand or more welds on a single inspection checklist. A DeWald checklist covering 551 welds was discovered, as were checklists of over a thousand welds by other Quality Control inspectors. All of the welds on these checklists were found to be acceptable by the original Quality Control inspector. One Quality Control inspector observed a checklist covering up to 2500 to 3000 welds.

Acc ding to the testimony of Quality Control Manager DeWald and Mr. Richard Martin, both of whom had inspected during the grid-basis weld inspection era, there were only a small number of inspectors. They would inspect a grid area covering a number of installed components over a period of from 1 to 4 days and then document their inspections on the day following when they returned to the office. As a rule, no official documentation of rejected conditions was ever made unless the craft couldn't fix the defect promptly. Only then would an Inspection Correction Report be issued documenting the defect. Only acceptable items were documented on the official weld inspection checklist. The reason that inspectors did not fill out inspection reports as they completed each component was because there were only three or four inspectors covering a hundred welders.

Evidence adduced with regard to one of the checklists, covering 1166 welds deemed acceptable, indicated that one of the seventy-seven hangers listed on the grid inspection cover sheet was later the subje of a 1984 reinspection which identified extensive welding defects not identified in the original grid inspection. Other evidence indicated that the quality of the we' 's inspected under the grid system was poor.

In 1984 and 1985, under the Braidwood Construction Assessment Program, a random sample of welds that had been previously inspected was reinspected. Of over 13,000 welds reinspected, approximately 16% were found to be deficient in one or more respects that might have an effect on their safety function. Assuming at least a 50% original Quality Control inspector effectiveness, at least 32% of the welds would have been discrepant originally (i.e., before inspection). If we project these percentages to the example of the 1166-weld checklist, one might expect at least 340 welds to have been discrepant originally. Not only is it inconceivable that the weld inspection reports indicating acceptances of multi-hundred welds could have reflected the original condition of the welds, it is also inconceivable that such large numbers of discrepancies could have been reworked or repaired during the 1, 2, 3, or 4 days between the beginning of

the inspection and the signing of the inspection report. Neither time nor space would be adequate for such operations even if craft were not otherwise occupied in its further construction activities.

Moreover, the failure to record discrepant conditions, which surely must have existed in the multi-hundred weld inspections under the grid system, if observed, would violate Criterion XVII of 10 C.F.R. Part 50, Appendix B, which requires, as a minimum, a record of any deficiencies noted. On the basis of the evidence adduced, which indicates that the inspection standards of a significant portion of the weld inspectors were substandard, that the inspectors failed to observe significant numbers of discrepancies, and that the weld inspectors failed to document discrepant conditions as required by Appendix B, the weld inspections performed under the grid system, in effect until October of 1983, are [illegible] lacking in credibility. Under those circumstances, a 100% reinspection program, rather than a sampling program, is ordinarily required to determine whether there is reasonable assurance about the safety of the construction. However, since the grid system inspections and the time period in which those inspections conducted were not directly in issue in this proceeding, Applicant should have the further opportunity of proving the efficacy of those inspections.

F. Applicant Sampling Reinspection Programs

In an attempt to prove the effectiveness of the Comstock Quality Control Program, Applicant presented the results of two large sample reinspection programs: (1) the Construction Sample Reinspection (CSR) portion of the Braidwood Construction Assessment Program (BCAP), and (2) the Pittsburgh Testing Laboratory (PTL) routine overinspection of Comstock's Quality-Control-accepted work. Neither of these programs was designed to measure Quality Control effectiveness and neither program, as presented by Applicant, was able to offer any assurance that Comstock's Quality Control Program was effective or that the electrical system was properly installed by Comstock.

Most of the evidence concerned BCAP. Three types of data were produced as a result of the BCAP CSR Program. First, the raw data from the CSR reinspections were tabulated in terms of the number of discrepancies and the number of acceptable conditions identified by the CSR reinspectors. Second, those numbers were used to compute so-called "agreement rates." Third, the discrepancies were analyzed to determine whether they were "design significant."

Sargent & Lundy categorized all discrepancies sent to it for evaluation of design significance as either: "insignificant," "notable," or "design significant," depending on their severity. Discrepancies that reduced an item's capacity by less than 10% but did not impair its ability to perform its safety-related design function were termed "insignificant." Discrepancies that reduced an item's capacity by 10% or more but did not impair its ability to perform its safety-

related design function were termed "notable." Any discrepancy that would impair the item's ability to perform its safety-related design function within code-allowable stresses was called "design significant." Sargent & Lundy's evaluation of discrepancies for each of the six electrical construction categories concluded that there were no design-significant discrepancies.

Each inspection criterion used to determine the acceptability or rejectability of an item was identified and termed an "inspection point." Each inspection point that resulted in a CSR discrepancy was termed a "discrepancy point." On that basis, a high percentage of the inspection points were found to be nondiscrepant and more than two-thirds of the discrepancy points were termed "insignificant."

Applicant also presented the CSR results for the electrical construction categories on a per-weld basis. About 84% of the welds had no discrepancies.

A third way of looking at the CSR results was supported by Intervenors in this proceeding. Any item with one or more discrepancies would be termed a "discrepant item." On an item basis, a majority of the cables, cable pans, conduit, conduit hangers, cable pan hangers, and electrical equipment installation would be deemed "discrepant items."

None of these units was satisfactory for evaluating the efficacy of the Quality Control inspection.

An item-basis determination equates very dissimilar reinspection outcomes. For example, a huge cable pan hanger with hundreds of welds, one of which might be discrepant due to an arc strike, would count the same as a conduit wall strap support that was totally missing.

On the other hand, judging the quality of the original inspection on the percentage of attributes that were discrepant, as Applicant proposed, was similarly unrealistic. It seems unlikely that any weld that had more than two or three discrepant inspection points (i.e., attributes) would have become the subject of an original inspection by an L.K. Comstock Quality Control inspector. If a craftsman were to weld a weldment with more than two or three faulty attributes, such as being undersized, cracked, lacking fusion, etc., it is likely that he would redo that weld himself without waiting for Quality Control to reject it. On a practical level then, the original Quality Control inspector is inspecting welds that might have, at most, one, two, or three defective attributes (although any of those, such as a crack, might render the weldment totally nonfunctional). But, even if we were to assume that the Quality Control inspector inspected and passed only discrepant welds (those with one, two, or three defective attributes), his percentage of acceptable calls (i.e., his "agreement rate" under BCAP) would range between 82% and 94%. On its face, an 82% to 94% rate does not seem egregious, even though it should because, in our example, the Quality Control inspector missed every discrepant weld that the craftsman would not have redone of their own volition.

There are infirmities in the BCAP CSR reinspection program that go beyond the question of whether components, subcomponents (such as welds), or inspection points should be tallied to determine the percentage of discrepancy. Even if we were to choose one of these, we would still lack the perspective to judge the quality of the original Quality Control inspection. The main element lacking in the evaluation would be the number of the discrepant units (components, subcomponents, or attributes) that the original Quality Control inspector *reported*, as opposed to those that he missed, only the latter being disclosed under the BCAP program.

As an example, let us use welds as the unit of measurement and 15% of the welds as being found discrepant under the BCAP reinspection program. (Appl. Exh. 181 indicates that approximately 16% of the welds examined by the BCAP inspectors were found to be discrepant.) If we assume that the craftsmen had welded 45% of their welds discrepantly, the Comstock Quality Control inspector would have had to miss one-third of those discrepant welds ($1/3 \times 45\%$) to have been found 15% discrepant under BCAP. If, on the other hand, the craftsmen had welded 20% of the welds discrepantly, the Comstock Quality Control inspector would have had to miss three-quarters of the discrepant welds ($3/4 \times 20\% = 15\%$). Consequently, unless we know either explicitly or deductively (or inductively, as the case may be) how many discrepancies were reported by the original Quality Control inspectors, we do not know whether the Comstock Quality Control inspectors were 67% effective, 25% effective, or any other percentage.

There would seem to be no reason why the discrepancies uncovered by the BCAP reinspectors could not be compared to the discrepancies originally reported by the Comstock inspectors, as contained in the inspection packages for the sampled components. Under the requirements of Part 50, Appendix B, Criterion XVII, the original inspection records should be retrievable. Criterion XVII states, *inter alia:*

> XVII. Quality Assurance Records
>
> . . . Inspection and test records shall, as a minimum, identify the inspector or data recorder, the type of observation, the results, the acceptability, and the action taken in connection with any deficiencies noted. Records shall be identifiable and retrievable.

It would appear that even at this point a comparison can be made between the discrepancies found by the BCAP inspectors and those found by the original Quality Control inspectors. We need only examine the original sampling packages, with no need for any further sampling, if we wish to measure the effectiveness of the original Quality Control inspectors. Whether any such comparison was ever made has not been disclosed and is not a part of the record. In the absence of such comparison the BCAP program cannot be accepted

as *any* measure of the effectiveness of the original Quality Control inspector. It might also be noted at this juncture that if a comparison had been made, the entire controversy over which units (i.e., components, subcomponents, inspection points) should be measured would have been obviated. Had Applicant compared only those attributes examined by the BCAP reinspector with the comparable attributes originally inspected by the Comstock Quality Control inspector, Intervenors would have no basis for challenging the results. Of course, even if Applicant had measured apples against apples and oranges against oranges, it would only have arrived at a *percentage* of the effectiveness of the original Quality Control inspector. Unless those results were determinative on their face (i.e., either an extremely high rate of Quality Control inspector effectiveness or an extremely low rate), the results would still have to be evaluated by the experts and the Board.

Without any measure of *effectiveness* of the Quality Control inspector, and with only a measure of the absolute numbers of discrepancies missed, a meaningful comparison cannot be made between different periods of inspection activity. Moreover, any BCAP sampling comparison between the pre-DeWald (as Quality Control Manager) era and the period in which the contention alleges that management harassed and intimidated inspectors, is particularly inappropriate. Mr. DeWald became Quality Control Manager in August of 1983, shortly before the grid-area basis for weld inspectors was discontinued in October of 1983. The grid system was not a proper or effective method of inspection and, consequently, neither the grid system period nor the DeWald-Saklak period represents a standard against which any other period can be judged.

In the absence of any measure of Quality Control effectiveness based upon a comparison between discrepancies missed and discrepancies reported, the BCAP evaluations of "design significance" were presented as a measure of Quality Control effectiveness. But the question of whether a discrepancy is "design significant," is totally irrelevant to the function of a Quality Control inspector. He is not charged with seeking out design-significant discrepancies or even with determining whether any putative discrepancies are significant from a safety standpoint. His obligation is to report all discrepancies. Any attempt by him to ignore those discrepancies that he might consider insignificant would interfere with this obligation. The question of whether a discrepancy is design significant is uniquely in the province of an engineer to evaluate based, in part, on the inspector's findings, but also based on a variety of other data and expertise that are not immediately known to a Quality Control inspector. The measure of the qualification of a Quality Control inspector is whether he can inspect to established acceptance criteria.

The only value, therefore, that BCAP could have for us, considering the way it was programmed, is with regard to the constructed hardware, rather than with

regard to the effectiveness of the Quality Control inspection program. However, even there, little weight can be given to the results. The main problem is with the party selected to make the determination of design significance, Sargent & Lundy.

Sargent & Lundy is the architect/engineer on the project and, as the accompanying Minority Findings suggest, is too committed to the licensing of the plant to be considered an objective evaluator. And, as detailed in the accompanying Minority Findings, not only is S&L committed institutionally to supporting the licensing of the facility and to contributing to a finding that there are no design-significant defects, but it failed to perform its design-significant evaluations in a manner that could inspire confidence. Moreover, the design-significant evaluations that it performed do not lend themselves to a statistical application by which they can be projected to the population of inspected items at large. The calculations and evaluations appear to be unique, and suitable only for the particular items selected.

While Sargent & Lundy is certainly entitled to evaluate the plant's construction under BCAP or any other program for its *own* purposes to determine *for itself* whether the plant is properly constructed, its commitment to the licensing of the plant is too strong for me to accept its opinions as impartial. Furthermore, its past actions and testimony at trial confirm its partisanship in that regard. Its attitude in general appeared to be that it had designed the plant with so much safety margin that no deficiencies in construction and inspection in the electrical area could impair the ability of the electrical system to function safely. While that might be the case, that opinion should be expressed by someone other than the designer of the plant to be afforded much weight.

For the same principal reasons that the CSR agreement rates are not indicative of the efficacy of the original Comstock Quality Control inspector, because there is no comparison between the discrepancies he missed and those that he found, the PTL overinspection results are similarly unilluminating. Furthermore, the sampling for PTL was not done on a statistically random basis and PTL inspectors were permitted to overinspect welds through paint, which could have distorted the results considerably. Although the PTL witnesses claimed that only 7% of the welds were inspected through paint, the testimony was not credible, as discussed in the Minority Findings, below.

G. NRC Staff's Review

For reasons detailed throughout my Findings, I do not find NRC Staff's approval of various aspects of the Comstock Quality Control effort to be meaningful. *See, e.g.*, Min. Fdgs. 83-91, 107-112, 192-194, 235-253, 339. In general, NRC Staff prejudged the incidents of alleged harassment in favor of Comstock, and assigned inspectors to inspect only the hardware, rather than the

existence of any improper actions by management. The NRC inspectors assigned to the inspections were generally exceedingly accepting of Applicant and Comstock's positions. Those who became somewhat critical of Applicant and Comstock, such as the two Senior Resident Inspectors, soon found themselves out of favor with NRC management. The quality of the NRC inspection reports reflects the uncritical nature of the underlying analyses.

H. Conclusion

For the reasons stated in this Minority Opinion, the accompanying Minority Findings, and the accompanying Minority Ultimate Findings of Fact and Conclusions of Law, I would find that there is reasonable assurance that the portion of the electrical system installed after October 1983 can be operated without endangering the public health and safety.

I would recommend that a substantial civil penalty be imposed on Applicant under 10 C.F.R. § 50.7(c)(2) for the improper termination of Worley O. Puckett, and that a lesser penalty be imposed for the Archambeault, Martin, and Perryman incidents.

I would also require that Applicant prove the efficacy of the Quality Control inspections when the grid-area welding inspection system was in effect before October 1983, or find some other satisfactory method of proving that the welding was done adequately.

II. MINORITY FINDINGS OF FACTS

A. Organization

I accept Staff's Proposed Findings 1-15, *in toto*, as Findings 1-15.

1. [1.] Commonwealth Edison Company ("Applicant" or "CECo") is the owner of the Braidwood Nuclear Station, located in Braceville, Illinois. As the owner, Applicant ultimately is responsible for the design, construction, and operation of the facility. Applicant engaged Sargent & Lundy ("S&L") to design the Braidwood Station. Various contractors were retained by Applicant to construct the facility, only one of which — Comstock, the electrical contractor — is pertinent to these findings. In particular, our focus is on certain activities and events involving that contractor during the period August 1984 through March 1985.

2. [2.] Comstock was awarded the electrical contract for Braidwood Units 1 and 2 by Applicant on February 5, 1979. Testimony of Bobby Treece, ff. Tr. 12,881, A.13 at 6 (Treece Test.). Prior to LKC's involvement, the electrical work had been performed by E.C. Ernst Company. *Id.*

3. [3.] Comstock performs two important functions at Braidwood: electrical equipment installation and quality control and assurance. Testimony of Irving DeWald, ff. Tr. 1700, A.3 at 2 (DeWald Test.). L.K. Comstock and Company, Inc., performs the production function at Braidwood. Testimony of Daniel Shamblin, ff. Tr. 12,274, A.8 at 6 (Shamblin Test.). Responsibility for the production function is vested in LKC's Project Construction Manager. Int. Exh. 7 at 9. Comstock Engineering, Inc., performs the quality assurance (QA) and quality control (QC) functions. Shamblin Test., A.8 at 6. Responsibility for QA and QC at Braidwood is reposed in the Manager for QC. *Id.* at 11. Both L.K. Comstock and Company, Inc., and Comstock Engineering, Inc., are subsidiaries of a parent company, the Comstock Group, Inc. Shamblin Test., A.8 at 6. In these findings of fact, parent company and its subsidiaries are referred to as "LKC."

4. [4.] LKC has had three Quality Control Managers and one Manager for QA during the time it has been the electrical contractor at Braidwood: Robert Brown, Thomas Corcoran, Irving DeWald, and Robert Seltmann. Mr. Brown was Quality Control Manager until November 1982, at which time he was replaced "because he lacked administrative abilities." Int. Exh. 6 at 2. Mr. DeWald has held the position since August 1983. In November 1985, as a result of a reorganization, the position of QA Manager was created. Testimony of Robert Seltmann, ff. Tr. 1960, A.2 and A.4 at 1-4 (Seltmann Test.). Mr. Seltmann was selected to fill this position. *Id.* As Manager of Quality Assurance, Mr. Seltmann was Mr. DeWald's superior. *Id.*; DeWald Test., A.3 at 2.

5. [5.] The Quality Control Manager reports to Thomas Paserba, LKC's Regional Manager for QA/QC Services in Chicago, Illinois. DeWald Test., A.3 at 3. Mr. Paserba reports to LKC's Corporate Manager for QA/QC Services, Robert Marino, who in turn reports to the head of L.K. Comstock Engineering, Inc. Int. Exh. 4. Below the Quality Control Manager on the chain of command are the following: Assistant Quality Control Managers, supervisors of inspectors, lead inspectors, and Quality Control inspectors. Tr. 1281-89; Int. Exh. 7 at 17; Int. Exh. 4.

6. [6.] Mr. DeWald previously was a weld inspector at Braidwood. DeWald Test., A.2 at 1. In 1981, Mr. DeWald was transferred by LKC to the D.C. Cook Nuclear Power Plant where he served as the Quality Control Manager and Level III Electrical Inspector until August 1983, when he assumed Quality Control Manager at Braidwood. *Id.*

7. [7.] The Assistant Quality Control Manager is Larry Seese. Testimony of Larry Seese, A.1 at 1 (Seese Test.). Mr. Seese has held this position since October 1983. *Id.*, A.2 at 2. Like Mr. DeWald, Mr. Seese came to Braidwood from the D.C. Cook nuclear facility. *Id.* As the Assistant Quality Control Manager, Mr. Seese is responsible primarily for administrative matters such as compiling status reports used by LKC to track its progress on its work load. *Id.*, A.3 at 3-4.

8. [8.] The other senior LKC Quality Control Department official at the Braidwood site during the relevant period was Robert Seltmann. Mr. Seltmann has been employed by Comstock Engineering, Inc., since February 1978. Seltmann Test., A.2 at 1. Mr. Seltmann was transferred to the Braidwood Station in September 1983 to fill the position of QA Engineer. *Id.* Prior to this transfer, Mr. Seltmann was employed by LKC for more than 5 years at the Enrico Fermi II Nuclear Project, serving in a variety of QC and QA positions. *Id.* at 2. As the QA Engineer at Braidwood, Mr. Seltmann was responsible for conducting audits of LKC's Quality Control Program; responding to audits and inspections of LKC's activities conducted by CECo and the NRC; and revising LKC's procedures to incorporate recommended changes. *Id.* at 2-3. In November 1984, Mr. Seltmann's title was changed to QA Manager, a title that more accurately reflected his managerial duties. *Id.* at 3. And, as noted earlier, a year later, Mr. Seltmann was elevated to a position superior to Mr. DeWald and became the ranking LKC Quality Control Department on site. *Id.* at 3-4.

9. [9.] The Quality Control inspections themselves are conducted by certified inspectors. The Quality Control inspectors fall into two general categories: welding and nonwelding. The nonwelding category can be further subdivided into disciplines such as terminations, cable pulling, configurations, calibrations, conduits, and receipt inspections. *See* Int. Exh. 7 at 7.

10. [10.] The number of Quality Control inspectors has varied over the course of LKC's tenure at Braidwood, ranging from a handful in 1981 to a high of nearly 100 in 1986. *See* Int. Exh. 4; DeWald Test., A.6 at 10.

11. [11.] Until July 23, 1985, LKC Quality Control inspectors were hired and employed by LKC. However, in July 1985, Applicant contracted with Brand Examination Systems and Testing Company (BESTCO) to provide Quality Control inspectors for LKC's scope of work. DeWald Test., A.11 at 17. Testimony of Thomas Maiman, ff. Tr. 3806, A.11 at 11 (Maiman Test.). At that time all Quality Control inspectors then employed by LKC were discharged by LKC and immediately rehired by BESTCO. DeWald Test., A.11 at 17; Maiman Test., A.11 at 12.

12. [12.] BESTCO's contract with Applicant was terminated on July 27, 1986, and its functions assumed by GE-MCIS. Tr. 6761. Both BESTCO and GE-MCIS are what is known in the industry as "job shoppers." Tr. 8262. Although BESTCO and later GE-MCIS were responsible for hiring, firing, and paying the Quality Control inspectors they provided to LKC, LKC retained the authority to direct the Quality Control inspectors in the performance of their work activities. DeWald Test., A.3 at 3-4; Maiman Test., A.11 at 12.

13. [13.] LKC's construction or "production" function was the responsibility of the Project Construction Department. Shamblin Test., A.8 at 6. At all times relevant for our purposes, the Project Manager was Frank Rolan. *See* Int. Exh. 7. Mr. Rolan reports to the L.K. Comstock Central Region Vice-

President, who in turn reports to superiors in L.K. Comstock and Company, Inc. Tr. 1300; Int. Exh. 7 at 9; Shamblin Test., A.8 at 6. Beneath Mr. Rolan on the chain of command are the project engineers, craft foremen, and individual craftsmen. Int. Exh. 7 at 9.

14. [14.] As noted at the outset, CECo is the owner and thus ultimately is responsible for the design, construction, and operation of the Braidwood nuclear station. CECo personnel charged with administering its quality assurance program do not report to those with construction responsibilities. Shamblin Test., A.8 at 6. Thomas Maiman, CECo Vice-President and Manager of Projects is responsible for the construction, licensing, and operation of the Braidwood facility. Maiman Test., A.3 at 1-2. Mr. Maiman reports to James O'Connor, President and Chairman of the Board of CECo. Beneath Mr. Maiman in the chain of command are Michael Wallace, the Braidwood Project Manager, and Mr. Shamblin, the Braidwood Project Construction Superintendent. Shamblin Test., A.9 at 7. As Project Construction Superintendent, Mr. Shamblin is responsible for administering the Braidwood construction contracts let to LKC and other major contractors. Shamblin Test., A.6 at 3. All told, Mr. Shamblin ultimately is responsible for the design, construction, and QA activities of more than 4000 employees. Tr. 16,429.

15. [15.] For the past 13 years, Walter Shewski has served as CECo's Corporate Manager of Quality Assurance. Tr. 10,113. Since the spring of 1984, Mr. Shewski has reported directly to Mr. O'Connor. Tr. 9998, 10,122. Prior to that time, the chain of command was Mr. Shewski, Eugene Fitzpatrick, Assistant to Corporate Manager of QA (Tr. 10,148), and Thomas Quaka, CECo's QA Manager at Braidwood. *See* Shamblin Test., A.18 at 15; Tr. 11,581. CECo QA is responsible for conducting audits and surveillances of activities relating to quality to ensure compliance with CECo's quality assurance program. Shamblin Test., A.9 at 7.

B. Nature of LKC's Quality Control Work

I accept, *in toto*, Staff's Proposed Findings 16-36 as Findings 16-36.

16. [16.] At Braidwood, one of the principal duties of a Quality Control inspector is to ensure that safety-related components, structures, and systems installed by craftsmen are installed pursuant to applicable procedure. *See* Int. Exh. 40. Work that is not safety related generally falls outside the jurisdiction of the Quality Control Department. In performing his inspections a Quality Control inspector is guided by the acceptance criteria set forth in the applicable inspection procedure. *Id.* The actual inspection, however, is documented on an inspection checklist which lists the most important attributes that must be found acceptable in order for the activity being inspected to pass muster. *See, e.g.*, Appl. Exh. 124 (Form 37).

17. [17.] Each inspection performed by a Quality Control inspector is reviewed by another inspector. Testimony of Rogelio Mendez and John Neisler, A.25 at 12, ff. Tr. 10,490 (Mendez or Neisler Test.). Since all of the Quality Control inspectors presently utilized by LKC are certified to Level II under the ANSI N45.2.6 (1978) standard, this review is limited to determining whether the inspection report is completed. *See id.* The reviewer does not and is not required to determine that the inspection was performed properly. *Id.* Also, pursuant to LKC Procedure 4.1.2 (Rev. C), the reviewing inspector must be certified as a Level II in the particular discipline (e.g., welding, terminations, cable pulling) that is the subject of the inspection. Mendez Test., A.25 at 12-13. Prior to September 1984, the procedure only required that the reviewer be certified to Level II in any inspection discipline. *Id.*

18. [18.] If the activity inspected by the Quality Control inspector satisfies the applicable acceptance criteria and the report documenting that inspection is complete, the work is accepted and the inspection report is transmitted to LKC's document vault and maintained by LKC as a permanent record until such time that it is "turned over" to Applicant. On the other hand, if the activity being inspected fails to meet one or more acceptance criteria, the Quality Control inspector is required to document that condition on an Inspection Correction Report (ICR) or a Nonconformance Report (NCR). Appl. Exh. 40. One of the differences between an NCR and an ICR is that an NCR must be reviewed by the responsible individuals in CECo's production, engineering, and quality assurance departments. ICRs need only be reviewed by LKC personnel. In either event, the documented deficiency must be "dispositioned." *See id.* What this means is that an evaluation must be performed to determine whether the item involved is able to perform satisfactorily in service in its "as-is" condition or whether the deficiency must be corrected. *Id.* In the latter instance, after the item is repaired or replaced, a new inspection must be performed. *Id.*

19. [19.] Until November 1982, LKC performed its Quality Control inspections on a 35% sampling basis. DeWald Test., A.5 at 7. What this means is that, for example, only thirty-five welds out of a population of 100 would be inspected by Quality Control inspectors. The remaining sixty-five welds would not be inspected unless deficiencies identified in the sample population indicated the need to expand the inspection sample.

20. [20.] In November 1982, CECo required LKC to perform inspections of 100% of all activities requiring Quality Control inspections because of errors in LKC's sampling methodology. Int. Exh. 205. This change in inspection policy required LKC to go back and inspect all electrical safety-related work performed prior to November 1982.

21. [21.] There was another important consequence of the change in policy. An immediate and substantial backlog of approximately 14,000 inspections was created. DeWald Test., A.5 at 7. Although LKC's inspection work effec-

tively increased by almost 200% (from 35% to 100%), this increase was not immediately offset by a corresponding expansion of the Quality Control inspector workforce. *Id.*

22. [22.] This dramatic expansion of LKC's inspection responsibility had yet another repercussion. In November 1983, the NRC conducted an inspection of the Braidwood facility, including LKC's Quality Control Department. Int. Exh. 3; Tr. 11,479-85. As a result of that inspection, the NRC expressed serious reservations regarding LKC's ability to perform the inspections necessary to eliminate the backlog created by the change in inspection policy while simultaneously keeping pace with current inspections. Int. Exh. 3, *passim*. Accordingly, the Staff contemplated ordering Applicant to cease all electrical installation work until the backlog was eliminated or reduced considerably. *See id.*

23. [23.] To address the NRC's concerns regarding the ability of LKC to perform its quality function effectively, Applicant and LKC had undertaken the following measures by March 1984: (i) LKC created two new supervisory positions — "Supervisor of Inspectors" and "Lead inspector" — in order to "provide additional uniformity of inspection" and (ii) LKC expanded its Quality Control inspector workforce from twenty-two to fifty-one. Int. Exh. 7 at 11. This increase in Quality Control inspectors was intended to ensure "that timely inspections are performed and that the number of backlogged inspections is reduced." *Id.* In addition, CECo pledged to "monitor the progress and closeout of L.K. Comstock open items" and "corrective actions" as well as the LKC Quality Control inspector workforce to "assure that it is adequately staffed to address any additional work . . . ." *Id.*

24. [24.] In May 1984, shortly after CECo had been advised by the NRC of the need "for more aggressive CECo management" to ensure that its contractors remained in compliance with applicable regulations and other commitments (Int. Exh. 88 at 1), CECo selected Daniel Shamblin to replace Richard Cosaro as Project Construction Superintendent at Braidwood. Shamblin Test., A.2 at 1; Tr. 3815. Mr. Shamblin, who is a Registered Professional Engineer and holds an M.B.A. from the University of Chicago, previously held the position of Project Construction Superintendent at CECo's LaSalle County Nuclear Power Station. Shamblin Test., A.3 and A.4 at 1-2. Shortly after assuming the Project Construction Superintendent position at Braidwood, Mr. Shamblin observed that LKC was "having difficulty coping with the inspection backlog problems." *Id.*, A.10 at 8. In response, a number of discussions between LKC and Mr. Shamblin were held and, to allay Mr. Shamblin's concern, on June 5, 1984, Mr. DeWald submitted a plan pursuant to which the backlog of inspections in the welding, cable pan and cable tray, conduit, and terminations disciplines would be targeted for completion by July 12, 1984. Int. Exh. 12; Tr. 1338-45. Under Mr. DeWald's plan, however, the backlog of inspections of junction boxes and small equipment would exist until September 1984. Int. Exh. 12; Shamblin Test., A.13 at

10-11. Under Mr. DeWald's plan, twenty LKC Quality Control inspectors were dedicated to performing backlog inspections and thirty-four Quality Control inspectors were assigned to "current inspections." Int. Exh. 12 at 4-5.

25. [25.] Mr. Shamblin was not entirely satisfied with Mr. DeWald's target completion date of September 1984 for the junction box and small equipment backlog. *See* Shamblin Test., A.13 at 11. In a letter dated June 9, 1984, Mr. Shamblin informed Mr. Rolan and Mr. DeWald that according to CECo's records, the amount of all backlogged inspections exceeded 6000 in number. Int. Exh. 8 at 1. Mr. Shamblin observed to Mr. DeWald and Mr. Rolan that CECo was "very concerned about the large existing backlog" and stated that "[r]eduction of this backlog must be the *first* priority of LKC Production, Engineering and Quality Control personnel." *Id.* (emphasis in original). Mr. Shamblin also took note of the fact that LKC's request for additional time to reduce the inspection backlog had been granted, indicating that "positive results (i.e., significant current inspection backlog reductions) must be seen *very shortly*." *Id.* (emphasis in original). If such results were not soon forthcoming, Mr. Shamblin was prepared to suspend LKC's operations. Shamblin Test., A.18 at 15. Finally, Mr. Shamblin directed Mr. Rolan and Mr. DeWald to report to him every Monday on the progress in eliminating the backlog that had been made the previous week. Int. Exh. 8 at 2.

26. [26.] In May 1984, LKC developed and instituted a system to enable it to monitor the progress of the activities within its scope of work, particularly those intended to eliminate the inspection backlog. DeWald Test., A.17 at 20; Testimony of Larry Seese, ff. Tr. 2330, A.5 at 8-9 (Seese Test.); Tr. 2498. Under this system, each Quality Control inspector was required to complete and submit to his lead inspector a report documenting the numbers of inspections he had completed that day. Seese Test., A.10 at 11; Tr. 2518. The lead inspector would then use this information to compile a daily inspection status report for his group and submit this report to his supervisor. Tr. 2518, 6380. Each supervisor in turn was to use this information to compile a daily status report for each of the inspection disciplines under his jurisdiction to be submitted to Mr. Seese. Tr. 2388, 2518. Mr. Seese would use the information obtained from the Quality Control supervisors to compile his weekly status reports which were distributed to senior LKC Quality Control management. Seese Test., A.5 at 8. Mr. Seese's report was used by LKC to determine, among other things, whether in light of progress made, target completion dates set by LKC were feasible. *Id.* at 8-9.

27. [27.] While the status reports served an important purpose in enabling LKC management to monitor effectively the performance of the Quality Control Department in eliminating the inspection backlog, that also caused consternation on the part of LKC's Quality Control inspector workforce. Tr. 2370, 2376-77. This was because it was possible to use such reports to monitor an individual

inspector's output. Tr. 2522. Inspectors were concerned especially that the daily status reports they turned in to their lead inspectors might be used by management to establish quotas or to punish them if they failed to perform a certain average number of inspections. *See* Tr. 2370; Dep. Test. of Mark Klachko, ff. Tr. 18,539, at 98-100. To dispel any apprehension among the Quality Control inspectors that the status reports they were required to complete would be used against them, LKC met with the inspectors in October 1984 to explain that the purpose of the status reports was not to monitor the daily output of any individual inspector. Tr. 1576-77, 2371, 2498. The inspectors were assured by LKC management that their status reports would not be used to establish inspection quotas or to reward or punish them for their inspection output. Tr. 2498. LKC even decided to post the weekly status for the department on an office bulletin board to develop a "spirit of togetherness and teamwork" between the inspectors and their management. Seese Test., A.5 at 9; Tr. 2499.

28. [28.] Also during this time, Mr. DeWald would meet with the LKC Quality Control inspectors each Friday to discuss LKC's inspection activities. Tr. 1786. During these meetings, inspectors frequently were exhorted to redouble their efforts to eliminate the inspection backlog and perform current inspections in a timely fashion. *E.g.*, Tr. 4241-55, 7567.

29. [29.] In April 1984, after LKC had requested and received from CECo authorization to hire fourteen additional Quality Control inspectors (Int. Exh. 9 at 1; DeWald Test., A.5 at 7), LKC launched a recruiting drive. *Id.* During this time period, however, there was a shortage of available experienced electrical inspectors. *Id.* at 6. Consequently, to attract new Quality Control inspectors, LKC usually had to offer a salary that was higher than that being paid to its most senior current inspectors. *Id.*

30. [30.] The disparity in levels of compensation of newly hired inspectors fostered resentment on the part of LKC's veteran inspectors. Int. Exh. 23; Tr. 4034, 7740. That dissatisfaction was exacerbated by the fact that these inspectors were required to provide the training necessary for the newly hired inspectors to obtain their certifications. Tr. 4034, 7739-42. In this connection, it should be noted that even though a newly hired inspector may have been certified as a Quality Control inspector at some other nuclear facility, he was still required to be certified to LKC's Quality Control procedures. To obtain certification in any particular discipline, a candidate was required to attend a 1-hour orientation lecture, complete 8 hours of classroom study and 40 hours of on-the-job training, and pass both a written and a practical examination. Tr. 3951, 7737.

31. [31.] To make its pay scales more competitive and thus reduce the number of LKC inspectors resigning their positions for more lucrative opportunities elsewhere, LKC initiated in April 1984 a new compensation policy. DeWald Test., A.7 at 10-12. Mr. Marino, LKC's Corporate Manager for QA/QC Services, decreed that retroactive to April 1, 1984, all Quality Control inspec-

tors henceforth would be paid a minimum of $12.00/hr. DeWald Test., A.7 at 11. Furthermore, inspectors would be compensated at the rate of $.50/hr for each certification they held in excess of one. *Id.* Inspectors who were then making more than $12.00 per hour would suffer no reduction in pay but would be required to be certified in five disciplines. As a result of this compensation policy many of the veteran inspectors received substantial raises, some as much as $5,000.00 per year. *Id.*, A.9 at 14-15. According to Mr. DeWald, the new policy "put the emphasis on the individual inspector to excel and," as of May 1984, appeared "to be accepted quite well by the existing group of Inspectors." Int. Exh. 9 at 3.

32. [32.] The new compensation policy, however, had an unintended consequence. Since an inspector's compensation was now tied to the number of certifications he held, it was in his economic interest to obtain as many certifications as possible. Int. Exh. 9 at 3; DeWald Test., A.9 at 15. In one sense this was also to the advantage of LKC because the more certifications an inspector held, the more flexibility LKC would have in putting his abilities to use. Seese Test., A.25 at 18; *see* Int. Exh. 8 at 5. What LKC failed to foresee, however, is that the policy they promulgated would set off a flood of requests from the inspectors to receive the training necessary to certify in new disciplines. The reason LKC was inundated with requests for training was because it turned out that the only groups of Quality Control inspectors who were eager for cross-training were those who held multiple certifications; all other Quality Control inspectors were eager to obtain cross-training either to maintain their salary or to earn more money. DeWald Test., A.9 at 14-15. Indeed, it appeared to some that many inspectors were more interested in receiving training than they were in performing inspections in the disciplines in which they were certified. DeWald Test., A.8 at 13.

33. [33.] Additionally, because cross-training was to be provided by Quality Control inspectors, it was necessary to arrange matters such that an inspector would be able to perform inspections and receive training in another discipline himself. *Id.* at 12-14. Furthermore, LKC was confronted with complaints that many newly hired inspectors were receiving precedence in obtaining training "to justify their high salaries," as one inspector later put it. Int. Exh. 23 at 1. To respond to "these unprecedented demands for cross-training" and to minimize disruptions to its inspection work requirements, LKC established training schedules and hired a training coordinator, who began work on June 1, 1984. DeWald Test., A.8 at 13-14.

34. [34.] Unfortunately, the training coordinator was injured seriously in an automobile accident on June 25, 1984. *Id.* at 13. More than 3 weeks passed before Jeffrey Dominique was selected as his replacement. *Id.*

35. [35.] Also, requests for training from some inspectors who were assigned to high-priority inspections (such as the inspection backlog) or special

projects were denied or postponed by LKC management citing the press of business. *See, e.g.*, Int. Exh. 66; DeWald Test., A.8 at 14. In fact, on August 24, 1984, all inspectors assigned to perform welding and configurations backlog inspections were asked to forego cross-training until the backlog had been eliminated. Appl. Exh. 42.

36. [36.] Finally, it should be noted that during much of 1984, Local 306 of the Pipefitters union sought to obtain the right to bargain collectively on behalf of the LKC Quality Control inspectors. DeWald Test., A.11 at 15-16; Maiman Test., A.10 at 9-10. This organization effort culminated in November 1984 when a majority of LKC Quality Control inspectors voted in favor of the union. Maiman Test., A.10 at 10. However, the validity of the election was contested by LKC and the issue was not resolved in the union's favor until April 1985. DeWald Test., A.12 at 16-17. Contract negotiations between LKC and Local 306 began the following month (*id.*), but soon reached an impasse. Maiman Test., A.10 at 10. To break this deadlock, on July 23, 1984, Mr. Maiman contracted with BESTCO (which already had a contract with Local 306) to supply electrical Quality Control inspectors for LKC. *Id.*, A.11 at 12. On that date, LKC laid off all Quality Control inspectors, document reviewers and clerks, and Quality Control engineers, all of whom were rehired the next day by BESTCO. DeWald Test., A.11 at 17; Maiman Test., A.11 at 12.

In addition I add the following five findings (37-41):

37. In July 1982, newly promoted Quality Control Supervisor Richard Saklak was charged with the mission by Comstock construction of trying to bring the Quality Control department under control and to organize a production system for responding to the installation reports from the production department. Tr. 8014-15. At 24 years of age, the young Mr. Saklak had previously been employed as a cost and scheduling engineer at Edison's LaSalle station and immediately prior to his Quality Control reassignment had been a planning and scheduling engineer for Comstock production. Tr. 7992. He had no prior Quality Control work experience. Very quickly after Mr. DeWald's appearance as Quality Control manager in August of 1983, he evaluated Mr. Saklak as a "very aggressive individual" who had taken on added responsibilities under him, duties that would have been performed by an Assistant Quality Manager, "with great enthusiasm and zest." Mr. DeWald concluded that "Rick is a real asset to the Braidwood QC department." Int. Exh. 52. When Mr. Saklak became a Quality Control supervisor in July of 1982, he shared his supervisory position with another individual. At about the time Mr. DeWald became Quality Control Manager, Mr. Saklak became the sole supervisor of Quality Control inspectors. Tr. 8000.

38. LKC replaced its prior Quality Control Manager Thomas Corcoran with Mr. DeWald in August 1983, because Mr. Corcoran had been too quality conscious and not sufficiently construction oriented. Tr. 1220-27. Mr. DeWald

relied upon the Friday meetings, referred to above, as a primary means for communication with Quality Control inspectors. Tr. 1786. Management usually described those areas of inspection that were behind and those areas that needed more manpower allocated to them. Tr. 4241. Assistant Quality Control Manager Larry Seese would read the status reports that detailed the progress being made on projects to eliminate inspection backlogs and the projected dates of completion of those projects. Tr. 4243, 6871-73, 9663. John Seeders testified that at these meetings Mr. DeWald commented about being under schedule pressure from Edison. Tr. 7567. From these meetings, Seeders understood that the quantity of inspections was emphasized over inspection quality because the weld inspectors would comment that "DeWald wants numbers again" when Mr. DeWald pushed inspectors for greater productivity. Tr. 7566. Quality Control Inspector Terry Gorman also interpreted these weekly meetings as reflecting management's emphasis of quantity over quality in urging inspectors to perform more inspections. Tr. 5798. Mr. Gorman recalled Mr. DeWald's complaints that not enough work was being accomplished because too many people were sitting around the office when they should have been out in the field performing more inspections. Tr. 5776-77. Quality Control Inspector Robert Wicks testified that he believed quantity was emphasized over quality because Comstock management was trying to meet Edison-imposed deadlines. Tr. 7077-78. It was shoptalk among Quality Control inspectors that Comstock stressed quantity over quality. Tr. 7087. Several inspectors remembered Mr. DeWald's talking about a minimum required number of inspections to be performed as an attempt to eliminate inspection backlog. Tr. 6866-67, 9240-41.

39. Six inspectors testified that Comstock Quality Control management was pressuring inspectors for production under an Edison threat to cancel the Comstock contract if the inspection backlog was not eliminated by certain dates. Gorman, Tr. 5840-41; Holly, Tr. 5151-52; Bossong, Tr. 9857; Hunter, Tr. 8499-8500, 8744-47; Peterson, Tr. 5950-51; Seeders, Tr. 7567-69. Three inspectors acknowledged that the threatened loss of Comstock's contract was shoptalk among the Quality Control inspectors. Bossong, Tr. 9857; Gorman, Tr. 5840-41, 5871, 5884-85; Seeders, Tr. 7568. Mr. Seeders testified that such shoptalk was fairly common when Comstock was not meeting its deadlines. Tr. 7568. Inspector Danny Holley recalled a meeting in the summer of 1984 at which QA Manager Robert Selmann indicated that if the backlog of inspections were not eliminated, it could mean that the livelihood of Comstock at Braidwood would be lost. Tr. 5151-52. Inspector R.D. Hunter testified that more than once at the weekly meetings during 1984, Mr. DeWald had stated that Comstock was in danger of losing its contract if it failed to satisfy certain promised completion dates. Tr. 8499-8500, 8655, 8744, 8747. Inspector Dean Peterson recalled a special meeting where assistant Quality Control Manager Larry Seese indicated that things were looking very critical for Comstock and

that everyone's help was needed to eliminate the backlog. Tr. 5950-51. Mr. DeWald acknowledged such a rumor that Comstock was in jeopardy of losing its electrical contract. However, he recalled the rumor circulating in January 1985. Tr. 1345-47. Ultimately, Comstock did lose its contract for a portion of the electrical work on Unit 2. The Gus K. Neuberg Company has replaced Comstock for a portion of the Unit 2 electrical installation and inspection work. Tr. 1349.

40. In order to monitor inspector productivity and manage the inspection backlog elimination program as well as the performance of inspections on current installations, Comstock's Quality Control management developed a status tracking system. Under this system, the scheduled completion of various inspection tasks, including the inspection backlogs that existed in the spring of 1984, was projected on the basis of the number of average inspections an individual inspector was expected to perform in a day, e.g., an average expected level of performance, goal, or quota. Int. Exh. 23; Seese Pref., ff. Tr. 2320, at 8-10; Seese, Tr. 2350-51; Saklak, Tr. 8116-18. For example, Mr. DeWald's early June 1984 backlog completion schedule was based on the average of five welding, equipment, and configuration inspections per day; six termination inspections per day; and seven conduit inspections per day on average. Int. Exh. 12. The status report figures showing the number of inspections actually performed were compiled from individual inspectors' daily reports, then passed through the inspectors' leads, who summarized and routed them to the status department. Comstock management posted the periodic status reports for Quality Control inspectors' information. Seese, Tr. 2498-99; DeWald, Tr. 1576-78. Comstock management acknowledged utilizing the status reports and tracking system to regulate inspector overtime assignments, and to transfer inspectors from one inspection area to another. Seese Pref., ff. Tr. 2320, at 9; Seese, Tr. 2350.

41. It is against this background that I consider alleged harassment, intimidation, and discrimination cited by Intervenors in their inspector harassment contention. First, I take up the matter of Worley O. Puckett, a Level III Weld Inspector, who, according to Intervenors, was fired by LKC because he "[made] numerous complaints about safety and quality deficiencies which he identified in the course of his duties at Braidwood." Second, I consider the case of John Seeders, an LKC inspector who allegedly was transferred out of LKC Quality Control Department to a clerk position in LKC's Engineering Department "in retaliation for his expression of quality concerns." Contention 2.C. Third, I discuss the complaints of harassment and intimidation made to the NRC by twenty-four LKC inspectors in March of 1985. Finally, I discuss additional instances of alleged harassment and intimidation not cited specifically in Intervenors' contention.

C. Alleged Instances of Harassment, Intimidation, and Production Pressure

1. Worley O. Puckett

42. In the spring of 1984, Edison and Comstock were responding to concerns expressed by the NRC regarding the continued effectiveness of the Comstock Quality Assurance/Quality Control problem to address the enormous backlogs of inspections and quality documents requiring review. Int. Exhs. 6, 7. To respond to these problems, Comstock had proposed additions to the Quality Control inspector workforce including the addition of one Level III Weld Inspector to address NRC-identified problems in the welding inspection area. Int. Exh. 9; DeWald Pref., ff. Tr. 1700, at 40-41; DeWald, Tr. 1763-64. On May 15, 1984, Comstock interviewed and hired Worley O. Puckett for this Level III position. Mr. Puckett's background as reflected in the interview and his resume demonstrated qualification for the Level III position. DeWald Pref., ff. Tr. 1700, at 42.

43. Mr. Puckett brought with him almost 20 years' experience as a pipefitter, shipfitter, and nuclear component welder in the U.S. Navy. Mr. Puckett graduated with honors from the Navy's year-long welding school and spent 4 years at the Specialized Nuclear Test Facility at Idaho Falls as a nuclear component welder and shop supervisor making repairs and installing components on nuclear prototype reactors and training nuclear welders and Navy officers on welding and repair techniques. Mr. Puckett also served as supervisor of Nuclear Submarine Tender Pipe Shop and Repair Facility, where he performed planning and estimating functions supporting the maintenance of thirteen nuclear submarines and surface craft. Int. Exh. 26.

44. During the course of Mr. Puckett's Navy nuclear welding work, Mr. Puckett had occasion to supervise and inspect the work of other nuclear welders both at the nuclear power training unit, Idaho Falls, and on the nuclear sub tender where from eighteen to twenty welders worked under his supervision. Tr. 6330-31. At Idaho Falls, Mr. Puckett supervised other senior enlisted men who were also certified nuclear component welders (Tr. 3332) who he understood were handpicked by Admiral Rickover for these specialized positions. Tr. 3332.

45. After retirement from the U.S. Navy, Mr. Puckett was hired at the Zimmer Nuclear Power Station in Moscow, Ohio, by the Henry J. Kaiser Company, where he worked in a variety of positions for some 9 years until the project was cancelled in January 1984. Int. Exh. 26; Tr. 6336-418. At the Zimmer facility, Mr. Puckett was initially hired and qualified as a Level II Mechanical Quality Assurance inspector, a position he held for approximately 18 months. Thereafter, he was promoted to the position of Lead Mechanical Inspector charged with performing visual weld inspections, mostly to the ASME Boiler and Pres-

sure Vessel Code. Mr. Puckett personally inspected 4000 to 5000 welds and supervised from ten to twenty other Level II inspectors. Tr. 6334-35. No NRC items of noncompliance were identified with respect to Mr. Puckett's weld inspection activities. Tr. 6340. Thereafter, Mr. Puckett transferred from the quality assurance to the construction department at Zimmer where he was promoted to the position of Chief Weld Engineer in which capacity he was responsible for all of the weld-related activities at the Zimmer project including operation of the weld test facility, tool room, and weld rod issuance facilities. Tr. 6347-48. Mr. Puckett was evaluated as meeting or exceeding all requirements in this position by project construction superintendent Sandlin. Appl. Exh. 43; Tr. 6352-57. Mr. Puckett had received similar good evaluations during his prior tenure at Zimmer. Tr. 6358; Int. Exh. 46.

46. In April 1982, Mr. Puckett received the first critical evaluation that he had received at any time in his Navy or civilian nuclear program experience. Tr. 6351. Mr. Puckett had been effectively displaced in the senior weld engineering position by Mr. Manfred Goedecke as part of a site-wide management restructuring in which new management was brought into virtually all departments including quality and construction. The new Zimmer project manager, Mr. Alberson, brought Mr. Goedecke with him from the Midland facility in Michigan. Tr. 6348-49. While he was evaluated as meeting requirements overall (Appl. Exh. 45), Mr. Puckett sought and received clarification of the adverse aspects of this evaluation. Appl. Exh. 46. Mr. Goedecke noted that Mr. Puckett had been responsible for a welding organization consisting of only one welding engineer, two aides, and a clerk which was in dire need of additional qualified personnel. Goedecke noted that Puckett was exceptionally industrious and possessed exceptional ability, knowledge, and understanding of general welding methodologies and techniques. He noted that Mr. Puckett had demonstrated an exceptional administrative ability and showed promising higher management potential. He recommended that organizational changes under way be made so that Mr. Puckett may have the opportunity for improvement and advancement. Appl. Exh. 46. Thereafter, Mr. Puckett was reassigned positions in the weld engineering department as the Zimmer project management was restructured and widespread corrective action programs were implemented, ultimately leading to the cancellation of the project. Mr. Puckett successively held positions of Project Weld Engineer and Lead Historical Weld Engineer through January 1984, when the project was shut down. Int. Exh. 26.

47. After Mr. Puckett left the senior weld engineering position in 1981 and had been replaced by Manfred Goedecke and his associate, Mr. Flaherty, the NRC Staff identified numerous items of noncompliance at Zimmer, including items of noncompliance in the Zimmer welding program. Tr. 6371-81; Appl. Exh. 49. For example, in an inspection conducted by NRC Inspector J.F. Schapker, among others (Mr. Schapker later investigated Mr. Puckett's

technical concerns at Braidwood and testified in this proceeding), the NRC imposed a civil penalty for a Severity Level III violation stemming from welder qualification document deficiencies and failure to adequately control weld filler metal in the test facility. Appl. Exh. 49, Transmittal Letter at 1-2. In Mr. Puckett's opinion, the deficiencies identified at Zimmer were the responsibility of Mr. Goedecke, who had directed the programs that were found at fault. Tr. 6381-90, 6393-413. Mr. Puckett was never disciplined or reprimanded for any involvement in the NRC's findings at Zimmer. Tr. 6413.

48. Mr. Puckett's experience with the NRC's enforcement activities at Zimmer served as a powerful standard and precedent for his evaluation of the Comstock welding inspection program at Braidwood. Based on his experiences with NRC enforcement at Zimmer, Mr. Puckett determined to prevent a recurrence of similar problems at Braidwood. In Mr. Puckett's opinion, problems he encountered during the course of his duties as the newly hired Level III weld inspector at Comstock were every bit as serious as those that had led to the cancellation of the Zimmer project. Tr. 5592-93. According to Mr. Puckett, however, after acting to prevent a recurrence of a QA breakdown at Braidwood and suffering retaliatory termination as a consequence, Mr. Puckett found that the NRC, and Inspector Schapker in particular, apparently had two different sets of rules — one for Zimmer and one for Braidwood. Under similar facts, the NRC treated Zimmer problems "as serious as a heart attack," but at Braidwood such concerns were dismissed as not serious. Tr. 5591-92, 6380-81, 6413, 6491, and 6589-90.

49. During the course of Mr. Puckett's brief tenure at Comstock, he undertook wide-ranging activities to review the work of the welding and welding inspection program at Comstock and to obtain the site certifications necessary for him to perform the duties of a Level III inspector. Mr. Puckett familiarized himself with the work of the Level II welding inspectors and solicited their opinions on needed changes in the inspection program. For example, with Level II Quality Control Inspector Therman Bowman, an experienced welding inspector, Mr. Puckett discussed the applicability of the AWS D1.1 Code to thin-gauge materials within the scope of the Sargent & Lundy specification L 2790 at the site as well as the applicability of the AWS D1.3 Code. Tr. 6970-71. Mr. Bowman suggested to Mr. Puckett that the field limit its use of the otherwise qualified E6013 electrode and instead utilize the more appropriate E7018 electrode for making cable pan to tube steel and unit strut welds. Mr. Bowman made the suggestion on the basis that special welding skill was required for use of the 6013 high-penetration rod on such light material. Mr. Puckett agreed with the suggestion and, subsequently, a procedural change was adopted accordingly. Tr. 6972-73.

50. Mr. Puckett toured the Braidwood facility generally and observed the quality of field work performed by Comstock. Early in his tenure at Braidwood, Mr. DeWald took Mr. Puckett on a tour of the facility. Mr. DeWald pointed

out welds to Mr. Puckett that Mr. DeWald had inspected when he previously worked as a Level II Weld Inspector. The welds were on a very large hanger but even through glancing at the welds, Puckett observed a number that he deemed unacceptable. The welds he observed had undercut, excessive spatter, slag, overlap, and craters below the nominal wall thickness. While Mr. Puckett acknowledged that the acceptability of welds is a matter of individual inspector judgment within limits, Mr. Puckett stated that he would not have had a weld inspector working for him who had accepted some of the welds he observed. Tr. 6214-20. Mr. Puckett expected that after he had become qualified, he would have returned to these areas and further dispositioned the welds he observed.

51. During his tenure, Mr. Puckett undertook the assignment of overseeing the Comstock welder test facility. Mr. Puckett qualified two other Level II Quality Control inspectors to run the facility and wrote a set of test facility operating rules to be provided to each welder candidate to ensure that the welder was aware of the rules during the test. Appl. Exh. 71. Mr. Puckett was concerned that there be adequate Quality Control inspector verification of the welder qualification process. Tr. 6186-97, 6202.

52. During his tenure, Mr. Puckett identified concerns regarding errors, inconsistencies, and alterations of Comstock's welder qualification records. Tr. 6136-41, 6150-51, 6162-64, 6176-79.

53. In the course of his tenure at Comstock, Mr. Puckett also developed a concern that Comstock did not have an adequate procedure or practice for the control of weld filler material in the field. At the time he was at Braidwood, Mr. Puckett observed that the craft was not required to turn unused weld rod or electrode into the weld rod withdrawal facility. Tr. 5210-11. Instead, the practice followed permitted a welder to draw a certain amount of rod and then to store unused electrodes in an uncontrolled manner overnight or over the weekend to be used at a later time. Rod at the time was being issued by craftsmen to craftsmen without supervision by Quality Control or engineering. Tr. 5612. Mr. Puckett further believed that the procedure itself should require Quality Control involvement in the issuance and control of filler material to ensure that it was properly controlled. Tr. 5613-14. Mr. Puckett brought these concerns to the attention of Messrs. DeWald, Seese, and Saklak who told him that the procedure was to be changed to take these concerns into account.

54. During the course of his tenure, Mr. Puckett identified a number of concerns about deficiencies in Comstock's welder qualification records. Tr. 6137-38, 6149-52, 6155, 6159-63. These concerns were identified by Mr. Puckett during the course of only a partial review which was under way at the very time of his termination. Tr. 5679; Appl. Exh. 68. In Mr. Puckett's opinion, the errors, alterations, and inconsistencies in the quality records made the actual qualifica-

tion of the welders indeterminate and would necessitate either the identification of sufficient objective evidence to properly correct the documents or the requalification of the welders. Even without seeking such objective evidence, Puckett was aware that the NRC had cited the Zimmer facility for serious violations of NRC regulations because of such inconsistencies of welder qualifications records. Tr. 5686, 5694, 6159-64.

55. In addition, Mr. Puckett had identified a number of problems and inconsistencies with Comstock's existing welding procedures which he believed required general rewriting and requalification using the more contemporary American Welding Society D1.3 Sheet Metal Code. Tr. 5456-63. According to Mr. Puckett, Comstock welding procedures as written were a mess. Instead of providing clear, written instructions for both the craftsman and the inspector as to the essential variables including base metals, filler materials, and specified techniques in the body of the procedure, the reader was forced to sheaf through innumerable confusing, contradictory, and redundant attachments to the procedure which, themselves, were the only source of specification of essential welding variables. In effect, the use of more than a dozen technique sheets for a particular procedure gave the Quality Control inspector the option of the reasoning, "if this one doesn't work, let's use this other one. If it doesn't work, use another one." Tr. 5455-56, 5472-83.

56. One of the duties assigned to Mr. Puckett by Quality Control Manager DeWald involved the review of L.K. Comstock's welding procedures. The vast majority of L.K. Comstock's welding activities involved "structural" carbon steel welding: only a small portion of L.K. Comstock's welding activities involved "stainless steel" welding. Tr. 2972-5509. Structural welding during the period of Mr. Puckett's employment with L.K. Comstock was governed by L.K. Comstock Procedure 4.4.3 (Rev. C). Appl. Exh. 10. L.K. Comstock Procedure 4.3.3 also sets forth the instructions that welders must follow when making welds. These instructions are contained on a "Welding Procedure Specification" form. Two of the welding procedure specifications, Attachments H and O to Procedure 4.3.3, permitted the welding of A-446 galvanized sheet metal to A-500 structural tube steel. These welding procedural specifications, Attachments H and O, combine the qualifications of underlying attachments called "Procedure Qualification Records" (PQRs). PQRs document the qualification testing of the procedure being qualified. Welding Procedure Specification H combined qualifications in Attachments H.1, H.2, H.3, and H.4, the welding procedure qualification test records qualifying the fillet welding of A-446 to A-500. Similarly, Attachment O combined the qualifications of Attachment O1, O2, O3, and O4, the PQRs documenting the qualification testing of flair bevel groove welds joining A-446 to A-500. Appl. Exh. 10; Tr. 3471-72, 3638.

57. On August 9, 1984, Mr. Puckett recommended to Mr. DeWald that all welding be stopped involving the welding of A-36 to A-446 using E7018

electrode. Appl. Exh. 52 at 1. In Mr. Puckett's view, L.K. Comstock did not have a procedure to weld A-36 to A-446, and all such welding previously done was indeterminate. Appl. Exh. 55. It should be noted that Attachments H and O qualify the welding of A-445 to A-500, not to A-36. L.K. Comstock Procedure 4.11.3 governs the issuance of Stop-Work orders. Tr. 2217-19; Appl. Exh. 3. Under § 2.1 of that procedure, only the Quality Control manager can order that work be stopped. Appl. Exh. 3 at 1 of 3. Thus, only Mr. DeWald had the authority to order the stoppage of the welding of A-446 to A-36 base metal. Consistent with this practice, on August 15, 1984, Mr. DeWald adopted Mr. Puckett's recommendation and issued a memorandum to Mr. Rolan, L.K. Comstock's Production Manager, directing that all structural welding using A-36 and A-446 be stopped pending completion of a valid procedure qualification test. Int. Exh. 31 at 8-9; Tr. 5540.

58. Mr. DeWald's Stop-Work order did not comply with LKC Procedure 4.11.3. Tr. 2229; Appl. Exh. 3. According to § 3.3 of the procedure, the Quality Control manager is required to complete a "Stop-Work Report" (Form 62). *Id.* A properly completed Form 62 describes precisely the activity to be stopped, the reasons for the stoppage, and the conditions that must be satisfied to lift the Stop-Work order. *Id.* at 4. The reason it is important to use the proper form is because Form 62 becomes part of a permanent document file and is entered into a report log, while memoranda, such as the one issued by Mr. DeWald, are not logged. *Id.* at 3-4; Tr. 2226-31.

59. After receiving Mr. DeWald's Stop-Work order, Mr. Rolan issued a memorandum on August 17, 1984, effective immediately, in which he directed all LKC craftsmen "to *STOP* immediately all welding of ASTM A-36 to ASTM A-446 material using E7018 electrode until weld procedure 4.3.3 is qualified in accordance with AWS D1.1 1975 Sect. 5, Part B." Int. Exh. 31 at 10. Mr. Rolan also directed craftsmen "to stop all welding operations on stainless steel until welders are qualified in all positions as indicated on memorandum of August 15, 1984 from Irv DeWald . . . ." *Id.*

60. On August 17, 1984, 4 days after recommending that work be stopped with respect to the welding of A-36 to A-446 base metals, Mr. Puckett caused to be generated NCR 3099. Tr. 5395; Schapker Test., A.107 at 45. Because Mr. Puckett was not yet certified, the NCR was written by a Level II Quality Control inspector at Mr. Puckett's request and under his direction. Tr. 5395, 5422-23. Although Mr. DeWald disputed the suggestion that only certified inspectors could write NCRs (DeWald Test., A.30 at 45), this fact was confirmed by NRC Inspector Jerome Schapker in the course of his inspection of LKC's welding program. Schapker Test., A.106 at 45.

61. On August 22, 1984, a meeting was convened to discuss NCR 3099. DeWald Test., A.30 at 48-50; Gieseker Test., A.26 at 22; Seltmann Test., A.15 at 18-19; Louden Test., A.4-5 at 2; *see* Int. Exh. 29. Present on behalf of LKC

were Mr. DeWald, Mr. Puckett, Mr. Seltmann, and Mr. Rolan; representing CECo were Edward Netzel, Anthony D'Antonio, Mr. Gieseker, and Mr. Tapella; representing S&L were James Louden and Stuart Klevens. Int. Exh. 29 at 1; Gieseker Test., A.26 at 22. The purpose of this meeting was to resolve the situation documented in NCR 3099 so that the Stop-Work order on A-36 to A-446 welding could be lifted. Gieseker Test., A.26 at 22.

62. Mr. Gieseker opened the meeting by stating his understanding of the problem and suggested a means to resolve the problem. *Id.* Mr. Gieseker proposed that LKC Procedure 4.3.3 (Rev. C) be revised to include a reference to A-36 on the appropriate Procedural Qualification Records (PQRs). *Id.* A PQR documents the results of a test conducted to establish that particular base metals when welded together conform to the requirements of the AWS D1.1 Code. Louden Test., A.9 at 3. The reason Mr. Gieseker made this proposal was because, in his view, since LKC already had a valid PQR for A-446 to A-500 weld combinations, and A-36 and A-500 were compatible materials, under § 5.5.1.1 of the AWS D1.1 Code, the PQR for the A-446/A-500 weld combination could be relied upon to establish the acceptability of A-36/A-446 weld combinations. Gieseker Test., A.26 at 21-22; Tr. 2939-35.

63. Although Applicant's witnesses testified that Mr. Puckett indicated that he would go along with Gieseker's proposed resolution if CECo were to put that resolution in writing (Seltmann Test., ff. Tr. 1960, A.15 at 19; DeWald Test., ff. Tr. 1700, A.30 at 49), it was clear that Mr. Puckett had reservations. According to Mr. Gieseker, Mr. Puckett very strongly took the position that it was inappropriate to attempt to qualify the welding of A-446 to A-36 by relying upon AWS Code D1.1, 1975 edition, but that the welding of those materials should be qualified under the later edition of Code D1.1, which included Code D1.3, covering thinner materials. Tr. 2862-67.

64. The next day, August 23, 1984, a meeting of the Procedure Review Board was held. The purpose of the meeting was to revise LKC Procedure 4.3.3 (Rev. C) to include a reference to A-36 on the appropriate PQRs. Mr. Gieseker, Mr. DeWald, Mr. Seltmann, Mr. Puckett, and several other of the individuals who had attended the meeting held the previous day were present. According to Mr. Gieseker, Mr. Puckett reasserted his opinion that the A-36/A-446 weld combination had not been properly qualified. As a result of this incident, Mr. Gieseker testified that his impression of Mr. Puckett's usefulness as a Level III Quality Control inspector was "extremely low both because he seems to exhibit a poor understanding of the AWS Code, and because of his erratic behavior once he identified what he perceived to be a major problem." Gieseker Test., ff. Tr. 2771, A.26 at 22-23.

65. The AWS D1.1 Code section on which he relied, § 5.5.1.1, states, in pertinent part, as follows (Appl. Exh. 12):

> Qualification of a welding procedure established with a base metal included in 10.2 • • • shall qualify the procedure for welding any other base metal or combination of those base metals included in 10.2 that have a minimum specified yield point equal to or less than that of the base metal used in the test.

66. Structural base metals A-36 and A-500 are listed in § 10.2. Steel sheet metal A-446 is not. It is possible to interpret § 5.5.1.1 as Mr. Gieseker and other Applicant witnesses have, as authorizing the welding of A-446 (the sheet metal) to A-36 because there has already been a qualification by testing of the welding of A-446 to A-500. Since the qualification involved the base metal A-500 which is listed in 10.2, base metal A-36, which is also listed in 10.2 and has a lower yield point, may be substituted for A-500 under this theory.

67. It is also possible to interpret this provision as applying to procedures involving *only* the structural base metals listed in 10.2. Where the procedure involves a nonprequalified sheet metal such as A-446, every change in the welding procedure (e.g., the welding of that nonprequalified material to a different metal) must be qualified again by testing even if the new procedure involves merely the substitution of one base metal included in 10.2 for another that had been included in the initial procedure.

68. Whatever may have been the interpretation of Applicant's witnesses at hearing, it appears that the welding procedure at Braidwood to which LKC, S&L, and CECo were bound may have embraced the latter interpretation. The purpose and scope of Welding Procedure 4.4.3 was stated to be as follows (Appl. Exh. 10):

> 2.0 *PURPOSE/SCOPE*
>
> 2.1 This procedure is proposed to meet and assure the requirements of AWS D1.1-75, Structural Welding Code, and is applicable to the base metals specified in AWS D1.1-75, Sections 8.2 and 10.2 or as specified by a Welding Procedure Test Record.

69. A-446 (sheet metal) was not specified in AWS Code D1.1-75, §§ 8.2 and 10.2, and the joining of it with another metal would have to be specified by a Welding Procedure Test Record (i.e., PQR). Section 3.0 of Welding Procedure 4.4.3 similarly states further, as follows (*id.*):

> 3.0 *PROCEDURE*
>
> 3.1 *Base Metal*
>
> 3.1.1 Steel will comply with the specifications of AWS D1.1-75, Paragraphs 8.2 and 10.2 or as specified by a Welding Procedure Test Record.

70. Apparently, unless the material being welded, in this case, A-446, was listed in AWS D1.1-75, §§ 8.2 and 10.2, *each* procedure involving that metal must be specified by a welding procedure test record. There was no welding

procedure test record covering the welding of A-446 to A-36, which was a listed metal, but only Attachments H-1 to H-4 and O1 to O4, involving the joining of A-446 to A-500, a different listed metal. Welding Procedure 4.4.3 does not seem to allow for the hybrid of a Welding Procedure Test Record involving an unlisted metal (A-446) and a listed metal (A-500), and the subsequent substitution on the Welding Procedure Specifications of a different listed metal (A-36) for the original listed metal (A-500), without further testing.

71. Although Mr. Gieseker proposed adding A-36 to the PQRs underlying Attachments H and O, without pretesting the welding of A-446 to A-36, this proposal may have been improper for another reason. Applicant's expert, Sargent & Lundy's Mr. Louden, testified clearly and unequivocally that it would have been improper to add A-36 to the Procedure Qualification Records (PQRs), Attachments H-1, H-2, H-3, H-4, and O1, O2, O3, O4 that were combined in Attachments H and O, respectively, because the PQRs should really only tell exactly what was done to qualify the procedure, and the qualification tests used only A-500, not A-36. Tr. 3036-37.

72. Mr. Puckett was correct that these problems would have been obviated by adopting a later edition of AWS Code D1.1 which includes AWS Code D1.3. Code D1.3 specifically relates to sheet steel and lists A-446 as approved sheet steel within its ambit, similar to the listing of the structural steel base metals A-36 and A-500 in § 10.2 of Code 1.1-75. Appl. Exh. 14, AWS D1.3-78, § 1.2.1.1. Further, AWS Code 1.3, § 6.4 states, in pertinent part, as follows:

> 6.4 *PROCEDURAL QUALIFICATION REQUIREMENTS*
>
> * * *
>
> * * * where a sheet steel [e.g., A-446] is to be welded to a supporting steel member [e.g., A-500] listed in AWS D1.1, Structural Welding Code, that sheet steel may be welded to all other AWS D1.1 approved steels [e.g., A-36] of an equal strength or less, provided that the steel used in the qualification procedure has a yield strength of 50 KSI or less (*see* AWS D.1.1, § 5).

73. Moreover, adding A-36 to Attachments H and O, even if it were proper, would affect only a small portion of the welding involving A-446. At the meetings involving this issue, when it was proposed to add A-36 to Attachments H and O, Mr. Puckett indicated that Attachment O had not been qualified; that it had been rejected; that it had been resubmitted to Pittsburgh Testing Laboratory as a different type of weld; and that Comstock had not yet received the results of the testing. Tr. 5375. Accordingly, where Mr. Gieseker had proposed dispositioning NCR 3099 (Int. Exh. 28; Appl. Exh. 55) by indicating that revised Attachments H and O would be utilized to permit the welding of A-446 to A-36, he now lined through the reference to Attachment O on the disposition of NCR 3099. *Id.*; Tr. 5377. Although Applicant now wanted to rely upon only Attachment H, Mr. Puckett objected because Attachment H limited

the welds to a 3/8 minimum-size fillet weld. The welds that were intended to be done, A-446 to A-36, in almost all cases were in the 1/4-inch and 3/16-inch size where Attachment H could not be utilized because the welds were smaller than the 3/8-inch minimum size requirement. Tr. 5377, 5381, 5398-99, 5409. NRC Staff Inspector Schapker later confirmed that the bulk of the welding was on welds less than the 3/8-inch minimum. Tr. 11,331.

74. Whether or not D1.1-75 and Comstock Procedure 4.3.3 would have permitted adding A-36 to Attachments H and O, Mr. Puckett indicated that he had no objection to such addition, but that the main discussion at the meetings was with regard to the invalidity of Attachment O and the attempted use of Attachment H for the welding of the smaller welds. Tr. 5425, 6654-55. At hearing, Mr. Puckett indicated that he had not been aware that the disposition of NCR 3099 had been changed by striking through the reference to adding A-36 to Attachment O, and believed that that might have been done at or after the meetings to satisfy the concerns that he had raised with regard to improperly using the invalid Attachment O. Tr. 5428. Mr. Puckett had also been concerned that Attachment H would be used without the size limitation even though there had always been that limitation on Attachment H, because few people were aware of it. Tr. 5429.

75. Applicant asserts (Prop. Fdg. 287) that the record indicates that Attachment O was not in fact a rejectionable procedure on the date of the meetings regarding the A-446/A-36 issue. According to Applicant, revised Attachment O was approved by PTL on July 6, 1984, and S&L had authorized the use of the procedure while it was being revised. Applicant states further that, although Mr. Puckett disclaimed knowledge of the S&L authorization, it appears plainly on page 3 of the procedure (Appl. Exh. 10 at 3).

76. Applicant's assertion is inconsistent with the events that transpired and with a plain reading of the procedure. If Attachment O had been in effect, those dispositioning NCR 3099 would not have lined through "and O" on August 23, 1984, and would not have included the note "8/23/84: PER MTG ON 8/23/84, FIELD IS TO CONTINUE TO WELD TO ATTACHMENT H FOR THE WELD SIZES INDICATED IN ATTH. H. ATTH. O IS NOT TO BE WELDED UNTIL APPROVED BY CECO IN REV. D 4.3.3." Appl. Exh. 55 at 1; Int. Exh. 28 at 1. Nor would Mr. Gieseker have testified (Tr. 2968-70) that there had been that problem and that work was to remain stopped for the specific weld sizes not covered by Attachment H until Attachment O had been approved by CECo. And, while Procedure 4.3.3 (Rev. C) may have been approved on an interim basis with regard to all the other changes from Revision B, that status clearly did not apply to any welding under Attachment O. On page 2 of the Quality Control Division Welding Procedure Review (Appl. Exh. 10 at third page), comment E states as follows:

E) Procedure qualification Attachments O1, O2, O3 and O4 are unacceptable since the required effective throat is 1/8 inch yet none of the test data meet this requirement.

77. If the test data did not properly qualify the Procedural Qualifications Records, the PQRs were unacceptable. And, if the underlying PQRs were unacceptable, the welding procedure specification, Attachment C, which combined the attributes of the underlying PQRs, could not be considered valid. To use it would have violated the AWS Code. It was obviously based on this recognition, as insisted upon by Mr. Puckett, that Mr. Gieseker eliminated any reliance upon Attachment O from the disposition of NCR 3099.

78. In light of these disclosures, an unanswered question still remains: On what basis did Comstock resume its welding of less than 3/8-inch weldments if no valid procedure was in effect that would permit it? If we refer to the subsequent revision of Procedure 4.3.3, Rev. D, which was initiated on September 4, 1984, Attachment H does, indeed, contain the added words "and A-36," so as to authorize the welding of A-446 to A-36 for 3/8-inch or greater weldments. Attachment O, however, contains no reference to A-36 and continues to authorize only the welding of A-446 to A-500 (*id.*, Tr. 3701-02), notwithstanding that S&L expert Mr. Louden testified that it would be improper to weld A-446 to A-36 without procedural authorization (Tr. 3008-10, 3034-35) and that only Engineering could add a material to the welding procedure (Tr. 3041).

79. To justify the welding of A-446 to A-36 materials in weldments of less than 3/8 inch, notwithstanding that no weld procedure specification authorized such welding, Mr. Puckett's successor, Anthony Simile, testified (Tr. 3455-64) that no such procedure was necessary. According to him, the mere fact that a procedure specification existed for welding A-446 to A-500 permitted the welding of A-446 to A-36 without any particular specification. Aside from this testimony's directly contradicting the previous testimony of the Sargent & Lundy AWS Welding Code expert, Mr. Louden, it is inconsistent with the AWS Code D1.1 provisions. Even where a prequalified joint welding procedure (i.e., where metals, such as A-36 and A-500, are prequalified by listing in Code § 10.2 and the joints have been prequalified as described in § 2.6) is utilized, AWS Code § 5.1.2 requires the use of a written procedure specification showing the information required, as specified in the form shown in Appendix E to AWS Code D1.1. The suggested form contains the requirement of "Materials specification." Appl. Exh. 12. Similarly, where the welding procedure is not prequalified and it is necessary to established the welding procedure by qualification (i.e., by using a welding procedure qualification test reflected on the PQR), the procedure must be recorded as a procedure specification. *Id.* § 5.5.1. It would make no sense that, in the third case, where the joint welding procedure is not prequalified and is not even evidenced by a welding procedure test record, the

materials to be joined need not be listed in the welding procedure.[3] Moreover, even if we could accept such illogical testimony by Mr. Simile, it could not validate the joining of A-446 to A-36 with welds of less than 3/8 of an inch prior to the validation of Attachment O that occurred after Mr. Puckett had been terminated.

80. It might be noted that for all the criticism Mr. Puckett received for suggesting that AWS Code D1.3 (as contained in AWS Code D1.1 editions beginning in 1978) be adopted, the technical specification governing the welding at Comstock, L 2790, was amended on November 9, 1984, approximately 2 months after Mr. Puckett was terminated, to include the following provision (Appl. Exh. 19, Amend. 42 to Specification L 2790, at 4-3):

> *401.18.1* Welding shall be in accordance with the requirements of AWS D1.1. At the option of the Contractor, where base metals thinner than 1/8 inch are to be welded, the requirements of AWS D1.3 may be applied in lieu of AWS D1.1. Welders may be qualified to either * * * AWS D1.1 or AWS D1.3 (for materials less than 1/8" thick requirements).

Whether Comstock ever utilized that November 9, 1984 amendment to apply the AWS D1.3 Code to the welding of A-446 to A-36 is unclear. It is clear, however, that since A-446 sheet steel is listed in AWS Code D1.3, § 1.2.1.1, and since qualification testing had been performed with the welding of A-446 material to A-500, AWS Code D1.3, § 6.4, would have permitted the issuance of a welding procedure for the joining of A-446 to A-36 without further testing. Appl. Exh. 14, AWS Code D1.3. It appears to be the case that AWS Code D1.3 was utilized beginning with Revision F to Welding Procedure 4.3.3, initiated on December 5, 1984. Appl. Exh. 11. Mr. Puckett's successor, Anthony Simile, testified (Tr. 3466-67) that Sargent & Lundy found at that time that A-446 material was a prequalified material and waived any procedure qualification for weldability of this material. That material was listed with all other prequalified material on page 14 of 14 of that revision. Appl. Exh. 11. Page 14 of 14 reveals that A-446 material was included as a typed edition to the preprinted table of base materials derived from AWS Code D1.1-1975, and was described as "A-446 Gr. A, B, E."

81. However, as noted above, AWS Code D1.1-1975 does not include A-446 in its listings of prequalified materials in §§ 8.2 and 10.2, containing the only materials considered to be prequalified. All other materials were required to be qualified by testing under the requirements of § 5.2. Only AWS Code D1.3

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[3] *See also* the published American Welding Society interpretation, DW-84-014(8), which suggests that the information categories shown on the forms in Appendix E to AWS D1.1, which included the category of "Material specification," must be completed as a minimum requirement. Board Exh. 5, *Welding Journal* of October 1984 at 64.

lists A-446 as an approved metal. It listed it, not surprisingly, in almost the same descriptive language as in revision F, page 14 of 14, as "A-446 Grades A, B, C and E." Appl. Exh. 13, § 1.2.1.2. Although Sargent & Lundy did not adopt Code 1.5, *in toto*, for sheet metal, as authorized by the November 9, 1984 amendment of specification L 2790, it appears to have adopted enough of that code to consider A-446 as a prequalified material (perhaps improperly).

82. Applicant (Prop. Fdgs. 297-299) and Staff (Prop. Fdgs. 148-151, 180-184) appear to rely heavily on the A-446 to A-36 matter as reflecting adversely on Mr. Puckett's competence and justifying his termination. In particular, they harp on his alleged inability to "resolve" the problem. If, however, we were to view Mr. Puckett's performance as incompetence, what are we to make of performance of the other principals in this incident — the responsible officials from Commonwealth Edison and Sargent & Lundy, and Mr. Puckett's successor, Anthony Simile? Although Sargent & Lundy's expert, Mr. Louden, and the NRC expert, Mr. Schapker, take the position that the welding of A-446 to A-36 would be improper unless the welding procedure in question includes A-36 as a specified material, Anthony Simile testified that it is unnecessary to list A-36. Mr. Louden testified at the hearing that it is improper to add a material such as A-36 to a procedure qualification record (PQR) if that material had not actually been tested. But the resolution of the problem proposed by Mr. Gieseker of Commonwealth Edison, and apparently approved by the other participants (from CECo, S&L, and LKC) at the meetings of August 22 and 23, 1984, was to include A-36 in the PQRs (not merely the welding procedure specifications). And, if Attachment O had actually been approved by PTL on July 6, 1984, and S&L had authorized use of the procedure while it was being revised, as Applicant alleges (Prop. Fdg. 287), then those who dispositioned NCR 3099 and resolved the entire incident after Mr. Puckett had been terminated, erroneously deleted any change to Attachment O from the disposition of NCR 3099 and erroneously failed to add A-36 material to Attachment O. Moreover, after Mr. Puckett had made his Stop-Work recommendation and instigated NCR 3099, his responsibility in the matter basically ceased. With regard to his quality control function, Mr. Puckett's proposed resolution was implicit in his raising the matter: adopt a welding procedure, by whatever means necessary, to cover the welding of A-446 to A-36. It is not a Quality Control function, but an Engineering function, to determine how such a welding procedure specification can be implemented — by testing a weld of A-446 to A-36, by relying upon prequalification provisions in the existing welding procedure and code, by adopting a revised edition of the code, or by any other means. Tr. 2922-23, 2928-29, 3041.

83. That Comstock, Commonwealth Edison, and Sargent & Lundy reacted so vigorously to Mr. Puckett's alleged continued disagreement with the proposed resolution of this problem when Mr. Puckett had no further official responsi-

bility in the dispositioning of the matters he raised, may reveal a heretofore unmentioned misgiving with Mr. Puckett: his refusal to acquiesce to the proposed disposition of the matters he raised did not preclude their being dispositioned along the lines suggested by Mr. Gieseker, but his continued presence and nonacquiescence prevented them from *withdrawing* the entire matter, rather than dispositioning it properly. While Staff glosses over DeWald's failure to complete the proper "Stop-Work Report" (Form 62) and his having issued an informal memorandum instead, as having "complied with the spirit but not the letter, of LKC Procedure 4.1.1.3" (Staff Prop. Fdg. 137), the violation was considerably more egregious. Had Mr. Puckett agreed to Gieseker's resolution of the matter, the informal Stop-Work memorandum, not having been logged as would be the formal "Stop-Work Report," could simply be withdrawn, with no documentation being brought to the NRC's attention. Mr. Puckett complicated matters by causing the issuance of NCR 3099 five days after he initiated the Stop-Work request. But even after that, the NCR could have been dispositioned on the basis of Gieseker's recommendation and no one would have been the wiser about the invalidity of Attachment O or the inapplicability of Attachment H to the bulk of the welding being done had Mr. Puckett acquiesced to Gieseker's suggestions. NRC Staff's treatment of LKC's failure to use the proper Stop-Work directive as benign is much more charitable than the circumstances warrant.

84. Mr. Puckett's job was terminated on August 27, 1984. At approximately 8:30 a.m. on August 28, 1984, Mr. Leonard McGregor, the NRC's Senior Resident Inspector (Operations) at Braidwood, received an anonymous note informing him that he should contact Mr. Puckett at the telephone number listed on the note. Appl. Exh. 72; Tr. 11,512. Mr. McGregor called Mr. Puckett and reached him at his home in Ohio. Appl. Exh. 72; Tr. 6461-63, 11,512. Mr. Puckett had driven all night and arrived home shortly before Mr. McGregor called. Tr. 6461-63.

85. In this conversation, Mr. McGregor was informed by Mr. Puckett that he had been terminated by LKC because he was "too quality conscious" and "started to make too many waves too soon." Appl. Exh. 72 at 1; Tr. 6461-66. Mr. Puckett also informed Mr. McGregor about his August 22, 1984 letter to Mr. DeWald in which he recommended to him that all welding be stopped. Appl. Exh. 72 at 1. Mr. Puckett also described to Mr. McGregor several alleged procedural irregularities in LKC's weld inspection program. Appl. Exh. 72 at 1-2.

86. After he finished speaking with Mr. Puckett, Mr. McGregor composed a memorandum referring Mr. Puckett's situation through his branch chief, Robert Warnick, to Mr. Weil, the NRC's Region III Investigation and Compliance Specialist. Tr. 11,514; Weil Test., ff. Tr. 11,948, A.16 at 5; Appl. Exh. 72. In his memorandum, Mr. McGregor stated that Mr. Puckett "seemed very calm and sure about the findings he was reporting to me," and recommended

that the NRC "do a full examination of the electrical contractor . . . now, immediately . . . ." Appl. Exh. 73 at 3; *see* Tr. 11,514.

87. Subsequently, Mr. Puckett had a few more interviews with NRC personnel concerning his allegations. On February 25, 1985, Jerome Schapker was assigned to investigate Mr. Puckett's technical concerns. Testimony of Jerome Schapker, ff. Tr. 11,012, A.8 at 4. Mr. Schapker has been employed by the NRC Region III since January 1980. Schapker Test., Exh. 1. Currently, Mr. Schapker is employed as a reactor inspector in the Division of Reactor Safety. *Id.* Mr. Schapker is an expert in the areas of welding technology, nondestructive examination, and quality assurance, and has more than 19 years' experience in these fields. *Id.* Prior to reassignment to the regional office in Glen Ellyn, Illinois, in June 1985, Mr. Schapker served as the Senior Resident Inspector at two nuclear construction sites: Marble Hill Nuclear Generating Station in Nabb, Indiana, and Hartsville Nuclear Generating Station in Hartsville, Tennessee. *Id.* at 1.

88. Thereafter Mr. Schapker reviewed a transcript of an interview Mr. Puckett had had with NRC personnel and a memorandum listing Mr. Puckett's allegations prepared by NRC personnel. Schapker Test., ff. Tr. 11,012, A.11 at 5. Mr. Schapker then visited the Braidwood site and met with representatives of CECo and with Mr. Simile, from whom Mr. Schapker obtained copies of procedures and other documents needed by him to perform his inspection. *Id.* at 5-7. Thereafter, Mr. Schapker met with Mr. Puckett on March 12, 1985, for approximately 4 hours. During this meeting, Mr. Schapker reviewed each of the allegations that had been compiled by NRC personnel on the basis of prior interviews with Mr. Puckett. *Id.* Soon thereafter Mr. Schapker returned to Braidwood to commence the inspection of each of Mr. Puckett's concerns. All told, Mr. Schapker devoted 192 hours reviewing Mr. Puckett's concerns between March 5 and November 7, 1985.

89. On November 21, 1985, the NRC issued a report documenting the results of Mr. Schapker's inspection efforts. Appl. Exh. 51; Schapker Test., ff. Tr. 11,012, A.6 at 3. The report dismissed the A-446/A-36 allegation as being "substantiated with no adverse effect on the quality of the welds." Furthermore, it accepted the disposition of NCR 3099 on the basis of the qualifications performed with regard to Attachment H, which qualified the procedure welding A-446 to A-500, and the AWS D1.1-1975 Code provision allowing for the substitution of a prequalified metal (A-36) for another prequalified metal (A-500). Although the inspection report appeared to recognize that the alleged invalidity of Attachment O was part of the A-446/A-36 allegation, it dismissed this matter as follows:

> The weld procedure was in error in that the A-446 [sic] base material was not listed as required and that technique sheet "O" was referenced with rejected test results within the

procedure. The inspector reviewed the revised procedure and the NCR and found them to be acceptable. This item was satisfactorily resolved.

Nowhere in the inspection report was there recognition of Mr. Puckett's complaint that Attachment H only qualified a small portion of the welding being performed by Comstock at Braidwood, involving weldments of 3/8 of an inch or greater, and that no procedure qualified the welding of A-446 to A-36 for the smaller welds, Mr. Puckett's major complaint. Although Mr. Schapker was aware at the time he investigated the allegation that the welds being done were predominantly less than 3/8 of an inch (Tr. 10,972), he asserted that Mr. Puckett had never expressed his concern to Mr. Schapker about the welds of less than 3/8 inch in size not being covered by Attachment H (Tr. 10,970). Mr. Schapker's ignorance of this issue is somewhat remarkable since the deletion of any reliance upon Attachment O from the disposition portion of NCR 3099 is apparent on the face of that NCR, as is the limitation in the disposition of NCR 3099 to "THE WELD SIZES INDICATED IN ATTH. H." Appl. Exh. 55; Int. Exh. 28. Mr. Schapker had also concentrated on both Attachment H and Attachment O in his investigation (Tr. 10,970), and Attachment H had added to it "A-36," while Attachment O had not. It is not surprising, however, that Mr. Puckett might not have fully expressed his concerns with regard to the absence of a procedure for welding small welds of A-446 to A-36, since Mr. Schapker never reviewed the welding procedure with Mr. Puckett, including Attachments H and O to the body of the procedure, when he interviewed Mr. Puckett. Tr. 11,139. Furthermore, after the initial 4-hour interview with Mr. Puckett, Mr. Schapker spent the remainder of his field inspection, 192 inspector-hours, at the Braidwood site, discussing the matters with Comstock management. Appl. Exh. 51 at 4. Mr. Schapker never reviewed any of his proposed resolutions or conclusions with Mr. Puckett, and never gave Mr. Puckett the opportunity to correct any of Schapker's misconceptions about Mr. Puckett's allegations. Mr. Schapker became, in effect, a spokesman for Comstock management's position. In fact, although the NRC issued Mr. Schapker's inspection report on November 21, 1985, it did not mail that report to Mr. Puckett until December 4, 1985. Staff Exh. 6. That ensured that the report would not reach Mr. Puckett's home in Ohio until he was in transit to a deposition in Illinois on December 6, 1985, and that he would not see the inspection report until Applicant's counsel was ready to question him on it. Tr. 6485-86.

90. At hearing, Mr. Schapker's testimony was little more than an apologia for Applicant. Although Mr. Schapker's inspection report and his testimony appeared to substantiate almost all of Mr. Puckett's concerns, they denigrated the allegations as having no technical or safety significance. Included in this denigration of Mr. Puckett's allegations was Mr. Schapker's dismissal of the A-446/A-36 issue as involving only a "procedural violation," not an AWS Code

violation. Tr. 10,991, 11,330. However, when asked repeatedly by the Board whether it would have been an AWS Code violation for Comstock to have welded less than 3/8-inch welds on the basis only of Attachment H, Attachment H having been limited to 3/8-inch or greater welds and Attachment O being assumed to be invalid at the time, Mr. Schapker would not answer that question directly. Tr. 11,331-34.

91. With AWS Code 1.1-1975 (App' Exh. 12) now before us, the answer is clear: unless the welding procedures are exempted by virtue of the metals' and the welding procedures' having been prequalified under the AWS Code, § 5.2 requires that the welding procedures be qualified "by test." Since Attachment H did not reflect any testing of weldments of less than 3/8 inch and Attachment O was invalid at the time because it had relied upon testing that was inappropriate for the specifications authorized, the making of welds of less than 3/8 of an inch in size would have violated the code because it was neither prequalified nor qualified by testing.

92. On August 10, 1984, one day after Mr. Puckett recommended to Mr. DeWald that all welding be stopped with regard to the welding of A-36 to A-446, Mr. Puckett wrote another memorandum to Mr. DeWald. In this memorandum, Mr. Puckett recommended "that all work be discontinued utilizing Procedure 4.3.14 Rev. 09-17-80. This procedure is only qualified in the 5G position. AWS D1.1-75 Part B Para. 5.8.1.2 requires that it be qualified in all positions." Int. Exh. 31 at 12. LKC Procedure 4.3.14 governs stainless steel welding. Appl. Exh. 57. Under the AWS D1.1 Code, qualification in the "5G," or fixed horizontal position also qualifies a welder to weld in the "1G" (flat), "3G" (vertical), and "4G" (overhead) positions. Schapker Test., ff. Tr. 11,012, A.20 at 10. It does not, however, qualify a welder to weld in the "2G" or horizontal position. *Id.*, A.21 at 10. Mr. Puckett's concern was that despite their lack of qualification, welders were welding in the 2G position in the field. *Id.*, A.20 at 9-10; Tr. 5509-10.

93. Mr. DeWald authorized the Stop Work after pointing out to Mr. Puckett that it was his responsibility to find solutions to such concerns and, on August 17, 1984, the Stop Work was issued. Simile Prep. Test., ff. Tr. 3305, Group Exh. 1 at 6, 14; Appl. Exh. 54. On August 24, 1984, Puckett apparently had Quality Control Inspector John Minor issue NCR 3145 to document this concern. DeWald Prep. Test., ff. Tr. 1700, at 48; Gieseker, Tr. 2972.

94. The NCR was subsequently dispositioned on the basis of requalifying the weld procedure and welders to include the 2G (horizontal) position for welding, removing the previously installed horizontal welds, and replacing the welds after requalification. Appl. Exh. 51, Body of Report at 4.

95. On August 22, 1984, after his first meeting with Gieseker and other CECo, S&L, and LKC personnel regarding the A-446/A-36 issue, Mr. Puckett sent Mr. DeWald a third memorandum concerning stopping work on weld-

ing. This memorandum recommended that all welding, including A-36 to A-446, be stopped because Comstock was "dangerously approaching a complete breakdown" in its Quality Control Program. In the memorandum, Mr. Puckett stated that procedures involving A-446 "were qualified using the criteria of AWS D1.1-1975 and it should never have been done." That code, he explained, was never intended for thin-gauged materials like A-446, and all procedures involving A-446 "should have been qualified using the criteria of D1.3." Appl. Exh. 56; DeWald Prep. Test., ff. Tr. 1700, at 49; DeWald, Tr. 1751-52.

96. Mr. Puckett admitted that he did not expect Mr. DeWald to stop work based on his August 22, 1984 memorandum. Tr. 6250-51. Indeed, he conceded that the drastic recommendation to stop all welding was "a little strong" and was designed to attract strong attention within the organization. Tr. 6273, 6276. Mr. Puckett wrote it to get Mr. DeWald's attention so that the two men could discuss a broad range of issues troubling Mr. Puckett because Mr. Puckett believed Mr. DeWald was not paying sufficient attention to concerns he expressed orally. This discussion never took place. Tr. 6254, 6258-59, 6273.

97. To place these Stop-Work requests by Mr. Puckett in perspective, we must consider the testimony of Therman Bowman. Mr. Bowman was a Level II Quality Control inspector with a background of approximately 20 years of welding and a year in junior college studying welding metallurgy. Tr. 6767-68. Because of his experience in welding, Mr. Puckett had used him as a sounding board for some of his ideas. Tr. 6975. Mr. Puckett had discussed with him the problems concerning the application of AWS D1.1-1975 to the thin material being welded at Braidwood. Tr. 6969-72. Mr. Puckett had expressed to Mr. Bowman his opinion that certain of the procedures for the welding of different materials had not been properly qualified at the time and had discussed with him the application of AWS D1.3. Tr. 6970-71. Mr. Puckett had also discussed with Mr. Bowman the advisability of Mr. Puckett's requesting a Stop-Work directive as a possible solution. Tr. 6967. Mr. Bowman had had some experience with requesting a Stop-Work directive. Mr. Bowman had identified a recurring, nonconforming condition that was being repeated by craft despite Mr. Bowman's identification of it as improper. Although he had written three NCRs on that problem, the practice was not stopped until Mr. Bowman had approached the engineering group, threatening them with his recommending a Stop-Work procedure. Tr. 6956-57, 6968-69. Mr. Bowman's discussions with Mr. Puckett may have persuaded Mr. Puckett that a similar recommendation to stop work with regard to the problems Mr. Puckett encountered might also get the desired action. At hearing, Mr. Bowman believed that if Mr. Puckett had taken other measures that had proven unsuccessful in controlling the deficiencies that he had identified and that the measures that he had tried to correct the problem had not corrected it, then the only recourse he had would have been a Stop-Work request. Tr. 6958-59.

98. Considering the discussions that Mr. Puckett had had with Mr. Bowman and Mr. Bowman's past experience with recalcitrant management in which Mr. Bowman had had to resort to a threat of a Stop-Work recommendation before the discrepant condition would be corrected, it was not unreasonable or unjustified for Mr. Puckett to recommend any of the Stop-Work requests even when, as in the third request, the circumstances may not have required that work be stopped immediately. Comstock's past history must be taken into account in determining whether Mr. Puckett's Stop-Work requests were reasonable.

99. The Board heard extensive testimony with regard to Mr. Puckett's recommendation that AWS Code D1.3 be utilized for the welding of sheet materials at Braidwood other than with regard to the welding of A-446 to A-36, which we have already explored in depth. Applicant's witness Gieseker testified (Tr. 2866-67) that, while Mr. Puckett had agreed to the minor revision of the welding procedure proposed by Mr. Gieseker with regard to adding A-36 to the A-446 procedures, Mr. Puckett continued to believe that the real solution to the problem was the use of a later AWS Code D1.1 which included D1.3.

100. Much of Applicant and Staff's position that Mr. Puckett's job performance at Braidwood demonstrated his incompetence is based upon Mr. Puckett's persistence in recommending that Comstock adopt a later code. AWS Code D1.3 was promulgated for the purpose of addressing welding on thin-gauge materials, such as the galvanized metal used in cable pans which Comstock employed at Braidwood. Tr. 1752. Even Mr. DeWald, the Quality Control Manager who terminated Mr. Puckett, agreed that AWS Code D1.3 was a more appropriate code to use for that kind of work than the earlier version of AWS Code D1.1. Tr. 1753. However, Applicant's witnesses took the position that use of either the earlier version of AWS Code D1.1 or a later version which included AWS Code D1.3 was optional and that Mr. Puckett's behavior was "erratic" in continuing to advocate the conversion to the later AWS Code. Tr. 2867. In fact, they recognized that Mr. Puckett had agreed to the resolution of the narrow A-446/A-36 question on the procedural change suggested by Mr. Gieseker, but that Mr. Puckett thought "the real solution to the problem was use of this later code." *Id.* According to CECo's Mr. Gieseker, who apparently was a moving force behind Mr. Puckett's termination, it was "very straightforward" (Tr. 2931) and "quite evident" (Tr. 2867) in the electrical specification that Comstock had the option of using either D1.1 or D1.3. Gieseker's poor opinion of Mr. Puckett arose over the fact that he would "expect him to know that as a Level III" that Comstock had the option of using either code (Tr. 2866) and when Mr. Puckett came on board as the welding expert, one of the first things that he would undertake to do is ask himself "Exactly what codes am I supposed to be working to here?" and have resolved that concern (Tr. 2932). As Applicant's witnesses further testified (*see, e.g.*, Tr. 12,924-25) and as Staff agrees (Prop. Fdg. 145) if the company had the option of using either code edition, to switch from AWS

Code D1.1 to AWS Code D1.3 would entail a substantial but needless expenditure of time and resources.

101. While Applicant and Staff may have taken a position at hearing and on brief that Comstock's option to use either D1.1-1975 or D1.3 was clear, Applicant's actions at the time belie that claim. On October 17, 1984, CECo's Quality Assurance Welding Engineer requested a formal interpretation from the American Welding Society on precisely that question raised by Mr. Puckett of whether welding on material of less than 1/8 of an inch could be accomplished under the D1.1 Code "even though later Editions state that it is not intended for materials less than one-eighth inch?" Board Exh. 3, Inquiry 3. The American Welding Society replied that "[t]he Code specified in the contract document applies unless modified by the Engineer." Board Exh. 4, Reply 3.

102. Applicant offered a number of witnesses to testify that "the contract between Commonwealth Edison and L.K. Comstock * * * required that welding be performed with AWS D1.1-1975." *See*, for example, Prepared Testimony of Kurtz, ff. Tr 12,881, at A.4. On further examination, those witnesses clarified that testimony to indicate that, although the 1975 edition of AWS D1.1 was not specified *as such* in the Comstock contract documents, it was the 1975 edition that was applicable per the contract documents. *See, e.g.*, Tr. 12,885. The basis for this theory was that the contract documents specified that all references to the standards to be utilized are to be to the latest issues of the standards as of the date of the contract. As this testimony offered, the contract documents in question consisted of the purchase order by the contractor and incorporated Specification L 2790 and Form 1701, and were adopted prior to the issuance of D1.3. Consequently, the latest edition of the AWS Code in effect at that time was D1.1-1975. Prepared Testimony of Kostal, ff. Tr. 12,881, at A.5-A.11; Tr. 12,875-80, 12,887.

103. This testimony turned out to be inaccurate. It was at the time that the contract to Comstock's predecessor at the site, Ernst, was adopted that D1.1-1975 was the latest edition of the code. AWS Code D1.3 was incorporated into Code D1.1 on September 1, 1978. Tr. 12,891. Comstock did not have a completed contract with Commonwealth Edison until February 5, 1979, the date of execution of the purchase order. Tr. 12,903, 12,908. Had that contract incorporated the latest edition of the AWS standard on that date, as its express language indicated, it would have adopted D1.3 as the applicable code. Tr. 12,908-10. Similarly, the incorporated specifications, L 2790 and Form 1701, each of which contains similar language specifying the use of the latest edition of the code then in existence, had been amended with an effective date later than the adoption of AWS Code D1.3. Amendment 1 to L 2790, specified in the purchase order, was issued on February 15, 1979. Appl. Exh. 16 at A-1. Form 1701 had been withdrawn and was readopted on October 11, 1978. Tr. 12,946. Applicant's witnesses did not rely upon

the contract documents themselves to support their position that D1.1-1975 was the governing code for Comstock welding; they relied upon what they perceived to be the "understanding of Commonwealth Edison" (Tr. 12,917) at the time Commonwealth Edison and Comstock entered into the agreement, to adopt the same specifications to which Comstock's predecessor, Ernst, had been operating under, even though they did not specify such in the contract documents. Tr. 12,891-92, 12,905, 12,916-17.

104. It is clear that had Mr. Puckett familiarized himself with the contract documents when he assumed the position as a Level III, as Mr. Gieseker believed he should have, he would not have concluded that Comstock was not bound to Code D1.3 with regard to thin material. Applicant's witnesses, Treece and Kostal, admitted that viewing the completed contract as a whole would have put into effect the latest issued version of the AWS standards which would have included AWS D1.3. Tr. 12,908-10.

105. But, to be fair to Applicant, it does not appear that Mr. Puckett made his recommendations in the context of a review of the contract documents. Rather, it appeared that his recommendation was based upon his experience and expertise with regard to welding and the welding codes. And, considering that context, one must conclude that Mr. Puckett's recommendation to adopt the later code appears eminently reasonable. The situation of Comstock's welding sheet material under the older edition of Code D1.1 appeared to be an anomaly. Most of the time under AWS Code D1.1, contractors use prequalified procedures and stay with the materials listed in the code. AWS Code D1.1-1975 gave a prequalified status for only those materials listed, but none of the sheet metals were listed. Consequently, any company utilizing the earlier editions of Code D1.1 would have to end up doing qualifications for all the sheet metals, and the qualification requirements are very stringent. The problem Comstock encountered with qualifying A-446 to A-36 was an uncommon problem that resulted from Comstock's not using D1.3, which would have prequalified the sheet metal. Tr. 3014-15.

106. Nor does the factual evidence support Applicant's suggestion that Mr. Puckett's proposal to adopt Code D1.3 would have created a difficult burden. The welding procedures at the Zimmer Nuclear Plant were requalified from the earlier editions of AWS D1.1 to D1.3 in 1982 or 1983. Tr. 5444-45. At Braidwood the heating, ventilating, and air-conditioning (HVAC) contractor completely requalified its procedures and welders to D1.3. Tr. 12,927. It would have taken only a week of qualification of welders and the weld procedures to make that conversion (Tr. 2915), and there is no indication that welding under the older edition of D1.1 could not have gone forward while the conversion was being made. It is surprising that, in the 6 years between the adoption of D1.3 by the American Welding Society on September 1, 1978, and Mr. Puckett's recommendations in August of 1984, CECo, Comstock, and Sargent & Lundy

had continued to qualify the welding of sheet materials by tests rather than convert to AWS D1.3 and utilize prequalification listings.

107. NRC Staff's review of this issue was less than adequate. The NRC inspector believed that at "the time the contract was le[t] to Comstock" that the prevailing AWS Code was D1.1-1975. Furthermore, in his supplemental testimony (Schapker Test., ff. Tr. 11,012, at A.6-A.8), he treated AWS D1.1 as the welding standard at Braidwood and AWS D1.3 as a *separate*, more recent, code of record. According to his testimony, Applicant committed itself in the PSAR and FSAR to the AWS D1.1 Code. Further, the testimony states that, although an applicant may conform to the requirements of subsequent revisions of the applicable code, "before an applicant can deviate from a standard to which it has committed in its PSAR or FSAR, it must first obtain authorization from the NRC to do so." On its face, this testimony suggests that CECo and Comstock were bound to the earlier edition of D1.1 and could only adopt D1.3 by first obtaining authorization from the NRC. Furthermore, such deviations from the provisions of AWS D1.1 would be permitted only "if supported by acceptable engineering evaluations." *Id.*

108. Upon Board examination, the NRC inspector gave an entirely different picture. Comstock and CECo could freely change from AWS Code D1.1-1975 to a later edition of D1.1 which includes D1.3 for a number of reasons: (1) The FSAR referred to AWS D1.1 and did not specify the year of edition (Tr. 11,315); (2) Comstock had blanket authorization to deviate from the FSAR standards (Tr. 11,288); (3) a subsequent revision to the applicable code, such as the inclusion of D1.3 in later editions of D1.1, was not a deviation from a standard that would require prior authorization from the NRC to adopt (Tr. 11,288-90); (4) any change in the specifications to the contract, in this case L 2790, presupposes an acceptable engineering evaluation that permits a deviation from the codes specified in the FSAR (Tr. 11,090). Subsequently, the NRC inspector indicated that the FSAR did not explicitly reference Specification L 2790 and that the NRC would not even require a change to that specification in order to permit a revision to the AWS Code. Tr. 11,314-16.

109. At one point in his testimony, Mr. Schapker indicated that Mr. Puckett was justified in raising his concerns and should have insisted on their being corrected. What Mr. Schapker found fault with was Mr. Puckett's recommendations to stop work on the A-446/A-36 and AWS Code D1.3 issues, which Mr. Schapker believed did not require a Stop-Work directive because those issues were not "safety significant." Tr. 11,293-99. Mr. Schapker had earlier elaborated on his standard for issuing a Stop-Work order in his supplemental prepared testimony (ff. Tr. 11,012 at 3): "A stop work order * * * would not be necessary if the nonconformance involved only a procedural or technical error having no adverse impact on the affected structures, systems, or components."

110. Mr. Schapker's standard, requiring an evaluation of "safety significance" before a Stop-Work order might be issued is at variance with Comstock's Stop-Work Procedure, LKC Procedure 4.11.3 (Appl. Exh. 3). Section 2.5 of that procedure states, in pertinent part, as follows:

> 2.5 The following are typical operations in which stoppage may be considered:
>
> 2.5.1 A work operation proceeding in violation of hold instructions placed on drawings, *specifications, procedural requirements*, equipment, or material installation.

(Emphasis added.) In the five subsections (2.5.1–2.5.5) to § 2.5, only subsection 2.5.3, involving malfunctioning or inoperative equipment, contains any express or implied safety-significant items. It is difficult to believe that either Comstock or the NRC Staff could ever adopt a standard such as Mr. Schapker's which would permit discrepant work to continue at the option of a quality control inspector, who would make an engineering judgment as to the safety significance of the discrepant condition.

111. In summary of the three matters raised in Mr. Puckett's recommendations for Stop Work — the A-446/A-36 welds, the welding in the 2G position, and the adoption of AWS Code D1.3 — Mr. Puckett's analyses and recommendations had much merit. He may not have been fully correct in the final analysis (although he appears to be), but his raising of these issues cannot be faulted and certainly cannot be considered as reflecting adversely on his competence. Nor was there any suggestion that he was insubordinate with regard to the proposed dispositioning of these issues. The record is clear that, while Mr. Puckett may not have agreed with the proposed dispositions, he was willing to accept them provided that they were in writing. That these issues may not have had safety significance in the sense that the welds created were not done poorly should not have detracted from his raising the issues. Mr. Puckett was assigned the task of correcting the procedures (*see, e.g.*, Tr. 1827), and no restriction was placed on him with regard to raising only safety-significant issues.

112. In this regard, one must view the Staff inspection report on Mr. Puckett in perspective. The NRC inspector was not assigned the task of investigating Mr. Puckett's dismissal from Comstock to determine whether it was improper, but was asked to address the technical concerns that were expressed by Mr. Puckett. Schapker Prep. Test., ff. Tr. 11,012 at A.7. Therefore, the question of whether the technical concerns had immediate safety significance has more importance in the context of the inspection report than with regard to any impropriety in Mr. Puckett's dismissal. Moreover, when the inspector wrote his inspection report he was not aware of the fact that Mr. Puckett had not approached the NRC with regard to these matters and was not raising them as "allegations." *See* Tr. 11,118-27. Some of these so-called "allegations" were, in fact, matters that Mr. Puckett was assigned by Comstock and had not yet fully resolved. As an

example, "Allegation 2" (Appl. Exh. 51 at 7-8) concerns heat traceability numbers on weld filler material withdrawal forms. The inspection report and the NRC inspector's testimony at hearing (*id.*, Schapker Prep. Test., ff. Tr. 11,012, at A.36-A.38) made it appear as though Mr. Puckett had initiated an allegation concerning the lack of consistent heat numbers between the material withdrawal forms and weld material certifications, and that the NRC inspector managed to trace the forms disclosing that there were no deficiencies in this area. In reality, Mr. Puckett had been assigned the heat traceability project, an issue raised in a prior inspection report, and had managed to trace most of the questionable documentation. The three heat numbers that Mr. Schapker traced and accounted for in his inspection report were the only three remaining after Mr. Puckett's efforts. *See* Appl. Exhs. 64, 65 (misdated April 15, 1984, rather than August 15, 1984), 66.

113. To buttress its position that Mr. Puckett was fired for incompetence, Applicant also relied upon deposition testimony of an unavailable witness, Manfred Goedecke, who had displaced Mr. Puckett as the Senior Weld Engineer at Zimmer and had become Mr. Puckett's supervisor. Appl. Exh. 187. Mr. Goedecke's initial performance evaluation of Mr. Puckett (Appl. Exh. 45) was the first critical evaluation that M. Puckett had received during his professional career. Five days later, Mr. Goedecke clarified the performance evaluation in a more extensive memorandum (Appl. Exh. 46), to acknowledge many of Mr. Puckett's exceptional abilities and to indicate that his deficiencies were attributable to the extensive work load that prevented Mr. Puckett from keeping up with new construction requirements. Mr. Puckett subsequently took a course taught by Mr. Goedecke on the AWS Code. The course was also taken by other persons in the engineering department, including graduate engineers and people that had previously qualified as certified weld inspectors to the AWS Code. Tests were administered after each day's lecture, of which there were at least fourteen in number, and Mr. Puckett scored the highest in the class. Tr. 6415-18. Thereafter, Mr. Puckett received his last performance evaluation at Zimmer from Mr. Goedecke, covering the period from April 15, 1982, until April 1, 1983. Appl. Exh. 47. The evaluation indicated that Mr. Puckett had "improved tremendously," had passed all examinations with excellent marks in the in-house course, and had attained knowledge from seminars and courses in the areas of code applications, procedure preparation, interpretation of codes, standards and specifications requirements, and the practical application of welding and nondestructive examination processes. The evaluation further indicated that Mr. Puckett "needs to reassume a supervisory position," and "will be placed in a supervisory position as soon as one becomes available."

114. Mr. Goedecke's testimony on deposition was generally disparaging of Mr. Puckett. Not only did Mr. Goedecke make negative remarks about

Mr. Puckett's professional ability, but he also volunteered negative information about Mr. Puckett's relatives who worked for Mr. Puckett at Zimmer. *See* Appl. Exh. 187 at 72-73, 155. The deposition testimony was surprising not only because it appeared to contradict Mr. Goedecke's most recent evaluation of Mr. Puckett but also because Mr. Puckett had had a cordial professional relationship with Mr. Goedecke throughout Goedecke's tenure at the Zimmer plant (Tr. 5316) and had maintained contact with Mr. Goedecke while at Braidwood (Tr. 6231-37). He and Mr. Goedecke had discussed by telephone some of the issues that Mr. Puckett had encountered at Braidwood. *Id.* Mr. Goedecke's deposition testimony appears to reflect more upon Goedecke's character than upon Mr. Puckett's competence. In any event, it is Mr. Puckett's competence at Braidwood, not at Zimmer, that we must evaluate.

115. At various times, Applicant offered other reasons for Mr. Puckett's termination. All of them were clearly pretextual. In response to Mr. Puckett's complaint of retaliatory discharge in violation of the Employee Protection Provisions of the Energy Reorganization Act, Comstock claimed Puckett was dismissed because of his low score on the weld inspector proficiency exam. The U.S. Department of Labor Area Directory rejected this assertion in favor of its conclusion that Mr. Puckett's protected activity was the basis for his firing. Int. Exh. 11. Mr. Puckett's score of 88 exceeded both the established passing score of 80 and even the score of 85 achieved by Level III Weld Inspector and Quality Control Manager Irving DeWald on the same exam. Tr. 1661-63; Int. Exh. 17.

116. In defense of Mr. Puckett's claim for unemployment compensation, Comstock asserted that yet another ground was relied upon for his firing: "falsification of his credentials during his interview." Int. Exh. 27. The Administrator of Ohio Bureau of Employment Services rejected this claim by Comstock as unsupported. *Id.* Mr. DeWald disclaimed any knowledge of this assertion by Comstock and agreed that Mr. Puckett had neither falsified his credentials nor inaccurately presented his work experience in his resume. Tr. 1650-57.

117. Applicant has failed to demonstrate that Mr. Puckett's resume (Int. Exh. 26) contained any misstatements, concealments, omissions, distortions, inaccuracies, falsifications, or exaggerations, or was, in any way, misleading. And, compared to the backgrounds of Mr. Puckett's predecessor and successor as the Level III supervisor of Quality Control weld inspectors, Mr. Puckett's credentials are more impressive. Mr. Saklak, who was the supervisor over the welding inspectors from August 1983 until Mr. Puckett became supervisor in May 1984 (Tr. 7995, 8018, 8043-45; Int. Exhs. 24 (at 3) and 54), had never been a welder or quality control inspector (Tr. 7990-97, 8190-91). Mr. Simile, Mr. Puckett's successor, had never done any welding (Tr. 3345), as contrasted to Puckett's 20 years of welding in the Nuclear Navy (Int. Exh. 26).

118. A considerable amount of testimony, involving a number of witnesses, documentary evidence, and physical evidence, was proffered by Applicant to suggest that Mr. Puckett was terminated because of his failure to become certified in welding by not having passed his practical examination by his 89th day on the job, when he was terminated. Similarly, Applicant and Staff devote a significant portion of proposed findings to Mr. Puckett's failure to achieve certification by virtue of not having passed that practical examination. Appl. Prop. Fdgs. 262-266; Staff Prop. Fdgs. 116-128. Mr. Puckett had passed one practical examination, on July 19, 1984. Although he correctly determined that the item in question contained no deficiency welds and thus met acceptance criteria, through no fault of his own that passing performance was invalidated when it was discovered that the inspected item did not contain any nonconforming conditions as required by LKC Procedure 4.1.3. DeWald Prep. Test., ff. Tr. 1700, at A.29; Tr. 1673-74. There is also some question as to whether Mr. Puckett passed another practical examination taken under the supervision of Joseph Hii. According to Mr. Puckett, the practical examination was graded by Mr. Hii who informed him that he had passed. When, after a few weeks had passed and Mr. Puckett had not yet received official confirmation of this fact, Mr. Puckett went to discuss the matter with Mr. DeWald. According to Mr. Puckett, Mr. DeWald informed him that he could not find his test papers and thus LKC had no record by which to demonstrate that Mr. Puckett had, in fact, passed the examination. Thus, he would have to take and pass yet another practical examination. Tr. 6442-49.

119. Mr. Puckett's testimony on this point was disputed by Mr. Hii. According to Mr. Hii, he did not grade any of Mr. Puckett's examinations, practical or written, and had no recollection of the incident described by Mr. Puckett "ever taking place." Hii Prep. Test., ff. Tr. 16,608 at A-15. Mr. Hii's testimony is somewhat undermined by the minutes of the Comstock's supervision staff meeting of August 22, 1984, which states: "Puckett failed his practical per J. Hii. 1st test paperwork lost. 2d. test failed. Took coupon test." Int. Exh. 282 at 1.

120. There is no dispute, however, that Mr. Puckett took another practical welding inspection examination. This examination was administered by Jeffrey Dominique, then LKC's Training Coordinator on August 22, 1984. Testimony of Jeffrey Dominique, ff. Tr. 16,512, A.8 at 4 and A.16 at 6. According to Mr. Dominique, soon after Mr. Puckett completed the examination he (Mr. Dominique) delivered Mr. Puckett's test papers to Mr. DeWald for grading. Dominique Test., A.16 at 6. Mr. DeWald graded what purports to be Mr. Puckett's test on August 22, 1984. Appl. Exh. 5; Rebuttal Testimony of Irv[ing] DeWald, ff. Tr. 16,512, A.5 at 2. Using Mr. Vogt's grading key (DeWald Test., A.29 at 44), Mr. DeWald determined that Mr. Puckett had answered incorrectly four of the sixteen questions. *See* Appl. Exh. 5. Since a score of 100% was required to

pass, Mr. DeWald determined that Mr. Puckett had failed. DeWald Test., A.29 at 44.

121. There are several questions surrounding the reliability of Applicant's testimony, particularly that of Mr. DeWald, on this matter, however. For example, Mr. Dominique testified that he delivered Mr. Puckett's test papers to Mr. DeWald for grading on August 22, 1984. Dominique Test., A.16 at 6. Mr. DeWald, however, did not grade Mr. Puckett's examination until 4 days later. DeWald Rebuttal Test., A.5 at 2. An additional question involves the weld coupons offered by Applicant which are purported to be the weld coupons utilized in Mr. Puckett's examination. On their face the weld coupons do not precisely correspond to the examination graded by Mr. DeWald inasmuch as the examination reflects that fourteen weld coupons were evaluated by Mr. Puckett even though Mr. Vogt's key indicates that there were sixteen weld coupons. Although Applicant produced fourteen weld coupons (Appl. Exhs. 168-171), Mr. Dominique, who was the custodian of the weld coupons, could not account for the whereabouts of the two missing coupons. Tr. 16,527. According to him, they "just disappeared." *Id.*

122. Moreover, although Mr. DeWald graded Mr. Puckett's practical examination, it was unusual for a Level III supervisor to grade those exams. That was usually done by a Level II, although Mr. DeWald would review the results and assign the grade. Tr. 16,644-45, 16,653-54. When Mr. DeWald graded Mr. Puckett's exam, Mr. DeWald had already decided to fire Mr. Puckett and Mr. Simile had already been contacted to replace Mr. Puckett. Tr. 16,548. At the time Mr. Puckett took the exam, he was assigned the task of going to the Quality Control vault to review all the welders' qualifications withdrawal forms that had been issued on the project since it started, to review all the welding procedures and make the required changes in them within a week. Although he complained that this was a "physically impossible" task, he was given no help. Tr. 6260. Under these circumstances, Mr. Puckett had no time to prepare for the practical, although well-experienced inspectors are usually given at least 10 working days and up to 6 or 8 weeks to train for the practical. Tr. 13,782-83. Furthermore, the calls that Mr. Puckett allegedly missed on his practical were discrepancies that were on the coupon near the welds, not on the welds themselves: slag near weld number 5 and an arc strike near weld number 9. *See* Appl. Exhs. 5, 6. But it is a matter of judgment, that varies from project to project, as to whether defects near the welds are close enough to be considered part of the judgment call on the weld itself. Tr. 16,549-53. From the testimony adduced at hearing, even Level III Weld Engineer Vogt who had written the test answers employed by Mr. DeWald in grading Mr. Puckett would have failed the practical on the answers he supplied. Tr. 3255-59, 3284-85.

123. More importantly, Comstock attached little or no importance to whether Level III supervisors passed their qualification tests and became cer-

tified. Mr. Saklak, Mr. Puckett's predecessor as Quality Control Supervisor over welding (from August 1983 until May of 1984), never became certified. Mr. Puckett's successor, Mr. Tony Simile, who supervised weld inspection activities from September 1984 onward, did not become certified until July 12, 1985, a period of over 10 months. Similarly, Mr. Saklak supervised other disciplines such as Cable Pull, Conduit, Cable Tray, Equipment, Terminations, and Calibrations for periods ranging from 4½ months to 2½ years, during the period of July 1, 1982, to March 29, 1985, before becoming certified, if at all. Int. Exh. 24 at 3. Similarly, other supervisors such as M. Kast, J. Hall, L. Phillips, R. Tuite, J. Hii, J. Walters, A. Simile, and K. Worthington supervised Quality Control disciplines for many months without becoming certified. *Id.*

124. During his tenure at Braidwood, Worley Puckett appeared to have been highly respected by the Quality Control inspectors who were familiar with his work. For example, welding inspector Danny Holley volunteered (Tr. 5273):

> Well, I could say Mr. Puckett was, you know — maybe I'm out of line, but the welding inspectors that were around when Mr. Puckett was here really respected his — his professionalism and his background and really felt that he was doing a good job.
>
> When he was let go, a lot of people, you know, brought to their own mind, "Why was he let go?"
>
> There was talk, like I said, that was going on around the office.

125. Mr. Puckett testified over a number of days at hearing. Despite grueling examination by Applicant's and Staff's counsel, who had been well prepared by their respective experts, Mr. Puckett demonstrated an extensive knowledge of the welding procedures and codes, and a clear grasp of the issues discussed. Although he did not speak as an educated man in the traditional sense and his syntax suffered, his positions and opinions were expressed clearly and logically. On the basis of his testimony, Mr. Puckett appeared to be a highly conscientious, knowledgeable, and competent welding authority — certainly as competent in his area as any of the other experts who testified. On the other hand, we have no way of knowing how much of Mr. Puckett's knowledge and insight into the welding procedures and issues before us was acquired after his termination.

126. Applicant has failed to sustain its burden of proving that Mr. Puckett was not terminated for raising quality concerns. In fact, the preponderance of evidence is that Mr. Puckett was terminated for raising legitimate concerns and requiring that they be dispositioned in writing. Nor is this an instance in which Applicant, Commonwealth Edison Company, has only derivative liability for Mr. Puckett's improper termination by its contractor, L.K. Comstock. In addition to the production pressure placed on Comstock by Commonwealth Edison because of Comstock's backlog in inspections and documentation at that

time, which made Comstock inhospitable to Mr. Puckett's proposed revamping of inadequate procedures, CECo had direct responsibility in Mr. Puckett's termination. Mr. Gieseker, a CECo official, had played a large part in the Stop-Work conferences that led to Mr. Puckett's termination, and had disparaged Mr. Puckett at those conferences. At one point, when the issue of the use of the AWS D1.1 Code arose, Gieseker told Mr. Puckett to "Shut up. I don't want to hear [any] more about it." Tr. 6262. The decision to terminate was a joint one between Comstock and CECo and was finalized in a conference on August 27, 1984, attended by D. Shamblin, CECo Project Superintendent for Braidwood; J. Gieseker; and Irving DeWald, Comstock Quality Control Manager. Int. Exh. 31 at 7, Memorandum of Meeting of August 27, 1984.

2. *John Seeders*

I accept, *in toto*, NRC Staff's Proposed Findings 38-100, as 127-189.

127. [38.] Intervenors allege that John Seeders, a former LKC Level II Quality Control inspector was threatened with termination, and ultimately transferred out of LKC Quality Control Department, because he complained to senior LKC management, CECo, the NRC, and others about alleged harassment and intimidation, and unreasonable production pressure visited upon him and other Quality Control inspectors by certain LKC Quality Control managers, namely Mr. Saklak, Mr. Seltzman, and Mr. Seese.

128. [39.] John Seeders has been employed in LKC's Engineering Department as an Assistant Field Engineer at the Braidwood facility since about July 1985. Tr. 7291. Before he was promoted to this position, Mr. Seeders worked in the Engineering Department as a Clerk from October 1, 1984 until October 1985. Tr. 7292. Prior to joining the Engineering Department in October 1984, Mr. Seeders was employed by LKC as a Level I Quality Control inspector for 6 months beginning in August 1982 and a Level II Quality Control inspector for approximately the next 2 1/2 years ending in October 1984 (Tr. 7293, 7537-38) at which time he was transferred to the Engineering Department. Tr. 7292, 7488.

129. [40.] At the time of his transfer to the Engineering Department, Mr. Seeders was certified in both calibration and receipt inspections, although he was assigned primarily to perform calibration inspections. Tr. 1605-06, 7578, 7666, 7692. Larry Phillips was the inspector who was assigned by LKC to perform receipt inspections. Tr. 7341. He received his on-the-job training from a Quality Control inspector named Lisa Oakley. Tr. 7538. Ms. Oakley and Janet Peters Labou, respectively, preceded Mr. Seeders as the inspectors assigned to perform calibration inspections. Tr. 7540. During Mr. Seeders' tenure as calibration inspector, other inspectors were certified in calibrations: Mike Kast, Janet Peters, and Myra Sproull (Tr. 7341, 7541, 7579), but only Mr. Seeders,

however, was employed full time as a calibrations inspector. Tr. 1605-06, 7431, 7578, 7666. The others were assigned to other disciplines. *See* Int. Exh. 7 at 12.

130. [41.] In August 1984, Mr. Phillips was Mr. Seeders' lead inspector. Tr. 7543. Above Mr. Seeders and Mr. Phillips on the chain of command were Mr. Saklak and Mr. DeWald. Tr. 7547, 7665-66. Neither Mr. Phillips nor Mr. Saklak were certified in calibrations during the time they supervised Mr. Seeders. Tr. 4318-19, 7665-66. Mr. DeWald, as the Quality Control Manager, was certified to Level III in calibrations. Tr. 1994. Nor did Mr. DeWald play in overseeing the daily activities of Mr. Seeders. Tr. 1608, 7556-67.

131. [42.] In general, the duties of a calibration inspector entail evaluating periodically precision tools used by LKC craftsmen and Quality Control inspectors.

132. [43.] The purpose of LKC Procedure 4.9.1 (Rev. C), entitled "Control of Measuring and Test Equipment," is, as stated in § 2.1, "to assure that tools, gauges, instruments and other measuring and testing devices used in safety related areas are properly controlled, calibrated and adjusted at specified periods to maintain accuracy within required limits." Appl. Exh. 24 at 1 of 7. Section 3.3.1 of the procedure states that "[i]t will be L.K. Comstock's Q.C. Department's responsibility to verify that all items specified to be recalibrated with a certain time frame has [sic] been accomplished and documented." Appl. Exh. 24 at 3 of 7.

133. [44.] Pursuant to § 3.3.2 of LKC Procedure 4.9.1 (Rev. C), LKC is to maintain adequate records which sufficiently identify all measuring tools and equipment used in safety-related areas. These tools are to be listed on an "Inventory Control Log" (Form 76) which is to contain an inventory control number; a description of the item; the name of the manufacturer; the serial number of the item, if any; and the "frequency of calibration."

134. [45.] Section 3.3.3 of the procedure requires that a calibration "Control Card" be maintained for each item of measuring and test equipment identified in the Inventory Control Log. The calibration inspector uses the control card to record the results of his calibration inspection and the date the item is next scheduled for recalibration. Tr. 3980. The actual calibration inspection is performed by craftsmen in the presence of the calibration inspector. Appl. Exh. 24 at 3 of 5.

135. [46.] In the event an item is "found to have an expired calibration date and/or found to be outside the acceptable tolerance," § 3.3.7 of the procedure requires the calibration inspector to initiate an ICR (Form 30) which, *inter alia*, "directs the Project Manager to remove the equipment immediately to the warehouse for storage and recalibration." Where an ICR is issued because an item exceeds the applicable acceptance tolerance, § 3.3.7.1 of the procedure requires that "an evaluation be made and validity of previous inspections or test results determined." Although LKC Procedure 4.9.1 is silent as to the person or

department that is to perform this evaluation (*see* Appl. Exh. 24 at 3 of 5), LKC Procedure 4.11.3, which governs ICRs, provides that corrective actions are to be taken by the Engineering and Production Departments. Appl. Exh. 40. After the tool is recalibrated with satisfactory results, it may be reissued to the field. Appl. Exh. 24.

136. [47.] The Quality Control Department is not responsible for dispensing tools to the field. Section 3.2.1 of the procedure states that "L.K. Comstock's warehouse foreman shall provide storage and document the issuance of items by recording the recipient's name, tool control number and date issued" on a "Tool & Instrument Sign Out Log" (Form 3). Appl. Exh. 24 at 2 of 7.

137. [48.] On May 31, 1984, Eugene Mazur of Commonwealth Edison Company's Quality Assurance Department completed an audit of LKC's Calibration Department. Appl. Exh. 27. In the course of that audit Mr. Mazur found, *inter alia*, that ICRs "were not generated to evaluate the validity of previous inspection or test results for all instruments/gauges found out of calibration." *Id.* at 5. What this means is that while ICRs had been generated in four instances for certain tools found out of calibration, the disposition of the ICRs did not indicate that an evaluation had been performed to determine whether the inspections or work performed using the out-of-calibration tool were acceptable. Seltmann Test., A.14 at 16-17.

138. [49.] A copy of Mr. Mazur's report was received by Mr. DeWald and Mr. Seltmann on May 29, 1984. *Id.* Mr. Mazur directed LKC to respond to the audit findings not later than June 12, 1984. *Id.* at 1. Specifically, Mr. Mazur directed LKC to determine whether there were similar instances in addition to those identified in the audit where LKC failed to generate appropriate ICRs for tools found to be out of calibration. *Id.* at 5. Ultimate responsibility for responding to the audit findings belonged to Mr. DeWald, since he was LKC's Quality Control Manager. However, the responsibility of preparing LKC's written response to the audit findings was given to Mr. Seltmann, LKC's Quality Assurance Manager. Tr. 1609, 2101, 7667.

139. [50.] On June 12, 1984, Mr. Seltmann transmitted a written response to Mr. Mazur's audit report. Appl. Exh. 27 at 8. In that response, Mr. Seltmann stated that LKC had taken the following action to preclude recurrence of the deficiency discussed above: "A training class was held on 6-9-84 with J. Seeders concerning the issuance of ICR/NCR for *all* tool discrepancies." *Id.* On July 3, 1984, CECo Quality Assurance notified LKC that this corrective action was not entirely satisfactory because it was prospective in nature and did not address the question of whether there remained any unidentified instances of (i) inappropriately dispositioned ICRs, or (ii) failures to issue ICRs for tools found to be out of calibration. DeWald Test., Attach. DeWald-5 at 9. LKC was directed to address this issue in a further response to be submitted to CECo Quality Assurance not later than July 20, 1984. Seltmann Test., A.9 at 11-12.

140. [51.] According to Mr. DeWald, he assigned Mr. Seeders the task of conducting a complete review of LKC's calibration records to satisfy CECo's concern. DeWald Test., A.25 at 35. Mr. DeWald, however, acknowledged that he could not recall whether he gave this assignment to Mr. Seeders himself or through an intermediary. *Id.* Similarly, Mr. DeWald could not recall the exact date Mr. Seeders was given the assignment but was sure Mr. Seeders had received it by July 12, 1984. *Id.* at 36; *see id.*, Attach. DeWald-6. Mr. Seeders disputed this assertion. Tr. 7668. According to Mr. Seeders, he and Mr. DeWald had no communications regarding this subject prior to September 28, 1984, the date Mr. Seeders was transferred to LKC's Engineering Department. *Id.*

141. [52.] Mr. Seeders testified that he had never been asked to assist in responding to an audit finding. Tr. 7732. According to Mr. Seeders, Mr. Seltmann asked to conduct a "partial review" of the calibration records. Tr. 7332-34, 7669-70. Mr. Seeders stated that he was neither given a copy of Mr. Mazur's report nor informed by Mr. Seltmann of the scope of the review he was to conduct. Tr. 7343-52, 7357-65, 7667-75, 7672-75.

142. [53.] Mr. Seltmann testified that he spoke with Mr. Seeders on July 20, 1984, the date that LKC's response was due, and asked him about the status of his work. Seltmann Test., A.10 at 12. According to Mr. Seltmann, Mr. Seeders had been directed by Mr. DeWald to perform a 100% review of all calibration records. *Id.* But, like Mr. DeWald, Mr. Seltmann could not recall the date Mr. DeWald gave this assignment to Mr. Seeders. Tr. 2100-02. It should also be noted that while Mr. Seltmann was aware that LKC's response to CECo's July 3, 1984 request was due by July 20, 1984, and that he was responsible for preparing LKC's response, he made no effort to determine whether LKC would be in a position to respond to the request until July 20, 1984, the response due date. Tr. 2100.

143. [54.] According to Mr. Seltmann, he was informed by Mr. Seeders on July 20, 1984, that the calibration records review had not begun but that Mr. Seeders was going to spend the next day (Saturday, July 21, 1984) working on it. Seltmann Test., A.10 at 12. Mr. Seltmann agreed and informed Mr. Seeders that he would speak with him the following Monday, July 23, 1984, "to obtain the results of Saturday's work." *Id.* Mr. Seltmann testified that he did not instruct Mr. Seeders to perform a "partial" review of the calibration records, although he admitted that he stated to Mr. Seeders that a partial review "might produce the information" needed to respond to CECo. *Id.* Mr. Seltmann also testified that he explained to Mr. Seeders that a partial review "might produce the information" needed to respond to CECo. *Id.* Mr. Seltmann also testified that he explained to Mr. Seeders the reason why the requested information was needed. Tr. 2102.

144. [55.] On Monday, July 23, 1984, Mr. Seltmann contacted Mr. Seeders to obtain the information the two had discussed the previous Friday. *Id.* Not only did Mr. Seeders not have the information Mr. Seltmann sought, but according to

Mr. Seltmann, Mr. Seeders acted as though their previous conversation "had not occurred or that he didn't remember it." *Id.* at 13. Because the calibration record review was not complete, Mr. Seltmann was forced to write CECo that date to inform it that LKC "has initiated a review of our calibration records to determine if other situations arise similar to the items found in referenced finding. The review is being performed by J. Seeders, Quality Control Inspector, as directed by I.F. DeWald." *Id.*, Attach. Seltmann-1. Mr. Seltmann also informed CECo that although the review had started on July 21, 1984, the completion was "indeterminate." *Id.* Mr. Seltmann promised CECo that he would update his response by August 13, 1984. *Id.* Mr. Seltmann sent a copy of this memorandum to Mr. DeWald and Mr. Seeders, among others. *Id.* Mr. Seeders denied receiving a copy of Mr. Seltmann's July 23, 1984 memorandum (Tr. 7343, 7674), but, other than the possibility that Mr. Seltmann did not in fact send it to him, could not offer any explanation as to why he would not receive a document addressed to him. Tr. 7734.

145. [56.] On Saturday, July 21, 1984, Mr. Seeders worked on the assignment. Tr. 3978, 7336. Mr. Seeders admitted, however, that he felt his primary responsibility was to complete his calibrations inspection duties, although he tried to work on the review as much as possible. Tr. 7683-84. He was assisted in this endeavor by Richard Snyder, who had been hired recently as a Quality Control inspector and was being trained in calibrations by Mr. Seeders. Tr. 3978. The two men spent the day reviewing calibration records. *Id.* Mr. Seeders prepared a five-page handwritten list of the tools he and Mr. Snyder had checked and the results of their review. Appl. Exh. 26. Although Mr. Seeders insisted that this handwritten list represented only a part of his efforts (Tr. 7338-39), he could not describe what additional efforts were undertaken by him in this regard or whether those efforts were memorialized in writing. Tr. 7338-41.

146. [57.] Over the next few weeks Mr. Seltmann periodically inquired of Mr. Seeders of the status of his review. Tr. 7425, 7673, 7685. According to Mr. Seeders, on several of these occasions he informed Mr. Seltmann that a 100% review of the calibration records was a monumental and time-consuming undertaking because there existed literally thousands of such records which would have to be examined to complete a 100% review. Tr. 7679-84. Mr. Seeders testified that he told Mr. Seltmann that it was not possible for him to remain current in his daily calibration inspection activities and complete the requested review in a short period of time unless he received assistance. Tr. 7680-81. According to Mr. Seeders, Mr. Seltmann was not sympathetic to his plight and insisted that the calibration record review be completed by himself, as there was no help available. Tr. 7682-85. Mr. Seeders admitted, however, that Mr. Seltmann did not direct or suggest that he falsify documents. Tr. 7427.

147. [58.] In addition to his normal calibration inspection duties, two other circumstances operated to complicate Mr. Seeders' task. One was the fact that

beginning about August 8, 1984, his lead, Mr. Phillips, was away on funeral leave which later was extended by several weeks to encompass Mr. Phillips' vacation. Tr. 7686-87. Mr. Seeders was responsible for handling Mr. Phillips' material receiving inspection assignments during his absence. Tr. 7686. The second circumstance was the fact that during this time Mr. Seeders also was responsible for providing training in the areas of receipt inspection and calibration to a number of individuals. Tr. 7434, 7694-95.

148. [59.] On August 14, 1984, the day after the date on which he had promised CECo that LKC would respond to the audit findings, Mr. Seltmann summoned Mr. Seeders to his office to discuss the status of Mr. Seeders' review of the calibration records. Seltmann Test., A.10 at 13; Tr. 7675, 7677. Also present in Mr. Seltmann's office was Mr. Saklak. Tr. 7675-76. Mr. Seeders had given the handwritten "partial review" to Mr. Saklak who in turn had handed it to Mr. Seltmann. Seltmann Test., A.10 at 13; Tr. 7677. After reviewing the document Mr. Seltmann indicated to Mr. Seeders that he was dissatisfied with his report. Seltmann Test., A.10 at 14; Tr. 7676-77. He then hurled the document back toward Mr. Seeders and told him to leave and get back to work. Seltmann Test., A.10 at 14; Tr. 7677, 7735. Mr. Seeders again responded that conducting a 100% review of the calibration records would be an enormous undertaking that he could not complete in a short period of time especially if he was still required to perform his normal calibration inspection duties. Tr. 7680-85. According to Mr. Seltmann, Mr. Seeders also stated that Mr. DeWald and Mr. Seltmann were responsible for any deficiencies in the Calibration Department. Seltmann Test., A.10 at 13-14.

149. [60.] Subsequent to this meeting, Mr. Seltmann drafted another memorandum to CECo Quality Assurance informing it that "[a]t this point in time, the review of our tool calibration records is partially completed. Mr. Seeders has issued a preliminary report and will submit a final report when completed. This report is expected by 8/24/84." *Id.*, Attach. Seltmann-2. Mr. Seltmann also sent a copy of this memorandum to both Mr. DeWald and Mr. Seeders. *Id.* It should be noted that while Mr. Seltmann's memorandum indicates that Mr. Seeders was still working on the calibration records review, neither Mr. Seltmann, Mr. Seeders, nor Mr. Saklak could confirm that Mr. Seeders was still assigned to this task as of August 14, 1984. Tr. 7423-27, 7809-12, 7983.

150. [61.] Three days later, in the morning of Friday, August 17, 1984, Mr. Seeders was observed by Mr. Saklak engaging in conversation with a newly hired Level III Weld Inspector named Worley O. Puckett. Tr. 6237-38; Seese Test., A.13 at 12; Tr. 7700. Mr. Saklak then approached Mr. Seeders and asked him, angrily, how he had time to waste talking to others but not have the time to do his work assignments. Tr. 6238-39, 6241, 7701. The exchange between Mr. Saklak and Mr. Seeders was witnessed by the following

bystanders: Donald Coss, Danny Holley, Richard Snyder, Mr. Puckett, and Robert Wicks. Tr. 6238, 6243; *see* DeWald Test., Attach. DeWald-5.

151. [62.] Mr. Saklak indicated to Mr. Seeders that he (Saklak) was going to have him reprimanded for loafing. *See* Tr. 7701-07. Mr. DeWald was not at work that day and therefore Mr. Seese, the Assistant Quality Control Manager was in charge. Tr. 2476. Mr. Saklak instructed Mr. Seeders to follow him into Mr. Seese's office where Mr. Saklak asked Mr. Seese to suspend Mr. Seeders for 3 days for idling on the job. Tr. 2476-79, 7376. Mr. Seeders told Mr. Seese that he was not loafing and that he had "work in his hand." Tr. 2484, 7701, 7705. Mr. Seeders also gave Mr. Seese the names of several witnesses who would verify his story. Tr. 2484, 7705-06; Appl. Exh. 4. Mr. Seese advised Mr. Saklak and Mr. Seeders that he would review the matter and meet with them again at 11:00 a.m. that same morning. *See* Aug. 20, 1984 Memorandum from Seese to DeWald at 1, DeWald Test., Attach. DeWald-5.

152. [63.] Because Mr. Saklak was not available, the 11:00 a.m. meeting was postponed until 1:00 p.m., and then postponed again until 4:45 p.m. *Id.* During this time Mr. Seese interviewed Myra Sproull, Mr. Coss, and Mr. Wicks (Seese Test., A.12 at 11), each of whom confirmed that Mr. Seeders "had work in hand" at the time he was approached by Mr. Saklak. Seese Memorandum to DeWald, *supra*. Mr. Seese also consulted with Thomas Paserba, LKC's Vice-President for QA/QC Services who happened to be visiting Braidwood that day; Kenneth Worthington, an LKC Quality Control Supervisor; and Mr. Seltmann (*id.*), each of whom indicated that the 3-day suspension requested by Mr. Saklak was not warranted. *Id.*

153. [64.] The meeting finally took place late that afternoon. Seese Test., A.12 at 10. Present during the meeting were Messrs. Seese, Seeders, Seltmann, and Saklak. Tr. 2072. Since Mr. Seeders had requested that a witness be allowed to attend the meeting (Tr. 7707), Mr. Seese asked Mr. Seltmann to attend as an "objective observer." Tr. 2072, 2761, 7707.

154. [65.] During this meeting Mr. Seeders "was read [his] charges." Int. Exh. 23; Seese Memorandum to DeWald, *supra*. Mr. Seese presented Mr. Seeders with a written reprimand which he invited him to read. Tr. 7707. Unbeknownst to Mr. Seeders, the reprimand had been prepared by Mr. Saklak. Tr. 7709. The reprimand issued to Mr. Seeders charged that "[f]or the past two months John Seeders' work and conduct has been degenerating to a point where supervision cannot get through to him. He is constantly displaying a downgrading attitude towards management moves and directives. . . ." DeWald Test., Attach. DeWald-5.

155. [66.] The reprimand presented to Mr. Seeders for his signature charged that Mr. Seeders: (i) failed to appear at July 26, 1984 training session which he was scheduled to conduct; (ii) used "foul language" and ridiculed the Quality Control program when conducting the rescheduled session; (iii) failed to follow

certain unidentified directives given him prior to August 7, 1984, by Mr. Phillips, his lead; (iv) failed to submit status reports for August 10 and 13, 1984; (v) "commented in a negative direction" to Mr. Saklak when Mr. Saklak requested him to explain in writing why he wanted to work overtime on August 18, 1984; and (vi) "failed to complete a total research of the calibration files . . . due on 8-13-84" and then denied "knowing anything about the full scope of work that needed to be done." DeWald Test., Attach. DeWald-5. The reprimand closed by stating that "Mr. Seeders needs to immediately correct his attitude and to perform in a professional manner. His work habits and attitude will be closely monitored for the next 90 days and any repeat action will be dealt with immediately and could lead to termination." *Id.*

156. [67.] Mr. Seese testified that the reason the reprimand was issued in that form was because he wanted to emphasize that the reprimand "wasn't a result of that morning's incident; however, it was a result of that attitude that his situation was worsening." Tr. 2479. According to Mr. Seese, Mr. Seeders was reprimanded because "we wanted him to stay with the company and just correct the attitude problem that we found unacceptable." Tr. 2479-80.

157. [68.] Mr. Seeders asked Mr. Seese whether he had talked to any of the witnesses that he had asked him to interview. Tr. 7706. According to Mr. Seeders, Mr. Seese replied to the effect that it did not matter what any of the witnesses said because if LKC did not like him they could get rid of him and his family would suffer. Tr. 7706; Int. Exh. 23. Mr. Seese, however, denied making this or a similar assertion. Seese Test., A.17 at 14.

158. [69.] Mr. Seeders refused to sign the reprimand. Tr. 7714; DeWald Test., Attach. DeWald-5. He testified that at the time he felt that LKC was "out to get rid of me." Tr. 7739. Instead, according to Mr. Seeders, he requested (but was denied) the opportunity to respond to each of the charges (Tr. 7714-18; an assertion disputed by Mr. Seese). *See* Seese Test., A.17 at 14. Mr. Seeders also stated to Mr. Seese that LKC did not treat its employees like professionals (Tr. 7418), and indicated that he wanted to put his response to the reprimand in writing. Seese Test., A.18 at 14. Mr. Seltmann said he should address his concerns to Mr. Marino. *Id.*, A.20 at 15. Mr. Seese suggested he address his concerns to Mr. DeWald instead. *Id.* Prior to this incident, Mr. Seeders had not been involved in any confrontation with Mr. Seltmann, Mr. DeWald, or Mr. Saklak. Tr. 7739.

159. [70.] Although he testified that he had intended to put his concerns in writing to Mr. DeWald "for some time" (Tr. 7739), Mr. Seeders took Mr. Seese's advice and that evening composed a letter to Mr. DeWald. Tr. 7423. Corresponding copies of that letter were directed to Robert Schulz, the NRC's Senior Resident Inspector (Construction) at Braidwood; Mr. Marino; Richard Cosaro, Mr. Shamblin's predecessor; and Mr. F. Black, an attorney in private practice. Tr. 7445-47; Int. Exh. 23. In his letter, Mr. Seeders complained

of a number of actions taken by LKC management which he considered improper. Among Mr. Seeders' complaints were the following: (i) that Mr. Seltmann and Mr. Saklak had ordered him to falsify documentation; (ii) that Mr. Saklak had improperly and arbitrarily denied his requests to work overtime; and (iii) that Mr. Saklak had threatened, without justification, to deprive him of receiving training in other inspection disciplines. *Id.* Mr. Seeders also stated in his letter that the morale of other Quality Control inspectors was deteriorating due to unkept promises of LKC management regarding compensation and cross-training. *Id.* Mr. Seeders stated that these acts of alleged harassment, intimidation, and production pressure did not cause him to compromise the quality of his work, stating: "I have never have nor will I ever falsify documentation." Int. Exh. 23 at 1. Mr. Seeders closed his letter by asking Mr. DeWald to look into his concerns and notify him of the actions taken to resolve them. *Id.* Mr. Seeders hand-delivered a copy of his letter to Mr. DeWald that following Monday, August 20, 1984. Tr. 7744.

160. [71.] After reading Mr. Seeders' letter, Mr. DeWald met with Mr. Rolan, Mr. Seese, Mr. Seltmann, and Mr. Saklak. Tr. 1610. Each of them was given a copy of Mr. Seeder's letter and asked to prepare a response. DeWald Test., Attach. DeWald-5. Later that afternoon Mr. Seese, Mr. Seltmann, and Mr. Saklak each provided Mr. DeWald a written statement. *Id.* In his "private and confidential" memorandum to Mr. DeWald, Mr. Seese summarized the events leading up to and through the meeting at which the reprimand was issued and concluded "that the warning meeting was conducted in a positive tone and that the management team acted properly during this affair." *Id.* For his part, Mr. Seltmann informed Mr. DeWald of his involvement with Mr. Seeders in connection with the calibration records review needed to respond to the CECo Quality Assurance audit. *Id.* Mr. Seltmann denied that he had attempted to pressure or had harassed and intimidated Mr. Seeders into completing the calibration records review by the due date. *Id.* Mr. Seltmann explained his differences with Mr. Seeders thusly: "From the initiation of Mr. Seeders' review to the present anticipated completion date of 8/24/84, is approximately four (4) weeks time." *Id.* Similarly, Mr. Saklak informed Mr. DeWald that he was not guilty of any of the charges of misconduct leveled against him by Mr. Seeders. *Id.* In Mr. Saklak's view, Mr. Seeders' allegations were either false or the result of a misinterpretation of his remarks. *Id.*

161. [72.] According to Mr. Seeders, on August 13, 1984, Mr. Saklak told Mr. Seeders that he would be in charge of both calibration and material receipt inspections, in addition to training other inspectors in these areas. Tr. 7431, 7437. Mr. Saklak informed Mr. Seeders that other inspectors would do the "legwork" while Mr. Seeders would only have to sign off the documentation as he was the only inspector certified in those areas at that time. Tr. 7431-32.

162. [73.] Mr. Seeders understood Mr. Saklak's instruction to mean that he should send other inspectors who were not certified in the area out to do the inspection, while he (Seeders) would fill out the paper work and sign it [illegible] 7692. When Mr. Seeders objected to this instruction as a violation of [illegible]gulations, Mr. Saklak told him that "[s]ometimes you have to play a [illegible]ss in the business to keep your job." Tr. 7692-94. Myra Sproull had [illegible] "book certified" in calibrations and was not experienced or confident [illegible] handle calibration duties on her own. Tr. 7432. When Mr. Seeders [illegible] accept this assignment, Mr. Saklak told him that he would never be [illegible] in any other inspection disciplines. *Id.*; Tr. 7695, 7700. Unbeknownst to [illegible] Seeders at the time, he was scheduled for training in concrete expansion anchor (CEA) inspections on August 14-15. Tr. 7432-33. Mr. Seeders testified, however, that Mr. Saklak did not tell him to falsify documentation or to violate procedures for material receipt and calibration inspections. Tr. 7437.

163. [74.] It would not have been possible for Mr. Seeders to be trained in CEA as he was conducting calibration and material receipt inspections and training others in those areas as well. Tr. 7433-34. Mr. Seeders alleged that Mr. Saklak harassed him and assigned such a large work load in an attempt to run him off the job. Tr. 7435-37. Mr. Seeders testified, however, that Mr. Saklak did not tell him to falsify documentation or to violate procedures for material receipt and calibration inspections. Tr. 7437.

164. [75.] As noted above, in May 1984, Mr. Shamblin replaced Mr. Cosaro as Applicant's Project Construction Superintendent. Tr. 3815; Gieseker Test., A.5 at 5; Shamblin Test., A.2 at 1. Consequently, Mr. Seeders' letter was received by him rather than Mr. Cosaro. In response to the letter, Mr. Shamblin appointed one of his deputies, James Gieseker, a CECo Project Construction Engineer, to meet with Mr. Seeders "to try to understand his concerns better." Shamblin Test., A.21 at 18; *see* Gieseker Test., A.6 at 6. Mr. Gieseker met with Mr. Seeders on two occasions. *Id.* The first meeting took place on August 21, 1984. Appl. Exh. 92; Tr. 7765-66. At this meeting, Mr. Seeders explained to Mr. Gieseker "that he wanted to inform CECo of harassment that he felt was being directed at him and other Quality Control inspectors by LKC Quality Control supervision, and of the fact that he had written a letter about the problem to Mr. DeWald." Gieseker Test., A.7 at 6. Mr. Seeders complained to Mr. Gieseker that there was a morale problem in LKC's Quality Control Department which Mr. Seeders attributed "to pressure being placed on QC management, who in turn, passed it on through QC supervision to the inspectors." *Id.* Mr. Seeders also confided to Mr. Gieseker that he was fearful of losing his job because of his current difficulties with Mr. Saklak. *Id.* Mr. Gieseker advised Mr. Seeders that he would meet with him again after he had discussed his concerns with Mr. Shamblin. *Id.* Before the meeting concluded, however, Mr. Gieseker assured

Mr. Seeders that he had acted properly in bringing his concerns to Mr. DeWald's attention. *Id.*

165. [76.] The next day, Wednesday, August 22, 1984, Mr. Gieseker met with Mr. Shamblin to brief him on his meeting with Mr. Seeders. Gieseker Test., A.8 at 8; Shamblin Test., A.25 at 22. Mr. Shamblin indicated to Mr. Gieseker that CECo was aware of the morale problem in LKC's Quality Control Department and the actions being taken by CECo to address it. *Id.* The following day, Mr. Gieseker met with Mr. Seeders for a second time. Gieseker Test., A.9 at 9. Accompanied by Lawrence Tapella, a CECo Project Construction Engineer, Mr. Gieseker explained to Mr. Seeders that CECo understood that "LKC was undergoing a particularly stressful time on the project" due to a number of problems, including the temporary loss of the Training Coordinator, the backlog in the approval by CECo of inspector certifications, and ongoing corrective action programs. *Id.* Mr. Gieseker stated to Mr. Seeders that CECo had taken a number of actions to address these problems such as assigning CECo personnel to LKC's Quality Control Department and expediting the certification process. *Id.* With respect to the latter item, CECo had agreed that LKC could implement the $0.50 raise awarded a Quality Control inspector for additional certifications as of the date that his certification package was approved by LKC reviewers rather than the date of CECo's approval of that certification package as was the former practice. Shamblin Test., A.28 at 25. Mr. Gieseker also assured Mr. Seeders again that he had acted properly in bringing his concerns to his management's attention and that he was to feel free to come to CECo to discuss the matter further if he felt the need to do so. Gieseker Test., A.9 at 10.

166. [77.] After becoming aware of Mr. Seeders' letter, Mr. Shamblin directed Mr. DeWald "to investigate the matters involving Mr. Seeders' work situation and the alleged harassment he had experienced" (Shamblin Test., A.25 at 22), and inform him of the results of LKC's investigation. *Id.* Mr. DeWald commenced an investigation in late August 1984 and issued his report on September 25, 1984. DeWald Test., Attach. DeWald-5; Tr. 1600-30. This investigation consisted of interviews by Mr. DeWald of Mr. Puckett, Mr. Snyder, Donald Coss, Ms. Sproull, Mr. Phillips, Donald Schirmer, Norman Kimble, and Janet Peters Labou, all of whom were LKC Quality Control inspectors and some of whom were witnesses to the confrontation between Mr. Saklak and Mr. Seeders. *Id.* Mr. DeWald also spoke with and received written statements from Mr. Seese, Mr. Seltmann, and Mr. Saklak. DeWald Test., Attach. DeWald-5. According to Mr. DeWald's September 25, 1984 report (*see* DeWald Test., Attach. DeWald-5), Mr. DeWald met with Mr. Seeders on August 21, 1984, to discuss his concerns and allegations and to "obtain a possible root cause for the issuance of the subject letter." *Id.* Mr. Seeders stated that after he had written his letter, Mr. DeWald called him in to his office and suggested to him that he retract or "reword" his letter, which Mr. Seeders refused to do. Tr. 7743. In any

event, it is clear that Mr. Seeders was not afforded an opportunity to respond to any information provided to Mr. DeWald by others that may have been adverse to him. *Compare* Tr. 7743 *with* DeWald Test., Attach. DeWald-5.

167. [78.] After completing his investigation, Mr. DeWald concluded that Mr. Seeders' allegations lacked merit and that no disciplinary action against any member of LKC's Quality Control management team was warranted because none had acted improperly. Tr. 1630; DeWald Test., Attach. DeWald-5. Specifically, Mr. DeWald concluded that the reason Mr. Seeders wrote his August 17, 1984 letter was "to combat the written warning that he was given for his poor cooperative attitude prior to the warning." *Id.* In Mr. DeWald's view:

> [T]he entire issue has stemmed from previous assignment given to Mr. Seeders for completion of which he blatantly [sic] failed to do and when contacted as to his progress of the assignment did not have a response, and when management redirection was given he instantly became defensive for his lack of attention to the assignment, therefore, becoming disrespective [sic] and blaming other individuals being the cause of the problem in the area of which he is responsible. The harassment, intimidation and blackmail accusations are Mr. Seeders' version of retaliation because he has been given a warning due to his attitude problem toward management when given direction.

DeWald Test., Attach. DeWald-5. Mr. DeWald advised Mr. Shamblin orally of the results of his investigation (Shamblin Test., A.26 at 23), and provided him a copy of the report shortly after September 28, 1984. *Id.*; Gieseker Test., A.19 at 15.

168. [79.] It should be noted that in every instance in which a concern or allegation expressed by Mr. Seeders in his letter was disputed by either Mr. Seese, Mr. Seltmann, or Mr. Saklak, Mr. DeWald credited the respondent and discredited Mr. Seeders. *Compare* Int. Exh. 23 *with* DeWald Test., Attach. DeWald-5. This was so even when Mr. DeWald had neither personal knowledge of the matter nor evidence to corroborate the respondent's statement. For example, Mr. Seeders alleged that Mr. Saklak threatened him with denial of training in concrete expansion anchors (CEAs) if he did not complete the calibration records review, perform his normal calibration inspections, handle Mr. Phillips' material receipt inspections, and provide training to four other Quality Control inspectors. Int. Exh. 23 at 1. According to Mr. Seeders, Mr. Saklak is alleged to have said that "sometimes you have to play chess in this business to keep your job." *Id.* To which Mr. Seeders is said to have responded: "I didn't know that chess and blackmail are the same thing." *Id.* In his memorandum to Mr. DeWald, Mr. Saklak denied that he threatened Mr. Seeders with denial of CEA training (and the concomitant loss of a $0.50 per hour increase in salary) but admitted that he "related scheduling cross training to a game of chess in that both require planning ahead in order to be successful." *See* DeWald Test., Attach. DeWald-5. Even though Mr. DeWald was aware that Mr. Saklak's temper

sometimes "would get the better of him and he would say things he normally would not say otherwise" (DeWald Test., A.21 at 26), he accepted Mr. Saklak's explanation at face value and simply discredited Mr. Seeders. *See* DeWald Test., Attach. DeWald-5.

169. [80.] In the same vein, Mr. DeWald accepted the statements of Mr. Seese and Mr. Seltmann suggesting that Mr. Seeders was being disingenuous in disclaiming knowledge of the scope of the calibration records review assignment. *Id.* Mr. DeWald acknowledged that he personally did not direct Mr. Seeders to perform a 100% review of the calibration records and could not recall who did. *Id.* Nor did Mr. DeWald know what deadline, if any, had been given Mr. Seeders. *Id.* Yet, Mr. DeWald agreed with Mr. Seese and Mr. Seltmann that Mr. Seeders "blatently [sic] failed" to complete a 100% review of the calibration records which he had been assigned to perform. *Id.*

170. [81.] Mr. Seeders was relieved subsequently of further responsibility for completing the review of the calibration records. Tr. 8196. The record is unclear as to the date Mr. Seeders was relieved of the assignment. Tr. 7427, 7813. Nor is the record clear as to who issued the order although it appears that it was either Mr. Seltmann or Mr. Saklak. Tr. 8196. It also appears that Mr. Seeders was relieved of the assignment sometime between August 14, 1984, and August 24, 1984. The earlier date was when Mr. Seeders turned in to Mr. Seltmann his "partial" report; the latter date was when Mr. Seltmann wrote to CECo Quality Assurance to advise it of LKC's progress in connection with the calibration records review since his August 14, 1984 memorandum. Gieseker Test., A.14 at 13.

171. [82.] In his August 14, 1984 memorandum, Mr. Seltmann informed CECo Quality Assurance that as of that date all LKC Calibration Control Cards (Forms 77) had been reviewed and all identified discrepancies were being researched in the individual tool packages in the QC Records Vault and in the ICR and NCR files. Gieseker Test., A.14 at 13. Mr. Seltmann also informed CECo Quality Assurance that the calibration records review was at that time being performed by Mr. Snyder who at that time had not yet received his calibrations certification although he had completed all of the requirements (*see* Tr. 3962-65), and two other calibration inspectors — Ms. Sproull and Mr. Coss. *Id.*, A.15 at 13; *see* Seltmann Test., A.13 at 16. This is not inconsistent with Mr. Snyder's recollection. Tr. 4046-47. Mr. Snyder testified that around August 17, 1984, he, Ms. Sproull, and Mr. Coss were requested by Mr. Saklak to go to the vault and review all the tool packages. Tr. 4046. Mr. Saklak did not inform them that the purpose of the review was to enable LKC to respond to CECo Quality Assurance audit finding. Tr. 4047. Nor, according to Mr. Snyder, did Mr. Saklak give them any written instructions relating to the scope of their

work assignment, only the oral instruction to go to the vault and research the tool records for problems. *Id.*

172. [83.] In the course of their review, Mr. Snyder, Ms. Sproull, and Mr. Coss identified a number of troubling types of discrepancies that called into question the integrity of LKC's calibration records. Seltmann Test., Attach. Seltmann-3; Gieseker Test., A.17 at 14; *see* Tr. 4046, 4053-4130; *see* Appl. Exh. 28. For example, they found numerous instances where no ICR or NCR was generated for a tool that had been determined to be out of calibration in violation of § 3.3.7 of LKC Procedure 4.9.1 (Rev. C). Tr. 4064; Seltmann Test., A.14 at 17; *see, e.g.*, Appl. Exh. 28 at 2. Mr. Snyder and Ms. Sproull also found several instances where an out-of-calibration tool had been released for use in the field even though an ICR or NCR had been generated. Seltmann Test., *supra; see, e.g.*, Appl. Exh. 28 at 12. Another type of discrepancy identified by Mr. Snyder and Ms. Sproull was the failure to evaluate the acceptability of work performed using out-of-calibration tools, which was a violation of § 3.3.7.1 of the procedure. Tr. 4044; Appl. Exh. 28 at 18.

173. [84.] These and other findings were documented by Mr. Snyder and Ms. Sproull in a September 7, 1984 "interim report" to Mr. Seltmann. Appl. Exh. 28; Tr. 4100, 4332. Ten days later, on September 17, 1984, Mr. Seltmann provided an update to CECo Quality Assurance on the status of the calibration records review and indicated that a further update would be forthcoming on September 21, 1984. Gieseker Test., A.14 at 130. Mr. Snyder and Ms. Sproull completed their research prior to October 9, 1984, for on that date Mr. Seltmann notified CECo Quality Assurance that the review had been completed and that LKC was in the process of evaluating the results. Gieseker Test., A.14 at 13.

174. [85.] Two weeks before Mr. Seltmann's October 9, 1984 communication to CECo Quality Assurance, he submitted a September 25, 1984 memorandum to Mr. DeWald regarding the adequacy of LKC's tool calibration program. Seltmann Test., A.14 at 16 and Attach. Seltmann-2. In his memorandum, Mr. Seltmann related to Mr. DeWald a discussion he had with a CECo Quality Assurance auditor on September 13, 1984. *Id.* According to Mr. Seltmann, Mr. Felz, the CECo auditor, indicated to him that he had found five (5) instances in which an ICR had not been issued for a tool found to be out of calibration or where an evaluation had not been performed to assess the acceptability of previous inspections or test results conducted with an out-of-calibration tool. *Id.* at 1-2. According to Mr. Felz, these five instances represented 40% of the items he had sampled. *Id.* at 2. Mr. Seltmann also described in detail several other deficiencies in the calibration records identified by Mr. Snyder and Ms. Sproull. *Id.* at 4. Mr. Seltmann closed his memorandum by stating to Mr. DeWald that because of the problems documented in his memorandum, he had "strong concerns surrounding our calibration program as I would suspect you would also." *Id.* at 6. Mr. Seltmann recommended to Mr. DeWald "that

corrective action be taken immediately to resolve the discrepancies noted from reoccurring in the future" and advised him that "this requires your utmost attention in order to get this program back on track." *Id.* Mr. Seltmann and his concerns "stem[med] from actions taken by QC Inspectors, J. Seeders, and his implementation of our calibration Procedures 4.9.1 and 4.9.4." *Id.* Copies of Mr. Seltmann's memorandum were sent to Mr. Marino, Mr. Rolan, Mr. Shamblin, and Thomas Trumble. *Id.* Mr. Trumble is LKC's Corporate Administrator. *See* Int. Exh. 11; Tr. 1564. According to Mr. DeWald, Mr. Trumble is contacted when "legal aspects" (such as termination) are involved. Tr. 1564.

175. [86.] Mr. Seltmann was disturbed particularly by the findings of Mr. Snyder and Ms. Sproull because Mr. Seeders had received remedial instruction as to the requirements of LKC Procedure 4.9.1 (Rev. C) on June 9, 1984. Attach. Seltmann-3 at 3. The record reflects that Mr. Seeders had in fact received 10 minutes of instruction from Mr. Seese on that date. Tr. 1997; *see* Personnel Instruction Log attached to Seltmann-3. Mr. Seltmann pointed out to Mr. DeWald that notwithstanding this additional training, Mr. Seeders had "failed to adequately comply with the procedural requirements of 4.9.1, Paragraphs 3.3.7 and 3.3.7.1." Attach. Seltmann-3 at 3. As Mr. Snyder testified, when a deficiency is identified, corrective action must be taken to prevent recurrence. Tr. 1682-84, 4452. Mr. Snyder agreed that one way to minimize the recurrence of a particular deficiency is to remove or replace the person who made the error, in this case Mr. Seeders. *Id.*

176. [87.] In October 1984, NCR 3419 was issued to document the deficiencies identified by Mr. Snyder and Ms. Sproull. Gieseker Test., A.20 at 16-17. NCR 3419 required LKC to conduct a comprehensive review and evaluation of the calibration records and, where necessary, reinspections to ensure that work performed in the field with out-of-calibration tools is acceptable. *Id.*, A.21 at 17-18; Tr. 1605-06. These corrective actions were sufficient to remedy the documented deficiencies. Gieseker Test., A.21 at 18, 19-20.

177. [88.] On Friday, September 28, 1984, three days after he had received Mr. Seltmann's memorandum, Mr. DeWald attended a meeting in Mr. Shamblin's office. Present were Mr. Shamblin, Mr. Gieseker, Mr. DeWald, Mr. Seltmann, and Mr. Schulz. Gieseker Test., A.19 at 15; DeWald Test., A.25 at 38; Seltmann Test., A.13 at 15-16; Shamblin Test., A.40 at 34. Two of the purposes of this meeting were to discuss Mr. Seeders' August 17, 1984 letter and the problems with LKC's calibration records. Seltmann Test., A.13 at 15. During this meeting Mr. DeWald apprised the others in attendance of the problems that had been discovered in the Calibration Department. DeWald Test., A.25 at 38; Gieseker Test., A.19 at 14-15. Mr. DeWald indicated to the others that he planned to terminate the Quality Control inspector responsible for those problems, Mr. Seeders. *Id.* He was dissuaded from doing so, however, by Mr. Shamblin. Tr. 1591; Shamblin Test., A.42 at 34-35.

178. [89.] Mr. Shamblin suggested that Mr. Seeders instead be transferred out of the Calibrations Department to some other position that was less critical. *Id.* Mr. Shamblin was aware that Mr. Seeders previously had complained of harassment but did not oppose Mr. DeWald's plan to remove Mr. Seeders from his position because he was sure that the two events were not related. Tr. 16,448-50. Mr. Shamblin testified that although he believed termination was not unwarranted in the circumstances, he recommended that Mr. Seeders be transferred to LKC's Engineering Department because he believed Mr. Seeders "might be able to perform satisfactorily in a less challenging position." *Id.* According to Mr. Shamblin, LKC was hiring additional personnel for its Engineering Department to perform essentially clerical functions. Since these positions required some familiarity with the Braidwood site and LKC's organization and operating procedures. Mr. Seeders appeared to be ideally suited for the position. *Id.* Mr. DeWald decided to adopt Mr. Shamblin's recommendation. DeWald Test., A.26 at 368; Tr. 1591. Mr. Schulz, the NRC Senior Resident Inspector (Construction) at Braidwood, was asked to give his views on the actions being contemplated with respect to Mr. Seeders but declined to do so, stating that it was improper for the NRC to get involved in personnel matters. Gieseker Test., A.19 at 16.

179. [90.] Later that same day, Mr. DeWald met with Mr. Rolan and "arranged for the transfer to take place if Mr. Seeders would agree." DeWald Test., A.25 at 38. After meeting with Mr. Rolan, Mr. DeWald summoned Mr. Seeders to his office. Tr. 7488; DeWald Test., A.25 at 38. Also in attendance was Mr. Seltmann. Tr. 7488. Mr. DeWald presented Mr. Seeders with a typewritten notice of termination which he had prepared the day before, September 27, 1984. Tr. 1594-95. The document set forth in detail the reasons Mr. DeWald believed warranted Mr. Seeders' termination. Appl. Exh. 94. The notice stated that Mr. Seeders was being fired because of his "unattention [sic] and substandard work practices." Appl. Exh. 94 at 2. Mr. DeWald relied heavily on the violations of procedure for which Mr. Seeders was blamed by Mr. Seltmann in his September 25, 1984 memorandum to Mr. DeWald and the 40% deficiency rate found by Mr. Felz, the CECo Quality Assurance auditor. *Id.*

180. [91.] Mr. DeWald explained to Mr. Seeders that he had the option of accepting a transfer to a clerk position in LKC's Engineering Department or be terminated for substandard work performance. Tr. 1595. Under § 20-60-30 of LKC's personnel rules, a copy of which is provided to all LKC employees (DeWald Test., A.16 at 20), "unsatisfactory job performance" is grounds for termination. DeWald Test., Attach. DeWald-1. According to Mr. Seeders, Mr. DeWald did not give him a chance to explain why he failed to issue certain ICRs. Tr. 7637, 7721-23. Mr. Seeders then asked Mr. DeWald whether he could have until the following Monday to make his decision. Tr. 7638. Mr. DeWald refused and insisted he make a decision immediately. Tr. 7638. Because he needed

to provide for his family, Mr. Seeders accepted the transfer. Tr. 7724. Mr. DeWald then arranged for Mr. Seeders to meet with the men who would be his new supervisors, Mr. Rolan and Mr. Klena (DeWald Test., A.25 at 38; Tr. 7724), and later wrote Mr. Seeders a memorandum confirming his transfer to the Engineering Department. Appl. Exh. 95. Mr. DeWald informed Mr. Seeders that his transfer would be effective Monday, October 1, 1984, and offered Mr. Seeders his best wishes in his new assignment, an assignment in which Mr. DeWald felt Mr. Seeders would excel. *Id.*

181. [92.] The following Monday, October 1, 1984, Mr. Seeders reported for duty to LKC's Engineering Department. Tr. 7639. This job action, while neither a promotion nor a lateral transfer, did not result in any decrease in Mr. Seeders compensation nor did it affect his employee benefits. DeWald Test., A.25 at 38. The transfer, however, subjected Mr. Seeders to § 20-06-30 of LKC's new employee policy pursuant to which any employee may be terminated without cause or notice within the first 90 days of his employment. *Id.* Ordinarily, transferred employees whose tenure exceeds 90 days transferred are not subjected to this provision. *See* DeWald Test., Attach. DeWald-1; Tr. 1875. According to Mr. DeWald, the reason that provision was applied in Mr. Seeders' case is because Mr. Rolan insisted on it. Tr. 1875.

182. [93.] As stated earlier, Mr. Seeders made a copy of his letter available to NRC Senior Resident Inspector Schulz. Tr. 7746. According to Mr. Seeders he delivered a copy of his letter to Mr. Schulz in person. Tr. 7746. Mr. Schulz forwarded a copy of Mr. Seeders' letter to his superior, William Forney, and Charles Weil, the Investigation and Compliance Specialist for Region III. Testimony of Charles Weil, A.5 at 2; Staff Exh. 18.

183. [94.] On August 29, 1984, Mr. Weil sent Mr. Seeders a letter in which he acknowledged receipt of his August 17, 1984 letter and informed him that the NRC would investigate his concerns. Weil Test. at A.6; Staff Exh. 12. Mr. Weil also asked Mr. Seeders to telephone him collect if he had any questions or additional concerns. Staff Exh. 12 at 1.

184. [95.] On August 27, 1984, Mr. Weil sent a memorandum to Eugene Pawlik, the Director of the Region III Field Office of the NRC's Office of Investigations (OI). Weil Test., A.7 at 2. In that memorandum Mr. Weil informed Mr. Pawlik of Mr. Seeders' allegations and transmitted a copy of Mr. Seeders' letter. *Id.* OI is customarily informed by Mr. Weil of allegations received by Region III so that OI can determine whether an investigation should be conducted. Tr. 12,059-60. Mr. Pawlik responded to Mr. Weil's memorandum orally on August 27, 1984, and notified him that OI did not plan to investigate Mr. Seeders' allegations because Mr. Seeders did not state that the alleged harassment and intimidation "affected his work and forced him to do something contrary to procedure or regulation." Staff Exh. 19 at 1; Weil Test., A.8 at 2. OI generally does not investigate allegations received by NRC offices unless

there is some indication that criminal misconduct has occurred. Tr. 11,982-83, 12,061. Mr. Pawlik, however, asked Mr. Weil to keep him informed as to the Staff's inspection efforts and to notify him of any additional information that might warrant OI's involvement. Tr. 11,977-78.

185. [96.] On August 27, 1984, Mr. Weil issued a memorandum referring Mr. Seeder's allegation to Charles E. Norelius, Region III Director, Division of Reactor Projects (DRP). Weil Test., A.7 and A.9 at 2-3; Staff Exh. 19. The DRP in turn assigned the matter to Mr. Schulz. Weil Test., A.9 at 3.

186. [97.] Mr. Schulz met with Mr. Seeders and four other Quality Control inspectors suggested by Mr. Seeders on September 21, 1984. Tr. 7747, 7752; Int. Exh. 91. The meeting was held in Mr. Schulz's office. Tr. 7747-48; Int. Exh. 91 at 1. The Quality Control inspectors explained to Mr. Schulz that the morale among the LKC Quality Control inspectors was not good "due to poor management" (Int. Exh. 91 at 1), and LKC's compensation of Quality Control inspectors. Tr. 7750-53. Mr. Schulz attempted to elicit from the inspectors specific information concerning the possible falsification of documents and instances of harassment or intimidation but none of the inspectors, including Mr. Seeders, could provide any. Tr. 7755-57; Int. Exh. 91. Consequently, Mr. Schulz concluded from his discussion with Mr. Seeders and the four other Quality Control inspectors that "there does seem to be a serious morale problem, but it cannot be substantiated that this morale problem affects safety-related installations." Int. Exh. 91 at 2. Mr. Schulz, on his own initiative, however, met with CECo site management to inform them that there were morale problems in the LKC Quality Control Department. Int. Exh. 91 at 2.

187. [98.] On January 21, 1985, Mr. Weil sent Mr. Seeders a copy of the NRC's report regarding his allegations and asked him to telephone him collect if he had any questions, concerns, or comments. Staff Exh. 13. Although he received these materials (Tr. 7746), Mr. Seeders did not respond to this request. Weil Test., A.15 at 4. Mr. Weil also sent a copy of the NRC's report to OI Director Pawlik (Weil Test., A.9 at 3), who responded on January 25, 1985, that he did not "anticipate any OI investigation on the issues addressed." Staff Exh. 20.

188. [99.] On September 13, 1985, Mr. Weil again wrote Mr. Seeders. Weil Test., A.14 at 4. This letter was prompted by information Mr. Weil had received from the U.S. Department of Labor in connection with another matter then pending before that agency. Weil Test., A.14 at 4; *see* Int. Exh. 93. The Department of Labor (DOL) had provided Mr. Weil a copy of a statement that Mr. Seeders had given to a DOL investigator investigating claims made by another LKC Quality Control inspector. *Id.* In that statement, Mr. Seeders again stated that he had been asked to falsify documentation by his superiors. *Id.* In his September 13, 1985 letter, Mr. Weil informed Mr. Seeders that the NRC's investigation of his concerns was being reopened and asked Mr. Seeders to

provide him with any information he had bearing on the question of document falsification. *Id.* Again, Mr. Seeders did not respond to Mr. Weil's request. Weil Test., A.14 at 4.

189. [100.] Mr. Weil wrote Mr. Seeders for a third and final time on March 6, 1986. *Id.* Again, Mr. Weil asked Mr. Seeders to provide him with any information he had concerning attempted document falsification at Braidwood. *Id.* For the third time Mr. Seeders failed to respond to Mr. Weil's request. *Id.*

190. Although Mr. Seeders may not have been treated fairly by his supervisor, Mr. Saklak, and by other Comstock management in reviewing his dispute with Mr. Saklak, he was not transferred for raising quality concerns. That one of the reasons for his transfer may have been unreasonable behavior on the part of his supervisor, Saklak, is not the Board's concern because we are not here to examine Comstock's management practices, except to the extent that they affect quality control requirements. The major reason for Mr. Seeders' transfer was the poor quality control practices within his department, and L.K. Comstock was justified in transferring him for that reason. However, Comstock is not blameless for the poor quality practices that existed in the Calibration Department. Not only did they assign poorly trained Seeders to be the sole calibrations inspector, but they also assigned Mr. Saklak to supervise the department when he was uncertified and unqualified in that discipline. The lack of certification of Comstock Quality Control supervisors was in violation of LKC Procedure 4.1.2 and later became the subject of NCR 4528. Int. Exh. 24. Despite the problems encountered in the Calibration Department because of lack of knowledgeable supervision, not only by Mr. Seeders but also by his successor, Richard Snyder (*see* Tr. 4218-19), Comstock was inexplicably permitted to disposition NCR 4528 by eliminating the requirement from its procedures that the Quality Control supervisor obtain certification prior to assuming his responsibility. *Id.*

3. *Richard Snyder*

191. As noted, *supra*, Quality Control Inspector Richard Snyder had gone to see Senior Resident Inspector McGregor on March 13, 1985, to discuss a concern he had regarding possible noncompliance by LKC with two provisions of LKC Procedure 4.1.2 (Rev. B). Int. Exh. 41; Tr. 11,557. One of these provisions, § 1.21, required that Quality Control supervisors "shall be trained and knowledgeable in the assigned areas of responsibility and certified to Level II capability in those areas." Int. Exh. 41 at 2. According to Mr. Snyder, Mr. Saklak, the Quality Control Supervisor responsible for calibration inspections, was not certified to Level II in calibrations. Mr. Snyder also indicated to Mr. McGregor that LKC was in violation of § 1.22 of LKC Procedure 4.1.2 (Rev. B), which required lead inspectors to be certified to Level II in each area for which they

held lead responsibility. Tr. 4318, 11,559-67; Int. Exh. 41 at 2. According to Mr. Snyder, Mr. Nemeth, the lead inspector for calibrations, was not certified to Level II in that discipline. Upon receipt of this information, Mr. McGregor referred the matter to his supervisor in the Region III offices. *Id.* Mr. Snyder's allegation was listed as Allegation No. RIII-84-A-0062. Region III OI Director Pawlik declined to launch an investigation into the matter because wrongdoing was not alleged. Appl. Exh. 117.

192. Mr. Mendez was assigned to inspect Mr. Snyder's allegation. Mendez Test., ff. Tr. 10,490 at A.8. In conducting his inspection, Mr. Mendez reviewed LKC Procedure 4.1.2, LKC certification records, and LKC organization charts and confirmed that Mr. Saklak was not certified to Level II in all of the areas for which he had supervisory responsibility. *Id.* at A.21; *see* Staff Exh. 17. Mr. Mendez found that Mr. Saklak's lack of certification violated LKC Procedure 4.1.2. Mendez Test. at A.22. Mr. Mendez also confirmed that Mr. Nemeth and one other lead inspector were given lead responsibility before they had obtained Level II certification in their respective lead disciplines in violation of LKC Procedure 4.1.2. *Id.* at A.24.

193. Mr. Mendez and Mr. Neisler explained that these violations of LKC Procedure 4.1.2 had no safety significance because neither the Quality Control supervisors nor lead inspectors performed inspections or approved an inspection performed by another Quality Control inspector. Mendez/Neisler Test., ff. Tr. 10,490, at A.22, A.42.

194. The NRC inspectors apparently ignored the requirement that Quality Control supervisors be "trained and knowledgeable" in their disciplines and the adverse impact Mr. Saklak's lack of training and knowledge may have had on the Calibration Department. They did not examine the question of whether Comstock's violation of its procedures in appointing an unqualified supervisor, Richard Saklak, whose main function was to speed production, caused or contributed to the Calibration Department problems for which John Seeders had previously been transferred.

4. March 29, 1985 Incident

I accept NRC Staff's Proposed Findings 190-228, *in toto*, with the exception of the second sentence in Proposed Finding 201, the last two sentences in Proposed Finding 220, and the second sentence in Proposed Finding 224, as representing a fair and comprehensive presentation of the March 29, 1985 incident as follows:

195. [190.] On the afternoon of Thursday, March 28, 1985, Mr. Snyder, who by now had assumed Mr. Seeders' former position as calibration inspector, engaged Mr. Saklak in a discussion. Tr. 4182. The discussion centered on a

question posed by Mr. Snyder to Mr. Saklak regarding the appropriate action to be taken with respect to an out-of-calibration weld machine. Tr. 4181-87.

196. [191.] Under §4.0 of LKC Procedure 4.9.1 (Rev. C), the then-applicable calibration procedure, a weld machine was scheduled to be calibrated every 6 months to ensure that it did not deviate more than 5 amps from the established tolerance. Appl. Exh. 24 at 4 of 7. If the weld machine exceeded this tolerance range, an ICR was required to be issued; pending disposition of the ICR, the weld machine was not to be used in the field. Appl. Exh. 24 at 3 of 7. Under §3.0 of LKC Procedure 4.11.2 (Rev. B), it is the responsibility of the Engineering Department to establish the conditions that must be fulfilled before the weld machine can be used again in the field. Appl. Exh. 38 at 1-2 of 4; *see* Tr. 4192. After the appropriate corrective action has been taken and verified by the Quality Control Department, a representative of the Quality Control Department (typically a calibration inspector) signs the ICR indicating that the ICR has been closed. Appl. Exh. 38 at 3 of 4.

197. [192.] Sometime prior to March 28, 1985, LKC Procedure 4.9.1 (Rev. C), was revised to delete weld machines from the class of tools requiring calibration. Seltmann Test., A.16 at 20. LKC determined that it was not necessary to calibrate weld machines because all safety-related welds made by LKC welders were now required to undergo a Quality Control inspection. Tr. 4189. Since each weld was to be inspected, it was felt that any deficient weld caused by an out-of-calibration weld machine would be identified and corrected. Tr. 4189. In addition, weld inspectors periodically monitored welders to ensure that weld machines were operating correctly. Tr. 4191. However, as of March 28, 1985, neither CECo nor S&L had approved LKC's request to revise the calibration procedure to delete weld machines. Seltmann Test., A.16 at 20-21. Accordingly, as of that date, an ICR was required to be generated for an out-of-calibration weld machine, and the ICR was to be processed in accordance with LKC Procedure 4.11.2. *Id.*

198. [193.] In their discussion on March 28, 1985, Mr. Saklak suggested to Mr. Snyder that he close out an ICR that he (Snyder) had written on a weld machine earlier that day. Tr. 4182. According to Mr. Snyder, Mr. Saklak took the position that because the calibration procedure was being revised to delete weld machines from the class of tools requiring calibration, it was not necessary to generate an ICR since the Engineering Department would indicate that all welds made with the machine were visually inspected. Tr. 4185, 4994. Mr. Snyder disagreed, and informed Mr. Saklak that because the revised procedure was not yet effective, an ICR was required to be issued and acted upon by the Engineering Department, and that he (Snyder) could neither make the required engineering evaluation nor close out the ICR without it. Tr. 4190. According to Mr. Snyder, Mr. Saklak remarked to him: "No wonder we have such a backlog of documents around here; you won't evaluate them or close them

out." Appl. Exh. 109 at 1. Mr. Snyder, accompanied by his lead, Mr. Nemeth, then went to discuss the matter with Mr. Seltmann who agreed with Mr. Snyder's interpretation. Tr. 2096-98.

199. [194.] Mr. Snyder and Mr. Nemeth left Mr. Seltmann's office and returned to their work station. Tr. 4196. When Mr. Saklak saw them return, he approached Mr. Snyder and, apparently perturbed that Mr. Snyder had "gone over his head" (Tr. 2097, 4196, 4467), said to him "you make me so pissed off that if beatings were legal you would be dead!" Tr. 4196. Although he did not then fear for his personal safety, Mr. Snyder was stunned and "shocked" by Mr. Saklak's outburst. Tr. 4196, 4198. Mr. Saklak is a very large man, standing about 6 foot 3 inches. Tr. 4196.

200. [195.] A short while later, Mr. Nemeth informed Mr. Seltmann of the outburst he had just witnessed. Seltmann Test., A.16 at 21. Mr. Seltmann, however, took no action that day to investigate the incident. Tr. 2097-98. Mr. DeWald was not informed of the incident until 1:00 p.m. the next day and it was Mr. Seese who informed him. Tr. 1872. Mr. Seese informed Mr. DeWald that a group of Quality Control inspectors had gone to see the NRC Senior Resident Inspectors earlier that morning to complain about Mr. Saklak's behavior. Tr. 8172. Although by 10:00 a.m. they were aware of the incident involving Mr. Saklak and Mr. Snyder, neither Mr. Seltmann nor Mr. Seese acted on the information they had received. Tr. 2098. After Mr. Seese briefed Mr. DeWald, Mr. DeWald met with Mr. Snyder who described the "chain of events" and with Mr. Nemeth and Timothy Stewart, both of whom confirmed Mr. Snyder's story. DeWald Test., ff. Tr. 1700, A.23 at 30-31.

201. [196.] Mr. Snyder, for his part, had resolved to bring the matter to the attention of the NRC. Tr. 4201. Although he did not know whether Mr. Saklak intended to cause him physical harm (Tr. 4198), Mr. Snyder did not feel he should ignore the incident because he knew that this was not the first time Mr. Saklak had abused a Quality Control inspector. Tr. 4197, 4202, 4224-32. Consequently, Mr. Snyder discussed the incident with some of his colleagues who agreed to accompany him to the offices of Mr. McGregor and Mr. Schulz, the Senior Resident Inspectors at Braidwood. Tr. 4205-06. Based on his previous experience, Mr. Snyder considered Mr. McGregor to be a fair and concerned individual. Tr. 4593.

202. [197.] At approximately 8:15 a.m., the next morning, Friday, March 29, 1985, Mr. Snyder, accompanied by five other Quality Control inspectors "walked into the NRC Braidwood office with numerous allegations which 'effect' the quality of work being accomplished by the electrical contractor," LKC. Int. Exh. 42 at 1; Tr. 4210, 11,567. Mr. McGregor advised the inspectors of their right to remain anonymous but informed them that the NRC would like to know their identity in order to obtain further information from them if

necessary and to advise them of the results of the meeting. Int. Exh. 42 at 1; Tr. 11,567.

203. [198.] During this meeting, Mr. Snyder informed the NRC inspectors of the threat made against him the previous day by Mr. Saklak. Tr. 4211, 11, 69. Other inspectors complained to the NRC about Mr. Saklak's conduct as well. Appl. Exh. 11, Tr. 11,569, 11,736. In addition, the Quality Control inspectors raised a number of other complaints against LKC Quality Control management in this meeting. Appl. Exh. 109. Among these complaints were that CECo's "Quality First" Program was not effective; that unqualified persons were awarded lead inspector positions; that certain of LKC's Quality Control management team harassed and intimidated Quality Control inspectors; and that management was more concerned with the quantity rather than the quality of the inspectors' inspections. *Id.*; Tr 11,569.

204. [199.] After the meeting adjourned, Mr. McGregor and Mr. Schulz contacted their superiors in the regional office to bring to their attention the events that transpired that morning. Weil Test., A.63 at 16; Tr. 11,569-70. Participating in that conference call were Mr. Warnick, Mr. Weil, and Mr. Forney. Weil Test., A.16 at 16. The NRC inspectors informed the Region that six LKC Quality Control inspectors had complained to them about harassment and intimidation from Mr. Saklak and an overemphasis on quantity at the expense of quality of LKC's Quality Control management. Mr. McGregor and Mr. Schulz also reported to the region "that the LKC quality control inspectors were threatening a walkout the following Monday." Weil Test., ff. Tr. 11,948, A.16 at 16.

205. [200.] Mr. McGregor and Mr. Schulz also recommended to the Region that someone from the regional office be sent to Braidwood immediately to take sworn statements from the Quality Control inspectors. *See* Tr. 11,582. Mr. McGregor and Mr. Schulz also recommended that the Region consider issuing an order stopping LKC from performing further work pending an inspection of the quality of work already performed. Appl. Exh. 109. The inspectors believed these actions appropriate because they had previously notified CECo of discontent in LKC's Quality Control Department and CECo apparently had failed to take sufficient action to address the problem. Tr. 11,740-56.

206. [201.] After speaking with Mr. McGregor and Mr. Schulz, Mr. Warnick, Mr. Weil, and Mr. Forney discussed the matter among themselves and decided that CECo should be notified of the substance of the Quality Control inspectors' allegations. Weil Test., ff. Tr. 11,948, A.65 at 16. [~~This course of action was consistent with the policy of the NRC which "recognizes that an applicant has a strong interest in learning of and taking appropriate action to correct any problems which may affect the operation of its nuclear facility." *Id.*; see Appl. Exh. 119 at 1.~~] The Region determined that it would be appropriate to notify CECo of the substance of the allegations that had been made "because

the allegations involved CECo personnel and the information to be provided Applicant did not appear to be of such character as to enable Applicant to compromise a subsequent NRC inspection or investigation." Weil Test., A.66 at 17; *see* Appl. Exh. 119. Mr. Weil was therefore asked "to advise the six LKC quality control inspectors of the NRC's proposed course of action and ascertain whether any of them desired to remain anonymous." *Id.*, A.65 at 17.

207. [202.] Mr. Weil then called Mr. McGregor to ask him to arrange a telephone conference with the six Quality Control inspectors. Tr. 11,570. McGregor in turn contacted some of the inspectors and asked them to attend a meeting in his office during their lunch break. Tr. 4265. Mr. McGregor indicated that any other inspectors who wanted to attend should feel free to do so. Tr. 4265, 11,571.

208. [203.] At approximately 12:00 p.m., the conference call began. Tr. 11,571-74; Weil Test., A.67 at 18. Mr. Weil was informed at that time by Mr. McGregor that eighteen Quality Control inspectors, in addition to the original six, were present in the NRC office. Weil Test., ff. Tr. 11,948, A.67 at 18; *see* Tr. 11,573.

209. [204.] As stated above, the purpose of the telephone conference was to advise the six Quality Control inspectors of the action Region III proposed to take and determine whether any of them wished to remain anonymous. Weil Test., A.65 at 17; Tr. 11,971-72. Accordingly, Mr. Weil spoke with each of the original six Quality Control inspectors and asked whether there was any objection to the NRC notifying CECo of the substance of the allegations. Weil Test., A.68 at 18; Tr. 11,972. None of these Quality Control inspectors expressed any disagreement or objection with this proposal to Mr. Weil. *Id.* Mr. Weil also asked each of these inspectors whether they wished to remain anonymous and was informed by each that confidentiality was not desired. *Id.* Mr. Weil then afforded the other Quality Control inspectors in attendance an opportunity to speak; ten of those Quality Control inspectors took advantage of this opportunity and made statements. *Id.*

210. [*new*] Senior Resident Inspector McGregor testified that at some point during the meeting a request was made for a show of hands to determine how many Quality Control inspectors agreed that Comstock Quality Control management was emphasizing quantity over quality. Mr. McGregor recalled that the twenty-four inspectors' agreement with the statement was unanimous, without abstentions or denials, and that he or Mr. Schulz relayed that agreement to the Region during the conference call. Tr. 17,534-35.

211. [205.] The telephone conference lasted between 30 and 40 minutes. Tr. 4269. Mr. Weil then notified OI Director Pawlik of the allegations received from the Quality Control inspectors and was informed by Mr. Pawlik

that an "investigation by OI:RIII was not warranted" based on the information then available. Staff Exh. 23.

212. [206.] At approximately 1:15 p.m. that afternoon, another telephone conference was held, this time between officials of Region III and Commonwealth Edison Company (CECo). Tr. 11,579. Present on behalf of the Region were Mr. Forney, Mr. Williams, Mr. Weil, and Rogelio Mendez, an NRC inspector. Weil Test., ff. Tr. 11,948, A.74 at 19; Testimony of Rogelio Mendez and John Neisler, A.9 at 4. Present on behalf of Commonwealth Edison Company were Thomas Maiman, CECo Vice-President and Manager of Projects; Eugene Fitzpatrick, CECo Assistant Manager of Quality Assurance; Lewis Kline, CECo Licensing Assistant; and Mr. Shamblin. Prepared Testimony of Thomas Maiman, ff. Tr. 3806, A.6 at 4.

213. [207.] CECo was informed by Mr. Forney of the substance of the allegations that the NRC had received regarding LKC's Quality Control management. Tr. 11,578-79, 11,762-73; Maiman Test., ff. Tr. 3806, A.7 at 5; Weil Test., ff. Tr. 11,948, A.74 at 19; Mendez Test., ff. Tr. 10,490, A.74 at 4. None of the identities of any of the Quality Control inspectors who had spoken with the NRC was disclosed to CECo. Weil Test., A.74 at 19; Tr. 12,007.

214. [208.] Mr. Forney informed CECo that the NRC attached a high degree of importance to the allegations and asked what action CECo intended to take in response to them. Tr. 11,579; Maiman Test., ff. Tr. 3806, A.7 at 5. Mr. Maiman stated that CECo shared the NRC's concern and would "promptly investigate and report back to the NRC later that afternoon with a plan of action." *Id.*

215. [209.] Immediately following this conversation Mr. Maiman met with Mr. Shamblin, Mr. Fitzpatrick, and Thomas Quaka, CECo Quality Assurance Superintendent, to discuss the allegations. *Id.*, A.8 at 5. They subsequently contacted Mr. DeWald and Mr. Seltmann who informed them that they were aware of the incident involving Mr. Snyder and Mr. Saklak. *Id.* at 6. Mr. Maiman directed Mr. DeWald "to temporarily remove Mr. Saklak from his supervisory position pending further investigation." *Id.* Mr. Maiman also directed Mr. Shamblin to schedule a meeting for 8:00 a.m. the following Monday with LKC's Quality Control management and inspectors "for the purpose of reemphasizing CECo's commitment to quality and its ongoing desire to listen to and act upon quality concerns of inspectors or others." *Id.* Mr. Fitzpatrick also suggested that CECo send LKC a letter reminding LKC of its contract obligation to comply fully with all quality requirements and informing LKC that CECo intended to investigate all concerns brought to Quality First by LKC Quality Control inspectors. *Id.* In addition to these measures, Mr. Shamblin was directed by Mr. Maiman to develop a longer-range plan "to adequately investigate and address the allegations and to improve the working relationship between the LKC Quality Control inspectors and LKC management." *Id.*

216. [210.] Mr. DeWald met with Mr. Saklak later that afternoon and told him not to report for work the following day. DeWald Test., ff. Tr. 1700, A.23 at 32. Mr. DeWald notified Mr. Paserba of the incident, and the two men met with Mr. Shamblin the next day to discuss the matter. *Id.* Mr. Paserba subsequently contacted Mr. Marino, who met with Mr. Saklak on Wednesday, April 3, 1985, and terminated his employment with LKC. *Id.*; Tr. 8033. Mr. Saklak's termination papers indicate that he was "laid off due to lack of work" rather than fired. Tr. 8037; Int. Exh. 40. According to Mr. Saklak, he was not informed by Mr. Marino of the reasons for his termination (Tr. 8036), although he acknowledged that he surmised it had something to do with the incident involving himself and Mr. Snyder. Tr. 8147-48. For its part, CECo "barred" Mr. Saklak from future employment in any safety-related capacity on any CECo facility. Int. Exhs. 38, 39; Tr. 3883-89.

217. [211.] At approximately 4:30 p.m. on March 29, 1985, CECo contacted the NRC to notify it of the actions it had taken in response to the allegations. Tr. 11,596-600; Appl. Exh. 111; Mendez Test., ff. Tr. 10,490, A.11 at 5.

218. [212.] The events of March 29, 1985, were memorialized in three memoranda, two of which were authored jointly by Mr. Schulz and Mr. McGregor and the other by Mr. Weil. The first McGregor/Schulz memorandum, dated March 29, 1985, and addressed to Mr. Warnick and Mr. Weil, documented the meeting held that morning with Mr. Snyder and the five other Quality Control inspectors who accompanied him. Tr. 11,575; Appl. Exh. 109. Mr. Schulz and Mr. McGregor concluded this memorandum by repeating their recommendation that the Region (i) consider issuing an order directing LKC to stop work, and (ii) send someone to Braidwood to take sworn statements from the LKC Quality Control inspectors. *Id.*; Tr. 11,578, 11,582, 11,586-88. The second Schulz/McGregor memorandum, also dated March 29, 1985, and addressed to Mr. Williams and Mr. Warnick, summarized the second telephone conference between the NRC and CECo. Tr. 11,576; Appl. Exh. 112. Mr. McGregor and Mr. Schulz concluded this memorandum by observing that "the residents were satisfied with CECo's comprehensive and extremely swift corrective actions taken this afternoon." *Id.* at 4.

219. [213.] Mr. Weil's memorandum, which was dated April 5, 1985, reported the information received, and actions taken, by the regional officials with respect to the events of March 29, 1985, including his lunchtime conference with the LKC Quality Control inspectors. Appl. Exh. 110; Weil Test., ff. Tr. 11,948, A.69 at 18. Both of the Schulz/McGregor memorandums were attached to Mr. Weil's memorandum which was addressed to Charles Norelius, the Director of the Division of Reactor Projects (DRP) for Region III. *Id.* Copies of Mr. Weil's memorandum also were sent to the following NRC personnel: OI Director Pawlik; the DRS Deputy Director; the Technical Assistant to the DRS

Director; the Braidwood Senior Resident Inspectors; and the Regional Administrator. Weil Test., A.70 at 18.

220. [214.] On April 8, 1985, copies of Mr. Weil's April 5, 1985 memorandum, with the attached Schulz/McGregor memorandum, were sent to each of the LKC Quality Control inspectors who attended either of the two meetings with the NRC for whom Mr. Weil had an address. *Id.* In his letters, Mr. Weil thanked each addressee for his assistance and asked that he review the enclosed materials "which document [the NRC's] understanding of your concerns," and contact the NRC if he had any changes, corrections, clarifications, or comments to make to any of the matters set forth therein. *Id.*, A.72 at 19; *see, e.g.*, Staff Exh. 1 at 1. Only one Quality Control inspector, Richard Martin, made any changes to any of the statements contained in Mr. Weil's memorandum. Weil Test., A.73 at 19; *in camera* Staff Exh. 16 at 2-3.

221. [215.] Not a single copy of Mr. Weil's memorandum or either of the Schulz/McGregor memorandums was made available by Mr. Weil or, to the best of his knowledge, by any other NRC Region III employee to any CECo employee or LKC management official. Weil Test., ff. Tr. 11,948, A.71 at 19.

222. [216.] On April 12, 1985, Rogelio Mendez was assigned to conduct an inspection relating to the allegations raised on March 29, 1985, by the LKC Quality Control Program that had been received recently by the NRC. *Id.* These allegations were assigned to Mr. Mendez because he was the NRC's lead electrical inspector for Braidwood. Mendez Test., ff. Tr. 10,490, A.9 at 4.

223. [217.] Mr. Mendez received his degree in electrical engineering from the University of Illinois in 1976. *Id.*, Exh. 1. For nearly 6 years he has been employed by NRC Region III as a reactor inspector. *Id.* As a reactor inspector, Mr. Mendez is responsible for performing inspections of electrical and instrumentation systems to ensure that those systems comply with regulatory requirements. *Id.*, A.2 at 1. Mr. Mendez previously conducted inspections regarding allegations received against electrical contractors at the Marble Hill and Perry nuclear construction sites. *Id.*, A.14 at 6.

224. [218.] Mr. Mendez first became aware of the LKC Quality Control inspectors' allegations on March 29, 1985. *Id.*, A.9 at 4. At approximately 1:00 p.m. that day, Mr. Mendez's supervisor, Mr. Williams, asked him to attend the telephone conference during which the NRC informed CECo of the substance of the allegations it had received from the LKC Quality Control inspectors. *Id.* Mr. Mendez also attended the second telephone conference during which CECo notified the NRC of the actions it had taken and planned to take in response to those allegations. *Id.*, A.11 at 5.

225. [219.] Mr. Mendez arrived at Braidwood on April 30, 1985, to begin his inspection. *Id.*, A.16 at 7; Tr. 11,604. By this time, CECo had completed its own investigation of the LKC Quality Control inspectors' allegations. Tr. 10,501.

226. [220.] The regional management did not adopt the recommendation of Mr. McGregor and Mr. Schulz and direct LKC to cease operations pending an investigation of the Quality Control inspectors' allegations. As Mr. Neisler, himself a former Senior Resident Inspector, explained, a Stop-Work order was not warranted because the Quality Control inspectors' allegations did not indicate that the quality of the installed hardware had been affected adversely. Tr. 10,903-04. A Stop-Work order generally is a remedy exercised in connection with operating plants "where there is a danger of radioactive releases." *Id.* This danger is not present in the case of a construction site. *Id.* [~~The NRC also had valid reason for not sending an inspector to Braidwood immediately to look into the Quality Control inspectors['] allegations. As noted earlier, it is the policy of the NRC to notify licensees of "potential safety concerns raised by allegations" and allow the licensee an opportunity to address these allegations "subject to further audit by NRC." Appl. Exh. 119 at 1. The Region III management's actions were consistent with this policy. Tr. 11,957-58.~~]

227. [221.] When he arrived at Braidwood, Mr. Mendez met with Mr. McGregor to discuss the allegations. Tr. 10,898, 11,605. Mr. McGregor suggested the names of some Quality Control inspectors that Mr. Mendez should interview (Tr. 10,898) and arranged for him (Mendez) to meet with Charles Schroeder of CECo's Licensing Department. Tr. 11,606. Mr. Mendez asked Mr. Schroeder to make available to him CECo's records documenting the results of its investigation of the allegations. Mendez Test., ff. Tr. 10,490, A.16 at 8. After reviewing these record, Mr. Mendez requested that sixteen LKC Quality Control inspectors be made available for interviews. *Id.*

228. [222.] The sixteen LKC Quality Control inspectors interviewed by Mr. Mendez were: Danny Holley, Larry Perryman, Larry Bossong, Richard Snyder, Richard Martin, Dean Peterson, Robert Wicks, Michael Mustered, Hershel Stout, Terry Gorman, Therman Bowman, Mark Klachko, Julie Bullock, Sam Rissman, Ranco Rolan, and Kermit Williams. Tr. 10,503-04, 10,745, 10,773. With the exception of Mr. Sproull, Ms. Bullock, Mr. Williams, and Mr. Rissman, all of these Quality Control inspectors gave testimony in this proceeding.

229. [223.] To assist him in his interviews, Mr. Mendez prepared a detailed questionnaire containing about fifty questions. Mendez Test., A.15 at 7. In formulating this questionnaire, Mr. Mendez used the March 29, 1985 Schulz/McGregor memorandum (Appl. Exh. 109) and the April 5, 1985 Weil memorandum (Appl. Exh. 110) as well as the materials relating to the other allegations he had been assigned. Mendez Test., A.15 at 7. These questions were designed to elicit from the Quality Control inspectors information to enable Mr. Mendez to determine whether there was merit to the allegations and if so, whether the integrity of any safety-related activity conducted by LKC had been compromised as a result. Tr. 10,883-87. The inspectors were aware that

Mr. Mendez was conducting an inspection of the allegations that had arisen from the events of March 28-29, 1985, and were encouraged to speak candidly. *See, e.g.*, Tr. 4478. Mr. Mendez, as a representative of the NRC, assured each Quality Control inspector that none of the information he or she provided would be used against him or her. Tr. 10,738. All but two Quality Control inspectors, Kermit Williams and Terry Gorman, appeared responsive and eager to cooperate. Tr. 10,547-48.

230. [224.] On August 27, 1985, John Neisler was assigned by his Section Chief, Raymond Love, to report to Braidwood and assist Mr. Mendez in conducting the inspection. Neisler Test., A.13 at 6. [~~Mr. Neisler was assigned to assist Mr. Mendez because in July 1985 the NRC had assured the Atomic Safety and Licensing Board that its inspection of the LKC QC inspectors' allegations would be completed by September 1985. Tr. 10,752; *but see* Tr. H,612-14.~~]

231. [225.] Mr. Neisler currently is employed as a reactor inspector by the Region III office of the NRC. Tr. 10,897; Neisler Test., A.3 at 2. Prior to assuming this position, Mr. Neisler served as senior resident inspector at the Callaway Nuclear Plant in Missouri. Neisler Test., ff. Tr. 10,490, Exh. 2. In total, Mr. Neisler has been employed by the NRC for nearly 10 years. Mr. Neisler has substantial experience in inspecting allegations of all types. *Id.*, A.14 at 6.

232. [226.] Since Mr. Mendez had already developed the inspection plan for the inspection, there was no need for Mr. Neisler to develop a separate one. *Id.*, A.17 at 8. Instead, when Mr. Neisler arrived at Braidwood, he and Mr. Mendez discussed the allegations and how he could most effectively assist Mr. Mendez in completing the inspection. *Id.* The two men agreed that Mr. Neisler would inspect the allegations identified as "Concerns" 1-3, 5-7, 9, and 13-16. *Id.* Mr. Neisler interviewed six Quality Control inspectors: Mr. Walters, Mr. Bullock, Mr. Bowman, Mr. Peterson, Mr. Holley, and either Mr. Snyder or Mr. Hunter. Tr. 10,511.

233. [227.] Between them, Mr. Mendez and Mr. Neisler devoted 152 hours inspecting the LKC Quality Control inspectors' allegations during the period April 30 to September 5, 1985. Staff Exh. 17 at 4. On November 4, 1985, the NRC issued a report (Inspection Report Nos. 50-456/85-21; 50-457/85-22) documenting the results of their inspection. Mendez Test., ff. Tr. 10,490, A.7 at 3; *see* Staff Exh. 17. After completing their inspection of the Quality Control inspectors' allegations and reviewing the actions taken by CECo to address these concerns, Mr. Mendez and Mr. Neisler concluded that:

> The problems between LKC management and the Quality Control inspectors generally stemmed from a lack of communication between management and employees, and the bullying tactics of one Quality Control supervisor [Mr. Saklak] who was removed from the construction site. These concerns have been resolved or are in the process of resolution by the licensee.

Staff Exh. 17 at 25. According to Mr. Mendez and Mr. Neisler, these problems "could have been avoided had LKC management communicated more effectively with its Quality Control inspectors and taken stronger or earlier action" against Mr. Saklak. Mendez/Neisler Test., ff. Tr. 10,490, A.90 at 33.

234. [228.] On November 8, 1985, Mr. Weil mailed a copy of Inspection Report Nos. 50-456/85-21, 50-457/85-22, to each of the LKC Quality Control inspectors for whom he had a home address. Weil Test., A.78 at 20. The preceding day, November 7, 1985, Mr. Weil provided a copy of the inspection report to OI Director Pawlik. *Id.; see* Staff Exh. 23.

235. In the objectionable portion of Proposed Findings 201 and 220, NRC Staff asserts that the decision by NRC Staff management, contrary to the recommendations of Senior Resident Inspectors McGregor and Schulz, to notify CECo about the substance of the Quality Control inspectors' allegations and to defer sending an NRC inspector to Braidwood, was consistent with NRC policy. That policy is referred to as being one in which licensees are to be notified of potential safety concerns raised by allegations and allowed an opportunity to address those allegations subject to further audit by NRC. Staff relies upon a memorandum from NRC's Executive Director for Operations, dated April 24, 1984, to regional administrators. Appl. Exh. 119. The "principal guidance" offered by the Directive is that the licensee/vendor should be advised of potential safety concerns as soon as feasible in order to take action to protect the health and safety. Two exceptions were given to the guidance to inform the licensee: where the release of information would compromise the identity of a confidential source and where the licensee could compromise an investigation because of knowledge gained from the release of information, especially if wrongdoing is involved.

236. It was within this guidance, and appropriate, for NRC Staff to advise CECo about the Saklak/McGregor matter in order to take immediate action against Mr. Saklak. Mr. Saklak was immediately removed from his position as a result, and that action was appropriate.

237. However, what immediate corrective action Staff expected with regard to the numerous complaints about the climate of production pressure that could not await the immediate dispatch of an investigator to take sworn statements from the complaining Quality Control inspectors and begin his field inspection, is unclear. Moreover, the second exception to the EDO's guidance, where wrongdoing is involved, was applicable. There could hardly be a clearer case of alleged wrongdoing as when twenty-four inspectors arrive *en masse* to make what appears to be a unanimous complaint about improper production pressure. To be sure, NRC was informing CECo, not L.K. Comstock management about the complaints, but NRC had no reason to believe that CECo would not immediately inform LKC about the allegations or that CECo was not itself implicated in the production pressure. As the facts were demonstrated later at

this hearing, there was a consistent belief among the Quality Control inspectors at the time and representations made to them by LKC management to the same effect, that the production pressure originated with CECo. According to the testimony, the beliefs of the Quality Control inspectors and the statements of Quality Control management were to the effect that Edison pressured LKC management under a threat to cancel the construction contract if the inspection backlog were not eliminated by a certain date and that LKC management, in turn, pressured the Quality Control inspectors.

238. No plausible reason based either on the EDO guidance or the particulars of the situation has been offered by Staff to support its not having dispatched an investigator immediately to investigate the Quality Control inspectors' complaint, whether or not CECo was informed of the allegations. NRC Staff's failure to investigate immediately was not only a negligent act considering the circumstances, but it may have resulted in the full facts underlying the inspectors' complaints not being eventually disclosed.

239. The apparent reason for the delay in the NRC's investigation of the March 29, 1985 incident had little to do with the EDO Directive. It was because NRC management decided, despite the magnitude of Quality Control inspector complaints at the March 29 meeting of improper production pressure and harassment, that the inspector complaints were because of a labor-management dispute, and NRC management wanted to give Commonwealth Edison the benefit of the doubt. Tr. 10,608, 10,730. That prejudgment of the issues to be investigated was conveyed to Inspector Mendez by his Section Chief when he was assigned his inspection task, and in the end became his own conclusion. *Id.* Commonwealth Edison issued its report on April 25. Mr. Mendez began his investigation on April 30 and had CECo's report at that time. Tr. 10,731.

240. The objectionable portion of Staff's Proposed Finding 224 asserts that Mr. Neisler was assigned to assist Mr. Mendez because the NRC had assured the Licensing Board that its inspection of LKC Quality Control inspectors' allegations would be completed by September 1985. However, Leonard McGregor, the Senior Resident Inspector at Braidwood at that time, testified to the contrary, that Mr. Neisler was assigned because Mr. McGregor had complained to Mr. Mendez's superior that Mr. McGregor and his fellow Senior Resident Inspector Schulz believed Mr. Mendez's draft report "whitewashed" the Quality Control inspector problems. Tr. 11,612-14.

241. Mr. McGregor's explanation is the more credible, in light of the testimony of Mr. Mendez and Mr. Neisler at hearing, which indicates serious deficiencies in the methodology of the inspection and in the substance of even the final report co-authored by Mr. Mendez and Mr. Neisler. Mr. McGregor never reviewed the final report produced after Mr. Neisler joined Mr. Mendez on the inspection. Tr. 11,614.

242. Although the twenty-four inspectors were complaining about harassment, intimidation, and production pressures, during their inspection, Mr. Mendez and Mr. Neisler were unaware of two significant allegations about retaliatory termination and retaliatory transfer over quality concerns that had recently been brought to the NRC's attention — by Worley Puckett and John Seeders in August and September of 1984. This, despite the Department of Labor's notification to the NRC by letter dated November 6, 1984 (Int. Exh. 11), that it had found in Mr. Puckett's favor, and the clear indication in the NRC memorandum of March 29, 1985, concerning the meeting with twenty-four inspectors that a person named John was "railroaded out" of his job through no fault of his own (Int. Exh. 42 at 2). Even though they were assigned to review the inspector's complaints, Mr. Mendez and Mr. Neisler never inquired about who "John" was and never determined that he was John Seeders. Tr. 10,662, 10,708-09, 10,711-12, 10,719, 10,879.

243. Neither were Mr. Mendez and Mr. Neisler aware of internal NRC documents predating the March 29, 1985 incident by a few months, indicating other Quality Control inspector complaints about Quality Control management. Included in these documents was a September 25, 1984 memorandum from R.D. Schulz, a Senior Resident Inspector at Braidwood to the Chief of Project Section 1A (Int. Exh. 91) about a visit to his office by five Comstock Quality Control inspectors complaining, among other things, of low or nonexistent morale due to poor management. Tr. 10,660. Nor had they seen the memorandum of December 28, 1984 (Int. Exh. 92), in which Mr. Schulz met with the CECo project manager and construction superintendent to discuss the issue of Comstock site Quality Control management intimidation and harassment. They were not even aware of the meeting. Tr. 10,705, 10,708. Mr. Mendez had not even made any specific inquiry of Mr. McGregor or Mr. Schulz to ask about past difficulties with Commonwealth Edison or Comstock. Tr. 10,658.

244. In conducting the interviews with Quality Control inspectors, Mr. Mendez took no precautions against having the Quality Control managers complained about, Mr. DeWald, Mr. Seese, Mr. Simile, etc., learn the names of the inspectors being interviewed and the exact times of interview. The procedure adopted was to notify Commonwealth Edison of the person to be interviewed at the NRC site residents' office, who in turn would give the name to L.K. Comstock management. LKC management would, in turn, call that person off the job and inform him that the NRC wanted to speak to him. Tr. 10,734-44.

245. The inspection report itself, Staff Exh. 17, demonstrates a superficial inspection of the allegations raised by the Quality Control inspectors. For example, in Concern No. 1, in which the LKC inspectors complained about lack of qualification and certification of their Quality Control supervisors because they "could not depend on the Quality Control supervisors to answer questions in the areas where Quality Control inspectors were uncertain of QC related

matters," the NRC inspectors merely referred to corrective actions being initiated by CECo. *Id.*, Body of Report at 3-4. Those corrective actions, however, were directed toward eliminating the requirement that Quality Control supervisors be certified before attaining their position, and did not address the Quality Control inspectors' main complaint, of the lack of knowledge and guidance that could be offered by their supervisors. *See* Min. Fdg. 124, *supra*.

246. Similarly, Concern No. 6 (Staff Exh. 17, Body of Report at 17-18) involves the Quality Control inspectors' allegations that the Braidwood Quality First Team was not responding to their concerns. Instead of addressing the question of general lack of responsiveness of Quality First, which would have disclosed that Quality First's activities had been suspended over a period of time, the NRC inspectors merely reviewed certain of the technical complaints that had been made by the Quality Control inspectors to Quality First and determined that they were being acted upon. It was not until the hearings in this proceeding that the NRC inspectors learned that Commonwealth Edison Company management had directed Quality First to put all complaints by Comstock's Quality Control inspectors on hold, beginning in February of 1985, and did not permit Quality First to resume its activities until after the twenty-four Quality Control inspectors had gone to the NRC on March 29, 1985. Tr. 10,808-09.

247. That the investigation of the March 29, 1985 incident by Mr. Mendez and Mr. Neisler was not a model of incisive investigatory work is not surprising considering their lack of training for such a task. They were trained as technical people, and performing investigations was not within the scope of their duties. Tr. 10,590-91. Nor can they be faulted for not having received from NRC management the relevant background material concerning prior allegations and harassment, and for having received the prejudgment by their management that the Quality Control inspector complaints were attributable to labor-management problems.

248. The disagreement between Senior Resident Inspectors Schulz and McGregor on the one hand and the NRC management on the other was not confined to the issue of the investigation of the March 29, 1985 incident. A July 11, 1985 memorandum from Schulz to McGregor memorialized Mr. Schulz's complaints that an NRC branch chief had instructed CECo officials not to give information to Mr. Schulz on a discrepant condition that had been discovered by Mr. Schulz, complained that the NRC management did not produce documents to GAP (Government Accountability Project) in response to an FOIA request that had been forwarded to management by Schulz, complained about NRC management's handling of the March 29, 1985 incident, and complained about NRC management's assigning Intervenor interrogatories to persons not familiar with the issues for the purpose of restricting the flow of information, rather than to the Senior Resident Inspectors at Braidwood who were more familiar with the issues. Int. Exh. 90. On February 7, 1985, Senior Resident Inspectors

Schulz and McGregor complained about NRC management's recent decision not to include them in an ACRS conference on Braidwood. Int. Exh. 104; Tr. 17,506. McGregor testified at hearing that his Section Chief had restricted him from looking at a Commonwealth Edison Company rework of a Corrective Action Letter. Tr. 11,459. On July 1, 1985, Mr. Schulz's superior, W.S. Little, Director, Braidwood Project, recognized in a memorandum of that date to Mr. Schulz, Mr. Schulz's unhappiness with the Region's handling of the Braidwood corrective action programs. Int. Exh. 105.

249. At the time of hearing, Mr. Schulz was no longer employed by the NRC. Although the Board encouraged the parties to seek to bring him before the Board as a witness, Mr. Schulz was reluctant to appear. Intervenors' counsel submitted that it was because of fear of retaliation in his position within the nuclear industry; counsel for Staff and Applicant disagreed. All, however, were reluctant to compel him by subpoena to appear, and the Board did not wish to have him appear under those circumstances. *See* Discussion, Tr. 1102-34.

250. NRC Staff also objected to making Mr. McGregor available, but the Board requested his presence. Tr. 2272-93. Mr. McGregor testified that Mr. Schulz had left the NRC when his performance appraisal had been held up for 3 months and Mr. Schulz was fearful that he would receive an unsatisfactory rating. Schulz sought another position and, when he found it, received his satisfactory evaluation 3 months late, with the explanation that the delay was attributable to an administrative error. Tr. 11,651-54.

251. Mr. McGregor began testifying on August 27, 1986. After a few days of testifying, on September 4, 1986, Mr. McGregor abruptly requested that he be excused from testifying further until he could consult with his private attorney because questions being asked of Mr. McGregor by Applicant's counsel related to a criminal investigation of him being conducted by NRC Office of Inspector and Auditor (OIA). The Board had previously been unaware of such an investigation. The investigation apparently concerned allegations, later found to be unsubstantiated, that Mr. McGregor had recorded conversations with Commonwealth Edison officials. At a time when the licensing hearings were expected to be concluded by June of 1986, Mr. McGregor had been assured that the criminal investigation of him would be formally concluded in the week of July 4, 1986. The field investigation that found the charges to be unsubstantiated had apparently been concluded by June of 1986. By September 4, 1986, Mr. McGregor was concerned that questions directed to him by Applicant's counsel on cross-examination that touched on the subject matter of the criminal investigation at a time when the investigation was not yet formally concluded, had an intimidating effect on his testimony. The Board temporarily excused Mr. McGregor from further testifying at that point and requested further information from Staff with regard to the conclusion of the criminal investigation. Tr. 11,898-915. NRC Staff counsel indicated that he

would endeavor to determine why the investigation had not been completed by July 4, 1986, as promised. Tr. 11,912-13.

252. Thereafter, both on and off the record, the Board requested that the criminal investigation be formally concluded at an early date if only formalities were involved, so that we could continue with Mr. McGregor's testimony. *See*, for example, Tr. 17,006, 17,063, 17,065-66. It was not until the middle of November of 1986 that Mr. McGregor was formally notified that he was exonerated and he was able to resume testifying. *See* Tr. 17,197. Apparently, during the hiatus in McGregor's testimony, another investigation had also been conducted that might have inhibited his testimony, although he was not a subject of it. The Office of Inspector and Auditor began investigating the identity of the person or persons who had leaked internal NRC documents to Intervenors during the course of the hearings that, apparently, had been improperly withheld from Intervenors and the Board under discovery rules, FOIA requests, and Board notification procedures. Mr. McGregor apparently was not implicated in the disclosure of those documents.

253. The investigation was misdirected. More appropriate investigations could have been directed toward ascertaining whether the charges brought against Mr. McGregor and a failure to timely complete his formal exoneration were an attempt to intimidate Mr. McGregor, whether documents had been deliberately and improperly withheld from the Board and the parties, and whether Mr. Schulz's performance evaluation had been improperly delayed because of any disagreement with NRC management on his inspection activities.

5. *Larry Perryman*

254. Quality Control inspectors Larry Perryman, Larry Bossong, and three others were assigned in March 1985 to work on a cable pan hanger walkdown program. The walkdown program was part of a corrective action for discrepancies in cable pan hanger fabrication and installation involving actions by Comstock, Edison, and Sargent & Lundy (S&L), that was specified in the disposition of Edison NCRs 708 and 709. Tr. 3416-17, 3423-25, 9720, 9805-06; Appl. Exh. 106; Simile Pref. Test., ff. Tr. 3305, Attach. 3 at 25.

255. The task of Comstock Quality Control inspectors was to compare the as-built configuration of hangers actually found in the field which had been fabricated by Systems Control Corporation (an offsite vendor) with the design drawings for the hangers. Simile Pref. Test., ff. Tr. 3305, at 20; Tr. 3416-17. The Quality Control inspectors, assisted by the S&L engineer, were to mark in red pencil any differences between the as-built hanger configurations found in the field and the design on the design drawings. Tr. 3417-18, 3421-22. These red-line drawings prepared by the Quality Control inspectors were called "Rev. O" drawings. Tr. 9680, 9846-64. Thereafter, Sargent & Lundy

engineers were to perform a design evaluation of any deviations between the as-built hanger configurations found in the field and the design on the design drawings. Acceptable hanger configurations were depicted by S&L on a different set of drawings called "Rev. A" drawings. Tr. 9680, 9865. Comstock Quality Control inspectors would then reinspect the hangers to determine whether the as-built configuration of the installed hanger corresponded with that shown on the Rev. A drawing. The inspectors were to use checklists to indicate acceptance or rejection of the hangers. Tr. 3418, 3421-22; Simile Pref. Test., ff. Tr. 3305, at 20. The Rev. O drawings were accompanied by hanger configuration checklists (Forms 7) which were normally utilized in performing configuration inspections. Under LKC Procedure 4.8.12, signing off on a Form 7 indicated acceptance of a hanger. Under this special program, the inspectors were expected to use such a Form 7 to document and verify the accuracy of the as-built hangers as reflected in the red-lined drawings. Tr. 9674-80, 9865. Mr. Bossong, Mr. Perryman, and the other inspectors objected to this use of the configuration checklist Form 7, believing that it might be improperly understood as reflecting final Quality Control verification of the adequacy of the hanger's configuration instead of simply verifying that the Rev. O drawing reflected the as-built condition. Tr. 3424-25, 9675-81, 9866-69. Mr. Perryman was even fearful that he might later be accused of falsifying the quality document. Tr. 9690-91.

256. Because management was unresponsive to their concerns, Mr. Perryman, Mr. Bossong, and the other inspectors requested transfers from the walkdown program to the in-process inspection duties to avoid future misinterpretation of their signatures on these checklists. Tr. 3428-32, 9720-22, 9682-86, 9759-62, 9679, 9865, 9869; Appl. Exh. 105; Int. Exh. 35.

257. Repeated requests for transfer by Mr. Perryman and Mr. Bossong were denied. Tr. 9684-85, 9762, 9873-75; Int. Exh. 35. The requests were renewed. Tr. 9685, 9762, 9880; Int. Exh. 35. Management denied these transfer requests asserting that such a transfer was not possible at this time for the duration of this short-term project not scheduled for completion until August 1. This was DeWald's response of May 15, 1985, to Mr. Perryman's May 13 fourth request for a transfer. Int. Exh. 35. Mr. Perryman again made written request for a transfer to Comstock management on May 17, 1985, explaining his concerns (Int. Exh. 35):

> I'm requesting transfer out of the cable pan walkdown due to management and misleading information on the part of LKC management and the QA department. I was informed that I was verifying the as-built dimension information of the hangers and that this information was not to determine actual acceptance in any way, shape or form other than my own review at a later date for these hange[r]s to an approved design document. Any intention of use of the Form 7's I have signed up to this date other than dimensional verification, was not my intent. At this time, I wish to make corrections to my Form 7's in accordance to procedure 4.13.1 to reflect this fact.

Ultimately, after these repeated expressions of concern and after Perryman had discussed this matter with the NRC (*see* Tr. 10.582-86), management acceded to the inspectors' complaints and adopted a clarification to the walkdown procedure on May 30, 1985, providing for a notation on the Form 7 checklists limiting their construction as requested by the inspectors. Appl. Exhs. 107, 108; Tr. 3547-48, 9767-69, 9878-80. But the clarification to the procedure was not made until Mr. Perryman and other inspectors began withholding their completed Form 7 checklists. They withheld them for a week before the change was made. Tr. 9679-80, 9776-78. On May 31, 1985, Mr. DeWald responded to Mr. Perryman's May 17, 1985 transfer request as follows: "Transfer from walkdown is granted, supplement has been revised to include your concerns." Int. Exh. 35. In fact, Comstock management, Tony Simile in particular, determined to punish the dissenting inspectors for maintaining their quality concerns. Mr. Simile advised Mr. Perryman, Mr. Bossong, and the others that their transfers had been granted but told them they would not like where they were going. Tr. 9691-92, 9723-24, 9778, 9870. *But see also* Tr. 3435. One inspector declined this transfer to the unsought and undesirable second shift. His objection was sustained. Mr. Perryman also objected; however, his objections were not honored. Tr. 9723-25. Aware that Mr. Perryman's mother was dying of cancer and that a transfer to night shift would interfere with his ability to care for her, Mr. Simile determined to nonetheless transfer Mr. Perryman for his complaining. Tr. 9692.

258. Whether or not management intended to misuse the Rev. O drawings later as Quality Control acceptance of the adequacy of the hanger configurations, Mr. Perryman and the other inspectors were justified in insisting that the procedure be clarified so that their documentation could not be misconstrued. Since the use of the Form 7's for the Rev. O drawings was violative of LKC Procedure 4.8.12, management's refusal, at first, to accede to the reasonable quality concerns of the inspectors was more than a mere technical violation — it was substantive. By, in effect, forcing the inspectors to withhold their completed Form 7's, Comstock put the inspectors to the unacceptable choice of later facing charges of fraud (for documenting inspections never performed) or being terminated for not fulfilling their job obligations. Mr. Perryman and the others' complaints about the procedure were protected activities under 10 C.F.R. § 50.7. On the evidence adduced, Mr. Perryman's transfer to second shift was in retaliation for his having engaged in protected activities, and violated § 50.7.

6. *Therman L. Bowman*

259. Therman L. Bowman is a Level II Quality Control Inspector certified in welding, configurations, conduit, cable pull, and terminations. Tr. 6770. One reason Mr. Bowman went to the NRC at noon on March 29, 1985, was to report

his concerns about LKC management's response to his reporting of a base metal reduction problem in a structural weld. Tr. 6770, 6791-96; *see* Appl. Exh. 110 at 3. Mr. Bowman testified that LKC management's attitude toward the inspectors was shifting away from good quality control practices and that the people they depended on for supervision and direction were drifting away from what the inspectors believed to be good practices. Tr. 6830-31.

260. Another reason Mr. Bowman went to the NRC was to support the other inspectors' complaints about Mr. Saklak. In Mr. Bowman's view, Mr. Saklak had crossed over the line of good judgment in dealing with inspectors. According to Mr. Bowman, Mr. Saklak's threat against Mr. Snyder was "the straw that broke the camel's back." Tr. 6826, 6831.

261. Mr. Bowman and Mr. Saklak did not get along. Mr. Bowman considered Mr. Saklak to be aggressive, browbeating, and arrogant. According to Mr. Bowman, Mr. Saklak had a very high opinion of his own thoughts and how things should be done, and tried to impose his opinions upon the inspectors. Mr. Bowman recalled suggesting to other inspectors, including Mr. Holley and Mr. Gorman, that the way to deal with Mr. Saklak was to stand up to him and let him know that you wouldn't back down. Tr. 6774-75, 6784-86, 6949.

262. Mr. Bowman testified that a base metal reduction incident illustrated LKC management's poor attitude toward inspectors. The base metal problem that Mr. Bowman identified was the removal by grinding of auxiliary steel from the web of two "I-beams." The web is a vertical member between two horizontal flanges. After discovering the problem, Mr. Bowman researched current drawings, determined that the auxiliary steel had been installed by LKC, and wrote an NCR. While Mr. Bowman was in the office trying to identify the steel, his lead, Mr. Walters, questioned why he was not out in the field. When told of the problem, Mr. Walters replied that any damage to the I-beam belonged to another contractor's inspecting group. Mr. Bowman took the information on the location of the problem to Mr. Walter's supervisor, Daryl Landers, and explained his concern. Mr. Landers replied, "Keep up the good work or we will take you off overtime." Mr. Bowman interpreted the first part of the comment as a sarcastic remark and the second part as an implied threat. Mr. Bowman related the Walters-Landers matter to Quality First. After Mr. Landers found out that Mr. Bowman had gone to the NRC on March 29, 1985, with the other inspectors, Mr. Landers indicated that his statement was meant as a joke. Tr. 6796-811, 6833-78.

263. Later on the day of the incident with Walters and Landers, Mr. Worthington (Bowman's supervisor, above Walters and below Landers) approached Mr. Bowman and told him to deal with the problem in any manner he saw fit, and if he needed to write an NCR, to do it. Mr. Bowman wrote the NCR and later testified that the I-beam was repaired even though he did not close the NCR himself. Al Parker, the area engineer for LKC, later informed Mr. Bowman that

the problem occurred due to the careles ness of a workman in removing the angle clips to the web of the beam in the process of removing and replacing the auxiliary steel because of interferences with other components. Tr. 6813, 6816-17.

264. Mr. Walters' and Mr. Landers' responses to Mr. Bowman constituted an improper, albeit minor, attempt to discourage Mr. Bowman from documenting a discrepant condition.

7. Gregory Archambeault

265. Gregory Archambeault began working as a Quality Control inspector at Braidwood on January 6, 1986. He was hired by BESTCO and assigned to work as an electrical inspector for Comstock. Tr. 12,141-42.

266. Prior to his employment at Braidwood, Mr. Archambeault had been employed at four other nuclear sites as a certified Level II inspector. Mr. Archambeault performed cable-pulling inspections at two of those other sites, termination inspections at two sites, and a full range of electrical inspections at one of those sites. Int. Exh. 109; Archambeault, Tr. 12,144-46.

267. After he arrived at Braidwood, Mr. Archambeault underwent a series of training activities including classroom and on-the-job training. After that training, he was examined as to his qualifications in the area of cable pulling; he passed his examinations and was certified as a Level II inspector. Tr. 12,147.

268. Mr. Archambeault was initially assigned for training purposes to the night shift at Braidwood, but it was his understanding that he would be moved to the day shift as a matter of course. According to Mr. Archambeault, Tom Skidmore, the Braidwood Site Representative for Archambeault's employer, gave no indication to Mr. Archambeault that he would be regularly working the night shift, and Larry Bossong, the second-shift steward, assured him that the second-shift assignment was only for training purposes. Tr. 12,142, 12,691. Mr. Bossong later denied making any promises to Mr. Archambeault about being allowed to transfer to first shift. Bossong Prep. Test., ff. Tr. 16,252, at A.8, A.9; Tr. 16,260-61, 16,264-65. The Work Referral slip filled out by Mr. Bossong and signed by Mr. Archambeault on the day hired indicates "Possible 2nd Shift." Attachment to Bossong Prep. Test., ff. Tr. 16,252; Tr. 16,264-65.

269. Mr. Archambeault has a wife and children, and working the night shift caused a hardship in his family. Tr. 12,142, 12,691.

270. Shortly after his certification in February 1986, Mr. Archambeault identified a number of quality concerns in the cable area that ultimately led him to lodge complaints with Comstock and the NRC of production pressure taking precedence over quality considerations. The first set of problems identified by Mr. Archambeault surfaced during a cable pull that he performed with a trainee in the upper cable spreading room at Braidwood soon after his

certification. Mr. Archambeault and the trainee noticed a number of what he termed "gross violations" involving cable bend radii, cable separation, damage to cables, and cables dangling out of cable trays. Archambeault, Tr. 12,231-32. Int. Exh. 115. Mr. Archambeault immediately brought the problems to the attention of his lead, Don Schirmer, and his supervisor, Mr. Harry Revels, who told him (Archambeault) to write a memo documenting the discrepancies. Mr. Archambeault pointed out to Mr. Revels that such discrepancies should be reported by means of a nonconformance report (NCR), but Mr. Revels insisted that Mr. Archambeault instead write an informal memorandum. Mr. Revels' explanation to Mr. Archambeault was that before writing an NCR Mr. Revels wanted to check with Sargent & Lundy to see if this problem had already been addressed. Mr. Archambeault was unaware of any procedure or regulation that permitted him to delay writing an NCR until someone had checked with Sargent & Lundy. Tr. 12,233-34, 12,244-45.

271. Mr. Archambeault also indicated to Mr. Revels that he believed that the individual cables should be identified for future corrective action. Mr. Revels replied to Mr. Archambeault that such individual identification wasn't within the scope of Comstock's duties and that Comstock did not have the man-hours to undertake it. Tr. 12,246.

272. Mr. Revels told Mr. Archambeault that he would have Mr. DeWald, Mr. Simile, and some other personnel "look at the problem." In the days that followed, Mr. Archambeault repeatedly questioned Mr. Revels about how the matter would be handled. Mr. Revels responded each time that Mr. DeWald, Mr. Simile, and others "didn't have the time to look at it today." Mr. Revels did not give Mr. Archambeault any kind of response about how the problem would be handled until some weeks later when he arranged for Mr. Simile and cable engineers from Comstock and Edison to accompany Mr. Archambeault to observe the problems. Mr. Simile agreed that the discrepancies were significant and ordered Mr. Archambeault to write an NCR. However, Mr. Simile directed Mr. Archambeault not to identify individual cables but rather to write a "generic" NCR, which Mr. Archambeault did. Tr. 12,248-52; Int. Exh. 116.

273. Mr. Archambeault continued to be troubled by the failure to identify the individual cable discrepancies, and, on his free time over the next 2 weeks, he compiled a comprehensive list of the individual discrepancies that he had seen. Tr. 12,255-56; Int. Exh. 117.

274. After Mr. Archambeault wrote up the NCR, dated March 19, 1986, he continued to work the night shift. Tr. 12,272. Archambeault's understanding was that any shift changes had to be initiated through the Local 306 union steward, Mr. George Nemeth. Tr. 12,274. On June 2, 1986, Mr. Archambeault wrote a note to Mr. Nemeth indicating his understanding that he had been hired to work the day shift and requesting a transfer to that shift. Int. Exh. 118. He never received a response from Mr. Nemeth. Tr. 12,275.

275. Soon after Mr. Archambeault made his request to Mr. Nemeth, another Quality Control inspector, Dennis Loos, was transferred from second shift to first shift, even though he did not request such a transfer. Tr. 12,278.

276. Mr. Archambeault subsequently made verbal requests for transfer to both Mr. Nemeth and his supervisor, Harry Revels. Mr. Revels responded that he had nothing to do with shift transfer decisions. Mr. Nemeth told Mr. Archambeault to submit another written request. Tr. 12,279-80.

277. During the last week of May 1986, Mr. Archambeault continued to be disturbed by Comstock's failure to deal adequately with the cable damage he had found in the upper spreading room. He came to the conclusion, after talking with other inspectors and observing Comstock operations, that there was generally an emphasis on quantity over quality at Comstock. He drafted a letter to the NRC detailing his concerns, but before he sent it he tried to resolve the problems through Mr. Revels by showing Mr. Revels a copy of his letter in the hope that Comstock would be spurred to some action. Mr. Revels gave no indication that he would respond to Mr. Archambeault's concerns. Tr. 12,364-68.

278. On June 3, 1986, Mr. Archambeault was performing a cable-pull inspection when he noted a cable separation violation involving forty-two safety cables. Mr. Archambeault began to take the steps required to initiate a Cable Separation Conflict Report. Mr. Archambeault reported the problem to Harry Revels who checked Sargent & Lundy documentation on those cables. Before Mr. Archambeault could write the Cable Separation Conflict Report, he was reassigned by his lead, Don Schirmer, to a "hot pull" that was about to take place. Tr. 12,281-87.

279. Mr. Archambeault told Mr. Schirmer that he was unhappy with the reassignment because he understood that procedures required him to complete his reporting on the previous pull before he was assigned to another pull. Mr. Archambeault "felt that production was overshadowing quality" in this instance and made clear to Mr. Schirmer that he felt his reassignment to the new cable pull was inappropriate. Nevertheless, Mr. Schirmer insisted that Mr. Archambeault assist with the new pull. Tr. 12,886-88.

280. The "hot pull" occupied Mr. Archambeault for the rest of that day and he was not able to return to his reporting on the separation problems until the next day, June 4. *Id.*; Int. Exh. 119.

281. The "hot pull" reassignment convinced Mr. Archambeault that it was time to go to the NRC. Later on June 4, Mr. Archambeault contacted Charles Weil of the NRC's Region III staff to convey Mr. Archambeault's growing concerns about an emphasis on production over quality concerns at Comstock. Specifically, Mr. Archambeault reported his concerns with the condition of the spreading room cables and the attitude that had been revealed by Comstock's reassigning Mr. Archambeault to the hot pull before he was able to com-

plete his reports on the cable separation problems. Archambeault, Tr. 12,311-12. Mr. Archambeault also reported numerous other related concerns. For example, Mr. Archambeault reported to Mr. Weil that the majority of BESTCO Quality Control inspectors were frustrated by Comstock's indifference to quality problems. Mr. Archambeault passed on a number of comments by BESTCO inspectors that reflected their lack of morale as a result of Comstock's attitude. Mr. Archambeault stated that the general consensus among Quality Control inspectors was that those who performed their jobs conscientiously "would be blacklisted" or "looked down upon" or "moved around." In support of that belief Mr. Archambeault reported to Mr. Weil that Quality Control Inspector Rick Martin had been reduced to a document reviewer from a field inspector "because he did his job too well." Other specific problems reported to Mr. Weil were an instance involving a cable pulled in violation of procedures while the inspector was still performing his pre-pull walkdown, instances of nonconformance reports being written but "never closed in a timely fashion," examples of cable tray overfill conditions, problems with erroneous cable markings, and other problems at Comstock indicating a serious indifference to quality. Tr. 12,312-21; Int. Exh. 122.

282. On July 10, 1986, Mr. Archambeault made a second written request to Mr. Nemeth and a Mr. Cartelli for a transfer to the day shift. Tr. 12,328; Int. Exh. 123. That request was not granted. Tr. 12,330.

283. At some point after July 10, the NRC undertook a series of inspection activities of Archambeault's concerns. Tr. 12,330-34.

284. Again, on August 7, 1986, Mr. Archambeault submitted a third written request for a transfer to the day shift. Archambeault, Tr. 12,335. On August 27, 1986, Tony Simile denied Mr. Archambeault's transfer request. Tr. 12,335-36; Int. Exh. 126.

285. During the time that Mr. Archambeault had formal transfer requests pending, up through mid-August 1986, four Quality Control inspectors had been transferred from the second shift to the first shift. Dennis Loos was transferred in late spring, and Ron Nelson, Ken Willoughby, and Les Peters were transferred to the day shift in the latter part of July and early August, after Mr. Archambeault had submitted his second formal transfer request. When the three openings occurred in the first shift, Mr. Revels approached five inspectors to ask if they would be interested. One inspector, John Thomas, declined the transfer. Of the remaining four who expressed a willingness to be transferred, Mr. Archambeault was the only one who was passed up, even though he was qualified to perform any of the open inspection jobs. Tr. 12,355-58.

286. Of the four other inspectors who were transferred, apparently only Mr. Willoughby made a written transfer request. Mr. Loos did not request a transfer at all, and Mr. Nelson and Mr. Peters apparently made only oral requests. Tr. 12,363-64.

287. Mr. LeSage then set up a meeting between Mr. Archambeault, Edison representatives Mr. Gieseker and Mr. Dougherty, Mr. Nemeth and Mr. Cartelli. At that meeting Mr. Archambeault voiced his concerns, and the participants agreed to set up a second meeting the next day including representatives from Comstock and the NRC. Nothing was resolved at that second meeting. Tr. 12,381-83.

288. Mr. Archambeault was granted his transfer to the day shift after his deposition in this case in early September 1986. Tr. 12,497-98.

289. Subsequent to Mr. Archambeault's testimony, his Quality Control Supervisor, Tony Simile, gave his side of the story. Mr. Simile was responsible for ensuring that each of Comstock's three shifts is equipped with enough Quality Control inspectors to accommodate inspection needs. He testified that he was unaware of Mr. Archambeault's written request for transfers to the first shift, made in June and July of 1986, until September of that year, and did not see the August 7, 1986 written request until August 27, 1986. Mr. Simile testified that, prior to a meeting on August 19, 1985, in which Mr. Archambeault brought up the fact that he wanted to be transferred to the first shift, Simile's only knowledge of Mr. Archambeault's desire to transfer was his inclusion with two other shift inspectors by Mr. Harry Revels in June 1986 of inspectors who were interested in being transferred to first shift. Mr. Simile indicated that the other two inspectors had previously spoken to him about being transferred to first shift and he (Simile) had promised them that he would transfer them. Simile Prep. Test., ff. Tr. 16,180.

290. Mr. Simile did not recall whether he had heard of Mr. Archambeault's raising concerns with the NRC (on June 4, 1986) when Mr. Simile decided to transfer the other two inspectors, rather than Mr. Archambeault, on June 18, 1986. Mr. Simile acknowledges that during the summer of 1986 he discussed with Harry Revels, Mr. Archambeault's request for transfer in the context with the concerns that Mr. Archambeault had raised with the NRC. According to Mr. Simile, what he had expressed to Mr. Revels was that, if he transferred Mr. Archambeault, the newspapers might construe that action as an effort to remove Mr. Archambeault from an area in which he raised quality concerns and, on the other hand, if he did not transfer Mr. Archambeault, it would be interpreted as punishing him for having raised those concerns. He indicated that this conversation took place after he had already transferred the other two inspectors to the day shift. *Id.* at A.13-A.14.

291. Applicant did not call either Mr. Nemeth or Mr. Cartelli to confirm Mr. Simile's testimony that Mr. Archambeault's written requests for transfer were not transmitted to Mr. Simile. It would be odd if those written requests had not been transferred to Mr. Simile since Mr. Simile was responsible for staffing the three shifts (*id.* at A.4), while Mr. Cartelli and Mr. Nemeth were GE-MCIS project manager and union steward, respectively (*id.* at A.16), who would have

no authority over Comstock's operations. Furthermore, Mr. Simile's testimony about his concern over transferring Mr. Archambeault being misconstrued as an effort to remove him from an area in which he raised quality concerns is implausible, in view of Mr. Archambeault's previous oral request for transfer of which Mr. Simile was aware, even if Mr. Simile was unaware of the two prior written requests. Mr. Simile's explanation does little to change the appearance that Mr. Revel's statement to Mr. Archambeault, at the instigation of Mr. Simile, that a transfer of Mr. Archambeault would appear to the NRC or newspapers to be retaliation against Mr. Archambeault was a cynical attempt to inform Mr. Archambeault that his request for transfer would not be granted as punishment for expressing concerns to the NRC.

292. Mr. Simile also defended Comstock's position with regard to the first concern raised by Mr. Archambeault, concerning the numerous violations that Mr. Archambeault had observed in the upper cable spreading room for which, eventually, a "generic" NCR was written. According to his thesis, a "generic" NCR should have been written in that case, without containing a listing of individual cables that were discrepant, in order for the engineers to consider other cables that might be discrepant because of the same problem. Nowhere in his testimony was he able to offer a reason why a listing of the individual cables that were already found to be discrepant would preclude the engineers from examining other, related cables for the same condition. Moreover, as he conceded, any engineering disposition of a discrepant condition that appears to have some generic problem would be reviewed for its generic basis. The only conceivable reason for omitting the individual cable descriptions from the NCR would be to facilitate a dispositioning of the NCR without requiring a correction of the individual discrepancies already identified by Mr. Archambeault. *See* Tr. 16,230-48. In fact, the only list ever compiled of discrepant cables that Mr. Archambeault had observed was compiled voluntarily by Mr. Archambeault within 2 weeks after he had written the NCR. It has never been asked for by Comstock nor provided. Tr. 12,255-56; Int. Exh. 117. There is no indication that these discrepancies, involving over sixty cables with multiple discrepancies (*id.*), have ever been individually addressed.

293. With regard to the incident involving Mr. Archambeault's having been temporarily assigned to the "hot pull," Comstock appears to have acted properly. The exigencies of the situation, the short period that Mr. Archambeault was taken away from his current assignment, and the absence of any indication that Mr. Archambeault's superiors otherwise interfered with his reporting of the cable separation violations (which he had already reported to his lead, Harry Revels, but had not yet already written up), suggests that any interference with Mr. Archambeault's documenting a quality problem was unintentional and not violative of the company's procedures. Similarly, except for the cable spreading room violations, discussed above, it does not appear that the other quality

concerns expressed by Mr. Archambeault have been substantiated as involving Comstock improprieties.

8. Richard Martin — Cable-Pulling Inspection Incident

294. Richard Martin began performing cable-pulling inspections on the second shift in October 1985. In early 1986, craft laborers and craft supervision had complained that their cable-pulling activities were being delayed by unavailability of cable-pulling inspectors. Rumors circulated on the second shift that Comstock was going to replace the second-shift cable-pulling Quality Control supervisors in an attempt to "clean house" and eliminate any delays or potential conflicts with the crafts. Tr. 12,698-701.

295. On April 28, 1986, Mr. Tuite and Mr. Lechner took over as second-shift cable-pulling supervisors. They held a meeting with all the second-shift cable-pulling inspectors. At that meeting, Mr. Tuite assured the Quality Control inspectors that he was not "out to get" them and that he and Mr. Lechner were there to make sure that Quality Control did not get unfairly blamed for delays that were really the fault of the production side. On the subject of inspectors who required assistance in performing their Quality Control inspection of cable pulling, Mr. Tuite said that if an inspector needed help or assistance on a pull he should get it whether it involves two, five, or even seven inspectors as long as the request is reasonable. Tr. 12,701-03.

296. A cable-pulling inspector is responsible for verifying that cable installation by the craft conforms with LKC Welding Procedure 4.3.8 (Rev. G). Tr. 12,200, 12,148-49, 12,704. Unlike most other types of inspections, a cable-pull inspection is an "in-process" inspection which conforms with LKC Welding Procedure 4.8.8 (Rev. E). Tr. 12,162-63. The reason the inspector's presence is necessary is because violations of the cable installation procedure may occur during the installation process but may not be apparent after the cable is installed. Tr. 12,183-84, 12,209-10. For example, if the craftsmen coil or twist the cable too tightly, the minimum bend radius set forth in the governing procedure may not be met, thus possibly damaging the cable. Tr. 12,765-66. This damage would not be visible upon later examination because the cable itself is enclosed in thick rubber insulation. *See* Int. Exh. 135, Part 2.

297. It had been a common practice on second shift for Quality Control inspectors to assist one another in conducting cable-pull inspections. On lengthy cable pulls involving multiple bends in multiple rooms, the common practice was to have the Lead Quality Control inspector follow the head of the cable down the length of the pull while other inspectors stationed themselves at various bends and in various rooms to ensure proper labelling and to assure that the cable was not binding or subjected to stress or bend radius violations. Additional inspectors

were also used in places where the cable dropped or rose through risers from one elevation to another. Tr. 12,704-06.

298. The number of inspectors that were needed to assist on a pull depends on the number of rooms, principally, but also on other factors such as the number of bends. For example, a cable-pull involving a run of three different rooms might require anywhere from one to four people to assist the lead inspector, depending on the number of bends. Mr. Tuite and Mr. Lechner's predecessor, Mr. Fray, always found a way to accommodate Quality Control inspectors' requests for assistance in inspecting a pull. There were twelve to thirteen cable-pull inspectors on second shift so that there were generally people available to use as assistants on a given cable pull. Tr. 12,706-09.

299. The first evening that Mr. Tuite and Mr. Lechner were assigned to second-shift cable pulling, Mr. Martin was assigned to a complex cable pull of approximately 350 feet that went through seven different rooms and around approximately twelve bends of risers. Mr. Martin performed a walkdown and determined that he would need at least three and possibly four inspectors to assist him. Tr. 12,711-14. When he requested assistance from Mr. Lechner, Mr. Lechner replied that "we were going to be doing pulls differently, and that we were going to pulling — doing pulls by ourself." Mr. Lechner told Mr. Martin that inspectors on the day shift normally worked without assistance and that Mr. Martin "could just go ahead and do the pull by [him]self." Tr. 12,714-15. When he denied Mr. Martin assistance, Mr. Lechner was aware of the length and complexity of the pull. Mr. Lechner denied the request in spite of the fact that there were perhaps four or five inspectors who had no other pulling assignments and were free to assist Mr. Martin. Tr. 12,715-16.

300. Because Mr. Martin had misgivings about one inspector's ability to monitor such a complex pull, he wrote Mr. Lechner a note which he described "an official memo" asking for the assistance of three inspectors on the pull. Mr. Lechner refused the request and when Mr. Martin insisted that the pull required more than one inspector, Mr. Lechner replied "Fine. You just sit there. We'll get somebody else to do it." Mr. Lechner than assigned Don Schirmer to take over the pull. Tr. 12,718. Mr Schirmer performed the pull with the assistance of a trainee. *Id.*

301. As stated above, determining the number of inspectors needed to assist the principal cable-pull inspector depended on the complexity of the pull and was made by the principal inspector after conducting his or her pre-pull walkdown. After making this determination, the principal inspector would inform his or her lead who usually authorized him or her to "grab" whichever inspectors were available. In the event that there were not enough other cable-pull inspectors available, the practice was either to postpone the pull until enough help was available or perform the pull using the "pull and coil" method. Tr. 12,706-08. Under the "pull and coil" method, the cable is

pulled and inspected in sections. At each interval, the remainder of the unpulled cable is coiled while the pulled section is being inspected. As each section is completed, the cable is uncoiled and the pulled section inspected. Tr. 12,708, 12,770-71. Mr. Martin was familiar with the "pull and coil" method but never used it himself because he thought it an inferior type of inspection since the increased coiling of the cable heightened the possibility of a minimum bend radius violation. Tr. 12,744-45, 12,765-66, 12,771. According to Mr. Martin, Mr. Lechner did not indicate that the inspection could be performed using the "pull and coil" method, or that there were no inspectors available to assist Martin. Tr. 12,715-16.

302. Mr. Martin had been assigned to a particular craft foreman, Mr. Murphy, all of whose cable pulls Mr. Martin inspected. On the evening of April 28, 1986, after Mr. Lechner assigned Mr. Schirmer in Mr. Martin's place to the disputed cable pull, Mr. Lechner also removed Mr. Martin generally from his assignment to foreman Murphy and replaced him with Mr. Schirmer. Tr. 12,719.

303. The rest of the evening of April 28, Mr. Martin simply sat in the office and was not assigned any other cable-pulling work. The next day, April 29, Mr. Martin was assigned to perform hold-tag verifications, a task that lasted about a week. Tr. 12,721-22.

304. On April 29, Mr. Martin asked his shop steward, George Nemeth, to arrange a meeting with Mr. Lechner and Mr. Tuite to clear the air. Mr. Nemeth told Mr. Martin on the night of the 29th that he had set up a meeting with Mr. Lechner and Mr. Tuite for the night of the 30th. On the 30th, Mr. Martin went to work as usual and Mr. Nemeth said he would contact Mr. Martin when Mr. Tuite and Mr. Lechner arrived for the meeting. Mr. Lechner and Mr. Tuite never showed up for the meeting. Mr. Martin discussed the situation with Mr. Nemeth, and both agreed that Mr. Martin should take his concerns to the NRC. Subsequently, Mr. Martin went to see Mr. Kropp at the NRC. Tr. 12,728-32.

305. After he finished the hold-tag verifications, Mr. Martin was assigned no further cable-pull work. He occupied himself by assisting other inspectors on his own initiative; no one assigned him to help them. That situation lasted for approximately 2 weeks. In mid-May, Mr. Martin was taken off the second shift, reassigned to the first shift, and assigned to do clerical work for Mr. Seese. He was given no further inspection work. Tr. 12,722-24.

306. Shortly after his deposition in this case, Mr. Martin was reassigned to the third shift, on what he termed "clean up inspections." Martin, Tr. 12,726-27.

307. NRC Staff appears to dismiss the incident on the basis of Mr. Martin's testimony that he did not regard his reassignment to hold-tag inspection as either harassment or intimidation. Staff Prop. Fdg. 455. Staff, however, misconstrues Mr. Martin's testimony. While Mr. Martin did not wish to charge his management with harassment or intimidation, or otherwise impute to management the

motivation for his transfer as retaliation for quality concerns, he was not absolving management from those possibilities. While Mr. Martin did not want to be a "judge" of whether it was harassment (Tr. 12,774), "point the finger" (Tr. 12,775), or "cry harassment" (Tr. 12,778), he felt he was mistreated, that there was a mismanagement problem, and that it was unfair that he was taken off inspections (Tr. 12,774-75). He was not making a judgment that it was *not* harassment. *Id.*

308. Although management has considerable leeway in providing staffing for various activities, it would be improper to require Quality Control inspectors to approve an installation in which the inspector cannot verify the process that he documents. If he cannot verify compliance with pull requirements, such as compliance with bend radii limitations, either by observing all aspects of the pull himself or having other quality personnel assist him by directly observing those conditions, he should not be required to document an approval of the process. Furthermore, if he complains about his inability to verify the compliance with installation procedures, any retaliation against him for his complaint would violate 10 C.F.R. § 50.7, whether or not the inspector *alleges* harassment or intimidation. On the evidence submitted with regard to this incident, Applicant has failed to sustain its burden of proving that Mr. Martin was not removed from cable-pull inspections in retaliation for his raising a proper quality concern.

309. On the other hand, the denial of Mr. Martin's request for additional inspectors on the cable pull did not appear to institute a new company practice. Other inspectors appeared to receive assistance on the cable-pull inspections when they requested it, although they may not have received the full number of assistants requested. *See* Tr. 12,746-49. The denial of Mr. Martin's request for assistance and his subsequent transfer from cable-pull inspections may have also been due to personal animosities, not merely the quality issue raised by Mr. Martin. *See* Tr. 12,775.

9. Miscellaneous Findings

310. Quality Control Inspector Robert D. Hunter was properly terminated for inspecting through paint. *See* Tr. 8469-9084.

311. Quality Control Inspector Dean Peterson was improperly pressured by Comstock management to inspect welds that had not been fully cleaned of paint, in order to increase his production. Mr. Peterson resisted this pressure and accepted a transfer out of that department. *See* Tr. 5905-09, 5915, 6039-42, 6099-103.

312. Quality Control Supervisor Richard Saklak's threat to fire Quality Control Inspector Franco Rolan for not identifying a craft electrician on an NCR did not constitute harassment or intimidation. *See* Tr. 4665-69.

313. Quality Control Supervisor Richard Saklak threatened and abused Quality Control Inspector Mike Mustered in attempting to coerce Mr. Mustered into retracting three ICRs on the grounds that Sargent & Lundy engineers were going to delete the design specifications. Mr. Saklak's actions constituted harassment and intimidation of a Quality Control inspector to impede him in the proper performance of his tasks. Mr. Mustered successfully resisted Mr. Saklak's threat and wrote the ICRs. *See* Tr. 4970-72, 5900-03.

314. Herschel Stout was properly reprimanded for extremely low inspection production. The use of Comstock's daily status reports to verify his low production does not establish the status reports as a tool for establishing production quotas. Because of his extremely low production, Mr. Stout's case was unique.

D. Grid-Area Weld Inspections

315. In 1981, Quality Control Manager Irving DeWald had worked at Braidwood as a Level II QC Inspector for L.K. Comstock. He and a few other weld inspectors including Richard Martin performed so-called "grid-area basis" inspections, documenting large numbers of welds on single inspection reports. DeWald Pref. Test., ff. Tr. 1700, at A.19. There was a general and consistent belief among Quality Control inspectors that Mr. DeWald had signed a checklist that documented his inspection of a thousand or more welds in a single day. Eight of the Quality Control inspectors who testified had heard through general talk among the inspectors of a Mr. DeWald 1000-plus checklist, but had not seen it themselves. Hunter, Tr. 8495-98; Martin, Tr. 8294; Mustered, Tr. 5061-62, 5086; Rolan, Tr. 4762-63, 4769-71; Stout Dep., Tr. 144-45; Klachko Dep., Tr. 192, 265-66; Hii Pref. Test., ff. Tr. 16,608, at 3; Gorman, Tr. 5817-18, 5828. Six of the inspectors that testified claimed to have actually seen one or more DeWald 1000-plus weld checklist. Bossong, Tr. 9848-50; Bowman, Tr. 6890-91; Holley, Tr. 5154-56; Perryman, Tr. 9652-57; Peterson, Tr. 5933-35; Wicks, Tr. 7151-54.

316. Mr. DeWald testified that he is "pretty certain" that he had never documented a thousand or more welds on a single inspection checklist. Tr. 4092. He doubted that it was possible that he ever did so. At the direction of his Supervisor, Tony Simile, Quality Control Inspector Bowman undertook a search for this checklist during the course of the proceeding, but was unable to locate the document. Tr. 6894; Bowman Pref. Test., ff. Tr. 16,000, at A.13-A.15.

317. On deposition, Mr. DeWald had been asked the maximum number of welds he had documented on a single checklist and could not remember, until found in a casual search through his old weld inspection checklist, documenting as many as 551 welds on a single inspection checklist. Tr. 15,000; Int. Exh. 19.

318. Although the inspectors originally believed that those inspection checklists represented inspections done over the period of one day, they were subsequently informed that the checklist could have been the result of several days' work. *See, e.g.*, Tr. 6892. Mr. DeWald testified that, while the inspected welds may have been covered by a single checklist, "it may have been a day, two days, three days it took me to complete all the particular inspections." Tr. 1482. With regard to the particular checklist covering 551 welds (Int. Exh. 19), Mr. DeWald believed that it took 2, 3, or 4 days to complete his inspections. Tr. 1490. He had found all the welds acceptable. Tr. 1491.

319. Quality Control Inspector Richard Martin had observed a checklist covering sixty cable tray hangers and associated auxiliary steel that could have covered up to 2500 to 3000 welds. Mr. Martin, who had inspected on the grid basis alongside of Mr. DeWald, recalled actually inspecting on the order of 300 to 350 welds in one day. Tr. 8376. Earlier, on deposition, he even recalled inspecting 500 welds on one day. Tr. 8377-78. Mr. Martin had also seen a checklist filled out by Quality Control Inspector Thomas with over a thousand welds. Tr. 8294.

320. In December of 1984, Inspectors John Walters, Mike Blake, and Dan Asmussen reviewed a 1979 checklist by Quality Control Inspector Richard Yankeitis, documenting, on a single sheet, the inspection and acceptance of 1166 welds. In a letter of concern to management, Mr. Asmussen stated, "I can not accept a 0% reject rate for that many welds inspected." One of the seventy-seven hangers listed on the grid inspection cover sheet was later the subject of a 1984 reinspection which identified extensive welding defects not identified in the original grid inspection. Mr. Asmussen, speaking for himself and the other inspectors, indicated that they recognized their responsibility to bring their concerns to management's attention and felt that this situation deserved "immediate management investigation." Int. Exh. 18 at 5-6.

321. Mr. DeWald, as Quality Control management, agreed that the total number of welds (1166) being inspected in a single day did appear to be a considerable number for one individual to accomplish. However, he dismissed that problem on the basis that the inspections written on the checklist could possibly have represented a total of several days' work. He dismissed the other concern, regarding the acceptance of all the welds, as follows:

> The other questionable item brought out by Mr. Asmussen is zero (0) rejects. To him, this is questionable, although it is felt the individual was a competent inspector.

Mr. DeWald concluded that if Mr. Asmussen had any question concerning the validity of the inspection, he could reinspect the items himself "to ensure a good valid inspection." *Id.* at 1.

322. As Mr. DeWald described the grid-basis weld inspections, there was only a small number of inspectors, they would complete an area, document it on the PTL coversheet, and fill out the inspection report on various days. They did not complete their inspection reports on each and every day that they had done inspections. Tr. 1479. The reason that they didn't fill out inspection reports as they completed each component was because there were only three or four inspectors covering a hundred welders. Tr. 1483.

323. Mr. Martin, who had served as a weld inspector along with Mr. DeWald, described the weld inspection documentation practices in more detail. Tr. 8343-78, 9384-97. As a rule, no official documentation of rejectable conditions was ever made unless the craft couldn't fix the defect promptly. Only then would an Inspection Correction Report be issued writing up the defect. Tr. 8349. Mr. Martin would simply note rejectable conditions in his personal notebook without indicating the identity of the welder or the particular weld found defective. Tr. 8351. Only acceptable items were documented on the official weld inspection checklist. Tr. 8352. This system, employed by Mr. Martin and the others for performing and documenting weld inspections, was not provided for by any Comstock quality procedure. Tr. 8358.

324. It was not until October 1983, after a Commonwealth Edison Company audit, that the practice of documenting weld inspections on personal notebooks and completing checklists later in the office was uncovered and brought to an end. Tr. 9570-77.

325. In 1984, Mr. DeWald took newly hired Level III welding inspector Worley Puckett on a tour of the Braidwood facility. Mr. DeWald pointed out welds to Mr. Puckett that he (DeWald) had inspected when he previously worked as a Level II weld inspector. The welds were on a large hanger. Mr. Puckett testified that although he just glanced at the welds, he saw welds that he (Puckett) would not have accepted. The welds he had observed had undercut, excessive spatter, slag, overlap, and excessive craters. Mr. Puckett indicated that he would not have had inspectors working for him that would have accepted some of those welds. Tr. 6215-17.

326. Robert D. Hunter joined the L.K. Comstock Company at Braidwood in October of 1983. Within 30 days thereafter, he became a welding inspector. He had had plenty of experience as a welder and welding inspector. Tr. 8471-81. When he first began inspecting at Braidwood, Mr. Hunter was asked by Quality Control Manager Irving DeWald to review some of Richard Martin's welds. Mr. Martin had been one of the few inspectors inspecting welds under the grid system, and had been trained by Mr. DeWald. Mr. Hunter reported to Mr. DeWald that Mr. Martin's work was lacking in certain areas. Mr. Martin would miss things such as undercut, cold-lap, and other things of that nature. Subsequently, in early 1984, Mr. Hunter accompanied Mr. Martin to the field, reviewed Mr. Martin's work, and discussed Mr. Martin's prior training

with him. According to Mr. Hunter, Mr. Martin didn't know some simple things about welds. For example, he didn't know what rod-craters were, and what the face or toe of a weld should look like. Tr. 8484-92. Quality Control Inspector Therman Bowman also testified with regard to reinspecting Mr. Martin's early welding inspections. Although he testified reluctantly on this matter, Mr. Bowman indicated that he had found one-third of the welds inspected by Mr. Martin to have been rejectable. Tr. 6888.

327. In 1984 and 1985, the "Braidwood Construction Assessment Program" was instituted which reinspected samples of prior Quality-Control-accepted construction work. Of over 13,000 welds reinspected, approximately 16% were found to be deficient in one or more respects that might possibly have an effect on their safety function. Other, lesser types of deficiencies were ignored. The sampling was done on a statistically random basis and, presumably, should have represented the population at large. If the approximate 16% figure for discrepant welds represents discrepancies *after* at least one original Quality Control inspection, it is inconceivable that any large numbers of uninspected welds would be free of discrepancies. If the percentages arrived under the BCAP hold true, in an inspection of 500 welds, one might expect 80 welds to be discrepant (500 × 16%), even after the welds were inspected at least once by Quality Control. Assuming at least a 50% Quality Control effectiveness on the welds examined under the BCAP Program, 160 welds out of 500 would have been discrepant *originally* (i.e., before inspection). In the case of Mr. Yankeitis's 1166 welds examined by Mr. Asmussen, one might similarly expect at least 340 welds to be discrepant. Not only is it inconceivable that the weld inspection reports indicating acceptances of multi-hundred welds could have reflected the original condition of the welds, but it is also inconceivable that such large numbers of discrepancies could have been reworked or repaired during the 1, 2, 3, or 4 days between the beginning of the inspection and the signing of the inspection report. Neither time nor space would be adequate for such operations even if craft were not otherwise occupied in its further construction activities.

328. Moreover, the failure to record discrepant conditions, which surely must have existed in the multi-hundred weld inspections under the grid system, if observed, would violate Criterion XVII of 10 C.F.R. Part 50, Appendix B, which requires, as a minimum, a record of any deficiencies noted.

329. On the basis of the evidence adduced, which indicates that the inspection standards of a significant portion of the weld inspectors was substandard, that the inspectors failed to observe significant numbers of discrepancies, and that the weld inspectors failed to document discrepant conditions as required by Appendix B, the weld inspections performed under the grid system, in effect until October of 1983, lack credibility.

E. Applicant's Sampling Reinspection Programs

330. In an attempt to prove the effectiveness of the Comstock Quality Assurance Program, Applicant presented the results of two large sample reinspection programs. The first program was the Construction Sample Reinspection (CSR) conducted as part of the Braidwood Construction Assessment Program (BCAP). This data spans the time period from the start of construction until June 30, 1984. The second set of data results from the routine overinspection of Comstock Quality-Control-accepted work by Pittsburgh Testing Laboratory (PTL) for Applicant's Quality Assurance Department for the period July 1, 1982, to June 30, 1986. These reinspection programs were conceived, designed, and carried out independently of each other. DelGeorge Rebuttal Prep. Test., ff. Tr. 16,740, at 6, 9; Kaushal Rebuttal Prep. Test., ff. Tr. 15,568, at 7-8.

331. The Braidwood Construction Assessment Program (BCAP) was a program of reinspections and reviews carried out by Edison in 1984 and 1985 covering safety-related construction activities at Braidwood. The BCAP was comprised of three principal program elements. These were (1) the Construction Sample Reinspection (CSR), (2) the Reverification of Procedures to Specification Requirements (RPSR), and (3) Significant Corrective Action Program (RSCAP). Kaushal Pref. Test., ff. Tr. 13,068 at 4. Only the CSR program element was presented at hearing.

332. The CSR consisted of a visual reinspection of a sample of onsite, safety-related construction work which, as of June 30, 1984, had been completed and Quality-Control inspected. The sample was selected based in part on engineering judgment and in part on the use of statistical concepts. The reinspections were carried out from October 1984 through July 1985. Kaushal Pref. Test., ff. Tr. 13,069 at 3, 13-16.

333. The CSR (and other elements of BCAP) were carried out by the BCAP Task Force. The BCAP Task Force Director was Edison employee Dr. Narindar Kaushal. Kaushal reported directly to the Braidwood project manager, Mike Wallace, who had principal production responsibilities at Braidwood. *Id.* at 9-10. The BCAP QA group, a part of Edison's QA Department, under the direction of an Edison employee, Neil Smith, oversaw the BCAP Task Force activities. *Id.* at 10.

334. Discrepancies found by BCAP CSR inspectors were evaluated for design significance by Sargent & Lundy (S&L), which was responsible for developing the design drawing specifications for Braidwood. The activities of Sargent & Lundy, the BCAP Task Force, and BCAP QA were reviewed by an Independent Expert Overview Group (IEOG) established through the Evaluation Research Corporation. *Id.*, ff. Tr. 13,068 at 10-11.

335. The NRC Staff assigned Inspector Ronald Gardner to monitor on site the implementation of the BCAP program. Gardner was on site from August

20, 1984, until June 1985, during which time he engaged in daily oversight of BCAP activities. Gardner Pref. Test., ff. Tr. 17,606 at 3, 7.

336. BCAP Director Kaushal was assigned to BCAP in March 1984, after BCAP was conceived but before it was implemented. Tr. 13,098. NRC Inspector Gardner was assigned to BCAP in August 1984. Gardner Pref. Test., ff. Tr. 17,606 at 3; Tr. 17,569.

337. BCAP was not designed to look at suspected problems or to respond to the possible effects of harassment and production pressure on Quality Control inspector work performance. Nor was BCAP designed to look for isolated design-significant defects. Rather, BCAP was designed as a quality "confirmation" program; the program design assumed that construction quality was good and relied on a sample size that would reveal only recurring, programmatic construction problems. Kaushal Pref. Test., ff. Tr. 13,068, at 3-6, 16-17; Tr. 13,326-28.

338. The record contains evidence that NRC officials had misgivings about the sufficiency of the BCAP design, but no evidence that the NRC actually approved that design. Edison forwarded the BCAP program document to NRC Inspector Keppler and his staff for comments in June 1984. Keppler's response to Edison, Intervenor's Exhibit 140, made twenty-seven specific recommendations for changes in the program design. With only one exception, Edison responded to each of Keppler's comments that "Edison believes that no change to the existing BCAP document is warranted." Kaushal, Tr. 13,114-17.

339. The Board ruled that Mr. Gardner was not competent to vouch on behalf of the NRC for the adequacy of the BCAP program design or the S&L design-significance evaluations because he had no role in either aspect and that if Edison or the Staff wished to establish that the NRC had approved the BCAP design or design-significance evaluations, they would have to present other witnesses. Tr. 17,566-606. No such witnesses were ever produced.

340. The CSR was a sample program. For purposes of taking samples, the entire population of onsite contractors' safety-related construction work was divided into thirty "construction categories," which were defined as groups of hardware constructed using similar processes or containing similar types of components. Six of those construction categories contained electrical work: cables, cable pans, cable pan hangers, conduit, conduit hangers, and electrical equipment installation. Kaushal Rebuttal Prep. Test., ff. Tr. 13,068, at 11-13. The total sample for each construction category consisted of three parts. The first or "random" portion was chosen in such a manner as to support formal statistical conclusions with at least 95% confidence and at least 95% reliability concerning each sampled construction category. *Id.* at 13-16; Frankel Rebuttal Prep. Test., ff. Tr. 17,082, at 9-11. For the second portion of the sample, engineering judgment was used to determine sample size and to select items. This portion emphasized types of items that are part of safe-shutdown or emergency core cooling systems. It was initially intended that the "engineering judgment"

portion of the CSR sample would also emphasize the types of items that had previously exhibited deficiencies at Byron and Braidwood. However, for each of the electrical construction categories it was determined that none of the previously identified deficiencies could be limited to a subset of the construction category. Therefore, additional items were chosen using random methods. Kaushal Rebuttal Prep. Test., ff. Tr. 13,068, at 14-15. Although both the "random" and "engineering judgment" portions of the CSR sample already included more highly stressed items, in the cable pan hanger category, ten additional more highly stressed items were added as the third part of the CSR sample. *Id.* at 15-16; Kostal, Tr. 15,074-75. Under the provisions of the CSR, if any design-significant discrepancies had been found in the initial CSR sample, the sample size would have been increased. These sample expansion provisions could have led to a 100% reinspection. However, since no design-significant discrepancies were identified, the sample was not expanded. Kaushal Rebuttal Prep. Test., ff. Tr. 13,068, at 6-7; Tr. 13,756-57, 14,148-49.

341. The CSR inspection checklists and instructions were developed by the BCAP Task Force engineers based on relevant design information provided by S&L. The attributes selected for reinspection were those that (1) are required by applicable codes and standards, (2) potentially have an effect on the item's ability to perform its safety-related design function, and (3) are currently observable. Kaushal Rebuttal Prep. Test., ff. Tr. 13,068, at 18-19. In the electrical construction categories, the CSR checklists and instructions were not based on the original Comstock inspection checklists, and did not include attributes with no potential for design significance. Kaushal, Tr. 13,180-86, 13,375, 13,385.

342. The CSR electrical sample was chosen from items that had been Quality-Control inspected and accepted as of June 30, 1984. Edison estimated that only 24% of the total research construction items in the plant were "valid" and had been Quality-Control inspected and accepted as of June 30, 1984; only those items were therefore eligible to be included in the CSR sample. Appl. Exh. 133, Int. Exh. 159. Thus only 17% of conduit hangers, 29% of electrical equipment installations, 39% of cable pans, 42% of conduits, and 59% of cable pan hangers were eligible to be included in the CSR samples. Appl. Exh. 133; Int. Exh. 159. The remaining 76% of the electrical construction items in the plant (some 72,216 items out of a total of 94,947 electrical items in the plant) were ineligible for the CSR samples and were thus not covered by the CSR program at all.

343. The fact that the CSR program covered only 24% of the total electrical construction population at Braidwood limits the overall conclusions that can be drawn from the BCAP program with respect to Quality Control inspector performance. The CSR cutoff date of June 30, 1984, bears no relation to Intervenors' contention concerning harassment and production pressure. Many

of the incidents exhibiting harassment or production pressure that have been developed in this record occurred after June 30, 1984:

- The Comstock campaign to eliminate the backlog was reaching its most intense period in June 1984. During that month, DeWald received a memorandum from Shamblin emphasizing the urgency of eliminating the backlog and announcing weekly meetings for progress reports.
- The termination of Inspector Puckett, arguably the most egregious incident of harassment in this extensive record, occurred in August 1984.
- On March 29, 1985, twenty-four Comstock Quality Control inspectors went to the NRC to complain about problems at Comstock, including production pressures that, in their view, placed an emphasis on quantity over quality in the Comstock Quality Assurance organization.
- Allegations of harassment and production pressure continued well into 1986 as exemplified by the retaliatory incidents involving Richard Martin and Gregory Archambeault.

Early in the CSR program the NRC Construction Assessment Team identified deficiencies on three of six pipe supports/restraints which the BCAP Task Force inspectors had previously reinspected. The BCAP Task Force reinspectors had not identified these deficiencies. In addition, IEOG overinspections identified deficiencies associated with a concrete placement which had not been identified during the BCAP CSR reinspections. Gardner Rebuttal Prep. Test., ff. Tr. 17,606, at 8-9. In response to these findings and following a meeting with Mr. Gardner on January 23, 1985, Mr. Kaushal temporarily suspended CSR reinspections. *Id.*, ff. Tr. 17,605, at 8-9; Kaushal Rebuttal Prep. Test., ff. Tr. 13,068, at 21-22; Int. Exh. 148. Corrective actions were taken to address the identified CSR reinspection discrepancies and to ensure that future CSR reinspections were performed in an acceptable manner. These actions included the partial repeat reinspection of previously reinspected mechanical pipe supports; the review of electrical conduit support packages, and partial repeat reinspection of such supports, where necessary; the implementation of additional training for BCAP inspectors; the revision and clarification of BCAP checklists and instructions; and the initiation of the BCAP Quality Control overview of BCAP Task Force inspections. Gardner Rebuttal Prep. Test., ff. Tr. 17,606, at 9-10; Staff Exh. 25 at 5; Appl. Exh. 135; Wozniak Rebuttal Prep. Test., ff. Tr. 13,068, at 5-7; Smith Rebuttal Prep. Test., ff. Tr. 13,068, at 7-14.

344. Kaushal believed that the root cause of the CSR reinspection errors identified by the CAT and the IEOG prior to January 23, 1985, was a misunderstanding by the BCAP Task Force inspectors of certain attributes on their checklists. Tr. 13,941-42. Mr. Gardner, on the other hand, concluded that the root cause of these CSR reinspection deficiencies was " fast pace at which BCAP

Task Force inspectors were working. Gardner Rebuttal Prep. Test., ff. Tr. 13,068, at 10. Although Mr. Gardner did not discuss this concern with Kaushal in their meeting on January 23, 1985, or document it in his inspection reports, he continued to monitor BCAP inspectors' attitudes and instructions. Tr. 18,369. Subsequently the CSR reinspectors were instructed to disregard any pace concerns and take as much time as necessary to perform their inspections. Tr. 17,623-24.

345. Three types of data were produced as a result of the BCAP CSR program. The first, the raw data from the CSR reinspections, were tabulated in terms of the number of the discrepancies and the number of acceptable conditions identified by the CSR overinspectors. Second, those numbers were used to compute so-called "agreement rates." Third, the discrepancies were analyzed to determine whether they were design significant.

346. All CSR reinspection observations reported by the BCAP Task Force inspectors were reviewed by their lead discipline inspectors for clarity, completeness, and accuracy. Kaushal Rebuttal Prep. Test., ff. Tr. 13,068, at 22-23. If suitable for further processing, the observations were evaluated for validity by BCAP engineers. Under BCAP procedures (Int. Exh. 143), CSR observations that had previously been identified by Applicant or its contractors on an existing nonconformance report or other controlled system were considered to be invalid. Conditions that were in accordance with current design documents or design documents current at the time of the original Comstock inspection were also not valid. Kaushal Rebuttal Prep. Test., ff. Tr. 13,068, at 23; Int. Exhs. 143, 154; Tr. 13,588-603. Observations that related to items not within the CSR sample or attributes not on the CSR checklists were declared "out of scope." In addition, because the objective of the CSR was to look for previously unidentified and unaddressed construction problems, observations that pertained to known conditions addressed prior to the CSR through existing procedures or other documented plans for future construction completion activities (for example, all cable pan hanger configuration observations) were also declared "out of scope." Kaushal Rebuttal Prep. Test., ff. Tr. 13,068, at 22-24, 26-27; Tr. 13,535-38, 13,799-802; Int. Exh. 143. The remaining (valid, in-scope) observations were termed "discrepancies" and were transmitted to Sargent & Lundy for evaluation of design significance. Kaushal Rebuttal Prep. Test., ff. Tr. 13,068, at 25-26.

347. Early in the CSR program, Sargent & Lundy engineers reviewed each discrepancy sent to them by BCAP for validity as well as for design significance. However, in March 1985, NRC Inspector Gardner assessed an item of noncompliance against BCAP for invalidating thirty-seven so-called "red-line" observations all relating to a Phillips-Getschow documentation practice, based on an inadequate rationale provided by S&L. Although the focus of the NRC Staff's concern was the invalidation itself, rather than S&L's role, after this time BCAP-06 was modified to emphasize that S&L could only recommend invalidation and only the BCAP Task Force could invalidate BCAP observations. There-

after, S&L played little or no role in the invalidation process. Gardner Rebuttal Prep. Test., ff. Tr. 17,606, at 11-12; Gardner, Tr. 17,764-67, 18,328-34; Kaushal Rebuttal Prep. Test., ff. Tr. 13,068, at 25; Tr. 13,489-503, 13,828-34, 14,343-45, 14,476-77.

348. Sargent & Lundy categorized all discrepancies sent to it for evaluation of design significance as either: "insignificant," "notable," or "design significant," depending on its severity. Appl. Exh. 179 at 15; Thorsell Rebuttal Prep. Test., ff. Tr. 14,270, at 9-10. Discrepancies that reduced an item's capacity by less than 10% but did not impair its ability to perform its safety-related design function were termed "insignificant." Discrepancies that reduced an item's capacity by 10% or more but did not impair its ability to perform its safety-related design function were termed "notable." Any discrepancy that would impair the item's ability to perform its safety-related design function within code-allowable stresses was called "design significant." Thorsell Rebuttal Prep. Test., ff. Tr. 14,270, at 9-10; Kostal Rebuttal Prep. Test., ff. Tr. 13,068, at 16-17, 28; Appl. Exh. 179. Sargent & Lundy's evaluation of discrepancies for each of the six electrical construction categories concluded that there were no design-significant discrepancies.

349. The Board heard substantial testimony regarding S&L design-significance evaluations for CSR discrepancies. CSR sample items cable pan hanger ("CPH") 104, and cable ("CBL") 130 were vehicles for a comprehensive evidentiary review of S&L's approach and methodology; *see generally*, Kostal, Tr. 14,641-86, 14,755-805, 15,517, 16,675-76; Thorsell, Tr. 14,453-60, 14,477-90, 14,565-66; Int. Exhs. 155, 155A, 155B; Appl. Exhs. 159, 173, 180. Sargent & Lundy initially calculated the design margin for CPH 104, taking into account CSR-identified weld discrepancies, to be 1.03. Tr. 14,781-83; Int. Exh. 155B at 14-15. Any value equal to or greater than 1.0 is not design significant and therefore acceptable. Tr. 14,781; Int. Exh. 161. Subsequently, a revised calculation was performed using the actual cable tray weights that existed in the pan, rather than the conservatively estimated load used in the initial calculation. Tr. 14,756, 14,784-85, 15,181-82; Appl. Exh. 159. That calculation resulted in a design margin of 1.89, but an improper shortcut was taken in the second calculation. Correcting for the shortcut, the design margin was calculated at 1.28. Tr. 14,781-84. With respect to cable 130, Sargent & Lundy erred in closing out a minimum bend radius violation observation on the basis of technical acceptance criteria contained in a letter from the cable manufacturer, Okonite Company, without first specifically pointing that cable out to the manufacturer's representative, or providing a written description of the bend radius violation to the manufacturer. Thorsell, Tr. 14,482-83.

350. The criteria in the letter for approval of the bend radius did not apply to cable 130 without a further determination by the manufacturer of the condition of the cable, and a different cable was examined by the manufacturer's

representative than assumed by Sargent & Lundy. Tr. 14,456-62, 14,482-89, 14,565-67. The errors in both the CPH 104 and cable 130 design-significant evaluations were not discovered and corrected until the S&L experts were cross-examined by Intervenors' counsel at hearing.

351. The quality control inspection of an item such as a cable or a cable pan hanger requires the inspector to verify that the item conforms to design requirements for each attribute on his checklist. Verification of each such attribute may require one or more inspection judgments. Kaushal Rebuttal Prep. Test., ff. Tr. 13,068, at 19-20; Tr. 13,761-62. Moreover, the items included in the CSR sample varied greatly in their complexity and thus in the number of inspector judgments required for the initial Quality Control inspection and for the CSR reinspection. Tr. 13,758-59, 14,166-73; Appl. Exhs. 143, 144. To permit meaningful judgment of inspector performance and meaningful comparison of inspector performance with respect to items of differing complexity, the BCAP Task Force together with BCAP Quality Assurance and Sargent & Lundy developed the concept of "inspection points" and "discrepancy points." Tr. 13,758-59, 13,770, 13,773, 14,173-79. Each inspector check to determine the acceptability or rejectability of an item or an attribute was identified and termed an "inspection point." Each inspection point that resulted in a CSR discrepancy was termed a "discrepancy point." Kaushal Rebuttal Prep. Test., ff. Tr. 13,068, at 19-20; Kostal Rebuttal Prep. Test., ff. Tr. 14,270, at 13-14; Tr. 13,760-64. On this basis, over 98% of the inspection points were found to be correct (nondiscrepant) and more than two-thirds of the discrepancy points were insignificant. Appl. Exh. 179 at 16; Thorsell Rebuttal Prep. Test., ff. Tr. 14,270, at 11; Kostal Rebuttal Prep. Test., ff. Tr. 14,270, at 22.

352. Applicant also presented the CSR results for the electrical construction categories on a per-weld basis. About 84% of the welds had no discrepancies. Appl. Exh. 181; Rebuttal Prep. Test., ff. Tr. 16,740, at 38. The comparable figure for the PTL overinspection data for the period July 1, 1982, to June 30, 1986, is 93%. For the period in which the two data bases overlap (July 1, 1982, to June 30, 1984), the agreement rates are 89% and 90%, respectively. Del-George Rebuttal Prep. Test., ff. Tr. 16,740, at 37-38; Tr. 16,801-02.

353. A third way of looking at the CSR results was supported by Intervenors in this proceeding. Any item with one or more discrepancies would be termed a "discrepant item." The NRC had originally required that any conclusions on expanding the CSR sample size be based on the percentage of acceptable items, irrespective of the number of attributable inspection points. Int. Exh. 140, BCAP Comments II-4; Tr. 17,710-11. Applicant committed itself to this requirement. Appl. Exh. 128, Attach. A at 3 of 7. Although Applicant's statistician did some early analyses based on an item, rather than inspection point, basis, Applicant inexplicably breached its commitment to the NRC and abandoned that basis. Tr. 17,141-42, 17,631, 17,710-18. On an item basis, 60.0% of the cables,

64.4% of the cable pans, 59.0% of the conduit, 56.4% of the conduit hangers, 86.2% of the cable pan hangers, and 72.5% of the electrical equipment installation would be deemed "discrepant items." Appl. Exh. 181. Applicant's witnesses did not view this as a reasonable or fair measure of Comstock Quality Control inspector performance — both because it masks the actual number of inspector errors on each item and because it equates very dissimilar reinspection outcomes. For example, a huge cable pan hanger with hundreds of welds, one of which might be discrepant due to an arc strike, would count the same as a conduit wall strap support that was totally missing. Kaushal, Tr. 13,758-59; Shevlin, Tr. 13,770; Kaushal, Shevlin, Wozniak, and Smith, Tr. 14,173, 14,179.

354. NRC Inspector Gardner agreed that in grading inspector performance he would not equate such dissimilar "discrepant items." Mr. Gardner did not believe that Applicant Exhibit 181, standing alone, presents a balanced portrayal of the CSR reinspection results. Nonetheless he recommended that the Licensing Board should consider all the data available to it, including the data presented on an item basis. Mr. Gardner stated that his own personal standards were high, and he would expect a good inspection program would have resulted in lower rates of discrepant items than is shown in Appl. Exh. 181. However, he conceded that he had never developed acceptance criteria for differentiating good from average or poor inspection programs using data presented in Intervenors' suggested "item basis" format. Tr. 17,633-45, 17,807-11, 18,347-49. In Mr. Gardner's view, the Comstock Quality Control inspectors were not effective in the "classical" 10 C.F.R. Part 50, Appendix B sense of identifying all defects, but they were effective and adequate in the sense that they did not miss any design-significant defects. Tr. 17,807-09, 17,813-15.

355. There is merit in both Applicant's and Intervenors' positions. Clearly, if we are dealing with a complex component containing a number of welds, each of which is evaluated on the basis of seventeen design-significant attributes, it would be unrealistic to judge the original Comstock inspection as a failure if one attribute on the component were discrepant, as Intervenors suggest. On the other hand, judging the quality of the original inspection on the percentage of *attributes* that were discrepant, as Applicant proposes, is similarly unrealistic. As an example, welds were divided into seventeen inspection points (or attributes). It seems unlikely that any weld that had more than two or three discrepant inspection points (i.e., attributes) would have become the subject of an original inspection by an L.K. Comstock Quality Control inspector. If a craftsman were to weld a weldment with more than two or three faulty attributes, such as being undersized or cracked, lacking fusion, etc., it is likely that he would redo that weld himself without waiting for Quality Control to reject it. On a practical level then, the original Quality Control inspector is inspecting welds that might have, at most, one, two, or three defective attributes (although any of those, such as a crack, might render the weldment totally nonfunctional). But, even

if we were to assume that the Quality Control inspector inspected and passed only discrepant welds (those with one, two, or three defective attributes), his percentage of acceptable calls (i.e., his "agreement rate" under BCAP) would range between 82% and 94%. On its face, an 82% to 94% rate does not seem egregious, even though it should because, in our example, the Quality Control inspector missed every single discrepant weld that the craftsmen would not have redone of their own volition.

356. There are infirmities in the BCAP CSR reinspection program that go beyond the question of whether components, subcomponents (such as welds), or inspection points should be tallied to determine the percentage of discrepancy. Even if we were to choose one of these, we would still lack the perspective to judge the quality of the original Quality Control inspection. The main element lacking in the evaluation would be the number of the discrepant items (components, subcomponents, or attributes) that the original Quality Control inspector *reported*, as opposed to those that he missed, only the latter being disclosed under the BCAP program.

357. As an example, let us use welds as the unit of measurement and 15% of the welds as being found discrepant under the BCAP reinspection program. (Applicant's Exhibit 181 indicates that approximately 16% of the welds examined by the BCAP inspectors were found to be discrepant.) If we assume that the craftsmen had welded 45% of their welds discrepantly, the Comstock Quality Control inspector would have had to miss one-third of those discrepant welds ($\frac{1}{3} \times 45\%$) to have been found 15% discrepant under BCAP. If, on the other hand, the craftsmen had welded 20% of the welds discrepantly, the Comstock Quality Control inspector would have had to miss three-quarters of the discrepant welds ($\frac{3}{4} \times 20\% = 15\%$). Consequently, unless we know either explicitly or deductively (or inductively, as the case may be) how many discrepancies were reported by the original QC inspectors, we do not know whether the Comstock QC inspectors were 67% effective, 25% effective, or any other percentage.[4]

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[4] The calculation made in this example is somewhat simplified. Since I do not distinguish between weld discrepancies missed by an original Comstock QC inspector and any Comstock reinspector, but use only the final products of their cumulative inspections, it is unnecessary to adjust the calculation for welds that were reinspected, as in the examples presented at hearing where the examples began with a hypothetical 100 welds to be initially inspected.

I also do not take into account in this simplified calculation the possibility of the BCAP reinspectors' not being 100% accurate. I recognize that they could be expected to have missed discrepant welds, as offered by Intervenors and Applicant. I do not also accept the proposition offered by Applicant that these BCAP reinspectors would have erroneously reported nonexisting discrepancies under a rate comparable to, or greater than, that of missed discrepancies. I do not believe that one could expect inspectors to find things that weren't there, except in unusual circumstances. That does not go to say that there might not have been differences in judgment between the BCAP reinspector and the original Comstock QC inspector, but I would expect that any errors in judgment on the part of the BCAP inspector would have been weeded out in the BCAP review that he was subject to which, in all probability, also weeded out any marginal calls he made, even if correct.

358. There would seem to be no reason why the discrepancies uncovered by the BCAP reinspectors could not be compared to the discrepancies originally reported by the Comstock inspectors, as contained in the inspection packages for the sampled components. Under the requirements of Part 50, Appendix B, Criterion XVII, the original inspection records should be retrievable. Criterion XVII states, *inter alia:*

> XVII. Quality Assurance Records
>
> . . . Inspection and test records shall, as a minimum, identify the inspector or data recorder, the type of observation, the results, the acceptability, and the action taken in connection with any deficiencies noted. Records shall be identifiable and retrievable.

359. It would appear that even at this point a comparison can be made between the discrepancies found by the BCAP inspectors and those found by the original Quality Control inspectors. We need only examine the original sampling packages, with no need for any further sampling, if we wish to measure the effectiveness of the original Quality Control inspectors. Whether any such comparison was ever made has not been disclosed and is not a part of the record. In the absence of such comparison the BCAP program cannot be accepted as *any* measure of the effectiveness of the original Quality Control inspector. It might also be noted at this juncture that if a comparison had been made, the entire controversy over which units (i.e., components, subcomponents, inspection points) should be measured would have been obviated. Had Applicant compared only those attributes examined by the BCAP reinspector with the comparable attributes originally inspected to by the Comstock Quality Control inspector, Intervenors would have no basis for challenging the results. Of course, even if Applicant had measured apples against apples and oranges against oranges, it would only have arrived at a *percentage* of the effectiveness of the original Quality Control inspector. Unless those results were determinative on their face (i.e., either an extremely high rate of Quality Control inspector effectiveness or an extremely low rate), the results would still have to be evaluated by the experts and the Board.

360. Without any measure of *effectiveness* of the Quality Control inspector, and with only a measure of the absolute numbers of discrepancies missed, a meaningful comparison cannot be made between different periods of inspection activity. Moreover, any BCAP sampling comparison between the pre-DeWald (as Quality Control Manager) era and the period in which the contention alleges that management harassed and intimidated inspectors, is particularly inappropriate. Mr. DeWald became Quality Control Manager in August of 1983, shortly before the grid-area basis for weld inspectors was discontinued in October of 1983. The grid system was not a proper or effective method of inspection (*see* Min. Fdgs. 315-329, *supra*) and, consequently, neither the grid-

system period nor the DeWald-Saklak period represents a standard against which any other period can be judged.

361. In the absence of any measure of Quality Control effectiveness based upon a comparison between discrepancies missed and discrepancies reported, the BCAP evaluations of "design significance" were presented as a measure of Quality Control effectiveness. But the question of whether a discrepancy is "design significant," is totally irrelevant to the function of a Quality Assurance inspector. He is not charged with seeking out design-significant discrepancies or even with determining whether any putative discrepancies are significant from a safety standpoint. His obligation is to report all discrepancies. Any attempt by him to ignore those discrepancies that he might consider insignificant would interfere with this obligation. The question of whether a discrepancy is design-significant is uniquely in the presence of an engineer to evaluate based in part on the inspector's findings but also based on a variety of other data and expertise that is not immediately known to a quality control inspector. The measure of the qualification of a quality control inspector is whether he can inspect to established acceptance criteria. Tr. 16,775-76.

362. The only value, therefore, that BCAP could have for us, considering the way it was programmed, is with regard to the constructed hardware, rather than with regard to the effectiveness of the Quality Control Inspection Program. However, even there little weight can be given to the results. The main problem here is with the party selected to make the determination of design significance, Sargent & Lundy.

363. The BCAP program document recognized the need for independence of the Independent Expert Overview Group reviewing the program. The document provided that the IEOG members "will be free of any significant contacts with Commonwealth Edison Company" and "will not have participated in the design, construction, or quality assurance activities related to the Braidwood Station or with Braidwood site contractors within the last five years." Appl. Exh. 137 at V-2. The IEOG was not shown at hearing as being any more than a token oversight group. However, the BCAP Director, Mr. Kaushal, was an Edison employee. He and BCAP were answerable directly to Edison management in the person of Mike Wallace, the Braidwood project manager who was responsible for cost and scheduling considerations at Braidwood. Kaushal, Tr. 13,716. More importantly, Sargent & Lundy, which performed the design-significant evaluations, the only evaluations of any importance[5] in the BCAP program, did not meet the independence criteria. Sargent & Lundy failed the independence criteria on almost all grounds. As architect/engineer, it designed Braidwood and was

[5] It would not have mattered one iota whether there had been half as many or twice as many discrepancies or notable discrepancies found by the BCAP inspectors. The entire conclusion as to whether the facility passed the BCAP test was founded on S&L's determining whether any of the discrepancies was design significant.

intimately involved with its construction. As consulting engineer, it advised on construction and dispositioned NCRs and ICRs that documented discrepant construction activities. It was in day-to-day contact with Applicant, the Commonwealth Edison Company. Because of its intimate involvement in the construction activities, whether or not it was the case, Sargent & Lundy appeared to the Quality Control Manager of L.K. Comstock to be the prime electrical contractor and Comstock only the subcontractor. DeWald, Tr. 1805-06. Were the Braidwood facility to fail to meet its licensing requirement or were its construction to prove deficient in some degree, it is likely that Sargent & Lundy's liability exposure would surpass that of even Applicant, the Commonwealth Edison Company.

364. An example of S&L's direct liability for design-significant defects is cable 130, which violated the manufacturer's bend radii limitations and which S&L evaluated (incorrectly, at first) as having no design significance. The bend radii's violation was attributable to the cable being placed in a junction box that was too small to permit the cable to be bent properly. S&L had designed and ordered the equipment and installation, and had failed to require an adequate junction box. Tr. 14,923-25.

365. Not only would Sargent & Lundy have failed the independence test in the BCAP program document, but other reasons exist for questioning the objectivity of its evaluations on the BCAP. Just prior to the critical period in issue in this proceeding (beginning with the summer of 1984), Sargent & Lundy had complained that the Comstock Quality Control inspectors were being "over-critical and were marking discontinuities which S&L felt were acceptable." Appl. Exh. 1 at 1. Sargent & Lundy had complained in particular about the Quality Control inspectors' interpretation with regard to overlap, undercut, arc strikes, lack of fusion, tack welds, base metal reduction, and spatter. Sargent & Lundy was concerned that these interpretations constituted "overinspection." *Id.*

366. Consistent with the evidence of Sargent & Lundy's concern about inspections being too critical, was the Quality Control inspectors' recurrent testimony during the course of the hearing that they were becoming somewhat demoralized because of Sargent & Lundy's practice, as evaluating engineer, of dispositioning QC-determined discrepancies on a "use as is" basis. Tr. 8162-64, 10,485, 10,576, 12,320, 12,632, 17,363; Testimony of Mendez and Neisler, ff. Tr. 10,490, at 30. Many of the Quality Control inspectors believed these dispositions to be unjustified and had voiced complaints to the NRC. *Id.* Some had successfully challenged the S&L engineers' "use as is" dispositions. Tr. 8162-64.

367. Further disquieting about the role of Sargent & Lundy as an objective evaluator under BCAP were its participation in the improper termination of Mr. Puckett and its testimony in defense of that termination, its errors and evaluations of the two sample BCAP packages randomly selected by Intervenors

for examination at hearing, its improper invalidation of thirty-seven red-line drawings under BCAP, its complaints to Comstock's management concerning Quality Control inspectors who sought engineering advice from them for not having gone through channels (i.e., through their Quality Control supervisors with whom they disagreed), its unilateral departure from FSAR standards (e.g., with regard to response spectra (*see* Tr. 15,176-79, 15,197-201)) in evaluating BCAP design significance, and the seeming inability of Sargent & Lundy witnesses to answer Intervenors' questions directly with regard to the BCAP program.

368. As a general matter, by virtue of its direct involvement in the design and construction of the Braidwood plant and its potential liability to Commonwealth Edison for any construction or licensing problems, Sargent & Lundy is too committed to the licensing of the plant to be considered an objective evaluator. While it is certainly entitled to evaluate the plant's construction under BCAP or any other program for its *own* purposes to determine *for itself* whether the plant is properly constructed, its commitment to the licensing of the plant is too strong for acceptance of its opinions as impartial. Furthermore, its past actions and testimony at trial confirm its partisanship in that regard. Its attitude in general appeared to be that it had designed the plant with so much safety margin that no deficiencies in construction and inspection in the electrical area could impair the ability of the electrical equipment to function safely. While that might be the case, that opinion should be expressed by someone other than the designer of the plant to be afforded much weight.

369. Further questions exist with regard to whether the design-significant evaluations made by Sargent & Lundy are satisfactory samples for statistical application. In the statistical process, one can select sufficient items on a random basis to project to the population at large. The population being sampled, however, must have a degree of homogeneity in order for that statistical projection to be valid. But in this case, the calculations and evaluations made for design significance appear to be unique calculations suitable only for the particular items selected. While Sargent & Lundy began its evaluations with standard design calculations, it departed from these standards through a series of so-called "refinements" when the design margins became minimal. Sargent & Lundy's design-significance calculations were carried out by using successive levels of "refinement." When one set of calculations produced results that indicated a concern about design significance, Sargent & Lundy turned to "more refined calculations" which, by eliminating purported conservatisms in the first set of calculations, enhanced the acceptability of an item. Sargent & Lundy employed multiple layers of refinement in order to arrive at its conclusions that no discrepancies were design significant. Tr. 15,076, 14,083-85. These refinements took many forms, including examinations of the "as-built" configuration of the sample item and its neighbors to determine if additional

safety margins exist, departures from the FSAR specifications to those based upon its own engineering judgment to see if further safety margins exist, and departures from the equipment manufacturers' specifications and requirements on the basis of its own engineering judgment to determine if further safety margins exist. Many of these departures from the original design specifications adopted in the FSAR were based on *ad hoc* exercises in engineering judgment, and all were in the direction of finding *additional* safety margins in the as-built construction. Absent were any suggestions of refinements in the direction of *reduced* safety margins because of as-built conditions that might have included observations of less-than-satisfactory workmanship or materials in the sampled item, or in a neighboring item that might adversely affect the sampled item. Given the predisposition of Sargent & Lundy to validate the construction of Braidwood as satisfactory, which was the expressed purpose of the BCAP program, and considering Sargent & Lundy's resourcefulness and their predisposition for searching only for matters that would show an increased safety margin, it is difficult to see how they would ever find a discrepancy of design significance.

370. For the same principal reasons that the CSR agreement rates are not indicative of the efficacy of the original Comstock Quality Control inspector, because there is no comparison between the discrepancies he missed and those that he found, the PTL results are similarly unilluminating. Furthermore, in addition to the sampling's not being done on a statistically random basis, there is further doubt as to how representative the sampling was. The PTL inspectors were permitted to overinspect welds through paint. Although the PTL panel experts claimed that this amounted to only 7% of the inspected welds, this testimony was questionable.

371. They arrived at the 7% figure by reviewing PTL's overinspection records for July 1982 through June 1986 and determined how many of the welds were noted in the remarks section of the inspection reports as having been inspected through paint. This amounted to 7% of the total welds that were overinspected. The PTL witnesses testified that it was PTL's practice, although not a written procedural requirement, to indicate in the remarks section of PTL's inspection reports which welds were overinspected through paint. They believed that the PTL inspectors followed this practice whenever they inspected through paint. Tr. 15,749-54.

372. That testimony is not acceptable. On its face, the 7% figure seems very low considering the practice of Comstock of coating welds with Galvanox after the initial installation and Quality Control inspection. Tr. 8533, 8541. Galvanox was a heavy, thick, gray-colored paint used as a protective coating to prevent welds from rusting. Tr. 8531, 8540. It would be less surprising if the figure given for welds covered by Galvanox by the time of the PTL overinspection was 70%, rather than 7%. Furthermore, not only did PTL's written procedures

not require noting the welds overinspected through paint, but neither did the checklist given to the PTL overinspectors. Tr. 15,780-81. Nor was there any other written direction to note those inspections through paint. Tr. 15,782. But PTL, no less than the original Quality Control inspection group, is required by Part 50, Appendix B, to document in writing its procedures and instructions. Criterion V states, in pertinent part, as follows:

> V. Instructions, Procedures, and Drawings
>
> Activities affecting quality shall be prescribed by documented instructions . . . .

Criterion XVIII states, in pertinent part:

> XVIII. Audits
>
> . . . The audits shall be performed in accordance with the written procedures or check lists by appropriately trained personnel . . . ."

373. If PTL, which had been overinspecting visual inspections of welds since 1977, had not memorialized any directions to its overinspectors to note welds inspected through paint (as it had documented its other requirements) by the period for which it offers its conclusions, 1982-1986, we cannot accept the testimony that these instructions existed and were uniformly applied. And, if in fact a large number of welds were inspected through paint, PTL's high agreement rate with Comstock Quality Control inspectors means very little because many discrepant attributes would have been obscured by the paint. The Galvanox coating could obscure cracks, undercut, cold lap, porosity, and other attributes. Tr. 8531-32. Moreover, one could not be sure that the sampling by PTL, which was not statistically random in the first instance, would not be biased by Comstock's making sure that the more questionable welds were Galvanoxed immediately.

III. MINORITY ULTIMATE FINDINGS OF FACT AND CONCLUSIONS OF LAW

1. Having the Comstock Quality Control onsite management report to Edison's Project Construction Superintendent, Dan Shamblin, beginning in May of 1984, did not *per se* violate Criterion I of Appendix B to 10 C.F.R. Part 50 because Comstock was organizationally required to continue to report to the Comstock offsite Quality Assurance management. Edison could legitimately monitor the activities of the Quality Control organization of its contractor, L.K. Comstock, without violating Criterion I's requirement that the organizations performing quality assurance functions have authority and organizational freedom to identify quality problems, including independence from cost and schedule,

because of prior problems that Comstock had encountered in fulfilling its quality assurance functions. Con[illegible]'s inspection and documentation backlog and its deficient inspection practices were a proper concern of Edison.

2. However, by assuming, in fact, the function of day-to-day supervision of the Comstock onsite Quality Control management and by asserting continuous production pressure on Comstock that Comstock Quality Control management, in turn, imposed on its Quality Control inspectors, Edison's practices were violative of Criterion I.

3. There is no credible evidence, and only self-serving testimony with no corroborative support, that Edison's project construction superintendent promoted good quality practices, rather than merely asserted pressure for increased production.

4. The pressure asserted by Edison's project construction department was based upon the threat of terminating the Comstock construction contract.

5. The production pressure asserted by Edison upon Comstock management resulted in practices and actions by Comstock that were [illegible]ive of the quality control standards established by Appendix B to Part 50. Certain of these improper practices and actions are enumerated in the following paragraphs.

6. The two major improper practices adopted by Comstock onsite Quality Control management were (1) to promote a climate of intense production pressure and (2) to attempt to discourage the documentation of any major deficiency that could result in a lengthy delay in production. Certain of these improper activities of Comstock Quality Control management predated Mr. Shamblin's overseeing of Comstock Quality Control and were attributable to the pressure on Comstock management of a backlog of inspections and documentation. Comstock had built up this backlog because of its improper practice of assigning too few Quality Control inspectors to document construction deficiencies.

7. Richard Saklak was improperly given supervisory authority over Quality Control inspectors although he lacked any background in quality control or the particular disciplines he supervised. He was appointed, and his authority was subsequently expanded, only because of his production and scheduling background and his dedication to speeding production. His lack of certification in the quality control disciplines that he supervised, attributable to his lack of background, was in direct violation of L.K. Comstock procedures and contributed to deficient practices in the Calibration Department, for which John Seeders was later transferred. Mr Saklak's push for production, which was encouraged by Quality Control management, resulted in the Mustered and Snyder harassment incidents and exacerbated the Seeders' incident.

8. Irving DeWald was appointed as Comstock Quality Control Manager to improperly orient the Quality Control Department away from quality control and toward production.

9. The intense pressure for production directed by Comstock Quality Control management against its Quality Control inspectors resulted in the March 29, 1985, complaints of the twenty-four Quality Control inspectors to the NRC. Their marching *en masse* to the NRC office with their complaints was only precipitated by the Saklak-Snyder incident and reflected a more fundamental problem, the climate of intense production pressure fostered by Quality Control management. Although there were only a few incidents subsequently related by these Quality Control inspectors that amounted to an actionable incident of harassment and intimidation in a quality sense, the unanimity, or near-unanimity, of the complaints about improper production pressure reflected its presence.

10. Worley Puckett was improperly terminated because the matters he raised with regard to improper Quality Control practices and procedures would have resulted in some delay, perhaps considerable, in Comstock production. Mr. Puckett's recommendations came at the time of the most intense pressure by Edison on Comstock to reduce its inspection and documentation backlog, disposition all open NCRs and ICRs, and increase the pace of current inspections, and would have delayed those efforts. Considering the correctness of Mr. Puckett's recommendations and the high regard in which Mr. Puckett had been held by other Quality Control inspectors, his improper termination was a major violation of 10 C.F.R. § 50.7. Although this Board is not directly involved in the labor-management aspect of the termination, which was submitted to the Department of Labor, but only in its effect on LKC's quality control function, the effect on Mr. Puckett of being improperly labeled as incompetent, when he was not, and perhaps rendering him unemployable, should be taken into account in assessing the gravity of the offense. Edison was fully involved in the decision to improperly terminate Mr. Puckett.

11. The incidents of harassment and intimidation involving Messrs. Perryman, Archambeault, and Martin, although not as serious as the termination of Mr. Puckett, were violations of 10 C.F.R. § 50.7 that resulted from the improper attitude of L.K. Comstock toward matters raised by Quality Control inspectors that might delay production.

12. Other instances of harassment, intimidation, or retaliation, that were evidenced in this proceeding were isolated acts that might have occurred in any organization no matter how devoted its management might have been to quality practices. At most they were merely technical violations of 10 C.F.R. § 50.7.

13. Although Comstock management improperly overemphasized production and, in a few instances, improperly pressured Quality Control inspectors not to raise major items that might delay production, the weight of the evidence is that management made no attempt to discourage inspectors from documenting ordinary discrepancies.

14. With regard to the period after October 1983, the evidence is that the Comstock Quality Control inspectors performed their field inspections

competently and successfully resisted any attempts that may have been made by management to sacrifice quality for quantity. In making that determination, no weight has been given to the direct testimony of any Quality Control inspector that he did not deliberately disregard a discrepancy that he observed or that he had not seen any other inspector disregard such a discrepancy which the testifying inspector had not reported. It would be unrealistic to expect contrary testimony, because that could result in the immediate termination of employment of the testifying inspector. This evaluation of the good quality practices of the Quality Control inspectors also takes into account the fact that the Board heard testimony primarily from those inspectors who complained to NRC about Quality Control management and would most likely be the ones to uphold good quality control practices.

15. Had the other evidence not supported the adequacy of the Quality Control inspectors' inspection activities for the period after October 1983, Applicant's sampling reinspection programs would have been insufficient to satisfy Applicant's burden of proving the adequacy of the quality assurance program. Nor do the sampling reinspection programs, in any way, add to the weight of evidence in favor of acceptable construction. The reinspection programs were not designed and staffed to afford any assurance that the Quality Control inspection efforts were effective or that the construction was adequate.

16. Similarly, NRC Staff's approval of the Comstock Quality Control effort has little weight because NRC Staff did not fully investigate Quality Control inspectors' complaints of harassment and intimidation, and adopted too sympathetic an attitude toward Applicant.

17. On the evidence adduced, Comstock's Quality Control inspections of welding on the grid-area-system basis, in effect until October of 1983, are totally lacking in credibility. Under those circumstances, a 100% reinspection program, rather than a sampling program, is ordinarily required to determine whether there is reasonable assurance about the safety of the construction. Since the grid system inspections and the time period in which those inspections were conducted were not directly in issue in this proceeding, Applicant should have the further opportunity of proving the efficacy of those inspections.

18. Under the test in *Union Electric Co.* (Callaway Plant, Unit 1), ALAB-740, 18 NRC 343, 346 (1983), it is determined that there has not been a breakdown in quality assurance procedures of sufficient dimension to raise legitimate doubt as to the overall integrity of the installation of electrical system for the period after October 1983. There is reasonable assurance that the electrical system installed after October 1983 can be operated without endangering the public health and safety.

19. Because of the gravity of the violation of 10 C.F.R. § 50.7 by Comstock and Edison in the termination of Worley Puckett, a substantial civil penalty

should be imposed on Applicant under § 50.7(c)(2). A lesser penalty should be imposed for the Archambeault, Martin, and Perryman incidents.

20. NRC Staff should investigate to determine whether J. K. Comstock improperly treated A-446 sheet material as prequalified material without adopting AWS Code D1.3 after it terminated Mr. Puckett.

Herbert Grossman, Chairman
ADMINISTRATIVE JUDGE

Bethesda, Maryland
May 19, 1987

Cite as 25 NRC 671 (1987) LBP-87-15

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

James L. Kelley, Chairman
Glenn O. Bright
Dr. James H. Carpenter

In the Matter of **Docket No. LRP**
(ASLBP No. 86-519-02-SP)

INQUIRY INTO THREE MILE ISLAND UNIT 2 LEAK RATE DATA FALSIFICATION

May 21, 1987

In this Recommended Decision, the Board reports the findings of its inquiry conducted pursuant to the Order of the Commission in CLI-85-18, 22 NRC 877 (1985).

STANDARD OF PROOF

Although the "preponderance of the evidence" standard could be applied to all issues in the proceeding, the Board chooses to apply the "clear and convincing evidence" standard to findings of manipulation and falsification because those findings are likely to have strong reputational impacts and because they tend to involve the most serious memory difficulties in this proceeding conducted 7 to 8 years after the incidents giving rise to the inquiry.

APPEARANCES

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TABLE OF CONTENTS

	Page
SYNOPSIS	674
INTRODUCTION AND PROCEDURAL BACKGROUND	679
STANDARDS OF PROOF AND OTHER ISSUES SUGGESTED BY THE NUMEROUS EMPLOYEES	689
FINDINGS OF FACT	693

I. WHAT WAS THE ORGANIZATIONAL STRUCTURE OF TMI-2 DURING 1978 AND 1979? 693
A. Management 694
B. The Operations Department 698
C. Bodies Outside of the Chain of Command 703

II. TECHNICAL SPECIFICATIONS, TRAINING, AND CHRONOLOGY OF EVENTS DURING OCTOBER 1978 NRC INSPECTION 703
A. Technical Specifications and Procedures Relevant to Leak Rate Testing 703
B. Training 709
C. Chronology of Events During October 1978 NRC Inspection 711

III. COMMISSION QUESTIONS CONCERNING TECHNICAL SPECIFICATIONS AND RESPONSES TO OCTOBER 1978 INSPECTION 714
A. Incorrect Interpretations of Technical Specifications and Inadequate Corrective Actions 714
B. "Following the Discovery by an NRC Inspector in October 1978 That Technical Specification 3.4.6.2 Requirements Were Not Properly Interpreted or Implemented, What Corrective Action Was Taken by Management Personnel?" 715
C. "Was the Corrective Action Taken Sufficient to Ensure Compliance with the Technical Specification 3.4.6.2 by the Personnel Performing and Reviewing the Leak Rate Surveillance Tests?" 720

IV. DIFFICULTIES IN PERFORMING LEAK RATE TESTS; SENIOR SUPERVISOR AND MANAGEMENT KNOWLEDGE AND RESPONSIBILITIES; PRESSURE TO OBTAIN "GOOD" TESTS 722
A. Difficulties the Operators Were Experiencing 722
1. Lack of RCDT Density Compensation 725
2. Lack of Density Correction for Additions to the MUT .. 725
3. RCS Temperature Was Not Correctly Entered if Temperature Exceeded 582°F 726
4. RCS Pressure Differences Were Not Accurately Taken into Account 727
B. Managers Who Knew of the Leak Rate Test Difficulties 735
C. Corrective Actions for Technical Errors 742

D. Pressure to Obtain Leak Rate Test Results That Did Not Exceed Technical Specification Limits 743

V. DISCARDING LEAK RATE TESTS 744

VI. INDIVIDUAL RESPONSIBILITY OF CROs, THEIR FOREMEN AND SUPERVISORS, AND THE SUPERVISOR OF OPERATIONS FOR LEAK RATE DATA MANIPULATION AND KNOWING CERTIFICATION OF FALSE TESTS AND FOR OTHER VIOLATIONS OF LEAK RATE TEST PROCEDURES 749

APPENDIX A. LIST OF EXHIBITS 818

APPENDIX B. LIST OF WITNESSES AND TESTIMONY 822

APPENDIX C. CORRELATION OF NRR AND STIER TEST NUMBERS FOR EACH TMI-2 LEAK RATE SURVEILLANCE TEST PERFORMED BETWEEN 9/30/78 AND 3/28/79 825

APPENDIX D 828

Synopsis

This inquiry was instituted by the Commission in December 1985, following investigations by the NRC Staff and GPU Nuclear Corporation ("GPUN") consultants that flowed from former employee Harold Hartman's allegations of leak rate surveillance improprieties at TMI-2 during 1978-1979. Hartman had alleged that the tests were at times purposely manipulated in several different ways and that records of unacceptable results were discarded to cover up problems with this surveillance. We accepted into evidence the reports of the prior investigations, which include a voluminous analysis of the technical aspects of the leak rate surveillance at TMI-2 and interviews of people that had been involved. However, we have assessed independently the implications of this and other evidence to reach our own conclusions concerning the issues before us.

On December 31, 1985, the Board sent a letter to 120 present and former employees at TMI-2 who might have knowledge of or involvement with the subject of this inquiry. The ensuing petitions to intervene resulted in admission of six parties to this proceeding: (1) a group of twenty-five present and former employees of TMI-2 ("Numerous Employees"); (2) Mr. Kidwell, a former employee; (3) Mr. Herbein, a former officer of Metropolitan Edison Company ("Met-Ed"); (4) Mr. Miller, an employee of Met-Ed; (5) GPUN;

and (6) Marjorie M. and Norman O. Aamodt. The petition of Marvin I. Lewis was denied. Pursuant to the Commission's initial Order, the NRC Staff did not participate as a party; however, the Staff provided extensive documentary material, and Staff witnesses appeared at the hearing to respond to several hundred questions on the technical aspects of leak rate testing at TMI-2. In addition, technical experts who had prepared reports for Met-Ed and GPUN were called as "Board witnesses" to answer questions concerning technical aspects of their work.

The hearing began in September 1986 and required 33 hearing days with a resulting transcript of over 5000 pages. Forty-seven witnesses testified, most of whom prefiled testimony. Twenty-five exhibits were entered into the record. All parties filed proposed findings of fact and reply findings which we have considered in detail in reaching our assessment of this record.

The "Numerous Employees" submitted a memorandum of law in support of their proposed findings of fact, in which several issues including the question of the appropriate standard of proof were raised. Upon consideration of comments from various parties, we concluded that the usual "preponderance of the evidence" standard is appropriate, except with respect to findings of manipulation and falsification. Primarily because findings of manipulation and falsification are likely to have strong reputational impacts, we apply the "clear and convincing" standard to such evidence.

The scope of this inquiry was delineated in the Commission's Order in the form of four multipart issues. Our findings are arranged to address these specific issues. We also developed findings on the organizational structure at TMI-2 during 1978 and 1979, the TMI-2 Technical Specifications ("Tech Specs"), and the training program, to provide a perspective viewpoint in considering the performance of individuals.

1. Tech Spec Interpretation

The first Commission issue covered the interpretation and implementation of Tech Spec 3.4.6.2 and the events of October 1978 when an NRC inspector discovered that that Tech Spec was not being properly interpreted. Tech Spec 3.4.6.2 established five leakage limits, including one gallon per minute ("1 gpm") for "unidentified" leakage, the leakage measured by the leak rate test involved in this inquiry. The "Action Statement" in Tech Spec 3.4.6.2 stated that if leakage exceeded that limit, the operators must "reduce the leakage rate to within limits within 4 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours." Tech Spec 4.4.6.2 stated that Reactor Coolant System leakages shall be demonstrated to be within limits by four different surveillances, including "performance of a RCS water inventory balance at least once per 72 hours during steady state operation."

Virtually all Operations Department personnel worked under an erroneous interpretation of the above Tech Specs under which entry into the Action Statement was required only if they were unable to obtain a leak rate test result of 1 gpm or less *once* in a 72-hour period. If a test result of less than 1 gpm were obtained, any other tests run during the same period that showed excessive leakage were not considered to require entry into the Action Statement. This incorrect interpretation, coupled with the operators' cynicism about the test, resulted in a practice whereby test results greater than 1 gpm were routinely discarded, and test results of 1 gpm or less were filed.

Some Operations Department personnel would search for leakage or "eyeball" plant parameters for indications of excessive leakage after obtaining a test result greater than 1 gpm, but many did not. Particularly during the last 3 months of operation, the operators were, in effect, going through the motions of satisfying a procedural requirement, without regard to the validity of the test results.

During our questioning of the operators and foremen, it became apparent that there was a pervasive ignorance of the safety significance of the leak rate test. Classroom training on the leak rate Tech Specs and associated surveillances was virtually nonexistent during 1978-1979. We were quite surprised by the operators' total unfamiliarity with the "leak-before-break" concept, and the safety analysis of leaks in the TMI-2 FSAR. The conclusion is inescapable that the lack of meaningful training was a major cause of improper attitudes toward leak rate testing at TMI-2.

The improper interpretation of the Tech Specs was discovered by an NRC inspector in October 1978, and the chronology of events associated with this inspection is detailed in our hearing record. The resulting Licensee Event Report conveyed no clear explanation to the NRC or to the operating personnel that the interpretation of the Tech Specs had been wrong. Similarly, an Operations Memorandum to shift foremen and supervisors contained only a single, cryptic paragraph that was an inadequate attempt toward instruction on proper leak rate practice. The clear answer to the Commission's question whether the Licensee's corrective action was sufficient is no.

2. Difficulties with Leak Rate Surveillances

The second Commission issue pertained to the difficulties operators experienced in conducting leak rate surveillances. The test was performed by typing a code into the computer; the computer then carried out the data acquisition and computation of the leak rate at the end of a 1-hour test interval. The difficulty the operators experienced was that the test results were quite variable. Successive tests during a shift or from shift to shift showed computer-calculated leak rates that were inconsistent and, therefore, unbelievable, i.e., a large leak does not spontaneously become smaller. There is near unanimity in the record that there

was a lack of confidence in the computer-calculated test results and, yet, these tests were routinely approved by operators and shift foremen and the papers filed as a demonstration of compliance with the surveillance requirement. Such specious performance was remarkably unprofessional.

The specific reasons for the difficulty were not known to anyone in the Operations Department, but were generally thought to be in the computer program. Unreliability of the computer-based surveillance should have led the operators to use the manual procedure that also is part of the TMI-2 Surveillance Procedure 2301-3D1. Furthermore, the Operations Department personnel failed to follow Administrative Procedure 1010 to conclude that the tests were not satisfactory and to classify them as either an exception or deficiency. If deficient test results had been retained and properly classified, it seems probable that appropriate attention might have been given to the technical defects in the test.

The technical defects represented the summation of (a) procedure errors, (b) instrument inaccuracies, and (c) oscillations in plant conditions. The technical experts identified thirteen procedure errors, of which four were quantitatively important and, singly or in combination, may have produced errors of 1 gpm or more on some tests. Instrument inaccuracies or variability were estimated by the technical witnesses as possibly producing errors of up to approximately ± 1 gpm. Plant oscillations contributed another large (± 1 gpm) source of variability to the leak rate test results. It is clear on this record that the operators at TMI-2 were faced with a grossly inadequate surveillance system. However, we also find that much of the difficulty could have been attenuated if attention had been given to the problem. For example, the effects of the instrument errors and plant oscillations could have been drastically reduced by extending the test interval; i.e., a 1-gpm error with a 1-hour test interval would become a 0.25-gpm error with a 4-hour test interval.

Apart from these technical defects, there were certain "idiosyncrasies" associated with the TMI-2 leak rate test that made it even more difficult for the operators to demonstrate compliance with the 1-gpm limit. Thus, when Regulatory Guide 1.45 refers to 1 gpm as being measurable in sumps as an industry experience, it seems clear that room temperature is implied. In the TMI-2 Tech Specs, the 1-gpm limit is applied at reactor operating temperature, thereby effectively reducing the limit to 0.72 gpm.

The TMI-2 test limit did not include an "evaporative loss factor" for the RCS, in contrast to some other Babcock & Wilcox power reactors. For example, TMI-1, Rancho Seco, and Oconee have evaporative loss factors in their test limits that range from 0.51 to 0.73 gpm. The actual evaporative losses at TMI-2 were not established in our inquiry, but it seems probable that such losses may have been approximately 0.5-0.7 gpm, making it probable that test results would frequently exceed the 1-gpm limit.

The Superintendent of Technical Support (Seelinger in 1978 and Kunder in 1979) and the Unit 2 Superintendent (Logan in 1979) were aware that there were difficulties with the leak rate test, but they did not explore the situation and failed to initiate effective corrective actions. Only one substantive corrective action was finally taken on March 16, 1979, and it was technically flawed. Unidentified leakage was calculated as the difference between gross leakage and identified leakage. Beginning in February 1979, substantial leakage developed from valves on the pressurizer, and this identified leakage was estimated from the rate of water collection in the reactor coolant drain tank (RCDT). One of the errors in the test procedure was the failure to convert the volume of water collected in the RCDT at room temperature back to RCS temperature before it was subtracted from the gross leakage. The volume of a given mass of water is 1.4 times greater at RCS temperature than it is at room temperature. Thus, when the rate of drain tank collection reached 2.5 gpm around February 25, 1979, the net or unidentified leakage was in error by 1 gpm. The March 16 temporary change notice called for a manual calculation that properly corrected for this error, but did not call for correction of the similar error in not converting the volume of water added to the make-up tank to its volume at the RCS temperature. It should have been obvious that *both* volumes should be corrected to RCS temperature.

The Commission also raised the question whether the operators felt pressure to obtain surveillance results that did not exceed Tech Spec limits. The record shows that the operators felt a general sense of pressure to keep the plant on line and they were asked questions about the status of the leak rate test or told to get a "good" leak rate. However, this pressure did not translate into feelings that adverse actions would be taken against them if they failed to obtain a "good" leak rate test result.

3. Discarding Leak Rate Test Results

The Commission raised the question whether unacceptable test results were discarded. The evidence is that 50% or more of the tests were discarded. The practice of discarding results greater than 1 gpm began at TMI-1 and carried over to TMI-2. Every CRO, shift foreman, and shift supervisor who appeared before us (with one exception) testified he was either aware of the practice or personally discarded tests. Some testified that searches for leaks were carried out before a test was invalidated and discarded. Others claimed that they compared the test results to plant parameters, and apparent inconsistencies led to discarding test results greater than 1 gpm. For the most part, however, any test over 1 gpm was routinely discarded without any effort to "validate" it. Indeed, it was not possible to validate quantitatively against a 1-gpm standard by "eyeball" reference to other plant parameters.

The skepticism with which the operators viewed test results was not unreasonable, but their behavior in discarding the papers rather than documenting the apparent problems permitted those problems to go uncorrected month after month. The Supervisor of Operations, Mr. Floyd, and the Superintendent of Technical Support, Mr. Seelinger, were aware of the practice of discarding tests; we have not found any excuse for their countenancing these improper practices. There is no evidence that any members of management above Floyd and Seelinger knew that tests were being discarded.

4. Leak Rate Test Manipulations

The concluding section of our findings covers the individual responsibility of the thirty individuals who worked in the Operations Department and the Supervisor of Operations, Mr. Floyd, with respect to manipulation and falsification of tests. We do not attempt to summarize these results; the findings for each individual are self-explanatory.

RECOMMENDED DECISION

Introduction and Procedural Background

The Board adopts and sets forth, below, GPU Nuclear Corporation's Part I of its proposed findings, entitled "Introduction and Procedural Background," ¶¶ 1-28 at 1-16, except as ¶ 28 is modified by the Board.

"1. On March 24, 1980, Harold W. Hartman, Jr., a control room operator at Three Mile Island–Unit Number 2 ('TMI-2') prior to the accident, publicly alleged that reactor coolant system ('RCS') leak rate surveillance tests ('leak rate tests')[1] were at times purposely manipulated and records of unacceptable results were discarded to cover up the fact that over an extended period of time the results of the tests exceeded Technical Specification ('Tech Spec') limits for unidentified leakage. Hartman alleged that the computer program for calculating leak rates was unreliable, frequently yielding unrealistic results. This made it more difficult to get 'good' leak rates. Hartman further alleged that operators at TMI-2 sometimes manipulated leak rate test results by inputting wrong data into the computer, adding hydrogen gas to the make-up tank during leak rate tests,

[1] The leak rate tests were used to assess whether primary system leakage surpassed limits contained in the facility's technical specifications. The leak rate test is commonly known by several names or acronyms, such as: "Leak Rate," "LRT," "Reactor Coolant Inventory Balance," "RCIB," or "Mass Balance." Generally, the term "leak rate test" will be utilized in this decision except when dictated otherwise in quoting or paraphrasing testimony or documentary evidence.

adding water to the make-up tank during a leak rate test and not inputting the addition into a computer, and adding water to the make-up tank while performing water transfer operations involving other tanks. Hartman specifically alleged that shift supervision was aware of such improper conduct. *Inquiry into Three Mile Island Unit 2 Leak Rate Data Falsification*, CLI-85-18, 22 NRC 877 (1985)."

"2. Shortly after Hartman made these allegations public, the Nuclear Regulatory Commission ('NRC') Office of Inspection and Enforcement ('I&E') began an investigation. In the early stages of this NRC investigation, the United States Department of Justice ('DOJ') was advised of evidence uncovered by the NRC, and on April 28, 1980, DOJ assumed control of the investigation. I&E remained involved only to the extent of providing assistance to DOJ. Board Exh. 1-A, Stier Report, Vol. I at 2."[2]

"3. On April 16, 1980, Metropolitan Edison Company ('Met-Ed'), then the operator of TMI-2, retained the law firm of Faegre & Benson to conduct an investigation of Hartman's allegations. *Id.* Because of the criminal nature of the investigation being conducted by DOJ, Faegre & Benson could not gain access to key witnesses. *Id.*; Board Exh. 2, Faegre & Benson Report, Vol. 1 at 13. However, they did interview Hartman for two days in April 1980 and performed extensive technical analyses of leak rate testing at TMI-2. Board Exh. 2, Faegre & Benson Report, Vol. 2 at 2; Board Exh. 1-A, Stier Report, Vol. I at 2. Their report was issued on September 17, 1980. Board Exh. 2, Faegre & Benson Report."

"4. While the criminal investigation of leak rate testing was pending, the NRC received a status report from its Region I personnel who had conducted the original investigation. That report was presented on June 3, 1983, and summarized the findings of I&E up to the point where the investigation was turned over to DOJ. The NRC subsequently instructed its Office of Investigations ('OI') to investigate TMI-2 leak rate test practices. On June 27, 1983, OI began an investigation that was also limited because of the pending DOJ investigation. Like Faegre & Benson, OI was not able to interview critical witnesses. Board Exh. 1-A, Stier Report, Vol. I at 2-3."

"5. On November 11, 1983, the DOJ investigation resulted in an eleven-count indictment returned in the U.S. District Court, Middle District of Pennsylvania (Criminal No. 83-00188), charging Met-Ed with criminal offenses arising out of leak rate practices at TMI-2. On February 28 and 29, 1984, Met-Ed entered into a plea agreement with the Government ending the criminal prosecution. Met-Ed pleaded guilty to one count of the indictment and *nolo contendere* to six other counts of the indictment. *Id.* at 3; *see also id.*, Vol. V(A), Tab 3

[2] Appendix A provides a list of exhibits offered or received in this proceeding. *See* Tr. 5221; Board Order of Nov. 19, 1985 (unpublished).

(Statement of Metropolitan Edison Company with respect to the Plea Agreement)."

"6. When the Government and Met-Ed entered the plea agreement with the Court, both the United States Attorney and Met-Ed entered statements into the record. *Id.*, Vol. I at 3. In urging the Court to accept the plea agreement, U.S. Attorney David Queen, *inter alia*, stated that the evidence developed in the Grand Jury inquiry did not indicate that any of the directors and officers of GPU Nuclear Corporation ('GPUN') from its inception in 1982 as successor operator of TMI-2 to Met-Ed to the date of the indictment, or any of the directors of Met-Ed 'participated in, directed, condoned, or was aware of the acts or admissions that are the subject of the indictment.' CLI-85-18, 22 NRC at 879."

"7. After the Court accepted the plea agreement, Met-Ed and the NRC moved to obtain the release of the evidence presented to the Federal Grand Jury. On April 10, 1984, and June 25, 1984, the Court denied those motions, and the evidence on which the Grand Jury relied has remained sealed. Board Exh. 1-A, Stier Report, Vol. I at 3."

"8. In January of 1984, GPUN retained Edwin Stier, a former Director, New Jersey Division of Criminal Justice, to conduct an independent investigation into leak rate testing at TMI. *Id.* at 4. Stier's report examined the attitudes and behavior of TMI-2 personnel toward leak rate testing during the full year of TMI-2 operation, the 222 leak rate tests for which records presently exist, and statements made by individuals possibly involved in leak rate testing. *See id.* at 11-16. The Stier Report, entitled 'TMI-2 Reactor Coolant Inventory Balance Testing,' was issued on September 5, 1985. Board Exh. 1-A, Stier Report."

"9. The Commission asked OI to examine whether Michael Ross, Manager of Operations at TMI-1, had participated in, directed, or condoned leak rate falsifications at TMI-2. OI interviewed Ross and others under oath regarding Ross's involvement at Unit 2, reviewed pertinent records, and concluded that Ross's role at TMI-2 was minimal. In its report of April 16, 1984, OI found that during the period falsifications took place, Ross was present at TMI-2 only the minimum time necessary to maintain his TMI-2 license and was not involved in the falsifications. *See* CLI-85-18, 22 NRC at 879."

"10. In July 1984, the NRC Staff issued NUREG-0680, Supp. No. 5, dealing with the restart of TMI-1. Among the subjects discussed in that report was management involvement in leak rate testing at TMI-2. The NRC Staff relied on two sources of information: (1) the statement issued by the U.S. Attorney and (2) all of the evidence that had been gathered by the NRC up to that time, including evidence developed by OI in its then pending investigation. Board Exh. 1-A, Stier Report, Vol. I at 4."

"11. OI issued a report on August 15, 1984, summarizing its findings as of that date. In his cover memorandum, OI Director Ben Hayes described his report as follows: '[I]t does not set forth the facts and evidence obtained as a

result of a completed investigation but sets forth the information accumulated by the NRC since May 1979.' *Id.* (*citing* Memorandum, Ben B. Hayes to NRC Commissioners, *Three Mile Island Nuclear Generating Station Unit 2/Alleged Falsification of Leak Rate Surveillance Test Data* (1-83-010), August 15, 1984, at 1)."

"12. Both the August 1984 OI Report and the July 1984 NUREG-0680, Supp. No. 5, indicated that the NRC Office of Nuclear Reactor Regulation ('NRR') and OI would jointly continue an investigation of leak rate test practices by some individuals who had been licensed at TMI-2 or had held dual licenses for TMI-1 and TMI-2. NRR worked with OI on investigations of ten licensed operators[3] to determine their involvement, if any, in improper activities associated with leak rate testing at TMI-2 before the accident. NRR performed a technical evaluation of 161 leak rate tests performed at TMI-2 during the period September 30, 1978, to March 28, 1979.[4] In addition, joint NRR/OI interviews were conducted with thirteen former control room operators and two shift foremen. NRR prepared a report on each of the ten individuals under investigation, identifying the individual's role in leak rate testing irregularities and evaluating the individual's current performance.[5] Board Exh. 5-A, NRR Report, Vol. 1, Enclosure 1. On April 1, 1986, the joint NRR/OI Report — 'Results of NRR's Investigation and Evaluation of Ten Licensed Operators Involved in TMI-2 Preaccident Leak Rate Testing Irregularities' — was issued. Board Exh. 5-A, NRR Report."

"13. In an Order issued in the TMI-1 Restart Proceeding on February 25, 1985, the Commission stated that it would institute a separate hearing apart from the Restart Proceeding to develop the facts surrounding the RCS leak rate data falsifications at TMI-2 prior to the March 28, 1979 accident in sufficient detail to determine the ultimate status of those possibly involved. The Commission's Order specifically excluded those individuals whom the U.S. Attorney at the sentencing hearing of Met-Ed had stated were not involved and those individuals

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[3] The ten operators were Raymond R. Booher, Joseph R. Congdon, Martin V. Cooper, Craig C. Faust, Edward R. Frederick, Carl L. Guthrie, Theodore F. Illjes, Hugh A. McGovern, Adam W. Miller, and Dennis I. Olson. NRC chose to investigate these individuals because they continued, at the time, to be licensed NRC operators. Although Booher and Olson were no longer licensed by the time NRC completed the investigation and issued the NRR/OI Report, the Report included findings, conclusions, and recommendations concerning all ten. *See* Board Exh. 5-A, NRR Report.

[4] Stier reviewed all 222 leak rate tests at TMI-2 for which records presently exist. Stier used different numbering of tests from NRR. Generally, the Board will refer to the number assigned to the test by NRR (e.g., NRR Test No. 1). Stier test numbers will be used for those tests that NRR did not review or when Stier's evaluation of the test is being discussed (e.g., Stier Test No. 1). NRR tests are found in Board Exh. 5-A, NRR Report, Vols. 2-4. Stier tests are found in Board Exh. 1-A, Stier Report, Vols. IV(C)-(K). Appendix C provides a list correlating the NRR and Stier test numbers.

[5] The Board excluded as evidence in this proceeding portions of the NRR/OI Report regarding current performance. The individuals' current performance and recommendations for actions that may be taken with respect to anyone involved in leak rate falsifications were beyond the scope of our fact-finding process. *See* CLI-85-18, 22 NRC at 883-84.

whom OI already had reviewed and found not to be implicated in its TMI-1 leak rate investigation (i.e., Michael Ross). *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), CLI-85-2, 21 NRC 282, 298-99 (1985)."

"14. In December 1985 the Commission issued an Order and Notice of Hearing for this proceeding. CLI-85-18, 22 NRC 877. It directed this Board to address the following issues:

> (a) How were the Technical Specification 3.4.6.2 requirements for reactor coolant system unidentified leakage interpreted and implemented by control room operators (CROs), shift foremen, shift supervisors and onsite and offsite management? Following the discovery by an NRC inspector in October 1978 that Technical Specification 3.4.6.2 requirements were not properly interpreted or implemented, what corrective action was taken by management personnel? Was the corrective action taken sufficient to ensure compliance with the Technical Specification 3.4.6.2 by the personnel performing and reviewing the leak rate surveillance tests?
>
> (b) What difficulties, if any, were operators experiencing when conducting leak rate surveillance tests required by Technical Specification 4.4.6.2.d? Who knew about these difficulties? What corrective actions were taken? Did operators feel pressure to obtain leak rate surveillance test results which did not exceed technical specification limits? If so, what type of pressure was perceived or exerted and who was responsible?
>
> (c) Were unacceptable leak rate surveillance test results required by Technical Specification 4.4.6.2.d discarded? If so, who knew of, condoned or directed this practice? Were unacceptable leak rate surveillance test results discarded in an attempt to hide them from the NRC?
>
> (d) Did operators manipulate data or take other actions during leak rate surveillance testing in an attempt to improperly influence test results? Who performed, condoned, directed or was knowledgeable of data manipulation or other improper actions during leak rate surveillance testing? This would include, but is not limited to the following:
>
> (i) inputting the wrong data into the plant computer;
>
> (ii) adding hydrogen gas to the make-up tank during the test in an attempt to influence make-up tank level indication;
>
> (iii) adding water to the make-up tank during the test and either not including the addition in the computer calculation or underrecording the addition in the computer;
>
> (iv) taking advantage of differences or inaccuracies in plant instrumentation (e.g., make-up tank level indicators) in an attempt to influence parameters critical to the leak rate surveillance test calculation;
>
> (v) taking or failing to take any action in violation of technical specification requirements?

CLI-85-18, 22 NRC at 880-81."

"15. The Commission's Order and Notice of Hearing of December 18, 1985, established the procedures for the hearing. Pursuant to the Order and Notice of Hearing, the hearing was not conducted under 10 C.F.R. Part 2, Subpart G, except as noted in the Commission's Order. The Presiding Board

('Board') did have the powers specified in 10 C.F.R. §§ 2.718(a), (e), (f), (h), (i), (j), and (k). The hearing was conducted using a legislative hearing format. *Id.* at 882."

"16. The Commission directed the Chief Administrative Judge, Atomic Safety and Licensing Board Panel, to appoint a three-person Presiding Board to rule on petitions to intervene, to conduct any prehearing procedures and the hearing, and to render a recommended decision setting forth the facts surrounding the falsifications and identifying those individuals who participated in, or knew of and condoned, or by their dereliction or culpable neglect allowed, the leak rate falsifications at TMI-2. *Id.* at 881."

"17. On December 20, 1985, Administrative Judges James L. Kelley, Glenn O. Bright, and Jerry R. Kline were appointed to serve as the Board. Judge Kelley was appointed the Chairman. On August 27, 1986, Administrative Judge James H. Carpenter replaced Judge Kline, who was unable to continue because of a schedule conflict. Appointment of Presiding Board to Conduct a Legislative Hearing, 50 Fed. Reg. 53,489 (1985)."

"18. Any person who had an interest that the hearing may have affected was allowed to petition to intervene. If the Board determined that the petitioner had an interest that could be affected and the petitioner was likely to contribute to the development of an adequate record, the petition was to be granted. CLI-85-18, 22 NRC at 881-82."

"19. On December 31, 1985, as a supplemental notice to potentially interested individuals, the Board sent a letter by certified mail to about 120 present and former employees of Met-Ed who were associated with TMI-2 between February 2, 1978, and March 28, 1979. The group represented those employees who might have been involved in or had knowledge of the RCS leak rate data that was the subject of this inquiry.[6] Memorandum and Order, February 14, 1986, at 1. We enclosed a copy of the Commission's Order and Notice of Hearing of December 18, 1985, and invited those interested to file a petition to intervene by January 30, 1986."

"20. Following the Commission's Order and Notice of Hearing and this Board's supplemental notice, the Board received petitions to intervene from the following: (1) twenty-five present and former employees of Met-Ed ('Numerous Employees'),[7] (2) John M. Kidwell, a former employee of Met-Ed, (3) John

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[6] One of the objectives of this proceeding was to exculpate individuals whose names have arisen in connection with falsified leak rate testing at TMI-2. Memorandum and Order, July 16, 1986 (unpublished), at 15. After conducting a comprehensive evidentiary hearing, the Board has determined that the record warrants the exoneration of any addressee of our letter whom we do not discuss in this opinion. *See* Appendix D. Of course, as to those whom we do discuss, our decision governs.

[7] The following employees sought intervention: Charles D. Adams, Raymond R. Booher, John A. Brummer, Kenneth P. Bryan, Joseph J. Chwastyk, Mark S. Coleman, William T. Conaway, Joseph R. Congdon, Craig C. Faust, James R. Floyd, Edward R. Frederick, Leonard P. Germer, Carl L. Guthrie, Gregory R. Hitz, Sr., Kenneth R. Hoyt, *(Continued)*

G. Herbein, a former officer and employee of Met-Ed, (4) Gary P. Miller, an employee of Met-Ed, (5) GPUN, (6) Marvin I. Lewis, and (7) Marjorie M. and Norman O. Aamodt. Each of the first five petitions alleged facts demonstrating an interest of the petitioner that this proceeding could have affected, and a likely ability to contribute to the record — the standards for intervention established by the Commission. For those reasons, the Board granted the first five petitions listed above.[8] *Id.* at 4."

"21. The Numerous Employees filed oppositions to the petitions to intervene from the Aamodts and from Lewis. We initially had questioned whether the Aamodt and Lewis petitions met the standards for intervention in this proceeding and had called for further information in our Memorandum and Order of February 14, 1986. We subsequently received written responses to our request from the Aamodts and Lewis. In addition, Mrs. Aamodt attended the prehearing conference on March 7, 1986, and argued her entitlement to intervention. We subsequently allowed the Aamodt intervention but denied Lewis' request. Memorandum and Order, March 26, 1986, at 1."

"22. The NRC Staff did not participate in this proceeding as a party. *See* CLI-85-18, 22 NRC at 882. The Staff made available to the parties and to the Board relevant documentary material within its possession. In addition, the Staff provided testimony and assistance to the Board to help ensure that the hearing record was fully developed."

"23. Under the Commission's Order and Notice of Hearing, no discovery was conducted. The Commission intended the hearing to serve as the fact-finding mechanism. *Id.*"

"24. Only the Board was allowed to call witnesses or to question them. The Board also had the power to issue subpoenas if necessary to compel the attendance of witnesses. *Id.* Prior to the commencement of the hearing, we made available to the parties a list of the individuals that we intended to call as witnesses. Memorandum and Order, March 26, 1986, Attachment A. We invited the parties to submit recommendations regarding additional witnesses. *See, e.g.*, Memorandum and Order, March 26, 1986, at 10; Memorandum and Order, May 22, 1986, at 3; Tr. 3604-05 (Kelley, J.)."

"25. Because the Board had exclusive authority to call witnesses, we considered all witnesses to be 'Board witnesses.' We even extended the designation of 'Board witnesses' to experts (Rockwell and Stier) who had prepared reports as paid consultants to Met-Ed and GPUN and in the conventional licensing case

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Theodore F. Illjes, George A. Kunder, Walter J. Marshall, Hugh A. McGovern, Brian A. Mehler, Charles F. Mell, Adam W. Miller, Frederick J. Scheimann, Bernard G. Smith, and William H. Zewe.

[8] On May 7, 1986, Bryan, one of the original Numerous Employees, and Kidwell withdrew as parties to this proceeding. Memorandum and Order, May 22, 1986 (unpublished), at 13. Both men, however, submitted prefiled testimony and testified in this proceeding. *See* Tr. 4539-4610 (Bryan); Tr. 3285-3399 (Kidwell).

would have been expected to appear as witnesses for GPUN. Memorandum and Order, April 3, 1986, at 3. Although these experts were paid by GPUN, they appeared as Board witnesses. Tr. 216-18 (Kelley, J.). In addition, the Board proposed and subsequently adopted a 'no access' rule to promote on-the-record discussion of the issues and equal party access to the facts and to minimize burdens on technical witnesses. *See* Memorandum and Order, April 13, 1986, at 3; Memorandum and Order, May 22, 1986, at 13. The rule prohibited counsel for any of the parties from communicating with these Board witnesses prior to their appearance at the hearing. *See* Memorandum and Order, May 22, 1986. We subsequently modified this rule to allow the parties to contact these Board witnesses to discuss their conclusions and opinions concerning individual culpability for leak rate falsification at Unit 2. Memorandum and Order, August 7, 1986, at 3."

"26. Before each witness testified, we invited the parties to submit questions in writing to the Board that they believed we should pose to the witness. The Board had the discretion to use the questions suggested by the parties. CLI-85-18, 22 NRC at 882. All witnesses testified under oath."

"27. The hearing commenced on September 8, 1986, in Bethesda, Maryland. It consumed 33 hearing days and resulted in over 5000 transcript pages. Forty-seven witnesses appeared and testified, most of whom filed prefiled testimony.[9] Twenty-five exhibits were entered into the record. *See* note 2, *supra*."

28. The following findings of fact address the specific issues the Commission directed this Board to consider. *See* ¶ 14, *supra*. The findings are divided into six major parts. The first part of the findings covers the organization of TMI-2. The second part gives an overview of the TMI-2 Tech Specs and procedures concerning leak rate testing. These first two parts provide a background and overview necessary to an understanding of these findings and conclusions. The third part discusses the conduct of leak rate testing at TMI-2 in 1978 and 1979, including training on the subject, and events and actions relating to an NRC inspection of TMI-2 in October 1978. The fourth part addresses the difficulties operators were experiencing when conducting leak rate tests, who knew of those difficulties, the actions taken to correct those difficulties, and whether operators felt pressure to obtain leak rate results that did not exceed Tech Spec limits. The fifth part covers the documentation and retention of leak rate tests at TMI-2. The third through fifth parts are largely concerned with patterns of conduct, as distinguished from individual responsibilities (although individual

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[9] Appendix B provides a list of witnesses and transcript citations to their testimony, as well as a list of documentary material bound into the transcripts.

Because Wright did not adopt his prefiled testimony, we had his prefiled testimony bound into the record, not as substantive evidence, but as a brief accurate summary of a longer statement placed in the record (Board Exh. 6, OI Report, Exh. 18, Wright Interview) and regarded as substantive evidence. Tr. 2662-63 (Kelley, J.).

John J. Blessing was subpoenaed by the Board. However, he did not comply with the subpoena and did not testify. *See* Tr. 4332, 4542 (Kelley, J.).

responsibility issues concerning certain senior supervisory and management personnel are also discussed). For example, in discussing widespread misinterpretation of the technical specifications, we cite the testimony of several operators to show the prevalence of the problem, but not to provide a complete listing of the operators involved. The sixth part addresses individual responsibility issues concerning each CRO, Shift Foreman, Shift Supervisor, and the Supervisor of Operations in Unit 2, Mr. Floyd. This part is organized by shifts and begins with a summary description of improper conduct common to that shift — e.g., discarding tests. We then address whether the operator manipulated data to influence test results improperly or took other improper actions. We also consider whether the shift foreman or supervisor participated in, condoned, directed, knew of, or by culpable neglect allowed manipulation of leak rate tests or other improper actions.

29. All parties filed proposed findings of fact and reply findings. The Board has considered all the proposed findings. Except in a few instances, we have not separately discussed findings or lines of findings with which we disagree, or which we find to be irrelevant or unnecessarily detailed. We believe, however, that our findings and the reasons for them are fully stated, and that we have addressed all of the significant points.

30. The Board adopts the following proposed reply findings of GPUN: "Both the Aamodts and Numerous Employees requested at the time of the submission of their findings that the Board take into account as evidence certain documentary materials which never had been introduced (or attempted to have been introduced) in what is a very lengthy hearing record. We were asked at the findings stage in two instances by Numerous Employees and two instances by the Aamodts to take 'official notice' of documents, and in the case of two other documents by the Aamodts at this stage to consider them for the Board's convenience. No explanation was provided for the timing of these requests. We reject this notion, absent good cause, that parties may wait until months of hearings are completed and thousands of pages of documentary evidence are compiled, and at the time of filing findings ask the Board to take additional materials into account through official notice or some other device. These documents are not necessary to our decision and we decline to take them into evidence for the reasons outlined above and discussed in more detail hereafter."

31. "In their proposed findings of fact dated February 2, 1987, the Aamodts requested the Board to take official notice of the following documents provided to the Board as attachments: (1) 'Preliminary Notification of Event or Unusual Occurrence — PNO-79-67,' dated March 28, 1979 (Attachment 1), and (2) reproduced pages of TMI-2 Control Room Logs 'covering the six weeks preceding the accident (February 15 through 4 a.m. March 28, 1979)' (Attach-

ment 2). Aamodt Proposed Findings of Fact ('Aamodt Findings') at 9, 14.[10] The Aamodts also attached to their findings, 'for the Board's convenience,' 'Table 1, which tallies daily water additions and Figure 1 which plots this data from the control room logs provided' (Attachment 3). Aamodt Findings at 14."

32. "None of these documents attached by the Aamodts to their findings after the close of the record of this proceeding will be considered by the Board. If the Aamodts wished to have the documents entered into the record, where they would have been subject to objections by the parties, they should have raised the documents as exhibits before the close of the record. They did not do so."

33. "The request of the Aamodts for the Board to take official notice of Attachments 1 and 2 is baseless. The rules and regulations on official notice carve out a narrow area of applicability and clearly indicate that official notice of the Aamodt attachments would not be appropriate. *See* 10 C.F.R. § 2.743(i); Fed. R. Evid. 201; *see also Union Electric Co.* (Callaway Plant, Unit 1), ALAB-740, 18 NRC 343, 349-50 (1983); *Armed Forces Radiobiology Research Institute* (Cobalt-60 Storage Facility), ALAB-682, 16 NRC 150, 154 n.3 (1982); *Public Service Co. of Oklahoma* (Black Fox Station, Units 1 and 2), CLI-80-31, 12 NRC 264, 277 (1980). Like Attachments 1 and 2, Attachment 3 should have been proposed as an exhibit before the close of the record and not provided along with findings under the guise of 'the Board's convenience.' "

34. "In a similar fashion, the Numerous Employees sought to introduce into evidence after the close of the record two documents attached as appendices to Volume One of their Proposed Findings of Fact and Conclusions of Law filed on January 23, 1987: (1) the Indictment filed on November 7, 1983, in *United States v. Metropolitan Edison Co.* (Criminal No. 83-00188) (Appendix C) and (2) eight pages excerpted from 'Transcript of Proceedings/Change of Plea and Sentencing,' dated February 28-29, 1984, again in *United States v. Metropolitan Edison Co.* (Appendix D). In a letter accompanying its findings submitted to the Board on January 23, 1987, Counsel for the Numerous Employees simply stated that the Board should take official notice of Appendices C and D 'because the Commission did so in its order establishing this proceeding.' "

35. "The Commission, however, did not take official notice of Appendices C and D in its order establishing this proceeding; the Commission only referred to the indictment and plea agreement in its section on 'Background.' *See Inquiry into Three Mile Island Unit 2 Leak Rate Data Falsification*, 'Order and Notice of Hearing,' CLI-85-18, 22 NRC 877, 878-79 (1985). The regulations, rules, and caselaw on official notice cited above in discussing the Aamodts' requests apply with similar force and effect to the request of the Numerous Employees. Mere

[10] By letter to the Board dated February 3, 1987, forwarding "Errata," the Aamodts apparently backed away from "all, or nearly all" of one attachment to their findings while adding still more attachments. We decline to consider any of the "attachments" as evidence.

reference by the Commission to documents in a background section of an order and notice of hearing does not provide sufficient basis for a request that the Board take official notice of those documents as evidence in this proceeding. Like the Aamodts, if the Numerous Employees were interested in introducing Appendices C and D into evidence, they should have followed the proper course of proposing that the Board enter the documents as exhibits before the close of the record."

36. Several of the parties and the NRC Staff proposed numerous corrections to the transcript. No objections were filed to these proposals, except that the Numerous Employees objected to a few such proposals from two parties and the Staff. All of the proposed corrections are adopted, except that the objections of the Employees are sustained and the alternative proposals they advance are adopted.

Standards of Proof and Other Issues Suggested by the Numerous Employees

1. The Numerous Employees submitted a memorandum of law in support of their proposed findings of fact. The Board then invited comments on certain of the issues they had raised; comments were received from the NRC Staff, GPUN, and the Aamodts. The Employees filed comments on the Board's invitation. These matters are discussed in this part and also arise, implicitly or explicitly, in certain of the findings.

STANDARDS OF PROOF

2. The Commission could have specified a standard or standards of proof for this unique, discretionary proceeding, but it did not do so. Therefore, those questions devolve upon the Board. As the Numerous Employees point out, the theoretical choice is between the three generally recognized standards — "preponderance of the evidence," "clear and convincing evidence," or "guilt beyond a reasonable doubt." *See Addington v. Texas*, 441 U.S. 410, 423-24 (1979). Since the criminal standard of guilt beyond reasonable doubt is clearly inappropriate in a civil inquiry where the Board lacks any sanctioning power, the real choice is between the "preponderance" and "clear and convincing" standards.[11]

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[11] Mr. Christopher, chief investigator and author of the OI Report, Exhibit 6, testified that he had applied a "beyond a reasonable doubt" standard in reaching his conclusions about individuals. Tr. 2385-86. While we do not apply that standard, we note that Mr. Christopher's application of it will have no effect on our conclusions. Our interest in the OI and other investigative reports in the record is in the evidence they present on the issues before us and

(Continued)

3. There appear to be no controlling precedents and, as we view the relevant factors, the choice is fairly arguable. Two factors weigh in favor of the more stringent clear-and-convincing standard.

4. First, a finding in this proceeding that, for example, a particular individual has falsified leak rate tests at least implies dishonesty or fraud and could result in severe reputational injury. Arguably, more than a bare preponderance of evidence should underlie such a finding. *See Addington v. Texas, supra*, at 424. We note, however, that findings of fraudulent conduct can sometimes be based on the preponderance standard. *See Steadman v. SEC*, 450 U.S. 91 (1981).

5. Second, this Board's inquiry came very late in the day. The events in question occurred in 1978-1979 and the witnesses were finally asked to testify about those events before this Board in the fall of 1986, 7 to 8 years later. While certain of the issues could be adequately explored through documentary evidence, proof of many important and disputed points depended upon faded or lost recollections about persons present, what was said and done, and by whom. It was obvious to the Board that many witnesses honestly could not remember details about their participation in leak rate testing at TMI-2. Apparently at the request of the Justice Department, which was then seeking criminal sanctions for TMI-2 leak rate activities, the NRC did not interview many persons involved in the criminal investigation between 1980 and 1984. *See* Stier Report, Vol. I at 2-4; Tr. 172. As a result, this inquiry, which otherwise probably could have been conducted in 1982, did not occur until 1986. We did not probe the reasons for the prolonged delay in the NRC investigation because, from the employees' standpoint, those reasons were irrelevant. Whatever the reasons, the delay before serious charges against them could be fully aired was greatly protracted. In a case like this, where an issue depends on strained and faded memories, it would be unfair to find a person guilty of dishonest or fraudulent conduct on a mere preponderance of the evidence, which can mean only that the record underlying a finding makes it slightly more likely than not.

6. Several other factors, however, suggest that the less stringent preponderance standard may be appropriate, at least on some types of issues. Generally speaking, the stringency of the standard of proof depends upon the sanction that may be imposed in the proceeding. Thus, the highest standard applies in a criminal case, particularly felony cases (records receive their closest scrutiny in death penalty cases). But if it is only a matter of money — a damage award or a traffic ticket — a preponderance suffices. The Board in this proceeding does not have the power to impose *any* sanction, not even a traffic ticket. Indeed, the

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the investigators' analyses of that evidence. We are attaching little or no weight to the ultimate conclusions the investigators may have drawn about particular individuals. *See* Order of May 22, 1986, at 6.

Commission has explicitly provided that any facts we find "will not be binding in [any] subsequent enforcement or licensing proceeding." Commission Order of December 18, 1985, CLI-85-18, 22 NRC at 884. This total lack of sanctioning power and *de novo* treatment of our factual determinations suggests the appropriateness of a preponderance standard.

7. Moreover, while a finding of falsification of leak rates would carry with it severe reputational injury, many of the issues we are addressing do not have comparable potential for reputational impact. For example, we see no realistic expectation of severe reputational injury attaching to a finding that a person ran a test when the reactor was not in "steady state."

8. Furthermore, one can argue that public health and safety considerations support application of the preponderance standard in this context. In order to protect the public safety — that argument would run — inquiries should be structured to maximize detection of violations of safety standards, even at the risk of possible unfairness to some individual operators.

9. Balancing the foregoing factors, we believe that we probably could apply the preponderance standard to *all* issues in this proceeding. As a matter of discretion, however, we are applying the clear-and-convincing evidence standard to findings of manipulation and falsification because those findings are likely to have strong reputational impacts and because they tended to involve the most serious memory difficulties in this proceeding. We resolve all other issues on the basis of the preponderance-of-the-evidence test.

10. We conclude our consideration of standards-of-proof questions with these observations:

> Although we use the traditional verbal formula "clear and convincing" evidence, we note that we are not bound by that exact form of words (*see Consumers Power Co.* (Midland Plant, Units 1 and 2), CLI-74-5, 7 AEC 19, 32 n.27 (1974)) and that, in any event, that standard does not imply a complete lack of conflicting evidence. Otherwise, a mere denial from a person against whom there is strong evidence of falsification would defeat an adverse finding against him. By "clear and convincing evidence" we mean that we are reasonably, if not entirely, sure that an adverse finding against a person on a particular issue is warranted, based on the record as a whole.
>
> As to many of our findings, no question arises as to standard of proof because the finding is based directly on voluntary statements of the person in question and/or because the adverse finding is warranted under any standard of proof — e.g., that virtually all the CROs discarded leak rate tests.
>
> Finally, owing to the way in which this proceeding was structured, no party had the "burden of proof" in the traditional sense of that phrase. In

the final analysis, the burden was on the Board to ensure that each of its findings is supported by evidence that meets the applicable standard.

OTHER ISSUES

11. The Numerous Employees took the position in their Memorandum of Law (at 14-20) that Met-Ed Administrative Procedures are not legal requirements imposed on the employees. We invited the parties to comment on that legal position and on whether we should make findings on violations of administrative procedures, even if such procedures were not legally binding on the employees.

12. We agree with GPUN and the Staff that we need not reach the legal question of whether a violation of a Met-Ed administrative procedure can form the basis of NRC enforcement action. This is a factual inquiry. It is clear from the record that various Met-Ed administrative procedures were violated and that such violations contributed to the problems with leak rate testing at TMI-2. As such violations are relevant to the factual issues put to us, we are making appropriate findings. We leave to the Staff and the Commission whether such violations can form the basis of NRC enforcement action.[12]

13. We asked for comment on the Employees' distinction between procedures being "established, implemented, and maintained" versus their being "adhered to." We agree with the Staff and GPUN that this distinction is unsound.

14. We asked whether the TMI-2 Tech Specs required satisfactory leak rate test results measuring unidentified leakage as a condition of continued operation. That is the import of the literal language of the Tech Specs. *See* § II.A, ¶ 5, below. As explained by the Staff and GPUN (taking somewhat different approaches), the answer to that question is affirmative. In that connection, we asked whether any of the other three surveillance methods could have been employed to demonstrate continued compliance with the 1-gpm Limiting Condition for Operation ("LCO"). The Staff says no, emphasizing that the leak rate test was the only test that could measure unidentified leakage as defined in the Tech Specs, a definition that included intersystem leakage. We agree that that point is technically valid. We also believe, however, that inclusion of intersystem

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[12] The Board notes that on February 27, 1987, Counsel for the Numerous Employees filed the following clarification of their position:

> The licensed operators who are parties to the Memorandum of Law intend to adhere to all facility operating procedures, including administrative procedures, and the legal position taken by Numerous Employees at pages 14-18 of the Memorandum of Law does not conflict with the individual written and oral statements concerning adherence to procedures made by those licensed operators to the NRC during its investigation of leak rate testing at TMI-2.
>
> This clarification is being filed with the Presiding Board so as to avoid the necessity (in the Staff's view) for enforcement action while the issue herein is pending before the Board.

The Aamodts' motions of March 11, 1987, based on the Employees' filing of February 27, 1987, to reopen and expand this proceeding are patently without merit and are denied.

leakage in the definition made little practical difference because, as implemented at TMI-2, the operators were told to subtract steam generator leakage from the unidentified leak rate computation. Such leakage is the principal component of intersystem leakage. In any event, we agree with GPUN that, in fact, no other method was used to demonstrate compliance with the 1-gpm LCO.

15. GPUN suggests that the sump method could have been used to measure unidentified leakage. We agree that that method could have provided a measurement of unidentified leakage into containment but would not have met the Tech Specs' broader definition of unidentified leakage. In any case, as GPUN points out, during the time period in question, no effort was made to demonstrate compliance with the 1-gpm LCO with sump data.

16. Related to the preceding point, we asked whether it was necessary to enter the Action Statement "when a leak rate test showed unidentified leakage in excess of 1 gpm and there was no clear basis for invalidating the test." The Numerous Employees say no, and we disagree. The Staff and GPUN endorse our view that that is precisely the situation in which the Action Statement must be entered. The leak rate test was the only method the Employees had and used to demonstrate compliance with the 1-gpm LCO.

17. Finally, we sought comment on a contention of the Employees that they had met all relevant NRC requirements regarding retention of leak rate tests. This issue is discussed at length in Part V. Suffice it to say here that we agree completely with the NRC Staff's comments on this issue, and that we find the Employees' arguments devoid of merit.

Findings of Fact

The Board adopts in substantial part and sets forth below, GPU Nuclear Corporation's Part II.A subtitled "What Was the Organizational Structure of TMI-2 During 1972 and 1978?", ¶¶ 39-73 at 16-35. Board changes or additions are indicated in brackets.

I. WHAT WAS THE ORGANIZATIONAL STRUCTURE OF TMI-2 DURING 1978 AND 1979?

1. "The Operations Department at TMI-2 was responsible for the administration of the leak rate test. The Supervisor of Operations headed the Department. The chain of command below this position consisted of the shift supervisors, shift foremen, control room operators ('CROs'), and auxiliary operators. The Supervisor of Operations, together with the Unit 2 Superintendent of Technical Support, reported to the Unit 2 Superintendent. The Unit 2 Superintendent reported to the Station Superintendent, who was the highest member of

management at the facility. The Station Superintendent reported to the Manager of Generation, who in turn reported to the Vice President of Generation. After the Station Superintendent became Station Manager in March 1979, the position reported directly to the vice presidential level. The offices of both the Vice President and the Manager of Generation were located in Reading, Pennsylvania, about 50 miles from the facility. Board Exh. 1-A, Stier Report, Vol. I at 47, 131-32; *id.*, Vol. VI(F), Herbein 2/8/85 Interview at 9; Herbein, ff. Tr. 5268 at 6-7."

2. "In addition to the chain of command, several bodies existed to [provide] independent review of plant activities and to provide management with a source of information concerning operation of the plant. These groups included the Plant Operations Review Committee ('PORC'), the Generation Review Committee ('GRC'), the Quality Assurance Department ('QA'), and the General Office Review Board ('GORB'). Board Exh. 1-A, Stier Report, Vol. I at 132."

A. Management[13]

3. "John G. Herbein was the Vice President of Generation for Met-Ed, stationed in Reading, Pennsylvania. He was responsible for the overall operation, maintenance, administration, quality assurance, and related technical engineering support activities at the nuclear, fossil, and hydro generating stations owned and operated by Met-Ed. Herbein, ff. Tr. 5268 at 3-4."[29]

4. "The Manager of Generation Operations (Lawyer) reported to Herbein. In March 1979, the TMI Station Manager (G. Miller) began reporting directly to Herbein rather than to the Manager of Generation Operations. *Id.* at 7."

5. "Herbein relied on the chain of command and the formal review committees to bring issues requiring his input to his attention. On a day-to-day basis, he received information primarily from the managers who reported to him. About every 4-6 weeks, he visited TMI to meet with station management. During those visits, he periodically would speak with employees to indicate that upper management was interested in and supportive of them and that the Reading corporate organization was concerned about activities at TMI. *Id.* at 5-7."

6. "Lawrence L. Lawyer was the Manager of Generation Operations, stationed in Reading, Pennsylvania. He was responsible for the maintenance and operation of Met-Ed's nuclear, fossil, and hydro generation stations. Lawyer reported to the Vice President of Generation (Herbein). The Station Superintendents of the generating stations, including the TMI Station Superintendent

[29] Board note: This section essentially provides an overview of management structure. The Board's conclusions about the responsibilities of particular individuals in management positions are found at pp. 135-42, below.

(G. Miller) until March 1979, reported to Lawyer. In March 1979, when the TMI Station Superintendent's title changed to Station Manager, the Station Manager began reporting directly to the Vice President of Generation rather than to Lawyer. Board Exh. 1-A, Stier Report, Vol. VI(G), Lawyer 11/10/83 Interview at 5-7, 9; G. Miller, ff. Tr. 5039 at 4-5."

7. "Generally, Lawyer received daily station status reports during morning conference calls to each station superintendent. The TMI Unit Superintendents participated in the call with the TMI Station Superintendent. While Lawyer did receive daily copies of the Daily Plant Status Reports, he primarily depended on the daily morning conference calls and other phone calls from the plant to identify problems that needed his attention.[14] In addition to monthly meetings with his station superintendents, which occasionally took place at TMI, Lawyer usually traveled to TMI once a week to meet with the TMI Station Superintendent. Board Exh. 1-A, Stier Report, Vol. VI(G), Lawyer 11/10/83 Interview at 7-10, 19-22, 62-63."

8. "Gary P. Miller held the title of Station Superintendent at TMI until March 1979 when the title of the position changed to Station Manager. This position, the highest level of management stationed at TMI, was responsible for the supervision of TMI-1 and TMI-2 and was responsible for compliance with the operating licenses, Tech Specs, and all applicable regulations. While Station Superintendent, Miller reported to the Manager of Generation Operations (Lawyer). When the position title changed to Station Manager, Miller began reporting directly to the Vice President of Generation (Herbein). Persons in three principal operating positions reported to the Station Superintendent/Station Manager. They were the Unit 1 Superintendent, the Unit 2 Superintendent, and the Site Maintenance Superintendent, who was responsible for maintenance at both units. G. Miller, ff. Tr. 5039 at 2-5; Herbein, ff. Tr. 5268 at 7; Board Exh. 2, Faegre & Benson Report, Vol. 3B, Exhibit 70 at 2."

9. "Insofar as operation of the units was concerned, Miller relied principally on the Unit 1 and 2 Superintendents. Typically, he spent most of the time from 9 a.m. to 5 p.m., Monday through Friday, in meetings. He did not regularly attend meetings involving plant operations. Miller estimated that he spent from 20% to 40% of his time away from TMI. While his goal was to visit the Control Rooms about once a week, Miller in practice was not able to visit them that frequently. G. Miller, ff. Tr. 5039 at 6, 12, 14; Tr. 5041, 5066-67 (G. Miller)."

10. "Miller kept abreast of the daily status of the units primarily through two mechanisms, namely the Daily Plant Status Report and a daily morning conference call typically involving Miller, the Units 1 and 2 Superintendents,

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[14] The Daily Plant Status Report listed plant parameters, including unidentified leak rate, and provided areas for comments and special problems. G. Miller, ff. Tr. 5039 at 13. *See, e.g.*, Board Exh. 1-A, Stier Report, Vol. V(B), Tab 10.

and his superior in Reading. On those days when he was at TMI, Miller tried to review the Daily Plant Status Report each morning. While he did not recall seeing shift supervisor turnover notes attached to the reports, Miller believed, based on documents shown to him during the Stier Unit 2 leak rate investigation, that he did receive them. Miller recalled that he relied on the morning call as his principal daily source of information on the status of the units. G. Miller, ff. Tr. 5039 at 12-14."

11. "On matters of plant operations Miller expected his subordinates to use normal channels. His office was outside the security fence at TMI precisely so that employees would deal with their unit managements rather than coming directly to him on routine operation matters. *Id.* at 15."

12. "Because of his numerous responsibilities, Miller necessarily depended on his subordinates to bring to his attention operating matters that involved safety or unit availability. He was not in a position independently to seek out such problems. *Id.* at 11; Tr. 5066 (G. Miller)."

13. "Until late 1978, Miller concurrently held the title of Unit 2 Superintendent at TMI along with the Station Superintendent title. Joseph B. Logan, who had been hired by the company in January 1978 for the position of Unit 2 Superintendent, formally assumed the position toward the end of 1978 after obtaining an NRC Senior Reactor Operator License and familiarizing himself with the unit and staff. G. Miller, ff. Tr. 5039 at 3; Board Exh. 1-A, Stier Report, Vol. VI(G), Logan 3/27/85 Interview at 3."

14. "Miller believed that while he himself held both the Station Superintendent and Unit 2 Superintendent positions in 1978, James L. Seelinger, the Unit 2 Superintendent of Technical Support, substantially discharged the responsibilities of Unit 2 Superintendent. Miller testified that because of his station responsibilities he depended on Seelinger to supervise day-to-day operations. G. Miller, ff. Tr. 5039 at 3-4; Tr. 5050-53 (G. Miller). Seelinger took issue with Miller's view of him as acting Unit 2 Superintendent. Seelinger did allow that his and Miller's perception of his role in Unit 2 could have differed. Seelinger clearly did not view his authority as broadly as Miller did. *See* Seelinger, ff. Tr. 4623 at 4-6; Tr. 4627-28 (Seelinger)."

15. "The Unit 2 Superintendent reported to the TMI Station Superintendent and was responsible for the administration, operation, and maintenance of TMI-2 and for ensuring compliance with the Tech Specs. Administrative Procedure ('AP') 1010, 'Technical Specification Surveillance Program,' gave him specific responsibility for ensuring compliance of the Surveillance Test Schedules with the Tech Specs. Board Exh. 1-A, Stier Report, Vol. V(A), Tab 6 (Unit Superintendent Position Description); *id.*, Vol. V(C), Tab 17 (AP 1010, § 2.1.)."

16. "The four principal operating positions reporting to the Unit 2 Superintendent were the Unit Superintendent of Technical Support, the Supervisor of Operations, the Supervisor of Maintenance, and the Supervisor of Radiation

Protection and Chemistry. G. Miller, ff. 5039 at 4; Board Exh. 1-A, Stier Report, Vol. VI(G), Logan 11/18/83 Statement at 1."

17. "As Unit 2 Superintendent, Logan generally kept abreast of plant status and activities by participating in the morning conference calls between TMI and management in Reading, attending plan of the day ('POD') meetings,[15] and reviewing the Daily Plant Status Reports, shift supervisor turnover notes, control room logs, and documents generated by PORC. He also made tours of the plant and visited the control room several times each day. Board Exh. 1-A, Stier Report, Vol. VI(G), Logan 3/27/85 Interview at 20-22, 27-31, 33."

18. "James L. Seelinger was the Unit 2 Superintendent of Technical Support at TMI until December 1978, when he became the Unit 1 Superintendent and George Kunder replaced him as Superintendent of Technical Support. Seelinger, ff. Tr. 4623 at 1; Kunder, ff. Tr. 4800 at 1."

19. "The Unit 2 Superintendent of Technical Support reported to the Unit 2 Superintendent and was responsible for supervision of the technical aspects of plant engineering and for ensuring TMI-2 operation complied with the Tech Specs. The lead engineers assigned to TMI-2 reported to him. In addition to other responsibilities, the Unit 2 Superintendent of Technical Support chaired the PORC. Kunder, ff. Tr. 4800 at 1; Board Exh. 1-A, Stier Report, Vol V(A), Tab 6 (Unit Superintendent of Technical Support Position Description)."

20. "Seelinger perceived his responsibilities as principally being charged with the writing and approval of the procedures for operating TMI-2. Board Exh. 1-A, Stier Report, Vol. VI(J), Seelinger 4/4/84 Interview at 7. He typically attended the POD meetings. Tr. 4678 (Seelinger)."

21. "Kunder saw his relationship to the Operations Department as advisory, with no direct role in the operation of the unit and no responsibility for operational decisions. He usually learned about operational problems through members of his staff who performed the engineering tasks assigned to the department. Kunder, ff. Tr. 4800 at 1-2. Typically, assignments to the department did go through him; however, plant personnel could deal directly with Kunder's engineers in accomplishing tasks. Tr. 4814-16 (Kunder). Kunder normally attended most of the POD meetings. Board Exh. 1-A, Stier Report, Vol. VI(G), Kunder 3/6/85 Statement at 26."

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[15] The POD meetings Logan attended were held daily in each unit early on the 7 a.m.-3 p.m. shift. The primary purpose of those meetings was to discuss plant problems and plant evolutions scheduled to be performed that day. The typical attendees included the Unit Superintendent, the Supervisor of Operations, the Superintendent of Technical Support, one or more shift supervisors, and a representative from the Maintenance Department. Tr. 4678-79 (Seelinger); Bryan, ff. Tr. 4540 at 2; Mehler, ff. Tr. 3842 at 3; Board Exh. 1-A, Stier Report, Vol. VI(G), Logan 11/18/83 Statement at 1-2.

B. The Operations Department

22. "The Operations Department at TMI-2 was headed by the Supervisor of Operations, James R. Floyd, who reported to the Unit 2 Superintendent. He was responsible for the overall administration of his department and for ensuring compliance with the Tech Specs. The shift supervisors and two Operations engineers reported to him. The Supervisor of Operations was required to hold an NRC Senior Reactor Operator License. Board Exh. 1-A, Stier Report, Vol. V(A), Tab 6 (Supervisor of Operations Position Description); Floyd, ff. Tr. 4894 at 1-2; Marshall, ff. Tr. 4380 at 1; G. Miller, ff. Tr. 5039 at 2-3. An Administrative Procedure 1012, 'Shift Relief and Log Entries,' required the Supervisor of Operations to review and sign the Control Room Log and Shift Foreman's Log at least once per week. Board Exh. 1-A, Stier Report, Vol. V(C), Tab 18 (AP 1012, § 2.2)."

23. "Floyd delegated the actual running of TMI-2 to the shift supervisors and expected them to discuss any problems they had with him. He perceived his job as primarily that of a 'crisis fighter,' living out of the control room and the shift supervisor's office with close contact with CROs. Floyd, ff. Tr. 4894 at 2; Tr. 4969, 4974-75 (Floyd)."

24. "One means by which Floyd gave direction to the Operations Department was through the periodic issuance of Operations Memoranda, which were compiled in a binder in the Control Room. Tr. 4943, 4999-5001 (Floyd); Tr. 2637 (Coleman); Board Exh. 1-A, Stier Report, Vol. VI(I), A. Miller 3/22/85 Interview at 84."

25. "Floyd believed he attended the POD and shift supervisor meetings, but rarely PORC meetings. Tr. 5031 (Floyd). Although he was on the distribution list for the Daily Plant Status Reports, he did not scrutinize them. He viewed them as the means by which his superiors were advised of plant status on a daily basis. Floyd, ff. Tr. 4894 at 6-7."

26. "The TMI-2 Operations Department work force was divided initially into five groups, referred to as 'crews' or 'shifts,' that would rotate among three daily shifts of 7 a.m.–3 p.m., 3 p.m.–11 p.m., and 11 p.m.–7 a.m. Board Exh. 1-A, Stier Report, Vol. I at 47. Prior to the establishment of the six-shift rotation, certain individuals were specified for relief. After addition of the extra shift, however, it became easier to provide relief personnel since a relief shift became a part of the normal shift rotation. Tr. 2329 (Russell). A shift supervisor, who held an NRC Senior Reactor Operator License, headed each shift. The license authorized him to direct the licensed activities of licensed operators and to manipulate the controls of the plant. The license itself stated that '[i]n directing the licensed activities of licensed operators and in manipulating the controls . . . the licensee shall observe the operating procedures and other conditions specified in the facility license . . . .' Because the shift supervisor

was responsible for overseeing Operations Department activities at both Units 1 and 2, he divided his time between TMI-1 and TMI-2 during his shift. The shift foreman for each unit reported to the shift supervisor. Board Exh. 1-A, Stier Report, Vol. I at 47, 49; *id.*, Vol. V(A), Tab 6 (Shift Supervisor Position Description); Board Exh. 10-A, SRO License."

27. "The shift supervisor was responsible for ensuring that plant operations did not jeopardize the health and safety of the employees and public. The shift supervisor was also responsible for ensuring that the surveillance testing program was conducted in compliance with the Final Safety Analysis Report ('FSAR'). Board Exh. 1-A, Stier Report, Vol. V(A), Tab 6 (Shift Supervisor Position Description)."

28. "The turnover notes prepared by the shift supervisor on the 11 p.m.–7 a.m. shift were attached to Daily Plant Status Reports distributed at TMI. *Id.*, Vol. I at 137; *id.*, Vol. VI(H), Mehler 2/28/85 Interview at 76-77; *see, e.g., id.*, Vol. V(B), Tab 10."

29. "Monthly shift supervisor meetings were held at TMI. The minutes of the meetings indicated that personnel matters were the main topic of discussion. Smith, ff. Tr. 4331 at 2; Bryan, ff. Tr. 4540 at 2; Mehler, ff. Tr. 3842 at 3; Board Exh. 1-A, Stier Report, Vol. II(B), G. Miller Summary at 5."

30. "A shift foreman, who held an NRC Senior Reactor Operator License, directly supervised the TMI Operations Department staff on shift at each unit. The license authorized him to direct the licensed activities of licensed operators and to manipulate the controls of the plant. The license itself stated that '[i]n directing the licensed activities of licensed operators and in manipulating the controls . . . the licensee shall observe the operating procedures and other conditions specified in the facility license . . . .' The CROs reported to the shift foreman. Board Exh. 10-A, SRO License; Board Exh. 1-A, Stier Report, Vol. V(A), Tab 6 (Shift Foreman Position Description); *id.*, Vol. I at 48."

31. "Like the shift supervisor, the shift foreman was responsible for ensuring that plant operations did not jeopardize the health and safety of the employees and public and that the surveillance testing program was conducted in compliance with the FSAR. Board Exh. 1-A, Stier Report, Vol. V(A), Tab 6 (Shift Foreman Position Description)."

32. "The shift foreman would assign work among his subordinates and would personally become involved in the resolution of any problems encountered on his shift. The manner in which shift foremen performed their responsibilities varied. Some foremen spent more time in the Control Room than others who devoted more of their time to inspecting the plant. *Id.*, Vol. I at 48-49."

33. "The outgoing shift communicated information to the oncoming shift through shift turnovers. Floyd, ff. Tr. 4894 at 7; Tr. 2623 (Coleman)."

34. "Although Surveillance Procedure ('SP') 2301-3D1, 'RCS Inventory,' did not define specific responsibilities for the shift foreman, AP 1010, 'Technical

Specification Surveillance Program,' provided that '[d]ata sheets will be signed by the person performing the task, and reviewed and approved by his foreman where required by the forms and procedures.' As a general rule, the shift foreman would approve leak rate test results for filing by signing the leak rate test sheet. Board Exh. 1-A, Stier Report, Vol. I at 48; *id.*, Vol. V(A), Tab 6 (Shift Foreman Position Description); *id.*, Vol. V(C), Tab 17 (AP 1010, § 3.2.2)."

35. "AP 1012, 'Shift Relief and Log Entries,' required the shift foreman to maintain a Shift Foreman's Log. The shift foreman was responsible for review and sign off of the log at the completion of each shift. The procedure did not specify that the log contain any information relating to leak rate tests. *Id.*, Vol. I at 44; *id.*, Vol. V(C), Tab 18 (AP 1012)."

36. "The CROs, under the direction of a shift foreman, were responsible for operating the plant. Each CRO was required to hold an NRC Reactor Operator License. The license issued to the operator, which authorized him to manipulate all controls of the plant, stated that '[i]n manipulating the controls . . . the licensee shall observe the operating procedures and other conditions specified in the facility license . . . .' Board Exh. 10-B, RO License; Board Exh. 1-A, Stier Report, Vol. V(A), Tab 6 (Control Room Operator Position Description)."

37. "Two to four CROs comprised each shift, possibly including one or more CRO trainees whom the NRC had not yet licensed. The CROs were responsible for directing the work of several auxiliary operators. Board Exh. 1-A, Stier Report, Vol. I at 48; McGovern, ff. Tr. 3148 at 2; Conaway, ff. Tr. 3097 at 2. Although the division of responsibilities among the CROs on shift did vary, one CRO was assigned to the control panel, where his responsibilities included maintaining the Control Room Log. The responsibility for 'switching and tagging' equipment to control its proper use and for taking readings from plant instruments was assumed by the second CRO on shift (or divided between two or more CROs on crews that included a total of more than two CROs). The CRO responsible for taking readings usually would also be responsible for performing the leak rate test. In practice, the CRO duties overlapped somewhat. The switching and tagging CRO might make entries in the Control Room Log, and the CRO assigned to the Control Panel might, on occasion, perform a leak rate test.[16] Board Exh. 1-A, Stier Report, Vol. I at 48-49."

38. "Like the shift foremen, the CROs used turnovers to communicate information from shift to shift. Floyd, ff. Tr. 4894 at 7; Board Exh. 1-A, Stier Report, Vol. VI(G), Illjes 2/7/85 Interview at 45; *id.*, Vol. VI(D), Frederick 3/12/85 Interview at 127-28; Board Exh. 6, OI Report, Exh. 24, Faust Interview at 6."

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[16] For each of the leak rate tests, Stier and NRR attempted to determine individual assignments for each of the individuals on shift. *See* Board Exh. 1-A, Stier Report, Vol. III(A), Tables 1-2; Board Exh. 5-A, NRR Report, Vol. 2, Table 11.

39. "The procedures implementing the Tech Spec requirements for leak rate testing imposed several requirements on the CRO AP 1012, 'Shift Relief and Log Entries,' required CROs to maintain and sign a Control Room Log, including a record of the start and completion or suspension times of all tests required by Tech Specs. Board Exh. 5-A, NRR Report, Vol. 1, Enclosure 1 at 2; Board Exh. 1-A, Stier Report, Vol. I at 44; *id.*, Vol. V(C), Tab 18 (AP 1012, §§ 2.4 and 3.3.17). AP 1010, 'Technical Specification Surveillance Progr[illegible]' provided that the operator performing a surveillance task sign the data sheets where required by the forms and procedures. AP 1012 also required the test performer to document problems encountered during surveillance testing and test results not meeting test acceptance criteria on an 'Exception and Deficiency List.' Board Exh. 5-A, NRR Report, Vol. 1, Enclosure 1 at 2; Board Exh. 1-A, Stier Report, Vol. I at 45; *id.*, Vol. V(A), Tab 17 (AP 1010, §§ 3.2.2 and 3.2.4). SP 2301-3D1, 'RCS Inventory,' required the responsible CRO to enter the Action Statement under Tech Spec 3.4.6.2 if a leak rate test indicated that a limiting condition for operation had been exceeded. Tr. 653 (Kirkpatrick); Board Exh. 1-A, Stier Report, Vol. V(C), Tab 19 (SP 2301-3D1, §§ 6.4 and 7.2)."

40. "Several auxiliary operators were assigned to each shift. Generally, they reported to the CRO who operated the panel. They were stationed throughout the plant and assisted the CROs. Their duties included operating equipment that could not be operated from the Control Room. Board Exh. 1-A, Stier Report, Vol. I at 48-49. These individuals were not required to hold any NRC license."

41. "The following chart provides the shift compositions for both the five-shift rotation, from September 30, 1978, to December 1978, and the six-shift rotation, from January 1979 to March 28, 1979:"[17]

Shift	Position	September–December 1978	January–March 1979
A[18]	Shift Supervisor	Zewe, W.	Zewe, W.
	Shift Foreman	Scheimann, F.	Scheimann, F.
	CRO	Frederick, E.	Frederick, E.
	CRO	Faust, C.	Faust, C.
	CRO-in-training	McGovern, H.[19]	

[17] The individuals on a particular shift sometimes varied primarily because of vacations, illnesses, and training. The actual shift composition for a particular test was reconstructed by Stier and appears in Board Exh. 1-A, Stier Report, Vol. III(A), Tables 1 and 2.

[18] 1978 Shift A — *see* Board Exh. 5-A, NRR Report, Vol. 1, Enclosure 1 of Enclosure 10 at 6; 1979 Shift A — *see id.*, Enclosure 1 of Enclosure 6 at 1.

[19] McGovern was in training until receiving his RO license in November 1978. *See id.*, Enclosure 1 of Enclosure 10 at 6.

Shift	Position	September–December 1978	January–March 1979
B[20]	Shift Supervisor	Chwastyk, J.	Chwastyk, J.
	Shift Foreman	Conaway, W.	Conaway, W.
	CRO	Kidwell, J.	Kidwell, J.
	CRO	Illjes, T.	Illjes, T.
	CRO-in-training	Mell, C.	Mell, C.
	CRO-in-training	Hemmila, E.[21]	
C[22]	Shift Supervisor	Mehler, B.	No change
	Shift Foreman	Adams, C.	after December
	CRO	Congdon, J.	1978
	CRO	Cooper, M.	
	CRO-in-training	Phillippe, M.	
D[23]	Shift Supervisor	Hill, G.	No change
	Shift Foreman	Miller, A.	after December
	CRO	Olson, D.	1978
	CRO	Wright, L.	
	CRO	Coleman, M.	
E[24]	Shift Supervisor	Smith, B.	Smith, B.
	Shift Foreman	Hoyt, K.	Hoyt, K.
	CRO	Booher, R.	Booher, R.
	CRO	Hartman, H.	Hartman, H.
	CRO-in-training	Blessing, J.	Blessing, J.
	CRO-in-training	Germer, L.	
F[25]	Shift Supervisor	'F' Shift	Bryan, K.
	Shift Foreman	did not	Guthrie, C.
	CRO	exist	Hemmila, E.
	CRO		McGovern, H.
	CRO-in-training		Germer, L.

[20] Shift B — *see id.*, Enclosure 1 of Enclosure 9 at 1.
[21] Hemmila was in training until receiving his RO license in December 1978. *See id.*, Enclosure 16 at 2; Board Exh. 1-A, Staff Report, Vol. V(A), Tab 4 (8/15/78 Shift Assignment Sheet).
[22] Shift C — *see* Board Exh. 5-A, NRR Report, Vol. 1, Enclosure 1 of Enclosure 5 at 1.
[23] Shift D — *see id.*, Enclosure 1 of Enclosure 12 at 1.
[24] Shift E — *see id.*, Enclosure 15 at 2; *id.*, Enclosure 1 of Enclosure 3 at 1.
[25] Shift F — *see id.*, Enclosure 1 of Enclosure 10 at 6.

C. Bodies Outside of the Chain of Command

42. "The Plant Operations Review Committee was an advisory group that reported to the Unit Superintendent. It was an interdisciplinary committee consisting mostly of department heads and key individuals from the plant. PORC was responsible for review of procedure changes and plant modifications, as well as activities directly affecting the nuclear safety of the operating unit. Tech Spec 6.5.1.6 set forth the specific charges of PORC. One such charge was investigating violations of Tech Specs, including preparing reports covering evaluations and recommendations to prevent recurrence to the Station Superintendent and the GRC. PORC also was responsible for reviewing events requiring 24-hour notification to the NRC. The Tech Specs required PORC to provide written notification within 24 hours to the Station Superintendent and the GRC Chairman of disagreement between PORC and the Unit Superintendent. The Unit Superintendent, however, had responsibility for resolving the disagreements. Board Exh. 1-A, Stier Report, Vol. V(B), Tab 14 (Tech Specs 6.5.1.6 and 6.5.1.7); Kunder, ff. Tr. 4800 at 3-4; Tr. 4817-20 (Kunder); Herbein, ff. Tr. 5268 at 8."

43. "The General Office Review Board was an advisory group that reported directly to the President of Met-Ed. GORB reports provided the President, who was not involved in the day-to-day operational activities of the station, with the broad perspective of maintaining nuclear safety and appropriate radiation protection. Herbein, ff. Tr. 5268 at 8."

44. "The Generation Review Committee was a group organized to provide an independent review and audit of activities important to nuclear safety, which included procedural changes, plant modifications, and violations of regulations. *Id.*"

45. "The Quality Assurance organization audited and inspected safety-related activities, including operations, maintenance, engineering, and licensing, to ensure compliance with procedures developed by the functional groups. *Id.* at 9. QA had a specific responsibility to oversee surveillance testing. Board Exh. 1-A, Stier Report, Vol. I at 138."

II. TECHNICAL SPECIFICATIONS, TRAINING, AND CHRONOLOGY OF EVENTS DURING OCTOBER 1978 NRC INSPECTION

A. Technical Specifications and Procedures Relevant to Leak Rate Testing

In this section the Board generally adopts the GPUN Proposed Findings set forth in their § II.B. Such findings not modified by the Board are enclosed in quotation marks.

1. "The TMI-2 Operating License incorporated Tech Specs that established limiting conditions for operation. Two sections of the Tech Specs addressed the requirements for pressure boundary leakage detection, §§ 3.4.6.1 and 3.4.6.2. Each of these sections was divided into four parts: (1) limiting conditions for operation establishing minimum requirements for plant operation; (2) an 'Action' section, generally referred to as the 'Action Statement,' describing the steps to be taken if a limiting condition for operation was exceeded; (3) surveillance requirements, designed to assure compliance with limiting conditions for operation; and (4) 'bases' describing the background or purpose of the limiting conditions for operation. Board Exh. 1-A, Stier Report, Vol. 1 at 36; *id.*, Vol. V(B), Tab 14 (Tech Specs 3.4.6.1 and 3.4.6.2)."

2. Tech Spec 3.4.6.1 follows the provisions of Reg. Guide 1.45 by requiring the three leakage detection systems recommended in that Guide. The Tech Spec required radioactive particulate and sump monitoring systems in addition to either an air cooler condensate or a gaseous radioactivity monitoring system. The Action Statement of this Tech Spec described the steps to be taken in the event these systems were not continuously in operation. Its corresponding surveillance requirements specified how plant personnel were to demonstrate that these systems were operable. The "bases" of this Tech Spec explained that it was intended to be consistent with Reg. Guide 1.45. Tech Spec 3.4.6.1, however, did not specify the leakage limits that it was intended to monitor, and it did not require an inventory balance test. *Id.*, Vol. I at 36-37; *id.*, Vol. V(B), Tab 12 (Reg. Guide 1.45).

3. Tech Spec 3.4.6.2 established the following leakage limits as the limiting conditions for operation:

> a. no pressure boundary leakage;
>
> b. 1 gpm of unidentified leakage;
>
> c. 1 gpm of primary-to-secondary leakage through the steam generators;
>
> d. 10 gpm of identified leakage from the Reactor Coolant System;
>
> e. 8 gpm controlled leakage at a Reactor Coolant System pressure of 2155 ± 50 psig.

Board Exh. 1-A, Stier Report, Vol. V(B), Tab 14 (Tech Spec 3.4.6.2).

4. The corresponding Action Statement to Tech Spec 3.4.6.2 required that if any pressure boundary leakage were found, the plant had to be in "hot standby" within 6 hours and in "cold shutdown" within the next 30 hours. For any other leakage, including unidentified leakage, in excess of a limiting condition for operation, leakage was to be reduced to within Tech Spec limits within 4 hours or the plant had to be in hot standby within the next 6 hours and in cold shutdown within the next 30 hours.

5. Tech Spec 4.4.6.2, which provided the corresponding surveillance requirements, stated:

> 4.4.6.2 Reactor Coolant System leakages shall be demonstrated to be within each of the above limits by:
>
> a. Monitoring the containment atmosphere particulate radioactivity monitor at least once per 12 hours.
>
> b. Monitoring the containment sump inventory and discharge at least once per 12 hours.
>
> c. Measurement of the CONTROLLED LEAKAGE from the reactor coolant pump seals when the Reactor Coolant System pressure is 2155 ± 50 psig at least once per 31 days.
>
> d. Performance of a Reactor Coolant System water inventory balance at least once per 72 hours during steady state operation.

As the Board reads this language, all four of these surveillances were required. *Id.*, Vol. I at 37-38; *id.*, Vol. V(B), Tab 14 (Tech Spec 4.4.6.2).

6. "Tech Specs 1.14 through 1.17 defined the categories of leakage referred to in Tech Spec 3.4.6.2 as follows (Board Exh. 1-A, Stier Report, Vol. I at 38-39; *id.*, Vol. V (B), Tab 14 (Tech Specs 1.14-1.17); *see also* Wermiel, ff. Tr. 376 at 5):

> *IDENTIFIED LEAKAGE*
>
> 1.14 IDENTIFIED LEAKAGE shall be:
>
> a. Leakage (except CONTROLLED LEAKAGE) into closed systems, such as pump seal or valve packing leaks that are captured and conducted to a sump or collecting tank.
>
> b. Leakage into the containment atmosphere from sources that are both specifically located and known either not to interfere with the operation of leakage detection systems or not to be PRESSURE BOUNDARY LEAKAGE.
>
> c. Reactor coolant system leakage through a steam generator to the secondary system.
>
> *UNIDENTIFIED LEAKAGE*
>
> 1.15 UNIDENTIFIED LEAKAGE shall be all leakage which is not IDENTIFIED LEAKAGE or CONTROLLED LEAKAGE.
>
> *PRESSURE BOUNDARY LEAKAGE*
>
> 1.16 PRESSURE BOUNDARY LEAKAGE shall be leakage (except steam generator tube leakage) through a non-isolable fault in a Reactor Coolant System component body, pipe wall or vessel wall.

CONTROLLED LEAKAGE

1.17 CONTROLLED LEAKAGE shall be that seal water flow supplied from the reactor coolant pump seals. . . ."

7. "The Tech Specs also established requirements for reporting to the NRC when a limiting condition for operation was exceeded. Tech Spec 6.9.1.8 provided that in such instances a report had to be made to the NRC within 24 hours. This had to be followed by a more detailed Licensee Event Report within 14 days describing the event, the corrective action taken, and the steps that the licensee intended to take to prevent recurrence. Board Exh. 1-A, Stier Report, Vol. I at 39; *id.*, Vol. V(B), Tab 14 (Tech Spec 6.9.1.8); *see also* Wermiel, ff. Tr. 376 at 5, 9."

8. "Finally, Tech Spec 6.10 required 'records of surveillance activities . . . required by these Technical Specifications' to be retained for at least 5 years. Board Exh. 1-A, Stier Report, Vol. I at 40; *id.*, Vol. V(B), Tab 14 (Tech Spec 6.10); *see also* Wermiel, ff. Tr. 376 at 11."

9. "The TMI-2 FSAR described the leak rate test as the 'primary means of detecting reactor coolant system leakage.' Board Exh. 1-A, Stier Report, Vol. I at 41; *id.*, Vol. V(C), Tab 15 (FSAR); *see also* Wermiel, ff. Tr. 376 at 8-9; Board Exh. 22, FSAR §§ 5.2.7.3 and 5.2.7.4. It was in fact the only one of the tests prescribed in the Tech Specs that provided a quantifiable means of measuring unidentified leakage as defined in the Tech Specs. *See* Tr. 683 (Stier, Russell); Tr. 3865 (Meiler)."

10. "The following three interrelated procedures implemented Tech Spec requirements for leak rate testing: (1) SP2301-3D1, 'RCS Inventory,' controlling the performance of leak rate tests; (2) AP 1012, 'Shift Relief and Log Entries,' dealing with logging requirements; and (3) AP 1010, 'Technical Specification Surveillance Program,' covering reporting the results of surveillance tests.[26] Board Exh. 1-A, Stier Report, Vol. I at 41; *id.*, Vol. V(C), Tabs 17 (AP 1010), 18 (AP 1012), 19 (SP 2301-3D1)."

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[26] The NRC Staff identified one additional procedure, AP 1036, "Instrument Out-of-Service Control" (Board Exhs. 12-A and 12-B), as a relevant procedure to this proceeding. Tr. 1167-68 (Russell). Mr. Russell stated:

> The purpose of the procedure is to describe the method of control of readout devices which become inoperable or are strongly suspected of being inoperable, such that they are marked, documented and controlled until repair is effected. That's under section 1.1; purpose.

Under § 2.1, responsibilities:

> shift supervisors, shift foreman and control room operators. The shift supervisor and/or shift foreman and/or control room operators are responsible to assure out-of-service instruments are identified and logged out-of-service. They are also responsible to assure that work requests are submitted to effect repair and remove the out-of-service stickers from the instruments and close out the out-of-service instrument log entries.

This is the procedure that promulgates the log that we have been discussing, and I think the procedure is quite clear and it indicates that out-of-service instruments and suspected instruments are not to be used and they are to be tagged and indicated and those tags are to remain on them until such time as repairs are effected and they are again reliable for the purpose of operating the facility. Tr. 1803 (Russell).

11. "SP 2301-3D1 stated that its purpose was to assure compliance with the leakage limits set forth in Tech Spec 3.4.6.2. It required performance of a leak rate test at least once every 72 hours during 'steady state' in Modes 1, 2, 3, and 4, when, according to the Tech Spec definition of Modes, RCS temperature averaged greater than 200°F. Board Exh. 1-A, Stier Report, Vol. I at 42; *see also* Board Exh. 5-A, NRR Report, Vol. 1, Enclosure 1 at 2."

12. "The procedure prescribed the plant conditions required for the performance of a leak rate test. Certain 'operations should not be conducted,' for example, '(a) makeup or chemical addition to the makeup system, . . . (e) boration or deboration.' 'Operations such as adding water to the make-up tank or sampling the RCS [reactor coolant system] may be accounted for [in the test calculation] . . . , however, these should be avoided if at all possible.' The reactor coolant and make-up systems should be maintained in a 'steady state condition.' Valve lineups should be maintained the same throughout the test, and reactor power and RCS temperature and pressure should not be altered. The procedure also directed use of the same instruments to obtain data at the beginning and end of the test. Board Exh. 1-A, Stier Report, Vol. I at 42."

13. "The procedure also provided for the performance of the test normally by means of the plant computer. Operators were alerted to the inability of the computer to perform leak rate test calculations when RCS temperature was below 520°F. At such times, operators were to perform the calculation manually, and the procedure provided a data sheet for that purpose. *Id.* at 43; Board Exh. 2, Faegre & Benson Report, Vol. 4, Tab 2 (SP 2301-3D1, Rev. 3, §4.3); *see also* Board Exh. 5-A, NRR Report, Vol. 1, Enclosure 1 at 2."

14. "If an operator had to change the RCS inventory during the test, he had to account for the change in the calculation and complete a 'Data Sheet 4' to indicate the quantity added to the RCS and the operation that caused the change. Board Exh. 1-A, Stier Report, Vol. I at 43."

15. "The procedure contained directions for responding to test results that exceeded limiting conditions for operation. The first requirement was that an operator begin a new leak rate test. Next, the operator was to determine whether unaccounted-for operator action had affected the initial test. If such action had taken place, the operator was to invalidate the test. The procedure required that the operator record such action in the 'remarks' section of the data sheet. *Id.*; *see also* Board Exh. 5-A, NRR Report, Vol. 1, Enclosure 1 at 2."

16. "Operators were then required to check for leakage. If an operator found such leakage, he was to document the leakage on a 'Data Sheet 3' along with its flow rate and a description of the method used to determine the rate. The shift supervisor was then required to evaluate the safety significance of any such leakage that the operator had identified. Board Exh. 1-A, Stier Report, Vol. I at 43-44."

17. "If, after these steps were taken, test results remained in excess of acceptance criteria, the procedure required that the process of shutting down the plant should begin according to the Action Statement of Tech Spec 3.4.6.2. *Id.* at 44; *see also* Board Exh. 5-A, NRR Report, Vol. 1, Enclosure 1 at 1."

18. "AP 1012 set forth requirements for logging surveillance tests. A Control Room Log, maintained by a CRO, was to include a record of the start and completion or suspension times of all tests required by Tech Specs. The Supervisor of Operations was required to review and sign the Control Room Log at least once per week, indicating that he was satisfied with the recording techniques and was familiar with any operating abnormalities. The procedure also required maintenance of a Shift Foreman's Log, but did not specify that the Log contain any information relating to leak rate tests. Board Exh. 1-A, Stier Report, Vol. I at 44; *see also* Board Exh. 5-A, NRR Report, Vol. 1, Enclosure 1 at 2."

19. "AP 1010 established a system for documenting the results of surveillance tests that could not be performed successfully or failed to meet acceptance criteria. Any surveillance test that had an unsatisfactory result had to be documented on an 'Exception and Deficiency List' and filed. Filing an 'Exception' was necessary in the event of a failure to obtain 'required plant conditions' or an inability to use 'an existing procedure (i.e., equipment out-of-service or a procedure which cannot be followed).' Filing a 'Deficiency' was necessary when a test had been completed but acceptance criteria had not been met. Board Exh. 1-A, Stier Report, Vol. I at 45; *see also* Board Exh. 5-A, NRR Report, Vol. 1, Enclosure 1 at 2-3."

20. "A shift supervisor was required to review and initial all Exceptions and Deficiencies ('E&Ds') 'as soon as possible.' In the case of a Deficiency, he was to determine whether a reportable occurrence had taken place. If so, he had to bring the matter to the attention of the Unit Superintendent. The E&D List would then be attached to the test data package and filed with the GMS Coordinator. Board Exh. 1-A, Stier Report, Vol. I at 45."

21. "The GMS Coordinator, who was appointed by the Unit Superintendent to administer the GMS (Generation Maintenance System) program covering all plant maintenance and testing, would inform the PORC Chairman and the QC Supervisor when the maximum allowable time interval between surveillance tests had been exceeded. The GMS Coordinator would forward any E&D to the PORC Chairman and QC Supervisor as soon as practicable. He would also maintain a followup action log of all E&Ds. Finally, the QC Supervisor was designated to provide general oversight for all surveillance testing. *Id.*, at 45-46."

B. Training

The Board generally adopts the Proposed Findings of the Numerous Employees as set forth in their §§ V.A and V.B except as deletions are indicated by ". . . .".

22. "The testimony of Mr. Dennis J. Boltz, who was a training instructor assigned to the licensed operator training group at TMI-2 during 1978-1979, Tr. 2218-19, made apparent the fact that classroom training regarding the performance of leak rate tests was virtually nonexistent. Mr. Boltz acknowledged that, in 1978-1979, the TMI-2 training department focused exclusively on 'textbook type' training consisting of little more than providing a copy of the Technical Specifications to the operators and supervisors to read, and thus it 'had to rely heavily [on] the operations and on-the-job training aspects of [the CROs'] training programs with qualified personnel on shift.' Tr. 2225, 2226; *see* Tr. 2582, 2714, 2799, 2839."

23. "Mr. Boltz searched training records from 1978-1979 and found only one document that referred to leak rate testing; it merely states that a CRO must be '[c]apable of using [the] computer for calculations of leak rate, heat balance, Reactivity Balance, etc.' Exh. 16; *see* Tr. 2220, 2226."

24. "Mr. Boltz's testimony before this Board also highlighted the important information concerning leak rate testing that was omitted from the TMI-2 classroom training program. The training program did not include a discussion of the requirement of Administrative Procedure 1012 to log the start and completion (or suspension) of each leak rate test performed, Tr. 2224-25, nor did it include a discussion of the Administrative Procedure 1010 requirement that leak rate tests not performed successfully or that failed to meet the acceptance criteria should be documented through the use of an exception or a deficiency. Tr. 2224. The classroom training program at TMI-2 also failed to provide any instructions regarding the performance of leak rate tests by hand. Tr. 2229. Nor were such instructions provided during the 3-week course at the B&W simulator taken by all CRO trainees prior to becoming licensed. Tr. 2231."

25. "The only instruction as to how to perform leak rate tests was provided as part of an operator's on-the-job training (Tr. 2225; *see, e.g.*, Mell Prep. St. at 1-2, ff. Tr. 3239), but the TMI-2 training department took no action to assure that the on-the-job leak rate test training was consistent among the shifts. Tr. 2224. The Board thus finds that classroom training concerning leak rate testing at TMI-2 was essentially nonexistent during 1978-1979, and failed to teach the TMI-2 operators and supervisors the requirements pertaining to, and proper procedures for, leak rate testing."

26. "The evidence of record is that the on-the-job instruction received by the TMI-2 operators concerning leak rate testing was confined to a basic demonstration of the steps necessary to conduct the leak rate test. As Mr. McGovern

testified before this Board, '[a]ll I remember about performing leak rates and learning how to do them was what I was taught by the CROs. This is how you punch it out and make the leak rate test come out. That's what I remember about leak rate training.' Tr. 3207; *see* Mell Prep. St. at 1-2, ff. Tr. 3239."

27. "Mr. McGovern's recollection was echoed by the testimony of several other operators. Mr. Coleman testified that the on-the-job instruction he received concerning leak rate testing was not 'very extensive.' Tr. 2583. Mr. Cooper testified that apart from being shown how to perform a leak rate test, his only instruction concerned the prescribed limits for plant leakage. Tr. 2916. Thus, there is ample testimony illustrating the limited nature of the on-the-job training received by the TMI-2 operators in 1978-1979. In essence, there was no training on the meaning or purpose of the test. Tr. 523-24."

28. "The TMI-2 operators and shift foremen were unanimous in testifying that their on-the-job training on leak rate testing never included any discussion of the relationship between the test and the potential safety significance of a critical crack in RCS piping. Mr. Illjes, a CRO, could not recall having received 'any specific training on leak rates or the [safety] implications' of performing them. Tr. 3082. Nor could Mr. Mehler (a shift supervisor) (Tr. 3859-60) or Mr. Adam Miller (a shift foreman) (Tr. 3628) recall any such training. Other operators who testified to this void in their training include Mr. Cooper (Tr. 2916), Mr. Wright (Tr. 2672), Mr. Hitz (Tr. 3707), Mr. Guthrie (Tr. 4126), Mr. Olson (Tr. 4009-11) and Mr. Conaway (Tr. 3105)."

29. "The on-the-job training at TMI-2 was also deficient in that it failed to instruct operators to take the prescribed actions in response to unsatisfactory leak rate test results. Numerous operators testified that they were never taught to apply Administrative Procedure 1010, the Exception and Deficiency procedure, to unsatisfactory leak rate test results. Mr. Wright's testimony is typical in this regard. He stated that the requirement to apply the Exception and Deficiency Administrative Procedure to unsatisfactory leak rate test results was never 'impressed upon me, either in training or anything else.' Tr. 2672. The testimony of Messrs. Coleman (Tr. 2636), Conaway (Tr. 3108), Hitz (Tr. 3669), Miller (Tr. 3648), Smith (Tr. 4344), and Scheimann (Tr. 2795) supports Mr. Wright's recollection. . . ."

30. "It is also clear that the on-the-job training never conveyed the proper interpretation of the '72-hour' rule and the 'Action Statement' requirement. The TMI-2 operators believed that they were obligated to enter the Action Statement only upon failing to obtain one satisfactory leak rate test result within a 72-hour period. *E.g.*, Illjes Prep. St., ff. Tr. 3010, at 2-3; Scheimann Prep. St., ff. Tr. 2831, at 2; Cooper Prep. St., ff. Tr. 2835, at 5. Only a few TMI-2 operators and supervisors seemed to have correctly understood that the requirement to invoke the '4-hour clock' in the 'Action Statement' applied whenever a valid leak rate test

depicted unidentified leakage in excess of 1 gpm. Frederick Prep. St., ff. Tr. 2447, at 2; Zewe Prep. St., ff. Tr. 2946, at 2."

31. "The Board finds that on-the-job training at TMI-2 essentially consisted of a demonstration of the manner in which to perform the leak rate test, with virtually no guidance as to the significance of the test or the actions to be taken if test results were unsatisfactory. *See* Tr. 4967-71 (Board summary of testimony). The conclusion is inescapable that the lack of meaningful training was a major cause . . . of the problems with leak rate testing at TMI-2."

C. Chronology of Events During October 1978 NRC Inspection

The following section is based largely upon § II.C(iii) of the GPUN proposed findings. However, the Board's numerous departures from those proposals make it impracticable to identify the source of particular language.

32. In October 1978, NRC Inspector Donald Haverkamp discovered that certain inappropriate leak rate test practices were being followed. The record indicates that on October 15, 1978, at 7:27 p.m., a leak rate of –0.3504 gpm was obtained.[27] *See* NRR Test No. 12. On October 16, 1978, at 7:35 p.m., a leak rate of 2.5645 gpm was obtained, substantially above the 1-gpm limit set by the Tech Specs. *See* NRR Test No. 12A. On October 17, 1978, at 1:27 p.m., a leak rate of 2.0738 gpm was obtained, again substantially above the Tech Spec limit. *See* NRR Test No 12B. On October 18, 1978, at 5:13 a.m., a leak rate of 1.7754 gpm was obtained, again well above the Tech Spec limit. *See* NRR Test No. 12C.

33. The shift supervisor turnover note from the midnight to morning shift on October 18 stated, "[s]till could not get a leak rate — 1900 today is deadline doing hand calculations." Board Exh. 1-A, Stier Report, Vol. V(B), Tab 10 (10/18/78 Daily Plant Status Report at 104, Item 11). Brian Mehler, shift supervisor of the shift that was on duty that morning, said he was aware of the need for a good leak rate and the fact that the 72-hour clock was running out. Tr. 3893 (Mehler). At 7:35 a.m., a leak rate of 1.2939 gpm was obtained. *See* NRR Test No. 12D. Charles Adams, the shift foreman on Mehler's shift, testified that James Floyd, TMI-2 Supervisor of Operations, usually came into the Control Room around 6:00 a.m., and, though he did not recall exactly what time Floyd arrived on October 18, he recalled Floyd sitting at the computer console, where leak rate tests were run. Tr. 3797 (Adams). Floyd claimed not to recollect the morning events of October 18, but he did note that he frequently sat at

[27] For purposes of this discussion, the Board assumes that such a relatively small negative leak rate might reasonably be considered valid, taking into account the normal ranges of instrument error. *See* Tr. 4901 (Floyd). Our assumption is supported by the record, which indicates that small negative leak rates were considered acceptable. *See, e.g.*, Tr. 2797-98 (Scheimann); Tr. 4901 (Floyd); Tr. 2529-32 (Faust); Coleman, ff. Tr. 2579 at 5; Tr. 2652-53 (Coleman).

the computer console and sometimes started a test for an operator by typing "RCSL." Tr. 4898-99 (Floyd). Mehler did not recall Floyd's presence in the Control Room "immediately in the morning, early" but implied that Floyd was there before Haverkamp arrived. Tr. 3893-94 (Mehler). At 8:59 a.m., a leak rate of 1.3219 gpm was obtained. *See* NRR Test No. 12E.

34. At approximately 9:00 a.m. on October 18, Haverkamp, who was on site conducting a routine inspection of plant operations, arrived in or near the Control Room and overheard a discussion by a CRO, shift foreman, and shift supervisor about bad tests. Board Exh. 20, Haverkamp Testimony at 2-3. Haverkamp joined the discussion and saw several leak rate test results that exceeded the 1-gpm LCO. *Id.* Haverkamp interrupted his routine operations inspection schedule to question Mehler and/or Floyd about the tests. *Id.* at 4. He then learned of the interpretation being given to the Tech Specs and left the Control Room to discuss this with James Seelinger, the Unit 2 Superintendent of Technical Support, in his trailer. *Id.* Haverkamp went directly to Seelinger because Seelinger was Haverkamp's "primary point of contact for TMI-2." Tr. 2113 (Haverkamp). Discussing the type of day-in, day-out relationship he had with Met-Ed, Haverkamp testified that "when it came to plant operations, technical questions about engineer-related questions, I spoke frequently with Mr. Seelinger, probably . . . during each inspection." *Id.*

35. Haverkamp recalled that, shortly after he began his meeting with Seelinger, Floyd entered Seelinger's trailer office and joined the discussion. Board Exh. 20, Haverkamp Testimony at 4-5. Haverkamp clearly recalled Floyd telling him, in effect, that unidentified leakage test results must be calculated to be under 1 gpm only once every 72 hours to be in legal compliance with the Tech Spec surveillance requirements. *Id.* In Floyd's view, any number of test results could be greater than 1 gpm as long as acceptable results were obtained once every 72 hours. *Id.* Haverkamp informed Floyd that his interpretation was clearly incorrect and stated that the Tech Spec limiting conditions for operation limits must always be met, in accordance with the applicable Tech Spec facility operating modes, including the results of leak rate tests that were conducted more often than required by the 72-hour Tech Spec surveillance frequency. *Id.* Floyd claimed not to recall this conversation, but said that he had no reason to believe Haverkamp's recollection was incorrect. Tr. 4926-27 (Floyd).

36. In the discussion with Seelinger and Floyd, Haverkamp was informed that plant operators were attempting to identify any leakage sources to reduce unidentified leakage to less than 1 gpm. Board Exh. 20, Haverkamp Testimony at 6. Seelinger assured Haverkamp that the plant would be operated in accordance with the applicable Tech Spec Action Statements and informed him that the matter would be referred to PORC for its review as a potentially reportable occurrence. *Id.*; *see also* Tr. 2050-51 (Haverkamp); Tr. 4630-32 (Seelinger). Also during this discussion, the possibility of rounding off test results was discussed

after Haverkamp raised some questions about the specified limit being "1" gpm as opposed to "1.0" gpm.[28] Board Exh. 20, Haverkamp Testimony at 8-9; Tr. 2111-13 (Haverkamp); Seelinger, ff. Tr. 4623 at 7; Tr. 4770-72 (Seelinger).

37. Sometime on the morning of the 18th, Seelinger met with Gary Miller, TMI Station Superintendent and Unit 2 Superintendent, and informed him of the Haverkamp-related events. Tr. 4722-27 (Seelinger). Seelinger recalled that during this meeting, a telephone conversation took place with a Met-Ed manager in Reading about how to handle the situation. *Id.* Although Seelinger is the only member of either onsite or offsite management who remembered such a telephone conversation, no one disputes that it took place. The message Seelinger recalls receiving during that conversation was to review the item for reportability and act appropriately. *Id.*

38. At 10:16 a.m., a leak rate of 1.0246 gpm was obtained. *See* NRR Test No. 13. At approximately noon, Mark Bezilla, the procedure coordinator and PORC secretary for TMI-2 (Board Exh. 1-A, Stier Report, Vol. VI(A), Bezilla 2/22/85 Interview at 1), at Seelinger's request brought Floyd three tests, NRR Test Nos. 12C-E, to analyze. Tr. 4913-20 (Floyd). On Test No. 12C, which indicated a leak rate of 1.7754 gpm at 5:13 a.m., Floyd wrote that "rounds off high but is corrected by leak rate 10/18/78. 7:35:27 start time i.e. into action statement at 5:13:02 out of it at 7:35:27." Tr. 4913-14 (Floyd). On Test No. 12D, which indicated a leakage of 1.2939 gpm at 7:35 a.m., Floyd wrote, "OK by roundoff, JRF, 1200, 10/18/78." Tr. 4914 (Floyd). On Test No. 12E, which indicated a leakage of 1.3219 gpm at 8:59 a.m., Floyd again wrote, "OK by roundoff." These tests indicate that by noon on October 18, a practice of rounding off test results was in effect. Mehler specifically recalled that at some point in time Floyd came to him and advised him that he was going to be able to round off leak rates as a result of a discussion Floyd had had with Haverkamp, whose opinion allowed rounding off to the nearest whole number. Board Exh. 1-A, Stier Report, Vol. VI(I), Mehler 3/15/85 Interview at 18. Mehler then rounded off Test No. 13, which had been run that morning, and wrote on the test "Net Unidentified Leak Rate rounded off To Nears whole Number 1 GPM." *See id.* at 19, 37-39; *see also id.*, Vol. VI(A), Adams 3/13/85 Interview at 44-48.

39. At 12:21 p.m., a leak rate of 0.1081 gpm was obtained, later corrected by William Fels[29] to indicate a leak rate of −0.283 gpm. *See* NRR Test No. 14; Tr. 4520-31 (Fels). Probably in the early afternoon, Haverkamp was shown this test, with an acceptable leak rate of 0.1081 gpm, and was informed that some

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[28] Although the short-term practice of rounding off test results to one significant figure is of some interest in understanding this sequence of events, evidence bearing on the question of who initiated a discussion of rounding off is in conflict and the conflict need not be resolved.

[29] Between March 1978 and March 1979, Fels was the engineer assigned to start up and check the TMI-2 computer systems. Board Exh. 1-A, Stier Report, Vol. II(A), Fels Summary at 1. He was the individual who installed the computerized leak rate test program at TMI-2. *Id.*, Vol. VI(C), Fels 2/25/85 Interview at 2.

amount of leakage had been identified and a computer input error found and corrected, both reducing unidentified leakage. Board Exh. 20, Haverkamp Testimony at 6-7; Tr. 2054-57, 2131 (Haverkamp). Statements about an identification of leakage and a correction of a computer input error were repeated in the subsequent Licensee Event Report (LER) and are addressed below.

III. COMMISSION QUESTIONS CONCERNING TECHNICAL SPECIFICATIONS AND RESPONSES TO OCTOBER 1978 INSPECTION

A. Incorrect Interpretations of Technical Specifications and Inadequate Corrective Actions

The first group of issues the Commission requested the Board to address is separated into three parts for clarity. We quote and address them, below.

> How were the Technical Specification 3.4.6.2 requirements for reactor coolant system unidentified leakage interpreted and implemented by control room operators (CROs), shift foremen, shift supervisors and onsite and offsite management?

1. From the period of time when leak rate testing began in March 1978 to October 1978, virtually all Operations Department personnel, including CROs, shift foremen, shift supervisors, and the Superintendent of Operations, Mr. Floyd, generally worked under an interpretation that Tech Spec 3.4.6.2 and its corresponding surveillance requirement, Tech Spec 4.4.6.2, required entry into the Action Statement only if they were unable to obtain a leak rate test result of 1 gpm or less once in a 72-hour period. If such a result were obtained, any other tests run during the same period and showing excessive leakage were not considered to require entry into the Action Statement. *See, e.g.*, Conguon, ff. Tr. 2709 at 2; Board Exh. 1-A, Stier Report, Vol. VI(G), Illjes 2/7/85 Interview at 14; Cooper, ff. Tr. 2835 at 5; Hitz, ff. Tr. 3644 at 3; Bryan, ff. Tr. 4540 at 2; McGovern, ff. Tr. 3148 at 3; Tr. 3151-52 (McGovern). Floyd, ff. Tr. 4894 at 3; Tr. 4753-57 (Seelinger). This erroneous interpretation contributed to a practice whereby tests greater than 1 gpm were discarded and tests of 1 gpm or less were filed. *See, e.g.*, Tr. 2715-16 (Congdon); Hitz, ff. Tr. 3664 at 3; Adams, ff. Tr. 3776 at 2; Tr. 3614-15 (A. Miller); *see also* Board Exh. 1-A, Stier Report, Vol. I at 58-59.

2. Some operators at times would search for leakage or "eyeball" plant parameters for indications of excessive leakage after obtaining a test greater than 1 gpm, but most of them would not make any efforts to determine the validity of a test before discarding it. The lack of such efforts was particularly true during the last 3 months of operation. *See, e.g.*, Tr. 2714-16 (Congdon);

Tr. 2522-24 (Faust); Tr. 3109-11 (Conaway); Tr. 4117-18 (Guthrie); Tr. 4241-47, 4252-53 (Hoyt); Smith, ff. Tr. 4331 at 4; Tr. 4359-62 (Smith); Tr. 4545-46 (Bryan). Virtually all of the operators, in effect, were simply going through the motions of conducting leak rate tests to satisfy a procedural requirement, without regard to the validity of the test.

3. The responsibilities of management above the level of TMI-2 Superintendent of Operations for interpretation of Tech Specs and other issues in this proceeding are discussed in pp. 736-42, below.

B. "Following the Discovery by an NRC Inspector in October 1978 That Technical Specification 3.4.6.2 Requirements Were Not Properly Interpreted or Implemented, What Corrective Action Was Taken by Management Personnel?"

4. Late on October 18, PORC met and determined that a reportable occurrence had occurred when the limiting condition for operation for Tech Spec 3.4.6.2 was not invoked at 7:35 p.m. on October 16 when a leak rate of 2.6 gpm was obtained. Tr. 4780-81 (Seelinger); *see also* Board Exh. 1-A, Stier Report, Vol. V(C), Tab 31 (Seelinger 10/19/78 Letter to Grier ("Grier Letter")).

5. In the afternoon of October 19, Seelinger informed Haverkamp, who was still on site, that PORC had met to review operation of the facility during October 16-18 with unidentified leakage greater than 1 gpm and that PORC had determined the matter to be a reportable occurrence. Board Exh. 20, Haverkamp Testimony at 6-7.

6. Later in the day on October 19, Seelinger sent a letter to Boyce Grier, Director of Regulatory Operations at NRC's Region I, informing him of the reportable occurrence. Board Exh. 1-A, Stier Report, Vol. V(C), Tab 31 (Grier Letter). Bezilla, TMI-2 Procedure Coordinator and PORC secretary, wrote the body of the Grier letter; Seelinger probably made corrections to it. *Id.*, Vol. VI(A), Bezilla 2/22/85 Interview at 15-22.

7. The Grier letter also contains the statement that "[u]nidentified leakage was reduced to [Tech Spec] limits at 0735 on 10-18-78" but does not state that rounding off was the method of reduction. We find that the statement is misleading.

8. On October 20, Floyd issued an Operations Memorandum to the TMI-2 shift foremen and supervisors explaining in the first two paragraphs, respectively, that (1) the leak rate computer program had been modified to round off and (2) "[i]f the unidentified leakage is equal to or greater than 2 gpm, then the 4-hour time clock commences with the output time of the printout i.e., the time the final data was taken." Board Exh. 1-A, Stier Report, Vol. V(C), Tab 34 (Floyd 10/28/78 Operations Memorandum); *see also* Tr. 4934-44 (Floyd). The Board finds that the second paragraph was a poorly phrased and under the

circumstances, completely inadequate attempt by Floyd to instruct the operators about the need to enter the Action Statement immediately on obtaining a valid test equal to or greater than 2 gpm.[30] The Board also finds that Floyd, as the member of onsite management responsible for the memorandum and the overall supervision of the operators, had the duty to take whatever followup actions were necessary to implement the memorandum, including specific discussions of the subject with shift supervisors. Such actions were never taken.

9. During the week following the October 18 inspection, Haverkamp telephoned NRR to determine the acceptability of rounding off. Board Exh. 20, Haverkamp Testimony at 8-9. Haverkamp was informed that the rounding off of test data was not an allowable practice and conveyed this conclusion by phone to Seelinger, who stated that the rounding off practice would not be employed. *Id.* Seelinger admitted that in this conversation between Haverkamp and him, which Seelinger estimated occurred 10 days after the inspection, or approximately on October 28, he "wasn't terribly straightforward" with Haverkamp about the extent to which the rounding off practice had been relied on to achieve acceptable results. Tr. 4772-74 (Seelinger). The record indicates that the rounding off practice was actually terminated beginning on October 27. *See* Board Exh. 1-A, Stier Report, Vol. I at 143.

10. Sometime after the decision by PORC that a reportable occurrence had occurred, Seelinger asked Bezilla and James Stair, the licensing engineer responsible for writing up LERs (Board Exh. 1-A, Stier Report, Vol. VI(K), Stair 3/1/85 Interview at 2), to assist him in drafting the 14-day followup LER. *Id.*, Vol. VI(A), Bezilla 2/22/85 Interview at 19. Stair spent a total of about 1 ½ hours on work related to the LER, including talking with the cognizant engineer, on whom he relied for factual information, drafting the original words of the LER, and attending the PORC meeting where the LER was reviewed and edited. *Id.*, Vol. VI(K), Stair 3/1/85 Interview at 11-20; *see also* Tr. 4641 (Seelinger); Board Exh. 1-A, Stier Report, Vol. VI(A), Bezilla 2/22/85 Interview at 24. PORC met and provided input to the LER on October 31, when a final draft LER was prepared and submitted to typing by Stair. Board Exh. 1-A, Stier Report, Vol. V(C), Tab 32 (Accountability Checksheet).

11. Sometime after the October 31 PORC meeting, Seelinger in his capacity as PORC Chairman sent the LER with a one-paragraph Narrative to George Troffer, Manager of Quality Assurance, in Reading. *See id.*, Tab 28 (Seelinger Memorandum to Troffer); Tr. 4647-51 (Seelinger). On November 1, 1978, Herbein formally submitted the completed LER with a revised three-paragraph Narrative to Grier at the NRC. *See* Board Exh. 1-A, Stier Report, Vol. V(C),

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[30] Floyd's reference to 2 gpm is appropriate because reprogramming the computer to round off meant that leak rates of 1.01-1.49 gpm would round off to 1, an acceptable number, whereas leak rates of 1.50-2.49 gpm would round off to 2, an unacceptable number.

Tab 29 (Herbein 11/1/78 Letter to Grier). These two versions of the LER Narrative (i.e., the one-paragraph version drafted at the site and forwarded to management at Reading after PORC approval and the three-paragraph version that ultimately accompanied the LER forwarded to NRC by Herbein) contained several erroneous or questionable statements in common: (1) the reference to 10:00 a.m. on October 19 when a determination was made that the Tech Specs had been violated; (2) the statement that reduction of unidentified leakage to within allowable limits was accomplished at 7:35 a.m. on October 18; (3) two statements concerning discovery and correction of errors in inputting data to the computer; and (4) the statement that appropriate personnel would be instructed on the relevant requirements of the Tech Specs and surveillance procedures. These statements are discussed, *seriatim*.

12. The first phrase of both Narratives repeats the inaccurate time and date that appeared in the Grier letter -- 10:00 a.m. on October 19 — when Seelinger stated the determination was made that the Tech Specs had been violated. Although either Stair or Bezilla may have written this phrase, the source of the phrase was Seelinger. Mr. Seelinger's best recollection of why the time and date were misreported was that although the PORC had met on the 18th (late in the day) Mr. Floyd did not attend the meeting, and he was not "brought on board" until 10 o'clock on the 19th. Tr. 4780-82 (Seelinger). Inasmuch as NRC Inspector Haverkamp, to Seelinger's knowledge, was already aware of the situation since his discovery of it on the 18th, the Board finds that this error was probably innocent and was, in any event, inconsequential.

13. Both "narrative" versions state that action was being taken to reduce the unidentified leakage to within allowable limits and that that was accomplished at 7:35 a.m. on October 18. Seelinger was aware, however, that the only action then being taken to reduce unidentified leakage was simply to round off, not to identify or correct leakage. *See* Tr. 4685-701 (Seelinger). Furthermore, even the rounding off was done retroactively, since Floyd approved of the 7:35 a.m. test at noon. *See* § II, ¶ 38. Thus the "accomplishment" at 7:35 a.m. of reducing leakage to within allowable limits was merely a retroactive paper change, not a real change in the leak rate. The Board does find, however, that unidentified leakage was reduced to below 1 gpm around noon on October 18, not by rounding off, but by identifying leakage. *See* NRR Tests 12E, 13, 14.

14. After the transmittal of the one-paragraph Narrative to Troffer in Reading, the format of the Narrative was changed to three paragraphs, minor changes were made, and, of significance, the phrase "by determining a portion of this to be identified leakage from the Reactor Coolant System and to be well within the limits of Tech. Spec. 3.4.6.2c" was added to describe, purportedly, how reduction of unidentified leakage was accomplished at 7:35 a.m. on October 18. *See* Board Exh. 1-A, Stier Report, Vol. V(C), Tab 29 (Herbein 11/1/78 Letter to Grier); Tr. 4685-88 (Seelinger). As discussed above, the only "reduction" at

that time appears to have been by retroactive rounding off, a fact that was not disclosed to the NRC, nor apparently to Met-Ed management including Miller and Herbein. Although the Board has been unable to determine the source and reason for this erroneous language, Seelinger testified that it is unlikely that someone in Reading changed the Narrative without first checking with someone at TMI. Tr. 4651-61 (Seelinger).

15. The Narratives also contain two incorrect statements concerning the input of data to the computer: (1) "In addition, it was discovered that errors in inputting data to computer caused indicated leakage to be greater than actually was occurring" and (2) "[i]nput data for the computer program which calculates unidentified leakage has also been clarified." *See* Board Exh. 1-A, Stier Report, Vol. V(C), Tab 28 (one-paragraph Narrative). Fels testified that input data had not been clarified as of November 1. Tr. 4529 (Fels); *see generally* Tr. 4512-31 (Fels). In fact, the only involvement Fels had with any generic computer problem associated with the leak rate test occurred sometime between November 9 and November 22, well after the LER had been drafted, approved, and sent to the NRC. Tr. 4514-17, 4528-29 (Fels). In that period of time, Fels discussed the possibility of program errors and decided to add a note to the program heading stating that a decimal point must be entered with leakage values. Tr. 4515 (Fels); *compare* NRR Test No. 40 (11/9/78) with NRR Test No. 41 (11/22/78). The only involvement prior to November 9 that Fels could recall having was limited to a specific test, NRR Test No. 14 conducted on October 18, where Fels may have told the operators involved to redo the calculation using the correct sign because the leakage sign convention looked wrong. Tr. 4520-31 (Fels); *see* NRR Test No. 14.

16. Seelinger testified that he partially drafted the first computer-related sentence and that he entirely drafted the second one. Tr. 4640-44, 4407 (Seelinger). In any event, he obviously approved both sentences at the time of the drafting of the one-paragraph Narrative. Seelinger stated that his practice was to rely on Fels for computer matters. Tr. 4704 (Seelinger). Seelinger also stated that, having heard the testimony by Fels, he believed that "Fels and I may have been on a different wavelength" when they discussed a possible program problem, with Fels stating something specific and Seelinger hearing something generic. Tr. 4705-07 (Seelinger). Finally, Seelinger stated that he vaguely recalled that within the few weeks following October 18, he went to Bezilla, the PORC Secretary, and asked him to request a writeup from Fels on the supposed clarification of computer input data, but Bezilla was "unsuccessful" in obtaining such a writeup. Tr. 4706-07 (Seelinger). Seelinger felt "some sense of resistance" but did not understand why and did not pursue the matter. *Id.* The request for a writeup was apparently withdrawn at Seelinger's request. *See* Board Exh. 1-A, Stier Report, Vol. V(C), Tab 30 (TMI-2 PORC Action Items, § III).

17. The Board finds the LER to be flawed in several respects. Given the numerous errors concerning times, dates, and circumstances, it falls short as a straightforward description of the event. Indeed, the Board strongly suspects that at least some of the errors were not inadvertent, but reflected a conscious attempt to put the best light possible on the incident. Given the collective authorship of the document, however, it is not possible to assign responsibility for such an attempt to any specific person. More importantly, however, the LER conveyed no clear explanation to the operating personnel that their interpretation of the Tech Specs had been wrong, and that they were required to enter the Action Statement whenever a leak rate test reflected leakage in excess of 1 gpm and there was no valid basis for declaring the particular test invalid. The only information in that regard was the statement in the Narrative that "[t]he appropriate personnel will be instructed on the requirements of the applicable sections of the Tech Specs and the requirements to immediately invoke applicable action statements when the provisions of limiting conditions for operation are not met." This was, at most, a present promise of a future instruction which, as we next discuss, was never effectively carried out.

18. Walter J. Marshall, one of two Operations engineers assigned to Floyd, was given the responsibility for implementing and following up on the LER; in particular, the PORC Action Item specified that Marshall was to ensure that the Narrative sentence on instruction of appropriate personnel was "documented by Ops review" of the LER. *See* Board Exh. 1-A, Stier Report, Vol. V(C), Tab 30 (TMI-2 PORC Action Items, § III; *see also* Tr. 4389-96 (Marshall)). The PORC Action Item initially was given a due date of November 20 and was signed by Seelinger; however, the "Document Review" form (i.e., "signature sheet") required review of the LER by November 10. *See* Board Exh. 1-A, Stier Report, Vol. V(C), Tab 30 (PORC Action Item Sheet and Document Review Form). Someone other than Marshall filled in the signature sheet requiring the 10-day turnaround. Tr. 4396-97 (Marshall).

19. Marshall stated that the phrase "documented by Ops review" meant "that the document went to the Control Room with the cover sheet and that the operators had the opportunity to initial and read it." Tr. 4398 (Marshall). Marshall explained that he fulfilled his followup responsibility simply by making sure the LER and a signature sheet were placed in the three-ring notebook in the Control Room with other LERs and by reviewing the binder periodically to see if any CROs, shift foremen, and shift supervisors had still not signed the sheet indicating their review. Tr. 4397-400, 4408-09, 4414-16 (Marshall); *see also* Tr. 4713-14, 4664-68 (Seelinger); Tr. 4943-44 (Floyd). If someone had not signed the signature sheet, Marshall "would tell the group to take a look at it and sign it." Tr. 4409 (Marshall). No one has claimed that Marshall had any further responsibilities concerning this Action Item.

C. "Was the Corrective Action Taken Sufficient to Ensure Compliance with the Technical Specification 3.4.6.2 by the Personnel Performing and Reviewing the Leak Rate Surveillance Tests?"

20. The signature sheet attached to the LER indicates that all the CROs, shift foremen, and shift supervisors (with the exception of Bryan) signed the signature sheet indicating their review. *See* Board Exh. 1-A, Stier Report, Vol. V(C), Tab 30 (Document Review Form); Tr. 4574-80, 4608-09 (Bryan). However, mere placement of the LER in the Control Room binder evidently did not constitute sufficient instruction of appropriate personnel. Operator after operator testified that he never received any clear instruction on the correct interpretation of the Tech Spec following the LER. *See, e.g.*, Tr. [illegible] (Hitz); Tr. 3619-20 (A. Miller); Tr. 4455 (Phillippe); Tr. 4573-80 (Bryan); Tr. 2718-19 (Congdon); Tr. 2967-69 (Zewe); Tr. 3858-59 (Mehler); Tr. 3818-19 (Adams); Tr. 3244-46 (Mell); Tr. 3083-84 (Illjes); Tr. 3115-16 (Conaway); Cooper, ff. Tr. 2835 at 6-7; Bryan, ff. Tr. 4540 at 5.

21. Only one operator, Dennis Olson, testified that he changed his practice in some respects following the LER. *See* Tr. 4007-09 (Olson); Olson, ff. Tr. 3917 at 3-4. Olson stated that he was "pretty sure" that out of the LER came the word not to discard bad tests and not to accept negative tests. Tr. 4007-09 (Olson). Even Olson, however, nowhere suggests that he received instructions on the requirements to enter the Action Statement whenever a test showed unidentified leakage over 1 gpm.

22. In sum, operators had at least three possible ways of receiving instruction on the requirements of the Tech Specs and surveillance procedures pertaining to leak rate testing. First, superiors like Floyd, and to a lesser extent Seelinger, who were aware of the need for such instruction following Haverkamp's inspection, could have directly communicated with the Operations Department personnel. The record is clear, however, that effective direct communications never took place. Second, Floyd's October 20 Operations Memorandum to shift foremen and supervisors was an attempt to ensure that operators were instructed on proper leak rate practice. The cryptic language of the critical second paragraph of the Memorandum, however, led to the failure of this attempt also. The record indicates no further efforts by Floyd to elucidate the meaning of the Memorandum. (Seelinger even speculated that operators may have interpreted Floyd's putting an "X" through his October 20 memo after learning that the rounding off practice should be terminated to mean cancellation of the entire memo, not only the first paragraph, which dealt with rounding off, and a return to the practice prior to the LER. *See* Tr. 4680-81 (Seelinger); Board Exh. 1-A, Stier Report, Vol. V(C), Tab 34 (Floyd 10/20/78 Operations Memorandum)). Third, placement of the LER itself in a required reading book gave the operators potential notice of the problem but resulted in virtually no

instruction to them or change in practices. The record does not indicate any further meeting or memorandum to fulfill the promise of instructing appropriate personnel. The record is clear that operators did not receive adequate instruction by any means on the requirements of the Tech Specs and leak rate test surveillance procedures growing out of the October 18 inspection.

23. The Board concludes that, despite the apparent review of the LER and the October 20 Floyd Operations Memorandum by the operators, the operators following the Haverkamp inspection did not change their general practice of repeatedly running tests and discarding bad tests based on misunderstanding the Tech Specs only to require one "good" test every 72 hours.

24. Initially scheduled for completion by November 20, 1978, the PORC Action Item had its due date extended to "no later than December 15, 1978" because "plant problems and test program" had "overshadowed" the item. *See* Board Exh. 1-A, Stier Report, Vol. V(C), Tab 30 (TMI-2 PORC Action Item Extension). Despite the force of the language "no later than December 15, 1978," action relating to this item inexplicably was not completed until March 5, 1979. *See id.* (PORC Action Items). *See also* Tr. 4397-98, 4404-0 (Marshall).

25. Seelinger testified that he made the following personal efforts to implement the corrective actions described in the Narrative:

> In any event, I attempted to implement the corrective actions described in the Narrative by assuring myself that Mr. Floyd followed Mr. Haverkamp's interpretation (which he appears to have done by issuing his Operations Memorandum dated October 20, 1978), by instructing Mr. Walter Marshall (by memorandum) to inform the operators of the correct interpretation, by discussing the matter in a plan-of-the-day (POD) meeting and again at a later date on second shift with Shift Supervisor, by satisfying myself that appropriate computer changes had been made, by advising Mr. O'Hanlon (the then-Unit 1 Superintendent), in October 1978, of the NRC's interpretation of the Action Statement requirement, and by assuring myself (after I became Unit 1 Superintendent) that Unit 1 operators would also take comparable action if unidentified leakage was greater than 1 gpm.

Seelinger, ff. Tr. 4623 at 8; *see* Tr. 4669-79 (Seelinger); *see also* Board Exh. 1-A, Stier Report, Vol. V(C), Tab 36 (Seelinger 8/9/84 Letter to Palladino). The Board finds that, based on the record cited in these findings, these personal efforts, while well meant, were not adequate to correct the situation.

26. As we have already indicated (*see* § III, ¶ 22), what was needed in this situation was a sustained effort to *make certain* that the operators and their immediate supervisors understood that they had been misinterpreting a Tech Spec, and that they must *change* their interpretation and their practices with respect to leak rate tests indicating excessive leakage. In our judgment, two basic steps should have been taken: first, the problem area — including a description of the previously prevailing misinterpretation of the Tech Specs, the correct interpretation, and the Action Statement requirement — should have been

put in memorandum form in simple English, with a copy to each CRO, foreman, and supervisor. Floyd's single, cryptic sentence in his Operations Memorandum was no substitute for a full and clear informational message. Second, all of the CROs, foremen, and supervisors should have been told, in face-to-face meetings, about the informational memorandum and given an opportunity to ask questions about the matter.

27. In sum, the Board finds that the efforts to implement the corrective actions articulated in the LER Narrative were totally inadequate. The members of management responsible for these efforts were primarily Floyd and to a lesser extent Seelinger. There is no indication in the record that any members of management above Seelinger and Floyd had any direct responsibility for the implementation of any corrective actions arising out of the LER.

IV. DIFFICULTIES IN PERFORMING LEAK RATE TESTS; SENIOR SUPERVISOR AND MANAGEMENT KNOWLEDGE AND RESPONSIBILITIES; PRESSURE TO OBTAIN "GOOD" TESTS

The Commission's questions in this area are quoted and discussed below.

> What difficulties, if any, were operators experiencing when conducting leak rate surveillance tests required by Technical Specification 4.4.6.2.d? Who knew about these difficulties? What corrective actions were taken? Did operators feel pressure to obtain leak rate surveillance test results which did not exceed technical specification limits? If so, what type of pressure was perceived or exerted and who was responsible?

CLI-85-18, 22 NRC at 880, Issue (b).

A. Difficulties the Operators Were Experiencing

1. The surveillance requirements of Tech Spec 4.4.6.2.d required that RCS leakages be demonstrated to be within prescribed limits by "[p]erformance of a Reactor Coolant System water inventory balance at least once per 72 hours during steady state operation," as well as by the other three required surveillances in this Tech Spec. Stier Report, Vol. V(B), Tab 14 (Tech Spec 4.4.6.2).

2. The TMI-2 operators typically performed a leak rate test on each 8-hour shift, in contrast to the Tech-Spec-required frequency. Stier Report, Vol. I at 51; Exh. 5-A, Enclosure 1 at 9. A test was performed by every shift if the computer was available and if the performance of other shift evolutions and responsibilities did not interfere. The practice of performing a leak rate test on every 8-hour shift was established at TMI-1 and was subsequently implemented at TMI-2. Stier Report, Vol. I at 52.

3. TMI-2 Surveillance Procedure 2301-3D1 governed the performance of the leak rate test and is set out in the Stier Report, Vol. V(C), Tab 19. The actual performance of a leak rate test was rather routine and uncomplicated. It was usually performed (although not always) by the "switching and tagging" CRO, that is, the CRO who was not manipulating the controls of the plant (i.e. "assigned to the panel"). If there were three CROs or more on shift, one would be assigned to the panels, one to "switching and tagging," and one to surveillance tests. *E.g.*, Olson Prep. St., ff. Tr. 3911 at 2-3. The CRO performing the test would instruct the computer, which was located in the TMI-2 control room, to calculate the RCS leakage by entering the appropriate code ("RCSL"). *E.g.*, Cooper Prep. St., ff. Tr. 2835 at 3-4. At the same time, the CRO would specify the time interval in which the test was to be performed (which, in practice, was always 1 hour). The computer would then conduct the leak rate test and at the end of the hour would request certain information of the CRO to complete the test. The CRO was asked to enter any identified leakage and any operator-caused change to the volumes of the RCDT or RCS. With that information, the computer would print the initial and final values of the parameters used in the leak rate test and the calculated values for the gross leakage, identified leakage, and unidentified leakage. Stier Report, Vol. 1 at 52-53; Exh. 5-A, Enclosure 1 at 2.

4. Generally, although not always, the CRO who performed the test signed the sheet printed out by the computer; on occasion, however, a licensed operator other than the CRO who performed the test signed it. Stier Report, Vol. I at 54; *e.g.*, NRR Test Nos. 96, 98, 108, 154, Tr. 3986-87. The test was then approved by an SRO, usually the shift foreman on duty during the performance of the leak rate test. Exh. 5-A, Enclosure 1 at 2.

5. Generally, the CRO performing the leak test would inform the CRO assigned to the panel that the computer was being instructed to conduct a leak rate test. On occasion, however, the CRO performing the test failed to so alert the CRO at the panel. This lack of communication led to occasional mistakes in the performance of the test, since the panel operator might manipulate the reactor controls to violate the "steady-state" conditions required by procedure or add water to the make-up tank without informing the operator who was performing the test. The Board infers that, since tests with such mistakes were approved, the foremen that approved the surveillance test results did not examine either the log or the make-up tank strip chart to confirm the absence of such mistakes.

6. The difficulty that the operators were experiencing was that the test results were quite variable. Successive tests during a shift or from shift to shift showed computer-calculated leak rates that were inconsistent and, therefore, unbelievable, i.e., a large leak does not spontaneously become smaller. There is near unanimity in the record that there was a lack of confidence in the computer-calculated result of this Tech-Spec-required surveillance test. Tr. 2097, 2904,

2988, 3017, 3196, 3249, 3487, 3526, 3528, 3826, 3924, 4134, 4341, 4352, 4462. The reasons for the difficulty (below) were not known to anyone in the Operations Department but were generally thought to be in the computer program.

7. The Board finds that the general knowledge that the computer-based surveillance was unreliable and erroneous should have led the operators, with concurrence from the shift foremen and shift supervisors, to use the manual procedure that also is part of the TMI-2 Surveillance Procedure 2301-3D1.

8. The operators were not obliged to file or foremen to approve these many dubious test results. They failed to follow Administrative Procedure 1010 to conclude that the tests were not satisfactory and classify them as either an exception or deficiency (*see* § II, ¶ 19). During the hearing, the Board inquired of a sufficient number of the Operations Department personnel to find the Exception and Deficiency mechanism was well known to them and used in other surveillance tests. Tr. 2177, 2194, 2222, 2268, 2545, 2672, 2795, 3524, 3648, 4077, 4345, 4587, and 4992.

9. The causes of the difficulties the operators were experiencing when conducting the leak rate tests generally fall into one of three categories: (a) procedure errors, (b) instrument inaccuracies, and (c) oscillations in plant conditions. The effects in each of these categories had some potential to cause the test to reflect a result other than actual unidentified leakage. In addition to the difficulties the operators were experiencing in conducting the leak rate test, there were certain idiosyncrasies associated with the implementation of the leak rate test that contributed to the operating personnel's negative or confused reaction to the test performance.

10. The record indicates that the degree of error caused by each of the difficulties was not necessarily cumulative. In some instances the errors cancelled each other out (Tr. 888 (Kirkpatrick)) or a particular error was not present because of plant conditions at the time of the test (Tr. 891 (Russell)).

Procedure Errors

11. The technical experts identified thirteen procedure errors that could have produced leak rate test results at variance from the true values. The degree of variance would have been dependent on the conditions existing at the time each test was performed. Board Exh. 1-A, Stier Report, Vol. IV(A) at III.3-III.4; Kirkpatrick, ff. Tr. 376 at 18-20 and Attachment 4. Four of these errors were quantitatively important.

1. Lack of RCDT Density Compensation

12. The leak rate test procedure failed to correct for a difference in density that existed between RCS leakage collected in the Reactor Coolant Drain Tank ("RCDT") and the water in the RCS itself. The difference in density was caused by the different temperatures of the water in the RCDT and in the reactor. This defect in the leak rate test procedure produced a significant error in the test calculation and seriously compromised the accuracy of the test. Faegre & Benson Report, Vol. 1 at 21-22; Stier Report, Vol. IV(A), § III, Table III-2; *id.*, Appendix A at A.16-A.18; Kirkpatrick & Wermiel Prep. St., ff. Tr. 376, Attachment 4.

13. Average RCS temperature was approximately 581°F. Stier Report, Vol. IV(A), § VI at VI.4. The RCS leakage collected in the RCDT was cooled to approximately 85°F. The failure of the leak rate test procedure to account for this difference produced an error that was typically about 40% of the total RCS leakage added to the RCDT during a leak rate test. Tr. 853-54; Faegre & Benson Report, Vol. 1 at 21. "The temperature compensation error was significant and affected virtually every leak rate test." Faegre & Benson Report, Vol. 1 at 22. The impact of the error on calculated unidentified leakage ranged between 0.07 and 2.10 gpm. Stier Report, Vol. IV(A), § III, Table III-2; Tr. 843. This was "a very significant error." Tr. 843. For example, if the actual unidentified leakage was zero but the identified leakage collected in the RCDT was 2 gpm, the value for unidentified leakage increased by 1 gpm due solely to this error. Tr. 844. From mid-February 1979 to March 16, 1979, identified leakage exceeded 2 gpm. Tr. 844-45, 848; Stier Report, Vol. IV(A), § IV, Figure IV-14 (RCDT collection rate and other identified leakage).

14. This defect in the TMI-2 leak rate test procedure was corrected by a Temporary Change Notice ("TCN") that became effective on March 16, 1979, 12 days before the TMI-2 accident. Stier Report, Vol. V(C), Tab 21. The TCN required that each leak rate test be corrected by a hand calculation to compensate for the failure of the test procedure to correct the temperature of the RCS leakage to the average temperature of the RCS. Tr. 857; Faegre & Benson Report, Vol. 1

22. There is no evidence in the record that explains how this defect was discovered or why it took so long to discover it. Tr. 858.

2. Lack of Density Correction for Additions to the MUT

15. The leak rate test procedure failed to account for the difference in density between water in the MUT and in the reactor because of the difference between the temperature of the water added to the MUT and the average temperature of the RCS. Stier Report, Vol. IV(B), Appendix A at A.16-A.18; *id.*, Vol. IV(A), § III, Table III-2; Faegre & Benson Report, Vol. 1 at 21-22. This

defect produced an error in a leak rate test result if water was added to the MUT during a test.

16. According to the Stier Report, there were thirty-one leak rate tests during which water was added. Stier Report, Vol. IV(A), § VI, Table VI-1 (listing 31 of 222 tests evaluated). Therefore, the failure to correct for the difference in density between water added to the MUT and water in the reactor did not affect every leak rate test. In any event, this error would have offset (in whole or in part, depending upon the amount of water added) the corresponding error in the leakage to the RCDT, if both occurred during a leak rate test, until the TCN was adopted on March 16, 1979. Tr. 1958 (Stier).

17. The failure to account for the difference in density between additions to the MUT and in the reactor was not discovered and corrected until August 21, 1979, after the TMI-2 accident. Tr. 878-79. No technical witness could explain why this defect was not discovered when the RCDT temperature compensation error was corrected by the March 16, 1979 TCN. Tr. 881. It is clear that the TCN should have corrected the leak rate test procedure for both the MUT and RCDT density differences (and, to be precise, the difference in density between identified leakage other than that collected in the RCDT and the density of RCS inventory at average RCS temperature).

3. RCS Temperature Was Not Correctly Entered if Temperature Exceeded 582°F

18. The TMI-2 leak rate test procedure failed to account for changes in the RCS temperature when it exceeded 582°F. Stier Report, Vol. IV(B), Appendix A at A.18-A.19. An RCS temperature of 582°F was used in the leak rate test procedure when the RCS temperature exceeded 582°F. This defect produced an error of 2.49 gpm in the test calculation for every degree of change in the temperature above 582°F. Tr. 885; Stier Report, Vol. IV(B), Appendix A at A.18. There is no explanation in the record for the failure of the test procedure to account for changes in the RCS temperature when it exceeded 582°F. Tr. 803, 882. Mr. Kirkpatrick suggested that the test was based on the TMI-1 leak rate test procedure and that 582°F was "an acceptable limit [at TMI-1] because the plant hardly ever got above 582 degrees Fahrenheit." Tr. 882. But at TMI-2, the evidence indicates that the RCS temperature exceeded 582°F in approximately fifty filed leak rate tests (Tr. 803, 883-86 (49 out of 161 tests); Tr. 885-86 (54 out of 170 tests); Stier Report, Vol. IV(B), Appendix A at A.18 (54 tests).

19. The failure of the leak rate test procedure to account for changes in RCS temperature when it exceeded 582°F frequently produced errors in the leak rate test results of up to 1 gpm. Tr. 803, 883-86; Stier Report, Vol. IV(B), Appendix A at A.18; *id.*, Vol. IV(A), § III, Table III-2; Kirkpatrick & Wermiel Prep. St., ff. Tr. 376, Attachment 4, Table 1. An error of approximately 1 gpm occurred

if temperature changed 0.5°F. Tr. 805, 883. However, in one test, on September 22, 1978, RCS temperature changed 1.5°F, which caused an error in the test result of several gpm. Tr. 885; Stier Report, Vol. IV(B), Appendix A at A.19.

4. RCS Pressure Differences Were Not Accurately Taken into Account

20. The TMI-2 leak rate test procedure failed to consider accurately the changes in the RCS pressure. Stier Report, Vol. IV(B), Appendix A at A.7, A.11; Faegre & Benson Report, Vol. 1 at 22-23. If the RCS was maintained in steady state (with respect to pressure), there would be no impact on the leak rate test as a result of this error. However, RCS pressure was not a variable that was within the control of the TMI-2 operators. Tr. 760-61.

21. Changes in RCS pressure often had a "significant impact on the leak rate test." Tr. 761. A change in the RCS pressure of ± 50 pounds per square inch (psi) "was typical of the test" (Tr. 762), and produced an error of 1.08 gpm in the test result. Stier Report, Vol. IV(B), Appendix A at A-11.

22. Staff witnesses Kirkpatrick and Wermiel agreed that the failure of the TMI-2 leak rate test procedure to account for the changes in the RCS pressure "had a very significant effect on the error in the leak rate calculation." Tr. 771, 786-87. The Faegre & Benson analysis (based on an RCS pressure change of 15 psi) and the Stier analysis (based on an RCS pressure change of 50 psi) are in substantial agreement. Tr. 785. There is no systematic analysis of the changes in the RCS pressure at TMI-2 in 1978 and 1979. However, the technical experts indicated that the typical change ranged from 20 to 50 psi during a leak rate test. Tr. 802-03. On at least one occasion, during January 4-5, 1979, a change in the RCS pressure of 60 to 65 psi produced an error in a leak rate test result of 2 gpm. Tr. 778-80, 785.

Instrument Errors

23. The normal instrument errors associated with the TMI-2 leak rate test procedure naturally affect the accuracy of the measurements used in the test. These measurements included the temperature in the two RCS hot legs, the temperature in two of the four cold legs, the pressurizer level, the MUT level, and the RCDT level. Stier Report, Vol. IV(B), Appendix A at A.6-A.7. The impact of these normal instrument errors was estimated by the technical witnesses. *Id.*, Vol. IV(A), § III at III.8-III.10; *id.*, Vol. IV(B), Appendix A at A.19-A.27. Kirkpatrick & Wermiel Prep. St., ff. Tr. 376, Attachment 4, Table 2; Faegre & Benson Report, Vol. 1 at 24-26. The cumulative impact of these normal instrument errors might have produced an error in a leak rate test of between 0.7 and 1.24 gpm, with a probability of 1 in 20, i.e., these values correspond

to approximately 2 standard deviations. Tr. 894 (1 gpm) (Kirkpatrick); Tr. 895 (1.24 gpm) (Rockwell); Tr. 896 (0.7 gpm) (Stier).

24. These normal instrument errors were, according to Mr. Kirkpatrick, "the kind of instrument error that you would expect in any kind of installation like this." Tr. 897. The effect of these errors could have been reduced by the performance of a leak rate test for more than the 1-hour test interval that was always used at TMI-2. Tr. 897. Mr. Moore testified that "we've learned a lot in these last few years and that, today, people are running longer tests. . . ." Tr. 936. Mr. Kirkpatrick testified that Regulatory Guide 1.45 fails to discuss normal instrument errors. Tr. 934.

25. In June 1983, the NRC published NUREG-0986, entitled "RCSLK8: Reactor Coolant System Leak Rate Determination for PWRs." In that report, the NRC Staff recommended a test interval of 4 hours. Tr. 950. Prior to the publication of NUREG-0986, there was no recommendation on the part of the NRC concerning the leak rate test interval. Tr. 951. Mr. Kirkpatrick testified that the random error would be approximately 0.1 gpm if the test were performed over an 8-hour interval, 0.2 gpm over a 4-hour interval, and 0.34 gpm in a 2-hour interval. Tr. 953-54. Given that it was not until June 1983 that the NRC recognized in print the advantage of performing the leak rate test over these longer intervals, we do not fault the TMI-2 operators for failing to do so.

26. In addition to the above "normal" instrument errors, the technical witnesses agreed on the existence of a defect in the MUT level sensor that produced errors. This defect may have been the result of a loop in the *dry* reference leg of that instrument, which on occasion, it is hypothesized, became filled with water from the MUT. This could produce a "loop seal" effect in that the pressure in the MUT tank gas phase would not be accurately transmitted to the sensor. Stier Report, Vol. IV(A), § III at III.10-III.12; *id.*, Vol. IV(B), Appendix A at A.27-A.32; *id.*, Figure A-4; Kirkpatrick & Wermiel Prep. St., ff. Tr. 376 at 25-29 and Attachment 5; Faegre & Benson Report, Vol. 2 at 68-69; *id.*, Vol. 3A, Exhs. 22-31; *id.*, Vol. 1 at 23-24.

27. The defect in the MUT level sensor was not conclusively established in the record to be the result of a "loop seal" effect. Tr. 960, 963-65, 972, 995-96. A defect in the MUT level sensor existed, and the existence of the "loop seal" effect is "a reasonable hypothesis." Tr. 965 (Stier). However, we agree with Mr. Stier that it is not critical to understand whether the defect was caused by the "loop seal" effect or by something else. *Id.* The important point is that some operators were aware of the defect and used it to affect tests, as discussed below.

28. The existence of a "loop seal" in the dry reference leg of the TMI-2 MUT level sensor could have had "a very significant effect under certain circumstances." Tr. 968 (Kirkpatrick). A positive bias might occur if water or hydrogen was added to the MUT, or a negative bias might exist as the MUT

level decreased during a leak rate test. Tr. 968-69. The existence of a "loop seal" in the MUT dry reference leg could have resulted in an overstatement in the change in the MUT level during a leak rate test. Stier Report, Vol. IV(B), Appendix A at 27; Tr. 975. According to Stier, the effect of the overstatement in MUT level could have been as high as 30%. Tr. 991 (Stier); *see also* Tr. 992-94 (Kirkpatrick).

29. The operators were not aware of the "loop seal" but rather some operators became aware that a water addition might be overindicated by the MUT level sensor and cause an erroneous "bonus" that would affect the computed leak rate. The technical experts also postulated that the "loop seal" was the cause of the spurious increase in the MUT level signal that sometimes occurred when hydrogen was added to the MUT. Kirkpatrick & Wermiel, ff. Tr. 376, at 26. These defects provided an opportunity for operators to manipulate the leak rate tests by adding either water or hydrogen to the MUT during the tests. We review the record to ascertain the evidence for individual responsibility in § F, below.

30. The "loop seal" effect was not discovered by the NRC until 1980, during the initial investigation of the allegations raised by Mr. Hartman. Tr. 983. There is evidence in the record to suggest that Met-Ed should have discovered the problem prior to 1980:

> B&W anticipated the possibility of certain problems with a dry-reference-leg system and suggested measures to minimize those problems. In particular, B&W suggested a reference leg with a condensate loop and draining capabilities. The suggestion was not incorporated in the actual modification as identified in the vendor's instruction manual. Incorporating the vendor's suggestion probably would have avoided the physical condition which may have allowed hydrogen additions to the make-up tank to affect level instrumentations.

Faegre & Benson Report, Vol. 2 at 63 n.* (footnotes omitted).

31. Met-Ed should have discovered and corrected this leak rate test defect well in advance of its discovery by the NRC in 1980. Tr. 1066 (Kirkpatrick) ("there were several indications of the loop seal problem which Met-Ed should have investigated but did not"); Tr. 1068 (Rockwell) ("any engineer looking at the configuration would recognize the potential for a problem"). As Mr. Kirkpatrick observed, "any competent instrument design engineer should have realized that accumulation of water in this — in a low spot would have caused instrument problems." Tr. 1079. We note that Mr. Chwastyk, Shift B Supervisor, testified that the reference was frequently "blown out," Tr. 3477, and that he had asked I&C to check the reference leg. Tr. 3473-75. Even so, the problem was not corrected.

Oscillations in Plant Conditions

32. Another defect in the TMI-2 leak rate tests was the impact of RCS oscillations on the calculation of the RCS leakage by the computer during the performance of a test. Stier Report, Vol. IV(A) at III.13-III.15; *id.*, Vol. IV(B), Appendix A at A.34-A.36; Faegre & Benson Report, Vol. 1 at 25; *id.*, Vol. 2 at 93-108; *id.*, Vol. 3B, Exhs. 37-42; Kirkpatrick and Wermiel Prep. St., ff. Tr. 376 at 17-18. The oscillations occurred in the RCS temperature and pressure, the pressurizer level, and the MUT level. The impact of these oscillations produced "a significant effect on the leak rate test results." Faegre & Benson Report, Vol. 1 at 25.

33. Mr. Moore testified that the oscillations were the result of a problem with the integrated control system. Tr. 1095-96. These oscillations caused similar oscillations in the RCS, thereby affecting the leak rate test and compromising its ability to quantify RCS leakage. Tr. 1097 (Russell) ("the oscillations caused high variability in the computed unidentified leak rate"), Tr. 1098 (Rockwell) ("there was a direct correlation between the oscillation in these plant parameters and the oscillation in the leak rate test results.").

34. If the oscillations in these parameters took place simultaneously or in phase, the leak rate procedure would have compensated for small changes in the values, which is the purpose of recording the magnitude of all these parameters three times at the beginning and end of the test. However, the analysis by Faegre & Benson found that these parameters did not vary in phase. Exh. 2, Faegre & Benson Report, Vol. 2 at 99. They used some reactimeter data for January 4-5, 1979, that recorded the plant parameters every 3 seconds to calculate a large series of leak rates, starting the calculations 3 seconds later on each successive calculation. Figure 1 shows a sample of the results. Faegre & Benson Report, Vol. 3B, Exh. 38-1. As may be seen for this particular data set, an operator could have obtained a gross leak rate test result ranging from 0.7 gpm to 3.3 gpm for gross or total leakage. The identified leakage was approximately 0.6 gpm, so that unidentified leakage would have ranged from 2.7 gpm to 0.1 gpm. This example may represent a time of near maximum oscillations but clearly shows that variable test results would have been obtained by the operator and that *any* single test was not a reliable measurement of leakage due to this problem.

35. The GPU Nuclear Proposed Finding 152 quotes the MPR report as stating:

> At worst, the effect of the oscillation would cause an additional error of the same magnitude as the instrument errors. On a "typical" basis the additional error would be less. Since it is independent of the instrument errors, it would combine with them on a random basis, producing only a minor increase on the overall expected error.

Exh. 1-A, Stier Report, Vol. IV(B) at A.36.

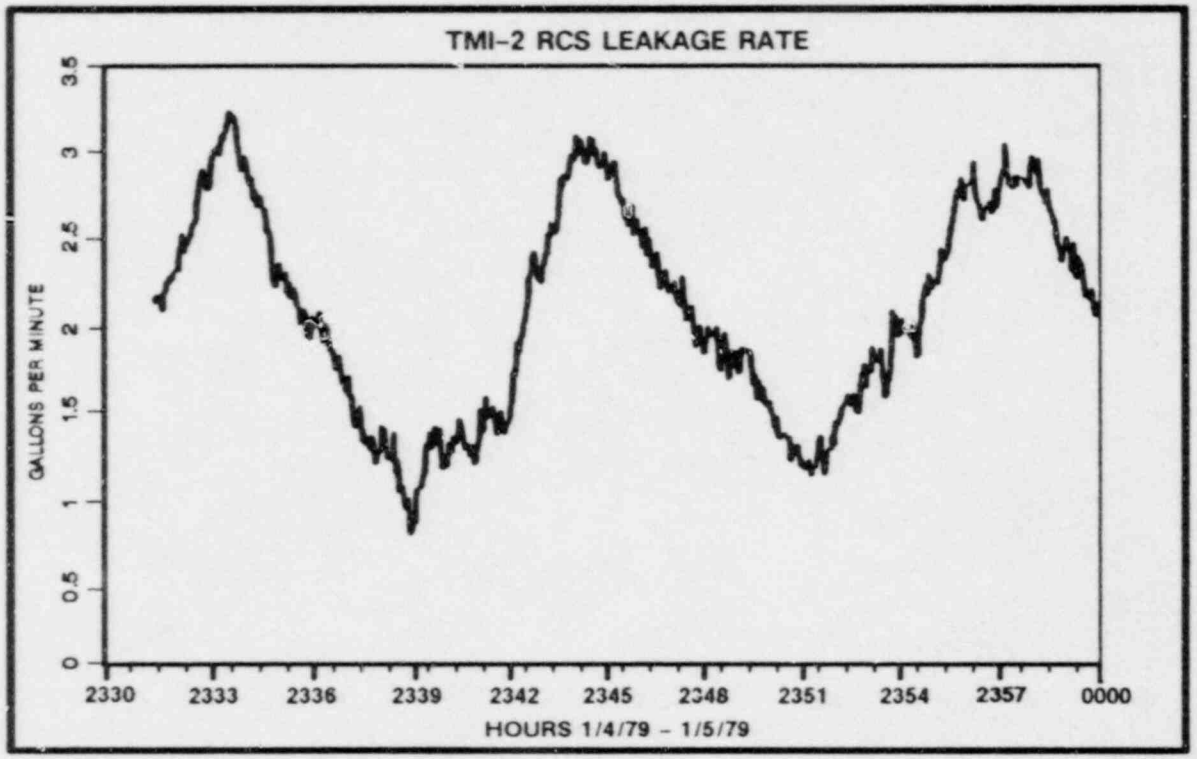

Figure 1. Gross Leakage Calculations, from Exh. 38 in Board Exh. 2. *See* § IV, ¶ 34.

36. The Board does not agree with this quote. If there are two independent sources of error, they would combine to produce a total variability (expressed as a standard deviation) equal to the square root of the sum of squares of the individual standard deviations.[31] For equal-sized errors, the resulting error would be 1.4 times the individual error. We find this to be a minor technical point. However, there is a more important aspect that can be seen in the data plotted in Figure 1. The data do not show a time variation or frequency of values that corresponds to a normal or Gaussian distribution, i.e., frequent small deviations from the mean value and less frequent larger deviations. In fact, the visual impression of Figure 1 is that extremely high or low values are as probable as the mean or, in fact, somewhat more probable. Conventional error analysis techniques that assume the "normal" frequency distribution are not applicable to these errors due to oscillations. We note further that the plant was in "steady state" as required by the procedure and was steadily oscillating.

37. The rapid variations (less than a minute) in Figure 1 appear to us to be a reflection of instrument errors. They are roughly 0.3-0.4 gpm rather than the 0.7-gpm to 1.24-gpm estimates provided by the expert witnesses. The Board notes that instrument errors in general at other plants may not be as great as this record would otherwise indicate. *See* § IV, ¶ 23.

38. The Board finds that the oscillations caused by the Integrated Control System at TMI-2 were a major contributor to the difficulty that the operators experienced in attempting to carry out the inventory balance surveillance test. It is clear to us that one of the reasons for specifying four surveillances in Tech Spec 4.4.6.2 is to provide redundancy or "defense-in-depth," and the problems with the inventory balance test should have led the Operations Department to utilize the containment sump inventory (required each 12 hours) to monitor leakage into containment until the ICS was adjusted properly. However, the Unit 2 Superintendent, Mr. Logan, testified "I don't think anybody ever tried to quantify by use of the sump pump or whatever a leakage." Tr. 5115.

39. The technical witnesses also testified that the sump surveillance was not properly carried out. Tr. 475-91. The failure to perform this sump inventory surveillance (4.4.6.2.a) was another violation of the Tech Spec requirements.

40. In addition to the difficulties induced by methodology and instrument errors, certain other aspects made it more difficult for the operators to obtain unidentified leak rate results smaller than the Tech Spec limit of 1 gpm. The difficulties in this class reflect the following idiosyncrasies in the TMI-2 leak rate test:

a. Both GPU in PF 153 and Numerous Employees in PFs 138-145 point out that there were inconsistencies between Reg. Guide 1.45 and the TMI-2

[31] We take official notice of the textbook, *The Mathematics of Physics and Chemistry*, Margenau and Murphy, D. VanNostrand Co., Inc., at 498 (1943), to support this generally recognized fact.

Tech Specs. The water inventory balance test is mentioned only once in Reg. Guide 1.45 as a means "of obtaining indications of uncontrolled or undesirable intersystem flow," (*id.* at 1.45-2); whereas, Tech Spec 4.4.6.2 calls for the water inventory balance test without restricting it to intersystem leakage. We agree that this definitional inconsistency would have made it more difficult for the operators to obtain test results lower than the 1-gpm LCO, since both pressure boundary leakage and intersystem leakage contributed to the measured values. The fact remains that the reactor water inventory balance surveillance was the *only* procedure that the Operations Department used to quantify unidentified leakage.

b. TMI-2 Tech Specs and surveillance procedures did not incorporate Reg. Guide 1.45 latitude to compare values of unidentified leakage obtained by different detection methods, e.g., sump pump. Reg. Guide 1.45 states that monitoring sump data is a reliable and sensitive way to measure unidentified leakage (Board Exh. 2, Faegre & Benson Report, Vol. 1 at 29-30), yet the TMI-2 Tech Specs provided no guidance on how to reconcile differences between detection methods (Board Exh. 1-A, Stier Report, Vol. I at 40). Tech Spec bases would seem to indicate a need for comparison to determine "effectiveness" of different methods of detecting leakage. Faegre & Benson Report, Vol. 2 at 18-21.

c. Unidentified leakage was based upon a volume rate of 1 gpm determined at RCS average temperature of 581°F rather than reactor building temperature (room temperature). When Reg. Guide 1.45 refers to 1 gpm as being measurable in sumps as an industry experience, it seems clear that room temperature is implied. Use of the 1-gpm number at the reactor temperature meant that effectively the LCO was 0.72 gpm rather than the 1 gpm described in Reg. Guide 1.45. The Tech Spec 4.4.6.2.b required that the containment sump inventory and discharge be monitored at least once per 12 hours. An LCO of 1 gpm for the sump surveillances should have corresponded to an LCO of 1.4 gpm for the inventory balance surveillance because of the temperature difference, but the Tech Specs make no mention of this aspect of the leak rate detection systems.

d. While the foregoing differences between the TMI-2 Tech Specs and Reg. Guide 1.45 made it more difficult, as a technical matter, to obtain the required 1-gpm result, we reject the premise put forward by the Numerous Employees (PF 145) that the differences and ambiguities arising when the two documents are read together actually caused confusion among the operators. Reg. Guide 1.45, standing alone, was, of course, not binding on the operators, any more than any other regulatory guide. Furthermore, we disagree with the assertions of GPUN (PF 75) and the Employees (PF 145) that the Tech Specs "incorporated"

Reg. Guide 1.45. That suggests that the Reg. Guide in its entirety was binding on the operators, and overstates the case. Although the "Bases" section of Tech Spec 3.4.6.1 does make an explicit reference to the Reg. Guide, that reference, in its context, does not reflect an intention to "incorporate" the entire Reg. Guide into the Tech Specs. Legal analysis to one side, there is no evidence in this record that any of the operators had ever read Reg. Guide 1.45, let alone been confused by the differences and ambiguities we have discussed.

e. The TMI-2 leak rate test procedure failed to include an "evaporative loss factor" for losses from the RCS. Tr. 1134. Other Babcock & Wilcox power reactors were allowed to include an evaporative loss factor in their leak rate test procedures. For example, TMI-1, Rancho Seco, and Oconee all include evaporative loss factors in their leak rate test procedures. Tr. 1135. The evaporative loss factor for TMI-1 was 0.51 gpm; for Oconee-1, 0.68 gpm; for Oconee-2, 0.73 gpm; and for Oconee-3, 0.52 gpm. Paegre & Benson Report, Vol. 1 at 19 n.*. Assuming that evaporative losses at TMI-2 were comparable to those at TMI-1, the failure of the TMI-2 leak rate test procedure to include such a factor resulted in the increased estimates of unidentified leakage in the calculation of the TMI-2 unidentified leakage of as much as 0.5 gpm. *Id.* Mr. Stier concluded that this was a primary problem in the performance of the leak rate test at TMI-2:

> There were several major causes of the difficulty experienced at TMI-2. First, the TMI-1 leak rate calculation permitted the subtraction of 0.5 gpm from gross leakage to account for "evaporative losses." At TMI-1, this helped offset the variability of test results caused by such factors as instrument error and oscillation within the reactor coolant system. The TMI-2 procedure contained no similar provision, thereby increasing the frequency with which calculated unidentified leakage exceeded 1.0 gpm due to inherent test variability.

Stier Report, Vol. I at 21.

41. The Staff witnesses contended that the use of an evaporative loss factor at TMI-2 was inappropriate. Tr. 1138. Staff's position, as we understand it, is that such a factor is not appropriate because, as plant operations continue, "frequently the amount of evaporative loss would be reduced so that you didn't know what it was." Tr. 1139. That may be true, but the basis of Staff's position might not apply to TMI-2 because it had not yet become a mature plant. Tr. 1121.

42. Staff witness Russell testified with respect to the evaporative loss factor that "it would have been an error to include it, since the maximum reactor coolant pressure boundary flaw size assumed in the safety analysis is that associated with a 1 gpm leak, not a 1 gpm plus an evaporative loss factor." Tr. 1138. In contrast to Mr. Russell's statement, the FSAR stated:

> Based upon the above analysis the critical parameter would be a crack in the cold leg piping of approximately 9 gpm. In establishing a maximum unidentified leakage, the following criteria are considered:
>
> 1. The magnitude of the leakage should be well below the leakage associated with a crack of critical size.
> 2. The magnitude should be well within the capability of the normal makeup system.
> 3. The magnitude should be sufficiently large to allow for ease of detection within a reasonable period of time.
> 4. Offsite releases should be within 10 CFR 20 limits.
>
> Accordingly, a 1 gpm leak was selected as the maximum allowable unidentified leakage rate. This value is well below the leakage associated with a crack of critical size. It can be detected within a reasonable period of time as discussed previously. . . .

Exh. 22 at 5.2-25; *see also* Stier Report, Vol. V(B), Tab 12, Reg. Guide 1.45 at 1.45-1 to 1.45-2 (basis for selection of 1 gpm (instead of some higher number less than 9 gpm) as the LCO for unidentified leakage is "industry practice"). We take the view that the 1-gpm LCO is essentially an ALARA number, having no bright-line safety significance — i.e., it is not the case that 0.9 is "safe" and 1.1 is "unsafe." Be that as it may, the Board finds that the TMI-2 operators were faced with a new plant that probably had an evaporative RCS loss of 0.5-0.7 gpm.

43. The Board concludes that the aggregate effect of the errors and idiosyncrasies discussed above would have produced erratic and usually inaccurate results in leak rate tests at TMI-2. The experts expressed a similar conclusion. Tr. 450, 1230-37. Indeed, those effects would have been such that should the test have produced an occasional result that happened to correspond with actual unidentified leakage, such a result would have been attributable more to a random confluence of errors than to any residual technical merit in the test — in the vernacular, a "happy accident." Having viewed erratic test results over time, the operators' skepticism of the test as a source of useful information was fully justified.

B. Managers Who Knew of the Leak Rate Test Difficulties

44. The difficulties with the leak rate test that the operators were experiencing manifested themselves over a long period of time in an inability to run two tests back to back, with no power changes or operator-caused changes, and obtain the same results. The test results were described as "unpredictable," and "quite erratic." Adams, ff. Tr. 3776 at 3; Cooper, ff. Tr. 2835 at 6; Guthrie, ff. Tr. 4113 at 2; Board Exh. 1-A, Stier Report, Vol. VI(F), Hitz 4/24/84 Interview at 31; Hitz, ff. Tr. 3664 at 4. *But see* Frederick, ff. Tr. 2447 at 4. All

of the CROs, their foremen and shift supervisors knew of these difficulties in some degree, as shown below in our discussion of individuals. In response to the Commission's next question, we discuss in this section the knowledge of management personnel about leak rate test difficulties.

45. James Floyd, Supervisor of Operations, characterized himself as a "crisis fighter." He allowed his shift supervisors to run the plant on a day-to-day basis and, as long as something had not come to the crisis level, it rarely came to his attention. Tr. 4969 (Floyd). With regard to leak rate testing in particular, Floyd stated that "[a]s soon as this plant would have been shut down for a leak rate test I'm sure I would have been acutely aware of the problem." Tr. 4969 (Floyd). It was his testimony, however, that he has "no recollection of knowing about any of these problems" and that he was "basically . . . ignorant of what was going on here [TMI-2]." Tr. 4976 [Floyd].

46. Despite Floyd's recollection, the weight of the evidence is that Floyd was aware of operator problems with leak rate tests. Floyd had a discussion in early October 1978 with Seelinger concerning the interpretation of the leak rate test procedure and was aware of and involved in many of the events of October 18, 1978. He expected difficulties with erratic leak rates during initial operation of the unit. Floyd, ff. Tr. 4894 at 5-6. Fels believed he discussed leak rate problems with Floyd; Chwastyk recalled a Floyd briefing on leak rates after the events on October 18; Haverkamp had a very strong recollection of Floyd being present when he spoke to Seelinger on October 18th; Cooper was aware Floyd was getting feedback from shift supervisors concerning leak rate problems; and Guthrie was "sure" Floyd knew the operators had problems with the leak rate. Tr. 4509-10 (Fels); Tr. 3502 (Chwastyk); Tr. 2050 (Haverkamp); Tr. 2903 (Cooper); Board Exh. 6, OI Report, Exh. 30, Guthrie Interview at 17. Also the NRC inspector, Mr. Haverkamp, testified that "Mr. Floyd expressed a lack of confidence in the computer calculated results of the RCS unidentified leakage" in October 1978. Tr. 2097.

47. Floyd generally portrayed himself as a "hands on" manager who spent a lot of time in the control room working directly with the CROs. For example, on the morning of October 18, a foreman testified that Floyd was in the control room sitting at the leak rate computer console. Tr. 3797. Given Floyd's style of operation, we think it highly probable that Floyd was quite familiar with the difficulties CROs were experiencing with leak rate tests. We reject Floyd's claim that he was basically ignorant of those problems.

48. James Seelinger, Superintendent of Technical Support at TMI-2, while knowledgeable of the fact that getting an acceptable leak rate test was difficult, had little in-depth knowledge of the various factors that were at play in those difficulties. As he revealed in his testimony:

[Judge Carpenter] With respect to Unit 2 and its interpretation, did you sit down with Mr. Floyd and ask yourself the question: What are the parameters that control this test, that are significant in the test? And how much variation do we have in those parameters? And what is the numerical effect of that variation? Did you do an analysis, is what I'm asking you?

A. No, sir, not at that time. And not at any time that I recall that I participated in.

Tr. 4749 (Seelinger).

49. Mr. Seelinger first learned of the practice of discarding leak rate tests that were greater than 1 gpm about 2 1/2 weeks before the Haverkamp incident. He found at the same time that the Action Statement was not being entered if a high leak rate was measured, as long as a "good" leak rate was obtained within 72 hours of obtaining a previous "good" leak rate. At the time, he did not think that either action was permissible. Tr. 4745 (Seelinger).

50. Two incidents that occurred shortly thereafter persuaded Seelinger to change his attitude, at least temporarily. The shift supervisor who had told him about discarding tests informed him that his interpretation of the Tech Specs would result in shutting down TMI-1. Seelinger resolved to meet with the TMI-1 PORC and straighten out the situation, but had to go to an offsite meeting for several days. When he returned, the plant was shut down and continued to be shut down for the next 7 to 10 days. Other matters occupied his attention, and he did not confer with the TMI-1 PORC before the Haverkamp incident. Tr. 4746-47 (Seelinger).

51. As to the second incident, he and Mr. Floyd conferred about the proper interpretation of the Tech Specs. The result of the discussion was, in Seelinger's words:

We came out of that conversation with an interpretation that I agreed to for a period of time — that the leak rate test was to be set aside if it exceeded the criteria on the basis of the fact that the plant was not in steady state operation and would allow the running of another, or another, and we didn't specify the number, of leak rate tests.

Tr. 4746 (Seelinger). This meant, as a practical matter, that any test over 1 gpm would be disregarded (set aside) and tests would continue to be run until a "good" test emerged from the computer.

52. After the Haverkamp incident, the resulting LER indicated that the Action Statement would be entered after *any* leak rate test result over 1 gpm was obtained. However, this interpretation was never implemented by the Operations personnel, as we have seen. *See* pp. 720-22, *supra*.

53. Against this factual backdrop, the Board finds that Mr. Seelinger was guilty of culpable neglect as described in GPUN's Proposed Findings 212-213, which we adopt:

212 . . . In early October 1978, the record is clear that James Seelinger learned of the practice of discarding tests. The fact that a shift supervisor subsequently told him that TMI-1 would shut down if Seelinger's interpretation of the Tech Specs were adopted and that Seelinger then intended to raise this issue with the TMI-1 PORC does not excuse Seelinger from the affirmative duty to act and follow through after gaining actual knowledge of a potentially improper practice. Furthermore, the meeting with Floyd at which Seelinger claims they reached a common ground of interpretation does not justify following an interpretation when Seelinger had actual knowledge that adherence to such an interpretation in practice meant the repeated running of tests and the discarding of all tests greater than 1 gpm.

213 . . . The Board believes that Seelinger's awareness in early October 1978 of the practice of repeated running and discarding of tests in and of itself is sufficient evidence for the Board to find that Seelinger by dereliction or culpable neglect allowed improper operator actions. Seelinger, however, allowed a bad situation to get worse. He had admitted that he was the source of an instruction to shift supervisors not to leave tests lying around to prevent the NRC from seeing them and becoming aware of an interpretation of the Tech Specs with which he was uncomfortable. Tr. 4756 (Seelinger). Seelinger's concern about the NRC's possibly finding bad tests lying around was realized on October 18 with Haverkamp's arrival in the Control Room; at the same time, the interpretation with which Seelinger was uncomfortable and which led him to advise the shift supervisors to keep bad tests out of sight was replaced by the immediate Action Statement entry interpretation insisted on by Haverkamp. *See* Tr. 4757-60 (Seelinger). Despite the relatively short duration of Seelinger's concern, the Board does not view his decision to keep information from the NRC as either reasonable or tolerable.

As we have previously indicated the Board believes that Mr. Seelinger could have exercised more vigor in following up the corrective action after the Haverkamp incident.[32] We do find that he did what he thought was within his authority. He directed Mr. Marshall to see that the LER was read by all shift personnel and assured himself that Mr. Floyd wrote an Operations Memorandum

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[32] One aspect of Mr. Seelinger's testimony was very puzzling to the Board. Gary Miller, at the time in question both Station Superintendent and TMI-2 Superintendent, testified that he depended on Mr. Seelinger for the day-to-day supervision of TMI-2 operation. Tr. 5050-53 (G. Miller). Mr. Seelinger, however, did not believe that he had any authority outside his own chain of command (which did not include Mr. Floyd and the Operations Department). Tr. 4627-28. It becomes even more puzzling if we examine a relevant portion of the job description of the Unit 2 Superintendent of Technical Support.

> The overall scope of the responsibility of the Unit Superintendent Technical Support is to assist the Unit Superintendent in the integrated operation, maintenance and administration of a generating unit at the Three Mile Island facility to ensure that the unit is operated and maintained in a safe, efficient manner and that all applicable regulatory requirements are adhered to. This means that not only does the incumbent act as the Unit Superintendent during the Superintendent's absence, but actually assumes many of the normal duties of the Unit Superintendent with the same kind of authority as the Superintendent when such authority is so delegated and is not in conflict with established management policy as outlined in the Technical Specification.

Stier Report, Vol. V(A), Tab 6. It would be highly speculative of the Board to assert that if Mr. Seelinger had been aware of the responsibility that Mr. Miller thought he had and that his job description reinforces, the situation during the time in question here would have been improved. Nor do we intend to imply that this apparent misunderstanding was totally Mr. Seelinger's fault; it was clearly Mr. Miller's responsibility to adequately inform his subordinates as to what was expected of them. Mr. Miller never made clear to Mr. Seelinger just what his standing was. Tr. 5047-50 (G. Miller). In any event, we do believe that this is an illustration of an overall management situation gone awry.

to be read by all shift personnel which supposedly would explain the new procedures to be used in carrying out leak rate tests, among other things. *See* p. 720, *supra*. That the actions taken did not produce the desired results cannot be directly laid at Mr. Seelinger's doorstep. In the Board's view, he had every reason to believe that Mr. Floyd, who did not report to Mr. Seelinger,[33] would follow up with the Operations Department personnel. We also note that on or about December 1, 1978, Mr. Seelinger was promoted to Unit Superintendent at TMI-1 and was not present at TMI-2 during the time of greatest difficulties in performing the leak rate tests. The Board, in considering the entire record on the adequacy of these corrective actions, finds that Mr. Seelinger's actions, while imperfect, do not constitute culpable neglect.

54. The Board found Mr. Seelinger to be an unusually forthright and candid witness. His admission that he had instructed shift supervisors not to leave tests lying around for the NRC to see was volunteered by Mr. Seelinger and may not have come to light at all but for his admission.

55. George Kunder succeeded Seelinger as the Unit 2 Superintendent of Technical Support in early December 1978. Although Seelinger was uncertain whether he had informed his successor of the difficulties with the leak rate test (Tr. 7783-84 (Seelinger)), Kunder had some limited knowledge of the difficulties with the tests. He also was aware that some effort was being undertaken to correct the difficulties.

56. Sometime in 1979, Kunder became aware that there was some question whether leak rate test results accurately reflected plant conditions. Kunder believed the question was whether the calculation used to determine leakage was in error so that erroneously high readings were being obtained. Kunder was also aware that his department was requested to look at the leak rate test procedure or calculation to determine if a problem actually existed, and if so, to resolve it. Kunder, ff. Tr. 4800 at 2-3. Kunder had only limited recall of how he became aware of the difficulties and no recollection of what was accomplished to correct them. Tr. 4811-12, 4834-35, 4840-41 (Kunder). During this time, Kunder worked considerable overtime and had a very heavy work load,

> attempting to not only take over the reins of . . . managing the engineering organization but also take care of the collateral duties of PORC chairmanship, beginning some preparations for the refueling outages which [he] was responsible to coordinate the planning for, and . . . in particular, deal with a myriad of issues and problems that existed at the time to attempt to get [himself] up to speed on the details of the Unit 2 systems; that is, to prepare for senior reactor operator's license . . . .

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[33] He was explicitly informed of this during his job interview with Messrs. Herbein, Miller, and Colitz. Prep. Test., ff. Tr. 4623 at 3.

Tr. 4803 (Kunder). We believe Kunder's inability to recall details with respect to his awareness of difficulties reflects his actual limited knowledge of these difficulties during the period of operation of TMI-2. We find no excuse for his failure to pursue this ongoing problem, and that such failure constitutes culpable neglect.

57. Joseph Logan, Unit 2 Superintendent, also had some knowledge of the difficulties operators were experiencing. Logan thought the problem was with the computer because the leak rate test results were inconsistent. Although he does not know when he became aware of the difficulties, Logan does recall having had discussions with shift supervisors, Kunder, and Floyd. Tr. 5117, 5123-24 (Logan). Logan considered negative leak rate test results as an indication that there were computer program errors associated with this test. Tr. 5143, 5145 (Logan). However, Logan felt that the problem was recognized and the work being done led him to believe that a solution to correct the problems would be found. Tr. 5119, 5133 (Logan). Logan does recall that a change was made, but has no recollection if it was effective. Tr. 5134 (Logan).

58. The Board reviewed several leak rate surveillances with Mr. Logan, and Mr. Logan was able to recognize the several different kinds of operator errors that caused these tests to be invalid. Tr. 5153-76. The fact that Mr. Logan had been aware that there were problems with the leak rate tests but had never bothered to look at the test results reflects discredit on his discharge of his duties. While his subordinates, Mr. Floyd and Mr. Kunder, should have handled the leak rate test problems, their failure to do so should have led Mr. Logan to investigate the performance of the tests and to instruct them that the problems should be resolved without delay. Mr. Logan's inattention to the leak rate test records, coupled with the other circumstances we have noted, leads us to a finding of culpable neglect by Mr. Logan.

59. Gary Miller, TMI Station Manager and, until December 1978, Unit Superintendent of TMI-2, was aware to a limited extent of the difficulties the operators were experiencing. Miller was routinely exposed to several sources of information containing data that, if analyzed (such as comparing leak rate test results day after day) might have raised a question in his mind to inquire further. *See generally* Board Exh. 1-A, Sieg Report, Vol. II(B), G. Miller Summary at 4-11. Miller, however, did not carry out such a comparison: "In short, I simply did not realize that such repetitive results were being recorded." G. Miller, fl. Tr. 5039 at 19. The primary source Miller depended on to raise operational problems was the morning conference call. Miller did not believe that the subject of continuing leak rate surveillance difficulties was ever discussed during these calls nor does he believe that anyone ever advised him about such difficulties on any other occasion. *Id.* The record supports this statement.

60. The extent of Miller's knowledge concerning the violation of the Tech Specs probably comes from Seelinger's conversation with Miller on October 18, 1978. While Miller has no current recollection of their conversation, he believes it well could have taken place.

61. By Seelinger's account of the conversation, Miller probably became aware that the operators had experienced some difficulty with the leak rate test at that time. Tr. 4723-27 (Seelinger). Miller also was aware that an LER was issued (Tr. 5056 (G. Miller)), but for the reasons previously discussed concerning the accuracy and completeness of the LER (*see* § III, ¶¶ 10-17, *supra*), it is doubtful that the LER expanded Miller's awareness. More likely the LER would have suggested to Miller that there was a one-time problem (not a consistent pattern of procedural abuse) and given Miller confidence that the matter was being resolved. Tr. 5085-86 (G. Miller).

62. Mr. Miller was not aware of any of the questionable practices concerning the leak rate tests performed at TMI-2. As he testified:

> I did not know that unacceptable leak rate surveillance test results were being discarded. I have testified before that this is something I would have expected to have been brought to my attention. I do not recall, however, that that was ever done. In my view, the discarding of leak rate tests on the scale on which it was apparently done was improper, and I would not have condoned it.

63. Mr. Miller's testimony is uncontroverted in the record. Although we have to some extent questioned his and others' management style (*see* § IV, ¶ 53, note 32), we find no evidence of any wrongdoing therein. He clearly had no direct responsibility for or knowledge of improper leak rate practices at TMI-2. The Board finds that Mr. Miller exhibited neither dereliction nor culpable neglect in the performance of his duties.

64. John Herbein, Vice President of Generation, had no knowledge of the difficulties. The strongest potential source of information that might have alerted Herbein to the difficulties was the Licensee Event Report 78-62/1T. On November 1, 1978, Herbein signed the transmittal letter sending the LER to the NRC. Herbein, however, has no independent recollections of the LER or surrounding events. Herbein, ff. Tr. 5268 at 10-11. The circumstances surrounding the preparation of the LER and Herbein's signing of the transmittal letter are covered at § III, ¶¶ 10-14, *supra*.

65. The LER failed to identify that the sources of the problem were repetitive test results exceeding acceptance criteria, and the Operations Department's lack of confidence in leak rate test results. The LER also failed to point out that the solution to the problem had been the decision to round off test results. Board Exh. 1-A, Stier Report, Vol. I at 143. Given these inaccuracies and inadequacies in the LER, the Board cannot impute knowledge of the difficulties that operators were experiencing to Herbein. In fact, to the extent Herbein would have had any

question of the existence and subsequent resolution of operators' difficulties, his questions might have disappeared the following January when the NRC notified him that the LER had been selected for onsite followup. The notification stated that "the inspector verified that the reporting requirements . . . had been met, that appropriate corrective action has been taken, that the event was reviewed by the licensee as required by Tech Specs, and that continued operation of the facility was conducted in conformance with Tech Spec limits." Board Exh. 20, Haverkamp Testimony, Exh. E, Enclosure at 10-11.

66. While we conclude that Herbein and Miller are not chargeable with "culpable neglect" on the specific issues before us, neither do we wish to imply any determination that their conduct with respect to the leak rate fiasco was all that it should have been. The record indicates that there was insufficient depth of senior management capability at TMI during much of Unit 2's operation. For many months, the post of Superintendent of Unit 2 was vacant, this at a time when the unit was in its initial "shakedown" phase of operation. No one was ever formally designated as "Acting" Unit Superintendent and the record reflects differences in the minds of Miller and Seelinger as to the scope of the latter's responsibilities. Seelinger Prep. St., ff. Tr. 4623 at 6; G. Miller Prep. St., ff. Tr. 5039 at 6. In any event, apparently Seelinger was overworked and it is clear that Miller was grossly overworked. Miller testified that he worked an average of 80 hours per week, far more than should have been required of a person in a senior management position potentially affecting public health and safety. Herbein knew (or clearly should have known) that his senior managers were stretched too thin at TMI, and that this might compromise their ability to do their jobs properly. Yet no effective efforts were made to remedy this situation.

C. Corrective Actions for Technical Errors

67. Despite the fact that there were many difficulties associated with the leak rate test, only limited corrective actions for the technical errors were taken to cure the fundamental deficiencies that caused the difficulties. Two such corrections are discussed below. That more corrections were not made or attention paid to the host of deficiencies with the leak rate test was explored by the Board with a number of witnesses. One explanation is that operators felt it was being cured. Chwastyk, ff. Tr. 3407 at 3; Faust, ff. Tr. 2511 at 3; Frederick, ff. Tr. 2447 at 4. Another was that the plant was still new. Adams, ff. Tr. 3776 at 2-3. Virtually no one seemed overly concerned with the problems.

68. An attempt to correct leak rate test problems was prompted when in February 1979, the collection rate of the RCDT began to increase. This high rate of collection had not been experienced before at TMI-2 for any extended period of time. Stier Report, Vol. I at 91. The leak rate test calculation failed

to convert RCDT collection from room temperature to RCS temperature before it was subtracted from gross leakage. A volume of a given mass of water is 1.4 times greater at reactor coolant temperature than it is at room temperature. *Id.*

69. Because of this error, the calculated unidentified leak rate was overstated by an amount equal to 40% of the RCDT collection rate. Thus, when RCDT collection reached a rate of 2.5 gpm at room temperature, the unidentified leak rate calculated at RCS temperature would be greater than the actual unidentified leakage by 1.0 gpm, even if the actual unidentified leak rate had not changed. This rate of drain tank collection (2.5 gpm) was reached around February 25. *Id.* at 92.

70. Having recognized that RCDT collection was driving up the unidentified leak rate measurements, on March 16 a procedural change was made to correct the calculation error that was causing RCDT collection to be understated. Thereafter, each test calculation was supposed to be corrected for this error by hand. This change, however, did not produce the desired result. Operators continued to experience difficulty in obtaining satisfactory leak rate test results. The apparent reason is that an inaccuracy in the make-up tank level transmitter continued to cause a 20 to 50% exaggeration in the drop in make-up tank level. Therefore, if RCDT collection were 4.0 gpm, the error in make-up tank level measurement would overstate the calculated unidentified leak rate by 1.1 to 2.8 gpm. *Id.* at 100.

71. The second, but largely insignificant, attempted cure to leak rate test difficulties occurred in the Fall of 1978. On October 31, 1978, the Instrument and Control Department reported a problem. The instruments for both the wet reference leg and the dry variable leg of the make-up tank were connected to a common set of sensing lines. This arrangement made it impossible to perform maintenance on one instrument without affecting the other. By November 9, 1978, installation was completed of separate sensing lines with a common penetration on the make-up tank. Faegre & Benson Report, Vol. 2 at 65; Stier Report, Vol. V(D), Tab 53 (Field Questionnaire). There was no apparent overall benefit from this change with respect to the subsequent accuracy of the make-up tank level measurement.

D. Pressure to Obtain Leak Rate Test Results That Did Not Exceed Technical Specification Limits

72. This Board examined the issue of whether operators felt pressure to obtain leak rate test results that did not exceed the Tech Spec limit.

73. CROs felt pressured by shift supervisors and shift foremen to obtain test results under 1.0 gpm. Shift foremen felt similar pressure from their shift supervisors. The evidence does not indicate that shift supervisors experienced

similar pressure from their superiors. Board Exh. 1-A, Stier Report, Vol. I at 124-25.

74. The pressure felt by the CROs was depicted as a general sense to keep the plant on line (*id.*, Vol. VI(G), Illjes 2/7/85 Interview at 57-58); being asked questions about the status of the leak rate test (Board Exh. 6, OI Report, Exh. 10, Cooper Interview at 24; Chwastyk, ff. Tr. 3407 at 6); and being told to get a good leak rate (Coleman, ff. Tr. 2579 at 2-3; Tr. 2586 (Coleman); Booher, ff. Tr. 4175 at 3; Stier Report, Vol. VI(B), Congdon 4/10/80 Interview at 2). Despite the fact that some CROs felt pressure, that pressure did not translate into a sense that adverse action would be taken against them if they failed to obtain a good leak rate test result (Booher, ff. Tr. 4175 at 3; Board Exh. 6, OI Report, Exh. 18, Wright Interview at 109-10). Some shift foremen felt pressure to keep the plant on line as much as possible. Board Exh. 1-A, Stier Report, Vol. VI(B), Conaway 2/21/85 Interview at 37-38; Board Exh. 6, OI Report, Exh. 30, Guthrie Interview at 45-46.

V. DISCARDING LEAK RATE TESTS

> Were unacceptable leak rate surveillance test results required by Technical Specification 4.4.6.2.d discarded? If so, who knew of, condoned or directed this practice? Were unacceptable leak rate surveillance test results discarded in an attempt to hide them from the NRC?

CLI-85-18, 22 NRC at 880, Issue (c).

The Board adopts and sets forth below GPUN's Proposed Findings 180-191, except as changes are indicated by ". . ." or by brackets.

1. "The third issue specified by the Commission in this proceeding concerns whether unacceptable leak rate surveillance test results required by Tech Spec 4.4.6.2.d were discarded. If the Board found that records were discarded, it was supposed to determine who condoned or directed this practice and whether there was an attempt to hide unacceptable leak rate surveillance test results from the NRC. CLI-85-18, 22 NRC at 880. In connection with this issue of documentation, we also explored the operators' compliance with related paperwork requirements, including logging and filing of E&Ds."

2. "The administrative procedures applicable to the documentation of leak rate testing are discussed at [GPUN's] ¶¶ 81, 91-94, *supra*. [Summarizing the key requirements, records of "surveillance activities" — including the results of leak rate tests — were required by Tech Spec 6.10 to be retained for 5 years. Furthermore, AP 1010 required that any surveillance test that had an unsatisfactory result — e.g., a leak rate test showing unidentified leakage in excess of 1 gpm — had to be documented on an "Exception and Deficiency List" and filed.] The plant records at TMI-2 show that the only leak rate tests ever 'filed' were those showing unidentified leakage under 1 gpm. Board

Exh. 1-A, Stier Report, Vol. I at 60; *id.*, Vol. III(A), Table 1. Stier estimated that at least 50% of all the tests performed were discarded because the results showed unidentified leakage exceeding 1 gpm. *Id.*, Vol. I at 60. MPR Associates performed two statistical analyses of recorded tests. *Id.* First, they determined that the variability of the frequency with which tests were filed was high, indicating that tests were filed at irregular intervals and raising the possibility that significant numbers were discarded. *Id.* Second, MPR plotted test results as histograms, and from the apparent truncation of the resulting distributions, estimated that about half or more of the expected results would have exceeded 1 gpm but were not filed. *Id.*; *id.*, Vol. IV(A) at V.2-V.8. Testimony obtained from TMI-2 personnel indicated that as many as two or three leak rate tests may have been discarded for every one that was filed. *Id.*, Vol. I at 61 (*citing* the Interviews of Smith, 2/8/85 at 70; McGovern, 2/6/85 at 15; Illjes, 2/7/85 at 10-11, 114; Faust, 2/19/85 at 138; and Adams, 3/8/85 at 81)."

3. "The practice of discarding leak rate test results greater than 1 gpm began at TMI-1 and carried over to TMI-2. Tr. 4325 (Smith); Floyd, ff. Tr. 4894 at 2; Board Exh. 1-A, Stier Report, Vol. I at 58. Every CRO, shift foreman, and shift supervisor who appeared before the Board, except Frederick,[34] testified that he was either aware of the practice of discarding tests or personally discarded tests. Tr. 2250 (Hartman); Tr. 2544 (Faust); Coleman, ff. Tr. 2579 at 2; Tr. 2673 (Wright); Congdon, ff. Tr. 2709 at 4; Tr. 2795 (Scheimann); Cooper, ff. Tr. 2835 at 4; Tr. 2958 (Zewe); Illjes, ff. Tr. 3010 at 2; Tr. 3110 (Conaway); Tr. 3204 (McGovern); Tr. 3243 (Mell); Kidwell, ff. Tr. 3285 at 3; Tr. 3487 (Chwastyk); A. Miller, ff. Tr. 3608 at 3; Hitz, ff. Tr. at 3; Adams, ff. Tr. 3776 at 2; Mehler, ff. Tr. 3842 at 5; Tr. 4007-08 (Olson); Hemmila, ff. Tr. 4039 at 3; Tr. 4115 (Guthrie); Booher, ff. Tr. 4175 at 2; Hoyt, ff. Tr. 4233 at 3; Tr. 4325 (Smith); Phillippe, ff. Tr. 4432 at 2-3; Bryan, ff. Tr. 4540 at 2."

4. "Descriptions of the practice of discarding tests differed somewhat among the witnesses. Some witnesses testified that CROs or auxiliary operators were dispatched to search for leaks before a test was invalidated and discarded. Tr. 2250 (Hartman); Tr. 3109-10 (Conaway); Booher, ff. Tr. 4175 at 2; Smith, ff. Tr. 4331 at 4. Other witnesses testified that they compared the leak rate test to plant parameters. If they found that the leak rate test results were inconsistent with the plant parameters, they discarded the leak rate test results greater than 1 gpm. Tr. 2817 (Scheimann); Zewe, ff. Tr. 2946 at 3. Some operators testified that results over 1 gpm were given to the shift foreman to discard. Faust, ff. Tr. 2511 at 3; Congdon, ff. Tr. 2709 at 4. Most operators, shift foremen, and shift supervisors testified that leak rate test results above 1 gpm were retained until a leak rate test result below 1 gpm was obtained; and then

[34] Frederick testified that he gave the leak rate tests to his shift foreman and was unaware that the tests were being discarded. Frederick, ff. Tr. 3447 at 6.

the tests above 1 gpm were discarded. Coleman, ff. Tr. 2579 at 2;[35] Congdon, ff. Tr. 2709 at 4; Cooper, ff. Tr. 2835 at 4; Illjes, ff. Tr. 3010 at 2; Tr. 3243 (Mell); Kidwell, ff. Tr. 3285 at 3; Tr. 3487 (Chwastyk); A. Miller, ff. Tr. 3608 at 3; Adams, ff. Tr. 3776 at 2."

5. "James Floyd, the Unit 2 Supervisor of Operations, was aware that . . . leak rate tests were being discarded. Floyd, ff. Tr. 4894 at 2. Floyd maintained that he never directed that leak rate tests be discarded, but the practice of discarding tests carried over from TMI-1. *Id.* Floyd was also of the 'opinion that blatantly bad leak rates (for example, excessively negative ones) had no connection with reality; consequently, it was permissible to discard them.' *Id.* at 2-3." [Be that as it may, Floyd was in charge of Operations at Unit 2 and he probably knew, or certainly should have known, that many of his subordinates were systematically throwing out tests showing unidentified leakage over 1 gpm, without regard to their validity.]

6. "In early October of 1978, James Seelinger, the Unit 2 Superintendent of Technical Support, became aware of the practice of discarding [seemingly][36] valid tests above 1 gpm and running another test. Tr. 4745 (Seelinger). The extent of Seelinger's knowledge of the practice of discarding tests, and the actions he took when he discovered the practice, are discussed at [GPUN'S], ¶¶ 103-105, 108-113, *supra*. In sum, Seelinger testified that after a meeting with Floyd in early October, he (Seelinger) agreed that the Tech Specs required one leak rate test under 1 gpm every 72 hours and entry into the Action Statement only at the end of such a 72-hour period. Tr. 4764-65 (Seelinger). Because Seelinger 'did not particularly care for the interpretation' and he 'was not particularly crazy on having the NRC involved with that interpretation or finding out about that interpretation,' he subsequently advised one or more shift supervisors 'that the tests were not to be left out and lying around,' where the NRC

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[35] Coleman testified that on one occasion he obtained a leak rate test in excess of 1 gpm, signed the test, put it on his shift foreman's desk, and a short time later, three people came out of the shift supervisor's office and one told him that they did not want to see leak rates that exceeded the Tech Specs. After that incident, Coleman began throwing away leak rate test results over 1 gpm. Coleman, ff. Tr. 2519 at 3.

[36] We say "seemingly" valid because, as we have found (*see* § IV, ¶ 44 above) the error built into the leak rate test made it inherently unreliable. The test at TMI-2 never was "valid" in the sense of consistently giving an accurate measurement of unidentified leakage. On the other hand, the operators did not understand the technical defects in the test and had to deal with the test results as they appeared. Thus, for example, when an operator ran a test showing 1.2 gpm and there was nothing he could point to (such as operator error) to invalidate the test, he was required to go into the Action Statement.

Stier and MPR attempted to determine through sump pump data times during which actual identified leakage probably did exceed the 1-gpm LCO. *See* Stier Report, Vol. IV(A). The Numerous Employees dispute the Stier findings, arguing that excessive unidentified leakage only occurred during a brief period in October. PFs 225-236. We are making no findings on actual unidentified leakage partly because it would be extremely difficult to do so on the record before us but, more fundamentally, because such findings are not necessary to resolve the issues before us. Even if it were possible now to determine historic unidentified leakage, the fact remains that the employees did not know what it was at the time, except for the erratic data being given them by the leak rate test. They nevertheless continued to run the reactor without any reliable basis for believing that its operation was in continuing conformity with the 1-gpm LCO.

might find them. Tr. 4756 (Seelinger). After Haverkamp's visit, Seelinger stated that he interpreted the Tech Specs to require immediate Action Statement entry on obtaining a test result greater than 1 gpm. Tr. 4758-59 (Seelinger). Such an interpretation should have ended the practice of discarding tests. *Id.* Seelinger acknowledged, however, that he never effectively put the word out to the shift supervisors to adopt the new interpretation of the Tech Specs. *Id.* Therefore, the practice of discarding leak rate tests apparently continued up to the accident at TMI-2."

7. "Operators did not log the starting time of the leak rate test [as required by AP 1012.] *See, e.g.*, Tr. 2496 (Frederick); Congdon, ff. Tr. 2709 at 3; McGovern, ff. Tr. 3148 at 3; Hitz, ff. Tr. 3664 at 5; Tr. 4116 (Guthrie); Bryan, ff. Tr. 4540 at 3. Some operators did log the completion time of leak rate test results below 1 gpm. *See, e.g.*, Chwastyk, ff. Tr. 3407 at 3; Smith, ff. Tr. 4331 at 3."

8. "No E&Ds were ever filed with any of the leak rate test results at TMI-2. Tr. 2268 (Hartman); Board Exh. 1-A, Stier Report, Vol. I at 60. Most witnesses testified that they just did not think about using E&Ds with the leak rate test or had no explanation for why E&Ds were not used with the leak rate test. Tr. 2452 (Frederick); Tr. 2671 (Wright); Congdon, ff. Tr. 2709 at 3; Tr. 2794 (Scheimann); Tr. 2988-89 (Zewe); Tr. 3668-69 (Hitz); Mehler, ff. Tr. 3842 at 4; Tr. 4078 (Hemmila); Tr. 4742 (Seelinger). Some witnesses testified that they thought that the E&D procedure may have been inapplicable to the leak rate test because the test was conducted on the computer. Tr. 2911 (Cooper); Tr. 3018 (Illjes); McGovern, ff. Tr. 3148 at 4; Tr. 3524 (Chwastyk); Tr. 4346 (Smith); Bryan, ff. Tr. 4540 at 5. Finally, some witnesses claimed that the E&D procedure did not apply to the leak rate test because the test was a routine surveillance. Tr. 2545 (Faust); Tr. 3018 (Illjes); Floyd, ff. Tr. 4894 at 3."

9. "Based on the evidence in the record, it is clear that TMI-2 personnel uniformly failed to document leak rate testing properly . . . . Leak rate tests were routinely discarded by CROs and shift foremen [if they registered more than 1 gpm without regard to their validity.] Shift supervisors were aware of this practice . . . . Further, James Seelinger, at one point, told TMI-2 personnel not to leave leak rate tests lying around. This instruction may have led at least some TMI-2 personnel to discard leak rate tests so that the NRC would not discover them."

10. "In addition, TMI-2 personnel failed to log the start times of leak rate tests and failed to file E&Ds. Board Exh. 1-A, Stier Report, Vol. I at 60. Floyd failed to enforce the application of the E&D procedure to the leak rate test. Floyd, ff. Tr. 4894 at 3. He claimed that E&Ds were not filed because the leak rate test was run more frequently than required by the Tech Specs. *Id.*" [While true, that factor is irrelevant. The practice of discarding seemingly valid tests only

because they showed unidentified leakage in excess of 1 gpm — engaged in by virtually all the CROs with the knowledge (and some participation) of the shift foremen and supervisors — was, in the Board's view, much more than a mere administrative default. The individuals knew or should have known that the tests were supposed to have some safety significance. Detection of "unidentified leakage" is a red flag of that. When coupled with the practice, by the same individuals, of keeping *all* tests that registered unidentified leakage of less than 1 gpm (but for which there was no technical basis for the differentiation) this pattern of conduct borders on falsification of test results.[37] It is no answer to say that the discarding of tests "came over from Unit 1." The people involved should have known better and many of them surely did.]

11. "No members of management above Floyd and Seelinger apparently knew that tests were being discarded where unidentified leak rate results exceeded 1 gpm. Floyd was the most senior person who admitted E&Ds were not filed when leak rate tests failed to meet acceptance criteria. *See* Board Exh. 1-A, Stier Report, Vol. I at 133; Tr. 4745 (Seelinger); Floyd, ff. Tr. 4894 at 3. By their very nature, the practices of discarding tests and failing to follow procedures for documenting test results tended to conceal such conduct. Board Exh. 1-A, Stier Report, Vol. I at 135. Although the CROs and shift foremen openly followed these practices, the evidence does not show that any management officials participated in their activities, and, other than Floyd and Seelinger, observed their conduct."

12. "Both Kunder and Logan testified that they did not know that operators were discarding leak rate tests. Tr. 4839 (Kunder); Tr. 5138 (Logan). G. Miller also had no knowledge operators were discarding leak rate tests. As Station Superintendent, G. Miller had no direct involvement in leak rate testing. Miller testified that he depended primarily on the morning conference call as a means of identifying operational problems. G. Miller, ff. Tr. 5039 at 19. Miller did not believe that the subject of continuing leak rate surveillance difficulties was ever discussed during those calls. *Id.* It was his belief that surveillance records were retained and collected by the Surveillance Coordinator. Board Exh. 1-A, Stier Report, Vol. II(B), G. Miller Summary at 1. Herbein was informed of the daily status of the plant through subordinates. Herbein, ff. Tr. 5268 at 7. Herbein's

[37] There are indications in the record that some operators in signing tests they ran, and some foremen signing their approval thought they were merely certifying that the result was less than 1 gpm. *See* Stier Report, Vol. I at 54. That is an impermissibly narrow, indeed, fatuous, view of the significance of these signatures. As to all filed tests, it is clear from the face of the computer-generated test result that the result was less than 1 gpm. No signatures were necessary for that determination. Although the significance of these signatures apparently was not spelled out in company directives, we believe that any reasonable operator should have known that, by his signature, he was warranting that he had conducted the test in accordance with prescribed procedures and that, at a minimum, he had no specific bases (as distinguished from general skepticism) to believe that the particular test was not accurate. Similarly, in our view, a foreman by his signature was warranting that the results, at least on their face, appeared to be valid and that he too had no specific bases to believe that the particular test was not accurate.

subordinates never informed him that CROs or others were discarding or failing to document unsatisfactory leak rate tests. *Id.* at 13."

VI. INDIVIDUAL RESPONSIBILITY OF CROs, THEIR FOREMEN AND SUPERVISORS, AND THE SUPERVISOR OF OPERATIONS FOR LEAK RATE DATA MANIPULATION AND KNOWING CERTIFICATION OF FALSE TESTS AND FOR OTHER VIOLATIONS OF LEAK RATE TEST PROCEDURES

Introduction

1. In this section, we make findings with respect to the individual involvement of each CRO, shift foreman, and shift supervisor in leak rate testing at TMI-2 in 1978-1979, in response to the following Commission question:

> Did operators manipulate data or take other actions during leak rate surveillance testing in an attempt to improperly influence test results? Who performed, condoned, directed or was knowledgeable of data manipulation or other improper actions during leak rate surveillance testing?

Our findings cover thirty individuals, twenty-eight of whom appeared as witnesses in the proceeding. We also make further findings concerning the responsibility of the Supervisor of Operations, Mr. Floyd.

2. Our findings on individual responsibility are grouped according to the shift on which each person served. The individual CROs and shift foremen (and to some extent, the shift supervisors) cannot be viewed realistically in isolation, for several reasons. The performance of a leak rate test was often a "joint enterprise" involving two, and sometimes more, people on a shift. Thus if water were added during a test, that would normally be done by the CRO assigned to the panel, who should then inform the surveillance CRO — the person who took the computer readings and signed the test. Alternatively, the surveillance CRO might ask the panel CRO if he had added water during the test. *See, e.g.*, Stier, Vol. IV, Interviews with Olson (10/22/84 at 8); McGovern (2/6/85 at 96); Coleman (2/5/85 at 5). Tr. 2843-46 (Cooper). The surveillance CRO would, in turn, present the test to the shift foreman for approval. The point is well illustrated by Stier's discussion of water manipulation by Shift D, as follows:

> On January 11, 1979, the first accounted-for water addition during the course of a leak rate test occurred on Coleman's shift. He was the test performer while Olson was the Control Room Operator operating the control room panel. Testimony from numerous members of the Operations Department makes it clear that water was usually added to the system by the Control Room Operator controlling the panel.
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> The next water addition appears on February 16, 1979. On that occasion, Olson was performing the test while Coleman was controlling the panel.

> Thereafter, 11 tests containing logged water additions in February and March were performed on as many of Coleman's consecutive assigned shifts. In each case, the water addition was made near the end of the test, suggesting some degree of collaboration between the operator assigned to the panel and the operator performing the test. Coleman and Olson performed all of these tests, sometimes with assistance from Wright. . . .
>
> This test data makes it clear that it is unlikely Coleman acted alone when making logged water additions during the course of the leak rate test in an effort to manipulate results. The evidence also makes it clear that Coleman had to be aware of the participation of others during this period, although he insists he does not recall at this time.

Stier, Vol. II(A), Coleman Assessment at 12-13.

3. Pointing to testimony that the roles of the CROs in leak rate testing varied from time to time and/or that tests were often performed in a perfunctory or sloppy manner (Tr. 3024, 3079, 3306, 3995), the Numerous Employees propose that the Board "cannot conclude that any given leak rate test that may have been falsified or that violated procedures was necessarily the responsibility of any particular CRO or SRO." Employees' Proposed Finding 275. We emphatically reject that conclusion, a conclusion that would render this proceeding largely futile. While the roles of shift members varied from time to time, it is equally clear that there were routine ways of doing things, and that such routines were generally followed. Such routines provide some basis for an inference that the routine was followed in the particular case.[38] Thus, if there is evidence that a particular water addition was made in order to manipulate a test result, the "joint enterprise" aspect of the test procedure would usually provide some independent evidence that the surveillance CRO, the panel CRO, and perhaps the shift foreman knew about the manipulation.

4. An inference of shared knowledge of manipulation may also be supported by direct testimony of a CRO concerning his shiftmates, or by an apparent pattern of manipulation involving a single shift, based upon expert analysis of test records. In the latter regard, the clear pattern of manipulation by underrecording water additions by all three CROs on Shift D — discussed in detail below — constitutes the strongest evidence in the record of manipulation by an entire shift.

5. We stress, however, that merely because we may have found evidence of manipulation of a test by a particular person, we did not automatically impute knowledge of or participation in such manipulation to other members of that shift. Rather, we looked at all the facts and circumstances surrounding that test

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[38] Apart from the "joint enterprise" aspect that is most relevant here, some CROs even testified that they may have signed tests as "operator" when they had not themselves run the test. For example, John Kidwell testified that he might simply have taken a test printout from the computer and signed it if it reflected less than 1 gpm. Tr. 3305-07. Given the cynicism of the operators toward the test, that may sometimes have occurred. However, we think it fair to assume that the person listed as "operator" on the test (1) was primarily responsible for its performance, (2) performed the calculations required, and (3) certifies the test as accurate. The individual operators were given an opportunity to deny the attributions of test performance by NRR and MPR. Such denials were not made.

and other tests run by that shift, including the testimony of the CROs, levels of communication among that shift, and other relevant factors.

6. We use the terms "manipulate" and "falsify" in a similar sense. Both terms connote an intent to deceive and to produce a false result. We generally use the term "manipulate" with reference to data — e.g., by adding water, knowing it will be underrecorded, an operator "manipulates" a test result from one value to another. We generally use the term "falsify" to mean the act of certifying a test as accurate when the CRO making the certification knows that the test data have been manipulated. We believe that our use of these terms is consistent with the Commission's use of the same terms. We reject the Numerous Employees' argument to the contrary. *See* PF 394.

7. In general, the operators are directly responsible for their own violations of procedure. The concept of "dereliction" or "culpable neglect" — the terms used by the Commission — came into play at the foreman level and above. In some respects, however, the foreman may be personally chargeable with a procedural violation — e.g., where he was personally involved. In other respects, ... notably manipulation, the foreman's responsibility may be based entirely upon culpable neglect. Again speaking generally, the shift supervisors were one removed from the leak rate test process and were not usually involved in particular tests. Although circumstances vary, the shift supervisors are responsible only on a "culpable neglect" basis.

8. The Commission did not define the words "dereliction" or "culpable neglect," nor is a dictionary definition particularly helpful in the circumstances of this case. We reject the Numerous Employees' suggestion that the words "connote an element of scienter, or knowledge." PF 49. That suggestion would place too high a premium on ignorance and effectively immunize from responsibility supervisors who exhibited a disregard for the conduct of their subordinates. We agree with the following language proposed by GPUN:

> The Board has not applied a standard whereby a managerial position alone carries with it a basis for finding fault in this proceeding. We do not interpret the Commission order as requiring a standard of vicarious or imputed responsibility, but rather one of negligence that considers the particular tasks and duties of a position and what the individual knew or reasonably should have known. PF 195.

9. Mr. Hartman had alleged, among other things, that leak rate tests had been manipulated by "taking advantage of discrepancies between the level indication read by the two make-up tank level indicators." Faegre & Benson Report, Vol. I at 48. All of the investigators attempted to document this allegation in the test records. Similarly, there were concerns that operators might have used "feed and bleed" operations as a cover for test manipulation, and this possibility was fully investigated. Although several tests raise questions along these lines, there is no solid evidence in the record that any operator either switched level

indicators or used a "feed and bleed" operation to manipulate a test. In view of that conclusion, it is not necessary for us to address the numerous findings proposed to us in those areas concerning particular test records. We may refer to such tests, not as evidence of manipulation, but for other purposes, such as to illustrate sloppy performance.

Shift A

10. Shift A was made up of the Shift Supervisor William H. Zewe, Shift Foreman Frederick J. Scheimann, and two CROs, Craig C. Faust and Edward R. Frederick. The record shows that there were no communications problems among its members.

11. The shift had some of the problems common to most of the shifts in that neither of the CROs followed Administrative Procedures 1010 and 1012 (filing exceptions and deficiencies and logging start and stop time of leak rate tests), and neither supervisor required them to do so. Tr. 2460 (Frederick); Faust Prep. St., ff. Tr. 2511 at 4; Tr. 2544 (Faust); Tr. 2794 (Scheimann); Tr. 2988-89 (Zewe).

12. Insofar as manipulating or falsifying leak rate tests or test results is concerned, the NRR and Stier investigators could find no evidence that any such manipulations or falsifications ever occurred. We discuss that subject and that of discarding leak rate tests below.

Craig C. Faust

13. In 1973, Mr. Faust began employment with Met-Ed as an AO. He became a CRO at TMI-2 in 1977. He is currently employed in the GPU nuclear training department as an Instructor IV, and he maintains an SRO license. Faust Prep. St., ff. Tr. 2511 at 1. Mr. Faust was assigned to "A" Shift during the 1978-1979 period.

14. Mr. Faust's shift generally divided its responsibilities by assigning one CRO to operate the plant and maintain the CRO log and the other CRO to perform surveillance tests. Tr. 2559-61. If Mr. Faust were assigned to perform surveillances, he would usually conduct a leak rate test within the first hour of his shift. Tr. 2526. He tried to obtain a leak rate test on a shiftly basis, if plant conditions permitted. Tr. 2542. He did recall that he performed leak rate tests on the day shift, if the computer was available. Tr. 2543.

15. Mr. Faust regarded the leak rate test as the principal way to satisfy the 1-gpm LCO for unidentified leakage. Tr. 2533. He did not question the accuracy of the leak rate test and he believed that the test had some relationship to actual plant leakage. Tr. 2533-34.

16. If a leak rate test result was under 1 gpm of unidentified leakage, or within a fairly narrow range of negative values, Mr. Faust would sign the test without detailed analysis. Tr. 2534. If Mr. Faust obtained a leak rate test result in excess of 1 gpm, he attempted to determine whether the result was valid. Tr. 2522. If he could invalidate the leak rate test result, he threw it away and started another test. *Id.* He did not need supervisory approval to discard the test. Faust Prep. St. at 3; *also see* Tr. 2959 (Zewe).

17. Mr. Faust discarded leak rate test results regardless of the value for unidentified leakage if he had either conducted the test improperly, added water but inadvertently failed to account for it, or encountered a change in power level. Tr. 2524, 2571. If Mr. Faust could not invalidate a leak rate test result, he discussed it with the shift foreman or placed it on the shift foreman's desk. Tr. 2524-25. At times, he would be ordered to check the test result further for inaccuracies or to search for leakage. Stier Report, Vol. VI(C), Tab F, Faust 2/19/85 Interview at 122-23; Tr. 2524. Mr. Faust presumed that either he or the shift foreman found a reason to invalidate all leak rate test results not meeting the 1-gpm LCO, because excessive leak rate tests did not cause his shift to enter the Action Statement of Tech Spec 3.4.6.2. Faust Prep. St. at 3-4.

18. The record contains four negative leak rate tests signed and filed by Mr. Faust. They are NRR Test No. 98 (Stier Test No. 60); NRR Test No. 102 (Stier Test No. 56); NRR Test No. 118 (Stier Test No. 40); and NRR Test No. 149 (Stier Test No. 9). Exh. 5-B, Attachment 5, Table 11; Stier Report, Vol. III(A), Table 2 (Faust). All of these tests were within the range of −0.1 gpm to −0.9 gpm. Stier Report, Vol. IV(E) (Test Nos. 56 and 60); *id.*, Vol. IV(D) (Test No. 40); *id.*, Vol. IV(C) (Test No. 9). In light of Mr. Faust's awareness, in 1978-1979, that instrument errors and plant oscillations could result in negative leak rate test results, we find that Mr. Faust acted reasonably in treating such tests as valid. Tr. 2529, 2532 (Faust).

19. Mr. Faust never manipulated or falsified a leak rate test. Tr. 2547. The record is devoid of any allegations that he did so. Tr. 1486-87 (Mr. Russell exonerated Mr. Faust of any involvement in intentional leak rate test manipulation); Stier Report, Vol. II(A), Tab F, Faust Assessment at 9-13.

20. Mr. Faust did not know, during 1978-1979, that the addition of water could cause the MUT level strip chart to record a greater addition than the amount of water actually added. Faust Prep. St. at 5. While he heard a rumor that hydrogen added to the MUT could affect the leak rate test, he did not believe the theory and he never added hydrogen to the MUT during a leak rate test to determine its effect. *Id.* at 5-6.

21. Mr. Faust is aware of LER 78-62/1T only through subsequent investigations. *Id.* at 6. He would not have changed his interpretation of Tech Spec 3.4.6.2 because of that LER, because he knew during 1978-1979 that his shift

would have to enter the Action Statement if they could not invalidate a leak rate test result in excess of the 1-gpm LCO. *Id.* at 7.

22. In summary, we found Mr. Faust to be "a forthcoming and candid witness." Tr. 2577 (Kelley, J.). It is clear from the record that Mr. Faust never attempted to manipulate or falsify a leak rate test.

Edward R. Frederick

23. Mr. Frederick began employment with Met-Ed in 1973 as an AO. He obtained his TMI-2 RO license in 1977. He is currently an Instructor V for GPU Nuclear in its training department, and he holds an SRO license. Frederick Prep. St., ff. Tr. 2447 at 1; Exh. 5-B, Attachment 5, Table 1. In 1978-1979, Mr. Frederick was assigned to "A" Shift in TMI-2 as a CRO.

24. As a licensed operator, Mr. Frederick realized that he had an obligation to ensure that TMI-2 was operated safely. He believed that one part of this obligation was to obtain a leak rate test result depicting unidentified leakage less than 1 gpm once every 72 hours while the plant was in operation. Frederick Prep. St. at 2. He understood that to perform the leak rate test properly, he had to establish the appropriate conditions for the test. *Id.* While running a leak rate test, he habitually monitored pressurizer level, MUT level, RCS average temperature, and other plant parameters, so that there was no disruption of steady-state conditions. Tr. 2471. Mr. Frederick recalled knowing that the purpose of the leak rate test was to give the operator an indication of a developing leak which might propagate and thereby lead to a more hazardous condition. Tr. 2462.

25. After Mr. Frederick obtained a leak rate test result, he examined the printout for obvious inaccuracies. Tr. 2476. In examining a leak rate test result, Mr. Frederick went beyond merely verifying that the value for unidentified leakage was less than 1 gpm, because he regarded the test as a valid indicator of leakage. Tr. 2478.

26. Mr. Frederick gave all leak test results to his shift foreman (including any depicting negative unidentified leakage), Tr. 2459, although he did hold the belief that negative leak rate test results were attributable to normal instrument errors. Tr. 2458.

27. If Mr. Frederick determined that the leak rate test result was inaccurate, he gave it to the shift foreman, along with an explanation of the inaccuracy. Tr. 2477. He did not recall discarding any leak rate test, Frederick Prep. St. at 9, because he gave all the tests that he completed to the shift foreman and left the ultimate decision about the validity of the test to him. Tr. 2475. Mr. Frederick presumed that his shift foreman must have discarded leak rate tests that he invalidated. Frederick Prep. St. at 6. Although Mr. Scheimann could not corroborate Mr. Frederick's recollection that he (Frederick) gave Mr. Scheimann all of his completed leak rate tests, Mr. Scheimann did acknowledge that he

reviewed leak rate tests given to him by his shift, and that he (Scheimann) discarded tests he determined to be invalid. Tr. 2785, 2787, 2820 (Scheimann).

28. Mr. Frederick was neither aware of, nor involved in, leak rate test manipulation at TMI-2. Mr. Frederick has testified that he never manipulated leak rate tests in any fashion. Frederick Prep. St. at 8-10; *see also* Stier Report, Vol. II(A), Frederick Assessment at 1 (insufficient evidence that Mr. Frederick intentionally manipulated leak rate tests through either water or hydrogen additions to the MUT); Exh. 5-A, Enclosure 7 at 2 (Mr. Frederick's "testimony regarding his lack of personal involvement in leak rate test manipulation or falsification is consistent with NRR's technical analysis"). He was not aware that leak rate tests could be manipulated through either hydrogen additions to the MUT (Frederick Prep. St. at 7; Stier Report, Vol. VI(D), Tab F, Frederick 3/12/85 Interview at 31-32, 68-69), or "underrecorded" water additions to the MUT (Frederick Prep. St. at 7; Stier Report, Vol. VI(D), Tab F, Frederick 3/12/85 Interview at 33).

29. Mr. Frederick tried to avoid water additions to the MUT during a leak rate test. Tr. 2498. If he added water during a leak rate test, he did so only for legitimate operational reasons such as to maintain proper MUT water inventory or RCS boron concentration. Tr. 2497-98.

30. Mr. Frederick took precautions in setting up a leak rate test because he doubted that the test was perfectly accurate. *Id.* at 3. We find that Mr. Frederick's diligence did produce a high percentage of valid results; in fact, of the twelve Shift A tests labeled "questionable" in Exh. 5-B, Attachment 5, Table 8, only five were signed by Mr. Frederick and none involved manipulation. Exh. 5-A, Enclosure 7 at 5; Tr. 1486-87, 1493 (Russell).

31. Mr. Frederick did sign two tests during which the plant might have, arguably, been in nonsteady-state condition, but these are disputed; the first by Mr. Frederick, the second by MPR. The first test, NRR Test No. 10, occurred while the shift began a reactor startup. Exh. 5-B, Attachment 5, Table 11; Stier Report, Vol. III(A), Table 2 (Frederick). Mr. Frederick disputed the contention that the startup made conditions unstable. Tr. 2463. He emphasized that the startup to criticality did not affect temperature or pressure, and that the numbers printed out at the beginning and end of the test were steady. *Id.* According to MPR, the second test, NRR Test No. 108, was also not performed during a period when plant conditions were unstable. Exh. 1-B (Green Volume), Stier Test No. 50.

32. NRR agreed that Mr. Frederick did not sign any tests involving a hydrogen addition to the MUT; however, NRR alleged that two of the tests signed by Mr. Frederick involved an unrecorded or "underrecorded" water addition to the MUT. Exh. 5-B, Attachment 5, Tables 7 and 11. As to the unrecorded water addition attributed to him by NRR (NRR Test No. 98), MPR refuted NRR's conclusion that there was a water addition during the test. Exh.

1-B (Green Volume), Stier Test No. 60. As to the test allegedly involving an underrecorded water addition to the MUT according to NRR (Exh. 5-B, Attachment 5, Table 11, NRR Test No. 149), MPR concluded that there was a legitimate reason to add water to the MUT during that test. Stier Report, Vol. III(A), Table 2 (Frederick).

33. Mr. Frederick stated that he was aware, during 1978-1979, of the need to enter the Action Statement of Tech Spec 3.4.6.2 if his shift obtained a valid leak rate test with unidentified leakage in excess of 1 gpm. Frederick Prep. St. at 9-10. Mr. Faust had a similar understanding prior to the accident. Faust Prep. St., ff. Tr. 2511 at 7. However, both Messrs. Frederick and Faust agreed that it was the shift foreman's decision whether to enter the Action Statement. Tr. 2475 (Frederick); Tr. 2524-25, 2556 (Faust).

34. We agree with Mr. Frederick's assessment of his leak rate tests: He had a good record, with a relatively high percentage of valid leak rate tests. Frederick Prep. St. at 10. He obviously tried to perform the leak rate tests with a degree of care, and the arguably invalid tests he performed are remarkably few, given the defects in the test procedure. Accordingly, we agree with Mr. Russell's and Mr. Stier's exoneration of Mr. Frederick of any involvement in the intentional manipulation of leak rate tests at TMI-2. Tr. 1486-87; Stier Report, Vol. II(A), Tab F, Frederick Assessment at 1.

Frederick J. Scheimann, Jr.

35. During 1978-1979, Mr. Scheimann was the shift foreman assigned to "A" Shift. Mr. Scheimann currently is employed as a training consultant by Mechanical Equipment Consultants, and he is stationed at the Crystal River Nuclear Power Plant. Scheimann Prep. St., ff. Tr. 2831 at 1. He does not maintain a license to operate a nuclear power plant. Exh. 5-B, Attachment 5, Table 1; Tr. 2790.

36. Mr. Scheimann's view of compliance with Tech Spec 3.4.6.2 was that if one leak rate test meeting the 1-gpm LCO was obtained during a 72-hour period, Mr. Scheimann believed that he did not have to enter the Action Statement of Tech Spec 3.4.6.2, even if another leak rate test result exceeded the 1-gpm LCO during that period. Tr. 2802-03, 2805. However, Mr. Scheimann testified that he responded to leak rate test results depicting unidentified leakage in excess of 1 gpm by checking for operator error or searching for leakage. Tr. 2803.

37. Mr. Scheimann viewed the leak rate test as a tool to aid in the detection of RCS leakage. Tr. 2792-93. He did not recall that the leak rate test had inherent problems, or that satisfactory leak rate test results became increasingly difficult to obtain during February-March 1979. Tr. 2789. Presumably, Mr. Scheimann was not aware of problems with the leak rate test because he did not have to

perform it (*id.*), and because his shift encountered fewer difficulties than other shifts in obtaining leak rate test results meeting the 1-gpm LCO. Scheimann Prep. St., ff. Tr. 2831 at 5; Tr. 1493 (Mr. Russell concluded that "Shift A did not have the high percentage of invalid or questionable tests that the other shifts had").

38. Mr. Scheimann directed his shift to perform the leak rate test during every shift if conditions permitted. Scheimann Prep. St. at 2-3. As a general rule, if the CROs on his shift obtained a leak rate test result over 1 gpm, they gave it to Mr. Scheimann if they could not invalidate it. Tr. 2787. Mr. Scheimann did not dispute Mr. Frederick's assertion that he gave Mr. Scheimann all of his completed leak rate test results. Tr. 2785. Mr. Scheimann also agreed with Mr. Faust's recollection that Mr. Faust invalidated and discarded some leak rate test results on his own. Tr. 2818. Mr. Scheimann was most likely to review test results sometime after they had been performed because he was frequently out of the control room. Tr. 2787-88. He claimed that he never ignored leak rate test results (Tr. 2822), and he discarded only those test results that he deemed invalid. Tr. 2820. As part of his validation process, Mr. Scheimann reviewed MUT level and, on occasion, pressurizer level. Tr. 2788, 2830. Since Shift A never entered the Action Statement, Mr. Scheimann claimed, in effect, to have "invalidated" every test reflecting leakage in excess of 1 gpm. The Board is somewhat skeptical of this claim because of the erratic results the test produced and the consequent likelihood that some tests could not have been invalidated by the methods Mr. Scheimann described. However, in the absence of other evidence, we accept Mr. Scheimann's description of his actions.

39. It is also clear that Mr. Scheimann himself was unaware, during 1978-1979, that leak rate tests could be manipulated by either "jogging" water into the MUT (Scheimann Prep. St. at 4), adding water to the MUT and obtaining a "bonus" effect (Tr. 2809), or adding hydrogen to the MUT (Scheimann Prep. St. at 4).

40. Mr. Scheimann did not receive classroom training on the performance of leak rate tests. Tr. 2799. He learned how to perform the leak rate test on shift as a TMI-2 CRO. Scheimann Prep. St. at 1; Tr. 2799. It is apparent to the Board that Mr. Scheimann's knowledge was no more adequate than the operator's. As a shift foreman, Mr. Scheimann generally did not participate in the training process. *Id.* If he had been asked to supervise a trainee, Mr. Scheimann would have directed his CROs to assume responsibility for leak rate test instruction. Tr. 2801.

41. Although Mr. Scheimann knew that the existence of a negative rate of leakage was theoretically impossible (Tr. 2798), he did approve negative leak rate test results for filing. Tr. 2789. Mr. Scheimann believed that negative leak rate test results were caused by normal changes in plant parameters, such as slight temperature increases, and as such were not aberrant. *See* Tr. 2788-89,

2798. However, he did not approve negative leak rate test results in excess of – 1.0 gpm of unidentified leakage. Tr. 2798; *see* Stier Report, Vol. III(A), Table 1 (Stier Test Nos. 9, 40, 56, 60, 75, and 152) (all between 0 and – 1 gpm).

42. Mr. Scheimann did not approve any tests involving manipulation through either hydrogen or water additions to the MUT. Tr. 1484-94 (Russell); Tr. 1494-98 (Stier). According to NRR, Mr. Scheimann approved two tests involving "questionable" water additions to the MUT: NRR Test No. 98 (Stier Test No. 60) and NRR Test No. 149 (Stier Test No. 9). Exh. 5-B, Attachment 5, Tables 9 and 11; Stier Report, Vol. III(A), Table 1.

43. NRR claimed that its Test No. 98 had a possible water addition to the MUT 6 minutes before the end of the leak rate test. Exh. 5-B, Attachment 5, Table 11 at 14. MPR did not agree that water was added during that test because it appeared the trace deflections during the test were similar to others around the time of the test, and the level trace had a uniform overall slope before and after the end of the test. Exh. 1-B (Green Volume), Stier Test No. 60.

44. NRR Test No. 149 involved an alleged water addition to the MUT 19 minutes before the end of the leak rate test that caused a 36-gallon differential between the amount of water recorded and the amount shown on the MUT level strip chart; nevertheless, we accept MPR's conclusion that a legitimate operational reason existed for that water addition. Accordingly, we find no basis to agree with NRR's allegations about its Test Nos. 98 and 149.

45. NRR found that Mr. Scheimann's shift did not add hydrogen to the MUT during leak rate tests (Exh. 5-A, Table 10) and Mr. Stier agreed. Tr. 1494-98 (Stier).

46. During 1978-1979, Mr. Scheimann never realized that he was not complying with Administrative Procedure 1010, the "Exceptions and Deficiencies" Procedure, by not applying that procedure to invalid leak rate tests. Tr. 2794. His noncompliance did not result from management pressure to refrain from applying that procedure, but rather, it resulted from the fact that no one informed him that the procedure applied to leak rate tests. Tr. 2795.

47. Mr. Scheimann did not require that his operators log the start or the stop time of leak rate tests in accordance with Administrative Procedure 1012. *See* Frederick Prep. St., ff. Tr. 2447 at 5. Mr. Scheimann was following the consistent practice at TMI in not applying AP 1010 and AP 1012 to leak rate tests. *See* Floyd Prep. St., ff. Tr. 4894 at 2-3. The Board does not accept this as an excuse for not following proper procedures.

48. Mr. Scheimann agreed that it was his responsibility to communicate the meaning of an LER to his CROs. Tr. 2812. He was unable to recall whether he analyzed LER 78-62/1T, or instructed his shift about the interpretation of the Tech Specs that it reported. Tr. 2807. Mr. Scheimann was unsure whether he ever changed his interpretation that only one leak rate test result depicting

unidentified leakage of less than 1 gpm was required every 72 hours. Tr. 2804-05.

49. In summary, we find that Mr. Scheimann was an accessible, conscientious shift foreman. Tr. 2557 (Faust). As we have found, the majority of the leak rate tests he approved for filing were valid (Exh. 5-B, Attachment 5, Table 9); none of the leak rate tests he approved involved manipulation. Tr. 1484-94 (Russell); Tr. 1494-98 (Stier).

50. The investigators were unanimous in concluding that "A" Shift did not falsify or manipulate leak rate tests. Tr. 1486-87 (Russell), 1494-98 (Stier); *see* Stier Report, Vol. II(A), Tab F, Assessments of Messrs. Faust and Frederick. The Board agrees. However, as shift foreman, we find that Mr. Scheimann failed to meet his responsibilities to ensure that the performance of leak rate tests by his CROs followed the applicable Tech Specs and administrative procedures. The record shows that Mr. Scheimann did little or nothing to adequately inform his people, and in that regard the Board finds him to be culpably negligent.

William H. Zewe

51. Mr. Zewe began employment with Met-Ed in 1972 as an AO. In 1973, he was promoted to shift foreman, and in 1976 he was promoted to shift supervisor. At Unit 2, he supervised "A" Shift. Zewe Prep. St., ff. Tr. 2946 at 1. Mr. Zewe is still employed by Met-Ed as Manager of Titus Generating Station. *Id.* He no longer holds a license to operate a nuclear power plant. Exh. 5-B, Attachment 5, Table 1.

52. Mr. Zewe acknowledged that, as shift supervisor, it was his ultimate responsibility to ensure that unidentified leakage was below the 1-gpm LCO prescribed by the Tech Specs. Tr. 2951. The shift foreman directed actual compliance with leak rate testing practices, however. Zewe Prep. St. at 2. Mr. Zewe could not recall ever performing a leak rate test (Tr. 2949), and he never formally approved a test for filing from September 30, 1978, to March 28, 1979. Exh. 5-B, Attachment 5, Tables 9 and 11.

53. Mr. Zewe knew that to comply with the Tech Spec requirement that unidentified leakage be kept within the 1-gpm LCO, his shift sought a leak rate test depicting unidentified leakage of less than 1 gpm during a 72-hour period while the plant was in operation. He recalled that his shift tried to perform a leak rate test at least every day and sometimes every shift. Zewe Prep. St. at 2. He, unlike Scheimann, thought that his shift would have entered the Action Statement of Tech Spec 3.4.6.2 in response to a valid leak rate test result over 1 gpm (*id.*, Tr. 2972-73, 2979), although he does not recall his shift ever doing so. Tr. 2961, 2974.

54. Mr. Zewe testified that his operators were not authorized to discard leak rate tests in excess of the 1-gpm LCO, unless they had made a de-

termination that the test was invalid. Tr. 2958; Zewe Prep. St. at 3. Mr. Zewe expected his operators to make this determination on their own. *Id.* They did not have to explain their decision to Mr. Zewe or to his shift foreman, Mr. Scheimann. Tr. 2959. Mr. Zewe does not recall ever discarding a leak rate test. Tr. 2995.

55. The record does demonstrate that members of "A" Shift were conscientious in evaluating leak rate test results against other plant parameters. Tr. 2817 (Scheimann); Tr. 2524-25, 2533 (Faust); Tr. 2475-78 (Frederick). Indeed, Mr. Zewe recalls that he personally investigated for, and inspected, leaks in the plant on many occasions. Zewe Prep. St. at 2-3.

56. Mr. Zewe thought that the 1-gpm standard for unidentified leakage was "too conservative," because of Unit 2's oscillation problems and because of the large volume of water in the RCS. Tr. 2955-56. He recalls believing that it would be merely a matter of time until the oscillations and inaccuracies in the leak rate test procedure were resolved, and the leak rate program and the new plant became compatible. Tr. 2953, 2957.

57. During 1978-1979, Mr. Zewe was not aware of leak rate tests being manipulated through any method. Tr. 2691. Specifically, he had no awareness of leak rate test manipulation through the addition of either hydrogen or water to the MUT (Zewe Prep. St. at 6; Stier Report, Vol. VI(K), Tab Z, Zewe 3/29/84 Interview at 43-45). Prior to the TMI-2 accident, Mr. Zewe was not aware of the effect that hydrogen additions to the MUT could have on leak rate test results. Zewe Prep. St. at 6; Stier Report, Vol. VI(K), Tab Z, Zewe 3/29/84 Interview at 50.

58. Mr. Zewe could not recall any of the circumstances leading to the issuance of the November 1, 1978 LER concerning leak rate testing, although he does recall that leak rate test results were rounded to whole numbers for a short period of time. Zewe Prep. St. at 6-7; Tr. 2969-70. He did try to read all documents on the required reading list. Tr. 2969. He understood that it was his responsibility to see that his shift received and understood the information contained in the LER. Tr. 2968. Neither Mr. Faust nor Mr. Frederick recall being given any instruction on the implication of the LER. Faust Prep. St., ff. Tr. 2511 at 6-7; Frederick Prep. St. ff. Tr. 2447, at 8. Inasmuch as Mr. Zewe had the responsibility to ensure that his shift was aware of the actions that resulted from the LER, but evidently did nothing substantive about it, we must find Mr. Zewe guilty of culpable negligence.

59. The investigators have agreed that Mr. Zewe's shift did not manipulate leak rate tests. Tr. 1486-87 (Mr. Russell stated that "there was insufficient evidence to support a conclusion that they [Messrs. Faust, Frederick, *et al.*] engaged in intentional leak rate manipulation"); *see* Stier Report, Vol. II(B), Tab Z, Zewe Assessment at 1; Tr. 1494-98 (Stier). Accordingly, we find that there is no evidence that Mr. Zewe was aware of, or involved in, leak rate

test falsification or manipulation at TMI-2. We do find, however, that it was Mr. Zewe's responsibility in his capacity as shift supervisor to make sure that all the people on the shift were properly applying the relevant Tech Specs and administrative procedures. This he did not do. We therefore find that Mr. Zewe was guilty of culpable neglect of this part of his duties.

Shift B

60. This shift included CROs Theodore F. Illjes and John M. Kidwell and a trainee, Mr. Charles F. Mell. The shift foreman was William T. Conaway, II, and the shift supervisor was Joseph J. Chwastyk.

61. Shift B misinterpreted the Tech Spec requirements and considered it sufficient to obtain at least one leak rate test below the 1-gpm LCO during a 72-hour period. Ff. Tr. 3010 at 2-3 (Illjes); ff. Tr. 3285 at 1 (Kidwell); ff. Tr. 3239 at 2 (Mell); Tr. 3128-29 (Conaway); ff. Tr. 3407 at 2 (Chwastyk). They regularly discarded tests that showed exceedance of the 1-gpm limit and regarded the tests as a meaningless administrative requirement, rather than as an accurate measure of leakage. Ff. Tr. 3010 at 2 (Illjes); ff. Tr. 3285 at 3 (Kidwell); ff. Tr. 3239 at 2 (Mell); Tr. 3104 (Conaway); ff. Tr. 3407 at 3 (Chwastyk).

62. The shift members had not been given adequate training with respect to the leak rate test and its safety implications. Tr. 3019 (Illjes); Tr. 3288-89 (Kidwell); Tr. 3247, 3274 (Mell); Tr. 3105 (Conaway); ff. Tr. 3407 (Chwastyk). The shift did not follow Administrative Procedures 1010 and 1012 that required the filing of exception and deficiency statements and the logging of start and completion times for surveillances. Tr. 3018 (Illjes); Tr. 3293 (Kidwell); Tr. 3108 (Conaway); ff. Tr. 3407 at 3 (Chwastyk).

Theodore F. Illjes

63. Mr. Illjes began employment with Met-Ed in 1971 and became a CRO at TMI-2 in 1976. Mr. Illjes is still employed at TMI-2 by GPU Nuclear as a licensed shift supervisor. Illjes Prep. St., ff. Tr. 3010 at 1.

64. Mr. Illjes testified that "it would appear, now, that the leak rate test procedures I followed were not always in strict compliance with the requirements imposed on us, in that I usually discarded test results showing unidentified leakage greater than 1 gpm." *Id.* at 2. He also admitted that he did not understand the Tech Specs by testifying that "during 1978 and 1979, I thought it sufficient to obtain at least one leak rate test result below 1 gpm during a 72-hour period." *Id.* at 2-3. The Board has reviewed the ten tests signed by Mr. Illjes, and we find many other kinds of noncompliance with procedural requirements and that 70% of his surveillances were not valid.

65. On October 31, 1978, Mr. Illjes carried out and signed a leak rate test in blatant disregard for the procedural requirement that the test only be performed during steady-state conditions. This test was carried out with primary plant testing in progress and large changes in pressurizer level (+ 10.5 inches) and MUT Level (– 7 inches) occurred. Exh. 5-A, Enclosure 9 at 3 of Enclosure 1.

66. On December 5, 11, and 20, 1978, and January 7, 1979, Mr. Illjes conducted leak rate tests with an unstable and erroneous level sensor connected to the computer. Mr. Illjes testified that "I do not recall a problem with a fluctuating transmitter . . . ." Prep. St., ff. Tr. 3010 at 4. Mr. Stier noted in his evaluation of Mr. Illjes that:

> There is testimony that the makeup tank level instrumentation problem was well known in the Operations Department. This testimony is corroborated by plant records that demonstrate an awareness of the problem, particularly on the shift to which Illjes was assigned. During the relevant period, Illjes' shift submitted two work requests to repair the level transmitter and filed a Shift Supervisor turnover note indicating that the transmitter was out-of-service.

Stier Report, Vol. II(B), Tab I at 7.

67. The Board cannot understand how Mr. Illjes could have been unaware of level transmitter malfunctions. The implication is that he was very inattentive to the control room situation and, thus, incompetent.

68. On February 12, 1979, a leak rate test was conducted while Mr. Illjes was the control panel operator. The MUT strip chart shows that ca. 150 gallons of water were added to the MUT, but Mr. Illjes did not record this addition in his log. While this behavior could reflect deliberate falsification of the test, it may also be a careless mistake by Mr. Illjes. Also the RCDT was pumped down in violation of procedural controls. At any rate, the Board finds this test reflects discredit on his performance as an operator.

69. On February 17, 1979, Mr. Illjes conducted a leak rate test and was also the operator assigned to the control panels. According to the Auxiliary Operator's log, hydrogen was added at 0500. The hydrogen addition was not logged by Mr. Illjes. The strip chart (*see* Figure 2) shows an upward offset of the MUT level coincident with the hydrogen addition and which biased the unidentified leak rate toward a falsely lower value than would have been otherwise obtained. If there were additional tests implicating Mr. Illjes in hydrogen manipulation, this test might be viewed as "clear and convincing" evidence that Mr. Illjes carried out such manipulation. Since this test may represent inadvertence with the hydrogen added to the MUT for legitimate purposes, we regard this test as inconclusive evidence of manipulation.

70. Two leak rate tests were conducted on February 19, 1979, when Mr. Illjes was the panel operator. NRR Test Nos. 124 and 125. Mr. Kidwell signed as the operator on these surveillances, and both Mr. Stier and NRR have

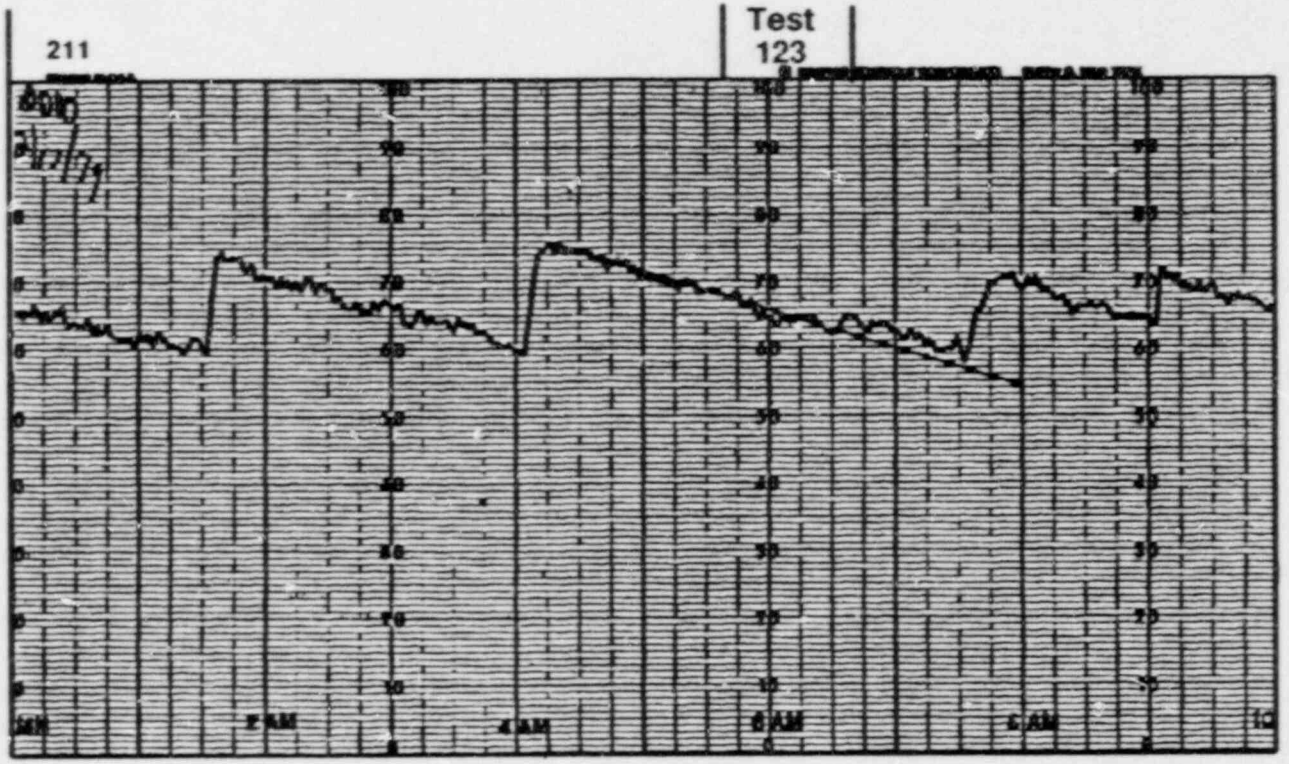

Figure 2. MUT strip chart record on February 17, 1979, showing the upward offset in the level indicator associated with the addition of hydrogen. There was a 1-hour and 30-minute difference between actual time and the preprinted chart time. Thus, the hydrogen addition at 0500 a.m. corresponds to a chart time of 0630 a.m.

taken the posture that these tests represent manipulation with hydrogen and that Mr. Illjes would have been involved in the postulated hydrogen additions. Stier Report, Vol. II(B), Tab I at 8 to 13; Exh. 5A, Test Evaluation Worksheets for Test Nos. 124 and 125. These tests merit careful scrutiny because of the potential implications concerning Mr. Illjes, and also Mr. Kidwell, with regard to test manipulation by hydrogen additions.

71. The Board finds these tests (NRR Test Nos. 124 and 125) represent ambiguous evidence for the following reasons:

a. There was no logging of any hydrogen addition. The experts' allegations of hydrogen additions during these tests represent speculations: Mr. Stier imputes hydrogen additions and NRR alleges either water or hydrogen. *Id.*

b. Figure 3 is a copy of the MUT water level strip chart record for part of February 18 and 19, 1979, that includes the time interval when the tests were conducted. As may be seen, this strip chart record displays numerous anomalies before, during, and after the times of the tests. We do not see anything distinctive or diagnostic in this strip chart, except that the level-sensing system was providing erratic data. The clear upward offset associated with a logged hydrogen addition two days previously (Figure 2) is not apparent, and the absence of this potentially diagnostic pattern precludes a conclusion that these tests reflect manipulation by hydrogen additions.

72. In a September 30, 1986 letter that was served on all parties, Mr. Stier provided copies of strip chart records showing the effects of hydrogen additions at times when leak rate tests do not appear to have been performed. At 1540 and 2235 hours on February 21, 1979, there were logged hydrogen additions, and the strip chart record shows clearly, for both of these additions, an upward, persistent offset that closely resembles the pattern of hydrogen effect that is shown in Figure 2 for February 17, 1979. The fact that the strip chart hydrogen response was plainly observable both 2 days before and 2 days after the tests on February 19, 1979, contributes strongly to our view that hydrogen additions did not influence the tests on February 19, 1979, because the expectable effect is not present in the strip chart for that date.

73. Mr. Stier's opinion is that these tests (NRR Test Nos. 124 and 125) represent some experimentation carried out by Mr. Chwastyk, the shift supervisor. Mr. Chwastyk had stated that he had become aware that adding hydrogen could affect the leak rate test and he had observed it. Stier Report, Vol. VI(B), Chwastyk 4/24/84 at 25-27. Mr. Chwastyk stated that he was not sure when he became aware of the problem, but he believed that it was sometime in the latter half of 1978. *Id.* NRR has cited this interview and noted that NRR Test No. 69 conducted by Mr. Illjes on December 20, 1978, might have involved a hydrogen addition which would be in a time frame consistent with

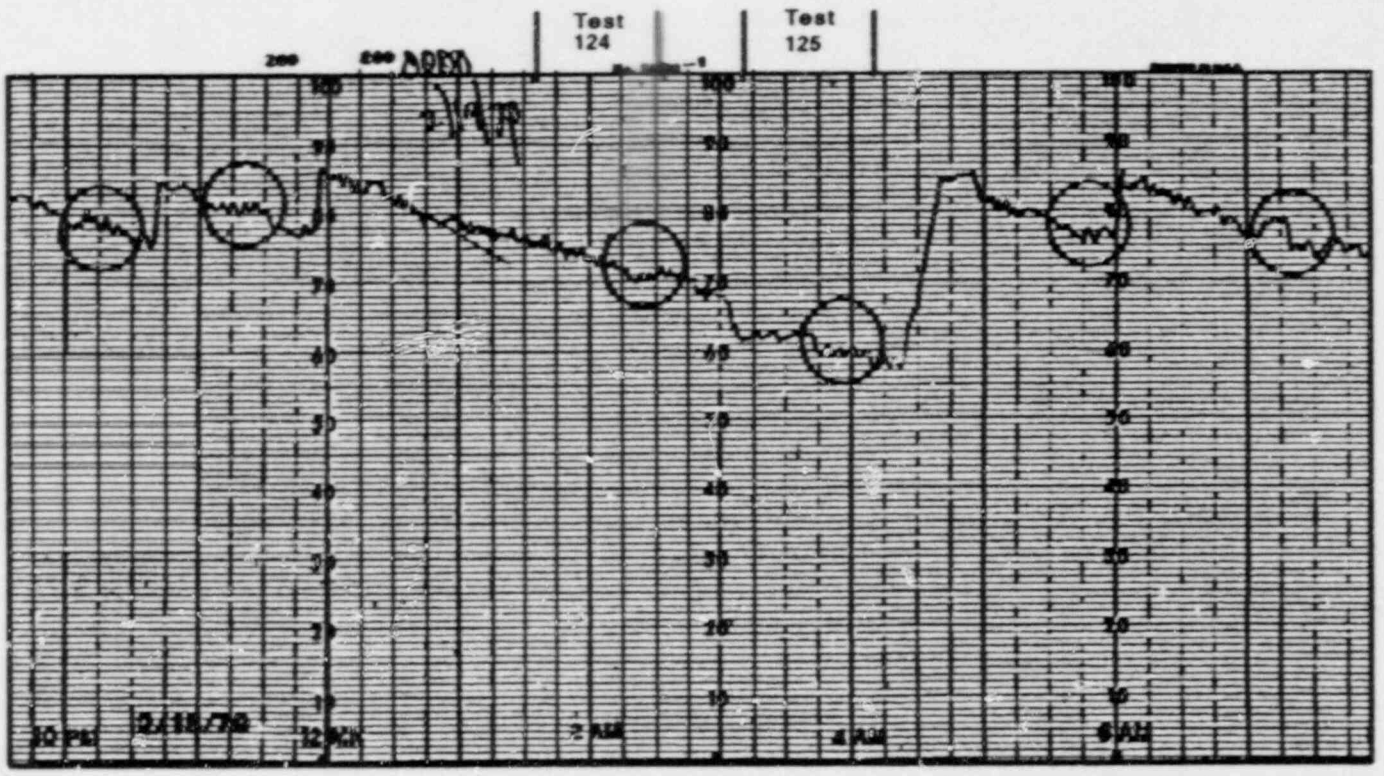

Figure 3. MUT strip chart record for February 18 and 19, 1979, showing anomalous traces before, during, and after two leak rate tests. Lack of persistent upward offset suggests hydrogen additions were not made during these tests.

Mr. Chwastyk's testimony. Exh. 5-A, Enclosure 9 at 11. We find that a hydrogen addition cannot be reliably ascribed to this test.

74. However, Mr. Stier reports a turnover note as indicating this experiment was conducted on February 19, 1979. Mr. Stier quotes the note and expresses his view as follows:

> The Shift Supervisor turnover notes for February 19, 1979, written by Chwastyk, contain the following, "At 60" level in MUT & 5-6 psig H_2 overpressure we get good LR."[43] The clear implication of this is that the experimental hydrogen addition was made during the course of the second leak rate test on February 19, 1979. A review of the makeup tank level strip chart reveals an elevation in the trace close to the 60 inch level at a point corresponding to the running of the test.[44] In light of the foregoing, we have concluded that the offsets in the strip chart for that date were caused by hydrogen additions.

[43] Shift Turnover Notes, February 19, 1979 (Tab 10).
[44] Vol. IV (MPR Report), App. K, Test No. 33. *Id.* at 21.

Stier Report, Vol. II(B), Tab I at 11.

75. The Board questioned Mr. Chwastyk at length concerning this turnover note and NRR Test Nos. 124 and 125. Tr. 3412-61. Mr. Chwastyk was unable to determine unequivocally from the test records that these corresponded to the time when he did hydrogen experiments. Tr. 3459. As the Board reads the total turnover note — not just the Stier excerpt — the thrust relates to "[l]eakage out of RCS looks Like is due to MU-RI (outlet relief from MUT)." The last part of the note reads "may want to break flange downstream of MU-RI to check for leakage." Stier Report, Vol. V(B), Tab 10 at 00325. Mr. Chwastyk appears to be reporting a suspected leak, rather than the results of experimentation with hydrogen — whether or not Test Nos. 124 and 125 represent attempts to estimate the magnitude of the suspected leak would be conjecture that cannot be resolved on this record. Since there is an alternative view to Mr. Stier's opinion that seems quite plausible, we conclude that manipulation with hydrogen in these tests is not established in this record.

76. On March 14, 1979, Mr. Illjes conducted a leak rate test. The test results are blatantly invalid, because Mr. Illjes added a large amount of water during the test and then included the addition in the wrong step in the computer program. This simple mistake is not remarkable. What is remarkable is that Mr. Illjes would run a test that produced a calculated gross leak rate of *minus* 6.7 gpm and then sign it as a valid work product.

77. NRR evaluation of Mr. Illjes concluded that:

> The weight of available evidence, including statements by his former Shift Supervisor (Mr. Chwastyk) and the technical analysis, strongly suggests that Mr. Illjes was either not truthful in answering questions regarding his role in or knowledge of leak rate test manipulation or he was grossly negligent in performing leak rate tests.

Exh. 5-A, Enclosure 9 at 6.

78. At the hearing, Mr. Illjes stated that "I did not have the motivation or inclination in 1978 or 1979 to manipulate leak rate tests." Illjes Prep. St., ff. Tr. 3010 at 4. The Board finds that the seven invalid tests signed by Mr. Illjes demonstrate a careless and unprofessional performance of his duties. While one test was influenced by a hydrogen addition, we do not see a "clear and convincing" pattern of test manipulations, and, therefore, agree with the NRR view that he was grossly negligent.

John M. Kidwell

79. Mr. Kidwell began employment with Met-Ed in 1974 as an auxiliary operator at TMI-1. In 1978, he was promoted to CRO at TMI-2. He left Three Mile Island in 1980. Kidwell Prep. St., ff. Tr. 3285 at 1.

80. From October 1978 through March 1979, Mr. Kidwell conducted eight leak rate tests that he signed. Exh. 5-A, Table 11. While an unstable sensor was used in one test and he failed to account for added water in another test, we find no evidence of manipulation or falsification in these tests. In a test on February 14, 1979, hydrogen was added near the end of the leak rate test; but Kidwell came on watch only 5 minutes before the hydrogen was added by the auxiliary operator. It seems improbable that this hydrogen addition represents deliberate manipulation.

81. Mr. Kidwell testified that:

> Prior to Harold Hartman's allegations, I had no knowledge whatsoever of operators deliberately adding hydrogen or water to the makeup tank for the purpose of manipulating the end result of the leak rate calculation. I do not recall receiving instruction in any form that provided me with guidance that I was to refrain from adding hydrogen during leak rate tests.

Kidwell Prep. St., ff. Tr. 3285 at 4.

82. The two leak rate tests on February 19, 1979, that we have discussed in detail in our above review of Mr. Illjes were signed by Mr. Kidwell. We do not find reliable evidence that these represent manipulation by adding hydrogen. We find that this record substantiates Mr. Kidwell's claim that he did not manipulate the tests.

Charles F. Mell

83. Mr. Mell became employed by Met-Ed as an auxiliary operator in 1976. He became a CRO trainee in 1978 and received his RO license in the summer of 1979. Mell Prep. St., ff. Tr. 3239 at 1; Tr. 3263.

84. From October 1978 through February 1979, Mr. Mell carried out seven leak rate tests that he signed. Only two of the tests are not questionable and the several questionable tests reflect the woefully inadequate training program with respect to this surveillance. Mr. Mell testified that he did not get a feeling that the test was a useful tool and that it would make a contribution to the safe operation of the plant. Tr. 3275.

85. On October 29, 1978, and February 11, 1979, Mr. Mell's surveillances were invalid because water had been added to the MUT and was not included in the computer calculation. These appear to be examples of careless conduct.

86. On October 13, Mr. Mell performed and signed a leak rate test that showed an unidentified leak rate of *minus* 8.5 gpm, which is a result without any possible physical reality. This test reflects great discredit on the CRO's training of Mr. Mell and the shift foreman for approving such nonsense, but also demonstrates that Mr. Mell did not take his duties in running this surveillance in a properly serious manner.

87. Mr. Mell carried out two tests using a malfunctioning MUT level sensor. His behavior appears to have been in accord with the general lack of professionalism with which this shift conducted the leak rate tests.

88. Mr. Mell testified that he was unaware that adding "hydrogen could effect the leak rate test or that anyone was deliberately trying to do this." He also testified that he did not remember

> the performance of an experiment with hydrogen on his shift. I do not remember Joseph Chwastyk cautioning us not to add hydrogen during a leak rate; in my opinion, if he had noticed a problem with hydrogen, he would have kept it close to his chest until he had so fully checked it out that he could explain it. I recall that I first discussed the hydrogen phenomenon with my crew after the Hartman allegations were made known, and we were all surprised by Hartman's claims.

Mell Prep. St., ff. Tr. 3239 at 3 and 4.

89. The Board finds no evidence of manipulation or falsification of leak rate tests by Mr. Mell.

William T. Conaway, II

90. In 1973, Mr. Conaway began employment with Met-Ed. He was an AO at TMI-1 until he was promoted to CRO at TMI-2 in 1975. In 1978, he was promoted to shift foreman at TMI-2. He is currently a Radioactive Waste Support Manager at TMI-2, and he no longer holds an NRC license. Conaway Prep. St., ff. Tr. 3097 at 1.

91. Mr. Conaway testified that "we did not have a lot of faith in the leak rate test itself. The Operations Department in general had little confidence in the validity of the leak rate test. A lot of the tests were not valid. For example,

we got a lot of high negative leak rates." *Id.* at 3. Mr. Conaway approved the October 13, 1978 test that showed unidentified leakage of −8.5 gpm and the March 14, 1979 test that showed gross leakage of −6.7 gpm. The Board finds that Mr. Conaway could have easily ascertained that these tests were due to nonsteady-state plant operation and a computational error. His failure to do so is a clear case of culpable neglect.

92. The many invalid tests that he approved reflect the perfunctory way in which the tests were reviewed and approved by him. Mr. Conaway testified that:

> We were primarily concerned with the safe operation of Unit 2 in 1978-79. We were not as concerned with the administrative requirement of demonstrating that the plant was operating within the limiting conditions for operation for RCS leakage. We regarded the actual plant safety as more important than the leak rate tests, the pieces of paper, that were often invalid.

Id.

93. Mr. Conaway was guilty of culpable neglect in his attitude toward the test and in allowing the CROs under his supervision to treat the test in a casual manner.

94. Mr. Conaway testified that the safety implications of the leak rate surveillance had never been explained to him. Tr. 3105. The Board finds his profound lack of knowledge and understanding to be an egregious example of the poor training at TMI-2.

95. With respect to the hydrogen experiment that Mr. Chwastyk carried out, Mr. Conaway testified that "I have no recollection of being involved in that test and I do not recall any discussion by the CROs of the effect of hydrogen additions on leak rate tests. Nobody ever brought it to my attention as far as I know, with the exception of Marty Cooper, after the accident." *Id.* at 5-6. While Mr. Chwastyk has testified that he issued a brief oral instruction that hydrogen should not be added during a leak rate test (Tr. 3451), we accept Mr. Conaway's assertion that Mr. Chwastyk's brief statement did not make any impression on him. The Board does not find any evidence that Mr. Conaway was aware of or involved in any manipulation of leak rate tests.

Joseph J. Chwastyk

96. Mr. Chwastyk began employment with Met-Ed in 1968. In 1969 he became a CRO at TMI-1. In approximately 1973, he became a shift foreman at TMI-1, and shortly thereafter a Unit 1 shift supervisor. In 1977, he became a dual-licensed shift supervisor for both TMI-1 and TMI-2. Chwastyk Prep. St., ff. Tr. 3407 at 1.

97. If his shift obtained a leak rate test result over 1 gpm, they would run another leak rate test; if the next one was under 1 gpm, they would discard the first one. *Id.* at 3. At the time, Mr. Chwastyk approved the discarding of leak rate tests because he thought that once a test had been declared invalid, there was no reason to keep it. Tr. 3490. Mr. Chwastyk believed that if the test result was not discarded, and it was later reviewed, it could not be determined at that later time if the test was in fact a valid test or not. Tr. 3490. Mr. Chwastyk now recognizes that recordkeeping practices at TMI-2 were deficient. Tr. 3535-36.

98. Mr. Chwastyk has stated that he was aware in the latter half of 1978 that the addition of hydrogen might have an effect on the leak rate test results. Stier Report, Vol. VI(B), Chwastyk 4/24/84 Interview at 26. When asked who brought this to his attention, Mr. Chwastyk replied "I believe it was my CROs. And I think I remember, specifically, it was Ted Illjes." *Id.* at 27. Mr. Chwastyk did not identify Mr. Illjes specifically before this Board when asked if "sitting here today do you have any independent recollection of Illjes or anybody else telling you that?" Tr. 3411. We give little weight to the fact that Mr. Chwastyk was unable to confirm his previous identification of Mr. Illjes. On the other hand, in view of the repeated denials of Mr. Illjes that he had knowledge of the hydrogen addition's effect on the leak rate test and in the absence of any corroboratory evidence, the Board finds that this reference to Mr. Illjes falls short of a "clear and convincing" implication of leak rate test manipulation by Mr. Illjes.

99. As we have described above, Mr. Chwastyk has testified that he gave attention to the rumors that hydrogen additions had an effect on the leak rate test. In his GPU interview, Mr. Chwastyk stated that "it was right after commercial operation had started," which further reinforces our view that February 19, 1979, was not the time when he carried out the experiments. Stier Report, Vol. VI(B), Tab C, Chwastyk 4/24/84 Interview at 27. Be that as it may, Mr. Chwastyk testified that, as a result of his observations, he requested the I and C to "go look at it." *Id.* However, there is not any evidence in this record that Mr. Chwastyk's verbal request produced any resolution to the leak rate test problem.

100. Mr. Chwastyk does not remember his shift being aware of his experiment, but he does remember later ordering that hydrogen not be added to the MUT during leak rate tests, and recalls that Messrs. Illjes and Conaway were in the room when he gave that directive. Tr. 3451, 3456.

101. Mr. Chwastyk acknowledged that Messrs. Illjes and Conaway might not have recalled his directive to refrain from adding hydrogen to the MUT during leak rate tests, because he did not involve them in the experiment (Tr. 3451-52), and when he gave them the direction to refrain from adding hydrogen during leak rate tests, it was extremely brief and was not followed up with additional instructions or discussion. Tr. 3537, 3551.

102. Mr. Chwastyk recalled receiving some instruction on the meaning of LER 78-62/1T. Tr. 3502. He was told by the TMI-2 Supervisor of Operations, Mr. Floyd, that he was to enter the "Action Statement" of the Tech Specs if his shift obtained a valid leak rate test result with unidentified leakage greater than 1 gpm. Tr. 3502-04. The LER did not change Mr. Chwastyk's interpretation of the Action Statement requirement. Tr. 3509. Therefore, Mr. Chwastyk did not instruct the operators on his shift on the meaning of the LER, because he assumed they already knew how to interpret the Tech Specs. *Id.* As the record shows, his assumption that the shift properly understood the Tech Specs was in error, and we find Mr. Chwastyk is guilty of culpable neglect because he failed to properly instruct Shift B.

103. We found Mr. Chwastyk to be a candid and knowledgeable witness who made a sincere effort to recall the facts concerning leak rate testing at TMI-2. We found no evidence that he had knowledge of involvement in test manipulations or falsifications. We do find that, in view of the numerous sloppy and invalid tests filed by his shift, his performance in supervising Mr. Conaway reflects culpable neglect.

Shift C

104. Shift C was made up of two CROs, Joseph Congdon and Martin Cooper; one CRO-in-training, Mark Phillippe; the Shift Foreman, Charles Adams; and the Shift Supervisor, Brian Mehler. The record shows that this was a "friendly" shift, with good personal relationships and no communications problems.

105. This shift exhibited many of the problems and practices in leak rate testing observed in other shifts:

- They misinterpreted the Tech Specs to require only one "good" test, i.e., not over 1 gpm, every 72 hours, regardless of the results of other tests. Cooper Prep. St., ff. Tr. 2835 at 5; Tr. 2718 (Congdon). Phillippe Prep. St., ff. Tr. 4432 at 2; Adams Prep. St., ff. Tr. 3776 at 2; Tr. 3848 (Mehler).
- Tests reflecting excessive leakage were routinely discarded; "good" tests were routinely filed. This was a direct violation of the TMI-2 Tech Specs. Tr. 2715-16, 2780 (Congdon); Cooper Prep. St. at 4; Phillippe Prep. St. at 3; Adams Prep. St. at 2; Mehler Prep. St., ff. Tr. 3842 at 3-6.
- The operators did not receive any significant training in leak rate testing. Tr. 2713-14 (Congdon); Tr. 4485 (Phillippe); Tr. 2839-40 (Cooper).

— The operators did not follow Administrative Procedures 1010 and 1012 requiring the filing of exception and deficiency statements and the logging of start and stop times for the leak rate tests. Tr. 2911-15 (Cooper); Congdon Prep. St. at 3; Tr. 4439 (Phillippe); Stier Report, Vol. VI(A), Tab A, Adams 3/8/85 Interview at 123-24; Tr. 3870 (Mehler).

106. There are no disputes about the foregoing points. The operators and supervisors either conceded them in their testimony or they are conclusively demonstrated by the record. Therefore, as to those points, there is no need to freight this opinion with detailed findings about each member of the shift, beyond the foregoing summary.

107. There is evidence of culpable negligence and test manipulation for Shift C. We discuss this evidence in the following findings for each member of the shift.

Mark D. Phillippe

108. Mr. Phillippe appeared at the Board's request; he waived the issuance of a subpoena. Mr. Phillippe is presently employed as a Quality Engineer-Nuclear at Waterford 3. Phillippe Prep. St., ff. Tr. 4432 at 1.

109. Mr. Phillippe began employment at TMI-2 in 1976 as an AO. He commenced training to become a CRO in May 1978 (Tr. 4435) and received his RO license in July 1979. During late 1978 and until March 28, 1979, Mr. Phillippe was assigned to "C" Shift as a CRO trainee.

110. Mr. Phillippe testified that if a water addition was made to the MUT during a leak rate test or water was removed from inventory during the test, it was the practice of his shift to invalidate the results and discard them. Phillippe Prep. St. at 3. He said that he was never aware of anyone on his shift adding water to the MUT during a leak rate test in order to falsify the test result. *Id.*

111. Mr. Phillippe had a general recollection of being informed that the addition of hydrogen to the MUT during a leak rate test could improve the test result. Tr. 4440-42. He did not recall who informed him of this phenomenon. *Id.* Questioned specifically about whether he had discussed the effect of hydrogen additions with his co-workers, Messrs. Congdon and Cooper, he denied having done so. Tr. 4443-55. Mr. Phillippe stated that he did not learn about the effect of a hydrogen addition through participation in an experiment conducted on his shift to determine the effect of adding hydrogen to the MUT during a leak rate test. Phillippe Prep. St. at 3. It appears from the CRO logs and plant daily attendance records that Mr. Phillippe was not on shift following February 11, 1979, and consequently was not present when a hydrogen experiment was performed on his shift on February 15, 1979. Tr. 4445, 4451-53.

112. Mr. Phillippe stated that he never added hydrogen to the MUT during a leak rate test for purposes of falsifying the test result. His testimony is borne out by the fact that the experts found no evidence of hydrogen additions to the MUT during any of the six tests that he submitted. *See* Exh. 5-B, Attachment 5, Table 11. Mr. Phillippe further stated that he had no knowledge that others on his shift added hydrogen to the MUT during a leak rate test for the purpose of falsifying the result. Tr. 4440.

113. The Board accepts Mr. Phillippe's testimony as candid and truthful, and finds that he was not involved in leak rate test falsification through the addition of hydrogen to the MUT, and that he was unaware that others on his shift might have been purposely adding hydrogen during leak rate tests.

Joseph R. Congdon

114. Mr. Congdon became employed by B. & W. in 1974 as an AO in Unit 1 after 7 years of service in the United States Navy. He obtained his RO license in 1977 and was a CRO in TMI-2 throughout 1978-1979. Congdon Prep. St., ff. Tr. 2709 at 1. Mr. Congdon is a shift foreman at TMI-2, and he maintains an NRC license in that position. Exh. 5-B, Attachment 5, Table 1.

115. The Board finds that the record does not support any claim that Mr. Congdon added water to the system in order to manipulate the results of leak rate tests. He denies that he knew of any water effect, and states that he made every effort not to add water to the make-up tank during a leak rate test. Board. Exh. 1, Stier Report, Congdon 2/13/85 Interview at 77-81. Both NRR and Stier agree that no tests by Mr. Congdon involved other than incidental water additions. Tr. 1585 (Russell); Board Exh. 1, Stier Report, Vol. 3, Tables 1 and 2.

116. Although we find no evidence that tests were manipulated by water additions, the record shows a situation concerning the addition of hydrogen to the MUT to affect leak rate test results. At some point during 1978-1979, Mr. Congdon became aware that hydrogen additions to the MUT sometimes affected the MUT level indicator. Tr. 2725, Stier Report, Vol. VI(B), Tab C, Congdon 2/13/85 Interview at 52. His best recollection was that he heard about this effect from operators on another shift. *Id.* at 53.

117. In order to determine if such an effect existed, Mr. Congdon participated in an experiment during a leak rate test (NRR No. 120) in which the MUT level strip chart was deliberately marked at the time the hydrogen was added. He cannot remember what the effect on the leak rate test result was, but does recollect adding hydrogen to other tests in an effort to enhance the results. *Id.* at 56, 57. He went on to testify:

Q You did know at that time that, in fact, the make-up tank would be reflecting an inaccurate level?

A I knew that it could. Not always did the make-up tank level go up when you added hydrogen. Sometimes it did and sometimes it did not. Sometimes it didn't have any change at all. I couldn't really explain that in my own mind why it should have any effect on it due to the type of level transmitters we had. The level transmitter is supposed to compensate for the overpressure, but I did observe that sometimes it did affect the level indicator.

Q And you would file the test if it was a successful test?

A That's correct.

Id. at 57, 58.

118. It is clear, from his own admission, that Mr. Congdon was aware of the potential effect of hydrogen additions to the MUT. He also admits that he deliberately added hydrogen during leak tests in order to "enhance" the results. He also admits that, after adding hydrogen, the test would be accepted if the result was under 1 gpm. The Board accepts his admission that he both manipulated and falsified leak rate tests and test results.

119. The Board found Mr. Congdon to be a candid and cooperative witness.

Martin V. Cooper

120. Mr. Cooper became employed by Met-Ed at TMI-2 following 6 years of Naval service and employment with Stone & Webster Corporation as an engineering aide. Cooper Prep. St., ff. Tr. 2835 at 1-2. His first position at TMI-2 was as an AO; he became a CRO in 1977 and obtained his RO license in 1978. *Id.* at 2. In 1980, he obtained an SRO license and became a shift foreman. Subsequently, he became a shift supervisor. He left the employ of Met-Ed in 1982. He is now employed by Southern California Edison Company at its San Onofre nuclear facility as a shift supervisor. *Id.* at 1-2. He is not a party to the proceeding (*id.* at 2) but appeared as a Board witness under subpoena. At the Board's request, Mr. Cooper travelled to Bethesda to testify, although he had expressed a preference for testifying near his home or work. Tr. 2944.

121. Mr. Cooper's duties as a CRO included conducting the actual operation of the plant and performing the switching and tagging operations and necessary surveillance testing. Mr. Cooper recalled having difficulty with the leak rate test, including widely varying results from back-to-back tests despite there being no significant change in plant conditions. Mr. Cooper recalls that several changes were made to the computer program for leak rate testing "to improve the leak rate calculations." *Id.* at 5-6. However, he continued to believe "that the tests were almost meaningless because we got such inconsistent results." *Id.* at 6.

122. Mr. Cooper denied adding water during a leak rate test and not accounting for it, and he also denied adding water to manipulate leak rate tests. Tr. 2921. Mr. Capra testified that "[w]e did not conclude that Mr. Cooper was involved in manipulation of tests through the use of water additions." Tr. 1552. We conclude that Mr. Cooper did not manipulate leak rate tests through water additions.

123. Mr. Cooper recalled that he was aware that the addition of hydrogen during a leak rate test might affect the MUT level, but he denied that he ever added hydrogen to affect leak rate test results. Cooper Prep. St. at 6-7. However, in the course of the NRR and OI investigations, Mr. Cooper has also testified as follows:

> MR. CHRISTOPHER: Your statement is that you personally deny that you ever initiated any action to intentionally manipulate leak rate test results.
>
> THE WITNESS: I told you that I did realize that if I added hydrogen during a leak rate, it could affect it, and it may very well give me the result but it wasn't done with the intent of getting a good result. If I got one, I accepted it.
>
> MR. CHRISTOPHER: But you are saying you did not specifically take the action of adding hydrogen for the purpose of affecting a leak rate test result?
>
> THE WITNESS: Yes.
>
> MR. McBRIDE: The answer —
>
> MR. CHRISTOPHER: It is a little unclear.
>
> MR. McBRIDE: Are you, or are you not saying that you ever added hydrogen to affect a leak rate test result? Answer it in words rather than yes or no so the transcript will be clear of exactly what you are saying.
>
> THE WITNESS: Okay. As I said, I wouldn't add hydrogen to affect the result of the leak rate, though I was aware that if i did add hydrogen while the leak rate was occurring, it could affect the result and did.

Board Exh. 6, OI Report, Cooper 9/28/84 Interview at 82-83.

> THE WITNESS (Cooper): It may be splitting hairs. I think the final line is it wasn't okay, we are doing a leak rate, let's add hydrogen and maybe we'll get a good leak rate out of it. It is more like okay, we've got a leak rate in progress, the hydrogen is low, I've got to add hydrogen, let's see how that affects the result. If the result came out good, we accepted it.

id. at 49; *also see* Tr. 2895.

124. With these somewhat more complete statements, we can come to several conclusions. Mr. Cooper was aware that the addition of hydrogen could sometimes cause a reduction in the leak rate test results. Even though he

know this, when a leak rate test was being run he would add hydrogen if the overpressure indicator was low. If the test turned out to be a "good one," i.e., under 1 gpm, he would accept the results.

125. If Mr. Cooper had not known about the potential effect of adding hydrogen to the MUT, the Board would, in all probability, have found nothing culpable in this actions. Even if he had known about it, but had aborted the leak rate test if hydrogen needed to be added to the MUT, there would be no culpability. He did none of these things. The Board therefore must, and does, find that Mr. Cooper knowingly manipulated and falsified the results of leak rate tests by the addition of hydrogen to the make-up tank.

Charles Adams

126. Mr. Adams served in the United States Navy for 8½ years; upon his discharge he went to work for Carolina Power & Light Company in Southport, North Carolina. At Carolina Power he was a CRO and obtained his SRO license. He began employment with Met-Ed in October 1975 as a shift foreman at TMI-2. Adams Prep. St., ff. Tr. 3776 at 1. He was the only TMI-2 operator to have had prior experience at a nuclear facility other than TMI and the only foreman not to have been a CRO. Stier Report, Vol. VI(A), Tab A, Adams 3/19/85 Interview at 50; *see* Tr. 3656 (A. Miller). During 1978-1979, he was assigned to "C" Shift under the supervision of Mr. Mehler.

127. Mr. Adams stated that he was not aware, in 1978-1979, that a hydrogen addition to the MUT could have an effect on MUT level. He testified that he does not recall any discussion about the hydrogen effect among the CROs or his supervisors. Stier Report, Vol. VI(A), Tab A, Adams 3/19/85 Interview at 36.

128. Mr. Adams was shown a copy of the MUT level strip chart for NRR Test No. 120 with the words "Pressurized MUT" written on it. *See* Exh. 18. He was unable to identify the person who wrote those words. Tr. 3805. He stated that it was possible that he had participated in an experiment involving that test and written those words on the MUT level strip chart, but he could not recall doing so. Tr. 3808. Mr. Adams further testified that the first time he recalled being shown the MUT level strip chart for NRR Test No. 120 was in 1985, 6 years after the event, and that he could not recall anything about that test after that length of time. Tr. 3806.

129. Both Mr. Congdon and Mr. Cooper recall that Mr. Adams probably participated in an "experiment" to determine the effect on leak rate test results when hydrogen was added to the MUT.

Q Do you remember personally participating in the addition of hydrogen during a leak rate test as an experiment? Do you have any personal recollection of your personally being involved in that?

A [Cooper] I don't personally recollect, like this leak rate test 120 or any specific test. But I believe that I did participate in some kind of experiment to see what kind of effect we could get for a hydrogen addition. And I think it happened more than once.

Q All right. In connection with that recollection, do you have any recollection as to who was working with you?

A Specifically, no. I would assume it would be my shiftmates: Joel Congdon, Mark Phillippe, and Chuck Adams.

Tr. 2927 (Cooper).

Q Have been involved in this test, Mr. Congdon, can you explain those words?

[illegible] event occurred is at that time frame I had heard something to the effect [illegible]ogen did have an effect on makeup tank level indication. I thought it might [illegible]e to attempt to pressurize it and note what effect it did have. In the course of doing that, to the best of my recollection, Chuck suggested why don't we mark the chart at that point, so we referenced what time we actually add the hydrogen. And I proceeded to log it in the book and, to my best recollection, Chuck made that notation on that chart. I might be wrong on that.

Q The notation that we are looking at right now that says, "pressurized MUT"?

A That's correct, sir.

Tr. 2730 (Congdon).

130. In view of Mr. Adams' lack of any recollection of such an event, but his refusal to deny that it happened, coupled with the apparent close working relationship on this shift, the Board believes, and so finds, that Mr. Adams was at least aware that adding hydrogen to the MUT could affect leak rate test results.

131. Both Mr. Congdon and Mr. Cooper gave testimony that indicated that they thought Mr. Adams was probably aware of their hydrogen additions during leak rate tests

Q Okay. In terms of knowledge, you say Floyd — speaking generally, at least — knew about leak rate problems. Are you aware of whether the phenomenon of hydrogen added during a test when you were adding it to keep the band up, that phenomenon, do you know whether that was known to him?

A I don't know that.

Q It was known to Adams, I assume?

A Yes, sir.

Tr. 2905 (Cooper)

Q Did other people on your shift know that from time to time you would do this?

A I think they probably did.

Q And specifically, who would know?

A Probably Marty Cooper, probably Chuck [Adams].

Stier Report, Vol. VI(B), Tab C, Congdon 2/13/85 Interview at 58, 59.

132. When Mr. Adams was advised that there was testimony that implied that he was aware that the CROs on his shift were adding hydrogen in order to affect leak rate tests, Mr Adams testified that this was possible, but that he had no recollection of being aware of it. Stier Report, Vol. VI(A), Tab A, Adams 3/19/85 Interview at 43-44. However, he testified that, if he had been aware, in 1978-1979, that a CRO was adding hydrogen to the MUT in an effort to affect leak rate test results, he would not have approved the practice. *Id.* at 45.

133. There is no evidence that either Mr. Adams or Shift C was involved in leak rate test manipulations through any method other than hydrogen additions. Stier Report, Vol. II(A), Tab A, Adams Assessment at 16; *see* Tr. 1552-1585 (Messrs. Congdon and Cooper did not manipulate leak rate test results through water additions).

134. The record shows that Mr. Adams tolerated and participated in the procedural violations cited in § VI, ¶ 105, above. We find that in his supervisory position as shift foreman, such violations clearly constitute culpable neglect of his duties. Additionally, the Board finds that the high probability that he knew of the potential effect of adding hydrogen to the MUT during a leak rate test and his allowance of this practice by his CROs constitutes culpable neglect.

Brian A. Mehler

135. Mr. Mehler commenced employment with Met-Ed in 1967. From 1969 until 1976, he was a CRO at TMI-1. Thereafter, he became a shift foreman at TMI-2, and a dual-licensed shift supervisor in April 1978. Mehler Prep. St., ff. Tr. 3842 at 1. In 1978-1979, Mr. Mehler supervised "C" Shift in both Units. Tr. 3861.

136. As a shift supervisor, Mr. Mehler generally had little direct involvement in leak rate testing: "it was very unusual for [him] to run a leak rate test [himself]." Mehler Prep. St. at 2; *see* Tr. 3858. Only when he was advised of

a particular problem with a specific leak rate test would he get involved. He testified that he was unaware of significant problems with the leak rate test procedures, and he believed that the test was the only tool available to quantify unidentified RCS leakage. Tr. 3852-67. During January-March 1979, Mr. Mehler knew that CROs were having a difficult time obtaining satisfactory leak rate test results; he attributed the problem to unidentified leakage from the pressurizer valves. Tr. 3862-63.

137. Mr. Mehler expected his operators to determine the validity of leak rate test results exceeding 1 gpm of unidentified leakage. Mehler Prep. St. at 3. He testified that the operators did this by running another leak rate test, and by evaluating the leak rate test result against other plant indications. *Id.* Mr. Mehler was aware of the practice of discarding leak rate tests considered to be invalid. He relied upon the CROs under his supervision to determine the validity of a given test. *Id.* at 3-6. He believed that his operators would have known to enter the Action Statement if a leak rate test exceeding the 1-gpm LCO appeared valid. *Id.*; Tr. 3854.

138. At Unit 1, Mr. Mehler had observed that an addition of hydrogen to the MUT produced a slight increase or decrease in the MUT level indication. This negligible change convinced him that adding hydrogen to the MUT would have no significant effect on leak rate test results. Mehler Prep. St. at 7. During 1978-1979, he had no knowledge of anyone adding hydrogen or water to the MUT to manipulate a leak rate test. Tr. 3845.

139. Mr. Mehler also was unaware that the MUT level strip chart could depict a water addition greater in volume than that actually added. Mehler Prep. St. at 7. No one on Mr. Mehler's shift manipulated leak rate tests through water additions to the MUT. *E.g.*, Tr. 1485, 1552.

140. Mr. Mehler could not recall whether he was on duty on February 15, 1979, when the words "Pressurized MUT" were written on the MUT level strip chart. Tr. 3898. (Given his dual responsibilities for the two units, and our observation that TMI-2 shift supervisors had little direct involvement in leak rate testing (*see* Tr. 3844) it is not surprising that Mr. Mehler would be unaware of the notation.) Mr. Mehler testified that the handwriting was not his. Tr. 3899. He could not identify the handwriting as that of his shift foreman, Mr. Adams. Mr. Mehler was not familiar enough with the handwriting of Mr. Congdon, Mr. Cooper, or Mr. Phillippe to say whether the handwriting was theirs. Tr. 3899.

141. Mr. Mehler did not recall LER 78-62/1T, although he thought that he read it because his initials were on the cover sheet. Tr. 3858 (Mehler). The only action he thought was necessary was the placing of the LER in the required reading file. Tr. 3858-59 (Mehler). Neither Mr. Cooper nor Mr. Congdon recalls the LER, and do not remember that any instruction from Mr. Mehler on a change in the 72-hour interpretation of the Tech Spec was to be made. It is clear that

it was never adequately explained to them, as they continued their previous interpretation of the Tech Spec. Cooper Prep. St., ff. Tr. 2835 at 6; Tr. 2717-18 (Congdon). The Board finds that Mr. Mehler did not adequately carry out his supervisory duties and was therefore guilty of culpable neglect.

142. Mr. Mehler could not recall receiving any specific training on the safety significance of the leak rate test. Tr. 3859-60. He did recall that he had general training on the Tech Specs and their bases. Tr. 3860. However, most of his knowledge about the leak rate test came from his experience as a CRO in Unit 1. Tr. 3853.

143. Other than NRR Test No. 13 (Stier Test No. 144), the only leak rate test in which Mr. Mehler appears to have been involved is NRR Test No. 68 (Stier Test No. 90). Exh. 5-B, Attachment 5, Table 9. No investigator has alleged that it was manipulated. Exh. 5-B, Attachment 1; Stier Report, Vol. IV(F), Test No. 90. Accordingly, we find that Mr. Mehler had virtually no direct involvement with leak rate testing at TMI-2, and we exonerate Mr. Mehler of any awareness of, or involvement in, leak rate test falsification or manipulation at TMI-2.

144. Mr. Mehler did, however, have knowledge of procedural violations of the Tech Specs and administrative procedures in force at TMI-2, as we see in § VI, ¶ 105, above. He did nothing to correct these practices, which was a clear dereliction of his duties as a shift supervisor. The Board therefore finds Mr. Mehler to be culpably negligent in this matter.

Shift D

145. Three CROs were assigned to Shift D — Mark Coleman, Dennis Olson, and Lynn Wright. The Shift Foreman was Adam Miller and the Shift Supervisor was Gregory Hitz.

146. Shift D's understanding and handling of leak rate tests was typical of other shifts in the following respects:

- They misinterpreted the Tech Specs to require only one "good" test in 72 hours, regardless of the results of other tests. Tr. 2588 (Coleman); Olson Prep. St., ff. Tr. 3911 at 2; Wright OI Interview of 3/27/85 at 45; Miller Prep. St., ff. Tr. 3608 at 2; Tr. 3718-19 (Hitz).
- Tests reflecting excessive leakage were routinely discarded. "Good" tests were filed, without regard to their validity. Thus, leak rate tests were regarded as a meaningless administrative requirement, not as a real measure of leakage. Tr. 2589, 2592, 2637 (Coleman); NRR Table 5 (Olson); Tr. 2704 (Wright); Miller Prep. St., ff. Tr. 3608 at 3; Tr. 3611, 3615 (Miller); Tr. 3720, 3677-78 (Hitz).
- The operators did not receive any significant training in leak rate testing. Tr. 2582 (Coleman); Tr. 4009 (Olson); Tr. 2672 (Wright); Tr. 3628 (Miller); Tr. 3707 (Hitz).

— The operators did not follow Administrative Procedures 1010 and 1012 requiring the filing of exception and deficiency statements and logging of start and stop times. Tr. 2636 (Coleman); OI Interview at 42, 54 (Wright); Olson Prep. St., ff. Tr. 3911 at 3; Stier Vol. VI(I), 3/20/85 Interview at 76; Tr. 3611 (Miller); Tr. 3668-69 (Hitz).

There are no disputes about the foregoing points. Either the operators, foreman, and supervisor conceded them in their testimony, or the point is irrefutably demonstrated by other record evidence. For example, almost all bad tests were discarded and no "E&Ds" were ever filed. Therefore, as to those points, there is no need to freight this opinion with detailed findings about each member of Shift D, beyond the foregoing summary.

147. There is very clear and convincing evidence, and we find that all three CROs on Shift D manipulated test data and falsified test results by making water additions toward the end of leak rate tests for the purpose of influencing test results. Coleman admitted the practice. Wright admitted adding water during tests but claimed — falsely, the Board finds — that he did so to make the tests more accurate. The Board did not believe Olson's denials of manipulations through water additions.

148. Striking proof of these manipulations is provided by the NRR analyses of a series of tests performed by Shift D. According to NRR, all of these tests were manipulated by adding water toward the end of the test, with the knowledge that the level sensor in the make-up tank (MUT) would sometimes inaccurately register the addition of more water than was actually added. *See* § IV, ¶ 26, above, for more detailed discussion of the so-called "loop seal" effect. For example, if 200 gallons were added to the MUT by the batch controller and included in the leak rate test computation by the surveillance CRO, the level sensor might "tell" the computer that the MUT level had risen 260 gallons as a result of the 200-gallon addition. The extra 60 gallons, on a 1-hour test run, would decrease the unidentified leak rate by 1 gpm. Coleman testified that he knew about this "loop seal" effect and took advantage of it to manipulate data and falsify leak rate tests.

149. The repeated pattern evident from test analyses and involving not only Coleman, but Olson and Wright as well, virtually compels the conclusion that all three were involved in this method of manipulation. These patterns are clearly shown in NRR Tables 7 and 10. Thus, NRR Table 7 reflects that the CROs on Shift D were involved in underrecorded water additions to a far greater extent than any other CROs. Furthermore, for an extended period of time — February 10 to March 13, 1979 — Shift D was the only shift involved in underrecorded water additions. There were eleven such tests during that period, and each of Shift D's three CROs — Coleman, Olson, and Wright — had some role in several of these tests, as shown by the following table:

NRR Test No.	CRO		Water Added Minutes Before End of Test	Approved by
122	Surveillance: Panel:	Olson Coleman	13	Miller
129	Surveillance: Panel:	Coleman Wright	4	Miller
131	Surveillance: Panel:	Coleman Olson	17	Miller
133	Surveillance: Panel:	Olson Wright	4	Miller
137	Surveillance: Panel:	Olson Olson	3	Hitz
138	Surveillance: Panel:	Coleman Coleman	2	Miller
139	Surveillance. Panel:	Olson Wright	10	Miller
140	Surveillance: Panel:	Wright Olson	1	Miller
141	Surveillance: Panel:	Olson Wright	3	Miller
142	Surveillance: Panel:	Wright Olson	3	Hitz
146	Surveillance: Panel:	Olson Coleman	5	Miller

The additions of water in the last 5 minutes of most of these tests — additions that were to be avoided "if at all possible" — provide a distinctive signature of manipulation.[39] Although NRR and MPR differed in their technical analyses of some tests, there were *no* disagreements between them on these particular tests.

[39] There were frequent discrepancies in the times shown on leak rate test results and the times reflected on the leak rate strip charts. Thus it was necessary to adjust the chart times by reference to timed entries in the log books, in order to determine whether a particular evolution (such as a water addition) occurred during a leak rate test. It was not always possible to reconstruct the timing of evolutions and tests precisely and, in a few cases, one probably cannot say for certain whether a particular evaluation occurred during a test. In general, however, it was possible to reconstruct the time of evaluations and tests. There was good agreement between the times reconstructed by NRR and MPR. Tr. 1298-99. None of the tests cited by the Employees as involving questionable timing (Employees' PF 286) is important to our findings. Finally, there was no dispute about the timing of the water additions in the series of tests under discussion here. Nor, except by Olson, could there be, since Coleman and Wright admitted adding water at the end of the tests.

150. As to the roles of the three CROs in these tests, the foregoing table shows:

CRO	Surveillance CRO Tests	Panel CRO Tests
Coleman	129, 131, 138	122, 138, 146
Wright	140, 142	129, 133, 139, 141
Olson	122, 133, 137, 139, 141, 146	131, 137, 140, 142

The record indicates that normal levels of communication existed between these three CROs. (Compare the conflicts among CROs on Shift E, as described below.) Therefore, there is no reason to believe that information about manipulation would not have been shared by all three CROs. While we would not expect the CROs to recall details of such discussions, we find not credible their professed inability to remember anything about the knowledge of their fellow CROs, particularly in light of the very striking pattern of their joint involvement in manipulation that emerges from the records analysis.

151. We note, in conclusion, other circumstances indicating common knowledge of manipulation by every member of Shift D, including Adam Miller, the Shift Foreman, and possibly including Gregory Hitz, the Shift Superintendent. As previously discussed, it was increasingly difficult to get a "good" leak rate during February and March 1979 because of increasing leakage from the pressurizer and code safety values. *See* § IV, ¶ 13, above. During the period between 2:30 a.m. on March 3 and 3:20 a.m. on March 9, 1979, Shift D was the *only* shift that was able to produce "good" leak rates at TMI-2. Shift D produced six consecutive "good" leak rate tests in that period, each of which was manipulated by an underrecorded water addition. Miller approved four of these tests (138-141) and Hitz approved two (137, 142). Under the circumstances, we think it unlikely that Shift D's unique ability to produce "good tests" can be attributed to coincidence or that that ability would have gone unnoticed by Miller and Hitz and perhaps other supervisory personnel.

Mark S. Coleman

152. Mr. Coleman began his employment with Met-Ed as an AO at TMI-1 in January 1974. In 1976, he became a CRO at TMI-2, and subsequently received his RO license. Coleman Prep. St., ff. Tr. 2579 at 1. Mr. Coleman was a CRO in TMI-2 until the date of the accident. Stier Report, Vol. VI(B), Tab C, Coleman 2/5/85 Interview at 3-4. During part of 1978 and through the 1979 accident, Mr. Coleman was assigned to "D" Shift, under the supervision of Gregory Hitz and Adam Miller. The other CROs assigned to the shift were Messrs. Olson and Wright. Coleman Prep. St. at 1.

153. Shortly after Mr. Coleman began performing leak rate tests at TMI-2, he signed and turned in a test result showing unidentified leakage of over 1 gpm. He was then told by a supervisor (whose identity he could not recall and whom we could not identify) that they did not want to see tests that exceeded the 1-gpm LCO for unidentified leakage. That incident prompted Mr. Coleman to discard leak rate test results exceeding the 1-gpm LCO. *Id.* at 2-3; Tr. 2583-84. Mr. Coleman felt that he was under a lot of pressure to obtain a leak rate test result meeting the 1-gpm LCO when the 72-hour period since the last satisfactory leak rate test was about to expire. Tr. 2589-91.

154. Mr. Coleman admitted adding hydrogen to the make-up tank to manipulate leak rate tests, testifying as follows:

> When I was first interviewed by the NRC in April 1980, I informed the investigators that on some occasions I added hydrogen to the makeup tank during the performance of a leak rate test in order to get a good result. I first found out about this phenomenon when a control room operator from another shift, I believe it was Harold Hartman, told me about it. I experimented myself and determined that sometimes if you added hydrogen, usually toward the end of the test, it could affect the makeup tank level indicator.

Coleman Prep. Test., ff. Tr. 2579 at 3-4. The analyses by NRR and MPR of retained tests include no clear examples of hydrogen manipulation involving Coleman. (The references in Stier to MPR Test Nos. 39 and 122 are inaccurate because those tests did not involve Coleman. Stier Report, Vol. I, Coleman at 9-10.) On the other hand, as his prepared testimony indicates, some of Coleman's attempts to manipulate with hydrogen would have been unsuccessful and the tests would have been thrown away. We find that Coleman at least *attempted* to manipulate leak rate tests with hydrogen, whether or not he was successful.

155. Mr. Coleman also admitted adding water to the make-up tank to manipulate leak rate tests, testifying as follows:

> I became aware that the water additions sometimes had the same effect on the level transmitter as did hydrogen additions. If water were added toward the end of a test, for a short period of time the level indicator would reflect a higher level in the makeup tank.

Id. at 4. With reference to specific tests, the Board finds that Coleman participated in manipulation of NRR leak rate Test Nos. 129 and 131 as the surveillance CRO and that he falsified those same tests when he signed and thereby certified them as accurate, knowing that the data had been manipulated. We further find that Coleman was the CRO assigned to the panel and that he participated in manipulating NRR Test Nos. 122 and 146. As to NRR Test No. 138, Coleman both ran the panel and signed the test, manipulating and falsifying it by himself.

156. While Coleman appears to have been candid with prior investigators and the Board about his own manipulations, the Board did not believe that he was

candid before us with respect to his knowledge of his shiftmates' involvement in manipulations, and their common knowledge and cooperation with one another in test manipulations. To begin with, the CROs on all the shifts were facing a common problem — how to get an erratic, seemingly arbitrary test procedure to produce a result under 1 gpm. We would think it perfectly natural for three people, working closely together over time, to share any helpful technique one of them might discover. This is particularly true if we are to believe Coleman's claim that he did not, at the time, think that he was doing anything wrong, that he just "took advantage of a glitch in the system." Tr. 2588.

157. More importantly, given the normal division of responsibilities among CROs on a shift, we find that there was collaboration between the panel CRO and surveillance CRO on most if not all of the tests in which we have found manipulation by Shift D. As the Stier Report points out, "[t]estimony from numerous members of the Operations Department makes it clear that water was usually added to the system by the Control Room Operator controlling the panel." Stier Report, Vol. II(A), Coleman at 12. Yet the surveillance CRO was in overall charge of the test. Presumably, he would have to tell the panel CRO when to add water in order to take advantage of the "loop seal" effect which (so Coleman thought) had to be done at the end of the test. Coleman's testimony before us on this point was very evasive. Tr. 2601-04, 2607-12. While repeatedly failing to provide straight answers to the Board's questions, Mr. Coleman attempted to suggest that manipulation *might* have been accomplished by a CRO acting alone, a proposition that was not in question. Coleman finally agreed with a prior statement by shiftmate Olson that "the person assigned to the control panel was generally responsible for adding water, although this could be done by other operators." Tr. 2615.

158. Coleman did not flatly deny discussing test manipulation with other operators or his supervisors. He denied recollection of such discussions, except for one incident in which Olson allegedly walked away from a manipulation discussion Coleman had begun. Tr. 2604-07. Coleman's denials in that regard are not credible. Given the circumstances described above, the Board finds that Coleman did discuss and collaborate in manipulations with Olson and Wright.

159. In his prepared testimony, Mr. Coleman stated that at the time he was making hydrogen and water additions during leak rate tests, "I never thought I was falsifying leak rate tests." Coleman Prep. St. at 3. Of course, Mr. Coleman's recollection of his subjective beliefs at the time, even if we were to credit it, would not be controlling on the issue of falsification. Mr. Coleman is responsible for the natural and foreseeable consequences of his own acts and he must be deemed to have intended those consequences. He intentionally added hydrogen and water for the purpose of changing a test result, knowing that that change would not be related to any actual change in unidentified leakage from the plant. In that sense, Coleman intended to and did falsify leak rate tests. Indeed,

under examination by the Board, Coleman admitted that several tests he had manipulated with water were false. Tr. 2629.

Dennis I. Olson

160. Mr. Olson is not a party to these proceedings; he testified under subpoena. Nevertheless, he filed a prepared statement discussing his involvement in leak rate testing at TMI-2. Olson Prep. St., ff. Tr. 3911.

161. Mr. Olson became employed by Met-Ed at TMI as an AO in 1971, after 8 years of Naval service. After approximately 5 years as an AO, he became a CRO at TMI-2 in 1976. He received his RO license in 1978; during 1979, he was assigned to "D" Shift. He left TMI in 1981. At that time, he became employed by Louisiana Power and Light Company at its Waterford III reactor, where he was a control room supervisor with an SRO license. He resigned from Waterford III in 1985. He no longer holds an NRC RO or SRO license. *Id.* at 1-2; Tr. 3914.

162. As discussed above, both the NRR and MPR experts found that a series of leak rate tests conducted by D Shift between February 10 and March 13, 1979, were manipulated by underrecorded water additions at the end of the test. *See* § VI, ¶ 149, above. With reference to these tests, Olson testified that he could "no longer recall why water was added, or explain its addition based on available plant records." Prep. Test., ff. Tr. 3911 at 5. He further testified that he "never falsified leak rate test results . . . ." *Id.* The Board does not believe Mr. Olson's denials. For the reasons summarized below, we find that he manipulated test results with underrecorded water additions and certified test results knowing them to be false.

163. As shown in § VI, ¶ 149, above, of the three CROs on D Shift, Olson was the most heavily involved in the water manipulations of February 10 to March 13, 1979 tests. Specifically, Olson was involved in three such tests — as the panel CRO in NRR Test Nos. 31, 137, 140, 142, and as the surveillance CRO in NRR Test Nos. 122, 133, 137, 139, 141, and 146. Had he been involved in only one or two of these tests, he might have been able to convince us that his involvement was innocent, that any manipulation was being done by Coleman or Wright without his knowledge. But that claim is simply not credible, in light of his very extensive involvement in highly suspect tests. Indeed, on the basis of test record analysis, Olson's involvement in such manipulation was more extensive than any other CRO at TMI-2.

164. In the proposed findings for Mr. Olson, an attempt is made to persuade us that Mr. Olson did not know what Coleman and Wright were up to in manipulating tests. *See* Numerous Employees' PFs 797-799. This attempt is not persuasive. Of course it is true that communications among CROs were not perfect, and that normal assignments of responsibilities were not rigid and

unvarying. Nevertheless, even according to Olson, the CRO assigned to the panel generally made water additions (Tr. 3919, 3928), while the surveillance CRO "ran the test." Tr. 4003. Given the pervasive pattern of manipulation reflected in the record, the suggestion that Olson was an innocent bystander on Shift D is not credible.

165. Mr. Olson was asked about the distinctive pattern whereby Shift D CROs consistently added water at the end of leak rate tests. Tr. 1368-71. Coleman has testified, it will be recalled, that he believed his manipulation technique only worked when performed at the end of the test. *See* § VI, ¶ 155, above. As shown in § VI, ¶ 149, above, the nine manipulated tests in which Olson participated all involved additions at the end of the test. Olson failed to offer any explanation for this pattern in his tests. Tr. 3971. Olson suggested that he may have added water to change the boron concentration in the reactor coolant system in order to keep the control rods from moving out of the prescribed band. Tr. 3918, 3973, 4018-22. We find this suggestion unpersuasive, for several reasons.

166. First, while it may have been occasionally necessary to change the boron concentration to affect rod position, it is not credible to suggest that such a need would have arisen consistently a few minutes before the end of each in a long series of leak rate tests. That asks too much of coincidence.

167. Second, while the records of the individual tests are not conclusive on this claim, several record indications are inconsistent with it. Thus, in Olson's Test Nos. 137 and 140, the CRO log indicates that the water was added from reactor coolant bleed tank, not the demineralized water tank. Such an addition would not significantly affect rod position. Furthermore, in Olson Test Nos. 133, 141, and 146, Olson filled out a "Data Sheet 4" which required him to "identify operation that caused change." In each case, the cause Olson gave was "increase MUT tank level." He gave no indication that the water addition had anything to do with boron concentration or rod position. In two of the three tests — 133 and 141 — there was not even an arguable operational justification for adding water before the end of the test to raise the MUT level — the reason Olson gave for the addition. The MUT level at the time of the addition was well above the prescribed 60-inch minimum. Even in the third test, 146, the MUT level was slightly above the 60-inch level, and the water addition could have readily been postponed 5 minutes, until the end of the test, to raise the MUT level — the reason Olson gave for the addition.

168. Finally, while the addition of small quantities of demineralized water, as occurred in several of Olson's tests (122, 131, 139, 141, 142, 146) could alter boron concentration and reactivity levels (Tr. 1210-11), an addition of demineralized water alone was not the usual or most efficient method for altering boron concentrations to the degree that rod positions would be changed. As stated in the NRR Report, "feed and bleed operations were used routinely

to increase or decrease the boron concentration in the RCJ." NRR Report, Enclosure 1 at 7. *See also* Tr. 1312-16. According to NRR's analysis, only one of the eleven tests that involved manipulation by Shift D (141) also involved a feed-and-bleed operation. For all of these reasons, we conclude that Mr. Olson's claim that he may have added water to keep the control rods in position is not credible.

169. We note in this connection the letter of February 17, 1987, from Counsel for GPUN to the Board confirming the existence of hourly recordings of rod positions taken by a plant computer, information we were not aware of during the hearing and which, of course, is not in the record. It is possible that information of this type could be useful in determining whether a particular water addition might have been made in order to change boron concentration and move control rods. It is also possible, however, that such hourly data would not be close enough in time to the water addition to shed much light on that issue. In any event, there is nothing to indicate that Stier, Rockwell, or the NRC investigators used these data in their test analyses. We do not find it necessary to consider these data in resolving Olson's (or any other operator's) claim that they added water for the purpose of moving control rods. While we appreciate Mr. Blake's bringing these data to our attention, we see no need to call for their addition to the record. None of the parties has done so.

170. According to NRR's analysis, Mr. Olson was not involved in hydrogen additions during leak rate tests. Exh. 5-13, Attachment 5, Tables 7 and 10.

171. Mr. Olson recalled discarding leak rate tests until the Havercamp incident of October 18, 1979, but that thereafter he did not discard excessive leak rate tests. Olson Prep. St., ff. Tr. 3911 at 3; Tr. 4007. He recalled giving all leak rate test sheets to his foreman, and stated that he did not know what became of them. Tr. 4007-08. His testimony in the latter regard is inconsistent with the testimony of his shiftmates, Coleman and Wright. Tr. 2583, 2673. However, the Board gives Olson the benefit of the doubt on this point.

Lynn O. Wright

172. Mr. Wright began employment with Met-Ed as an AO at TMI-1. Exh. 6, OI Report, Exh. 18, Wright 3/27/85 Interview at 4 (hereafter "OI Interview"). In 1975, he began training for his CRO license at TMI-2, and was assigned to "D" Shift. *Id.* at 5. Mr. Wright left TMI-2 in 1984 to open his own business. *Id.* He no longer holds a license to operate a nuclear power plant. Exh. 5-B, Attachment 5, Table 1.

173. Mr. Wright recalled that it was always difficult to obtain a leak rate test result meeting the 1-gpm LCO. Tr. 2704. He had little faith in the computer-generated leak rate test. Tr. 2670. He believed management personnel were

aware that it was difficult to obtain reliable leak rate test results from the computer. Tr. 2676.

174. Mr. Wright testified that he sometimes added water toward the end of a leak rate test. That much is clear from our earlier discussion of tests in which Wright was involved. *See* § VI, ¶ 149, above. To repeat, Wright was surveillance CRO in NRR Test Nos. 140 and 142 and the panel CRO in NRR Test Nos. 129, 133, 139, and 141 — in each of which water was added in the final minutes of the test. However, he denied knowledge of the so-called "loop seal" phenomenon, and he denied any intent to falsify the test. Tr. 2862; OI Interview at 93, 104.

175. Mr. Wright claimed that his purpose in adding water at the end of leak rate tests "was to bring the make-up tank back up to its original level so as to minimize instrument error." Tr. 2678; OI Interview at 78. Wright claimed he had been concerned at the time that the make-up tank level sensor might introduce inaccuracies into the leak rate calculation because of "calibration" problems, and that such problems could be minimized, in his view, by returning the level in the tank to the point it had been at the start of the test. He would then include the amount of water he had added in the computation of the leak rate. In that connection, Wright claimed that there were problems with the batch controller at times, and that when that happened he would derive the amount of the water addition by eyeballing the strip chart. Tr. 2685-87; Wright OI Interview at 74, 103. Wright's claim that he added water to enhance the accuracy of the test is not supported by the record. For the reasons that follow, we reject that claim and find that Wright was manipulating and falsifying leak rate tests in the same manner and for the same reasons as Coleman and Olson.

176. The Board agrees that, in theory, Wright's claimed approach might have enhanced the accuracy of the test, provided he had applied his approach consistently and provided he had used an accurate method to measure water additions. However, the evidence indicates inconsistencies in his approach and raises questions about his water addition computations.

177. In order to maximize the effectiveness of Wright's approach, it would have been necessary to restore the make-up tank water level to the same point at which the test began. In that regard, Wright did not claim a high degree of precision, only that the level was restored "approximately. Within, I'd say, you know, an inch or so." Tr. 2684. The records of the suspect tests in which Wright participated show that most of his end-of-test levels were more than an inch away from start-of-test levels.

NRR Test No.	Wright's Role	Start-of-Test Level	End-of-Test Level	Net Change
140	Surveillance	79.2	77.8	−1.4
142	Surveillance	67.8	66.1	−1.6
129	Panel	79.5	78.2	−1.3
133	Panel	74.6	72.9	−1.7
139	Panel	68.2	67.2	−0.9
141	Panel	73.5	73.6	0.1

Even employing an eyeball method, it should have been easy to return the make-up tank level to within half an inch or less of the starting point. Wright's failure to do that bespeaks a sloppiness inconsistent with his professed desire for greater instrument accuracy.

178. There are a number of other inconsistencies in Mr. Wright's asserted rationale for adding water. He claimed that there were problems with the batch controller (Tr. 2685) and that when those problems arose, he computed amounts of water additions from the strip chart. The record does not support that claim. In each of the six tests in the table above, it is clear that the water addition included in the calculation was derived from the log and probably from the batch controller. For example, in two tests, the amount included in the test was given to single digits (Test No. 142 — "181" gallons; Test No. 139 — "128" gallons). In all six cases, had the size of the addition been derived from the strip chart, it would have been substantially larger. To be sure, the water addition amounts included in the leak rate computations in these tests appear to be accurate but, by virtue of the "loop seal" effects in the level sensor, the leak rate test result was artificially low. It seems very unlikely that an operator who watched strip charts as closely as Wright claimed he did, would not have been aware of the large errors being produced by the "loop seal" effect.

179. Assuming, contrary to the record, that Mr. Wright may have derived the size of some water additions from the strip chart, such a practice casts further doubt on his professed desire to minimize instrument inaccuracy. For one thing, it is difficult to derive a gallonage reading accurate to, say, 10 gallons or less, by eyeballing a strip chart. Yet Wright said he chose that method rather than trust a specific meter reading from the batch controller. More fundamentally, and assuming for the moment that Wright did derive some of his water addition amounts from the strip chart, he would have been building back into his calculation the very inaccuracy he claimed he was seeking to avoid in the first place. Tr. 2687-90.

180. Wright was aware of the fact that SP 2801-3D1 directed operators to avoid adding water to the make-up tank during leak rate tests "if at all possible." OI Interview at 74. He must have known that that direction had been

given to provide accuracy in the test. Yet, if we are to believe Mr. Wright, he took it upon himself to implement a procedure of his own devising that was directly contrary to SP-2301-3D1, supposedly to enhance accuracy of the test.

181. One would think that if a CRO like Mr. Wright had devised a better way to run an erratic surveillance test, he would have at least shared it with his fellow CROs. Wright claimed not to recall discussing his water additions with Coleman and Olson. Tr. 2678, 2682, 2703. On this record, that claim is not credible. Wright testified that the three CROs — himself, Coleman, and Olson — "communicated well" and that there were no serious antagonisms among them. Tr. 2698-99. The great weight of the evidence including our generally negative assessment of Wright's credibility, supports, clearly and convincingly, a finding that Wright's claimed reason for adding water to leak rate tests — enhanced "instrument accuracy" — was a fabricated cover story for test manipulation.

Adam W. Miller

182. Mr. Miller is currently Manager, Plant Operations, at TMI-2. He holds an SRO license. Exh. 5-B, Attachment 5, Table 1. Mr. Miller began employment with Met-Ed in 1973 as an AO at Unit 1. He was promoted to CRO in August 1975 and shift foreman at TMI-2 in August 1978. Miller Prep. St., ff. Tr. 3608 at 1. Between March and August 1978, he was a CRO at TMI-2. Tr. 3612. He appears to have been assigned to "C" Shift during that period. Stier Report, Vol. III(A), Table 1.

183. Between August 1978 and March 1979, Mr. Miller was the foreman on "D" Shift in TMI-2. Miller Prep. St. at 2. Mr. Miller was responsible for supervision of the monitoring of RCS leakage, including the leak rate test. Stier Report, Vol. VI(I), Miller 3/20/85 Interview at 9, 34; Miller Prep. St. at 2.

184. Mr. Miller learned how to perform the leak rate test as a CRO from the people who ran leak rate tests from TMI-1. Tr. 3614. He believes that he understood that the 1-gpm LCO for unidentified leakage was related to plant safety, but he was not trained on the safety significance of the leak rate test. Tr. 3628; Stier Report, Vol. VI(I), Miller 3/20/85 Interview at 18-23. As a CRO, Mr. Miller discarded leak rate tests himself. Tr. 3611, 3615. When he became a shift foreman, he permitted his operators to discard leak rate test results reflecting unidentified leakage in excess of the 1 gpm, and he did not conduct a review of the tests that the operators discarded. Tr. 3615; Stier Report, Vol. VI(I), Miller 3/20/85 Interview at 98. He filed all leak rate tests reflecting unidentified leakage under 1 gpm, without regard to their validity. Tr. 3646. Stier Report, Vol. VI(I), Miller 3/20/85 Interview at 53, 56. Indeed, according to Stier and the MPR investigators, "almost two-thirds of the tests that Miller approved

should have been determined invalid." Stier Report, Vol. II(B), Assessment of Adam Miller at 6.

185. Mr. Miller believed that the leak rate test was inaccurate because test results varied considerably despite no apparent changes in plant conditions. Tr. 3647. However, he did not further investigate those inaccuracies or take any other action to see that they were corrected.

186. On the contrary, as we have already indicated, Mr. Miller adopted — and displayed to his subordinate CROs — an utterly cynical attitude toward the leak rate test. He did not treat the test as an important and the only quantified indication of unidentified leakage in the plant, but rather as a meaningless gesture required to be performed periodically. To repeat, he would perfunctorily approve any test reflecting leakage under 1 gpm, and he sanctioned his CROs' practice of automatically discarding any test result over 1 gpm. Miller's actions must have sent a clear message to Coleman, Olson, and Wright: Foreman Adam Miller doesn't care how leak rate tests are performed, as long as the paper result from the computer reads less than 1 gpm.

187. The most serious issue involving Mr. Miller is whether he knew of or participated in the manipulations of tests engaged in by Coleman, Olson, and Wright between February 10 and March 13, 1979. In that regard, Mr. Miller claimed that he "had absolutely no knowledge that the practice was going on, if it was." Prep. St., ff. Tr. 3608 at 4. For their part, none of the CROs could recall discussing water additions with Miller. The other evidence on this point is indirect and conflicting.

188. Pointing toward knowledge of manipulation, if not participation, on Miller's part is the very striking and consistent pattern shown by the numerous suspect tests, especially as shown in the strip charts. Miller himself acknowledged that pattern when asked to review the test records. Tr. 3638, 3643. Furthermore, Shift D was the only shift that was consistently able to produce a "good" leak rate test during that period. When all the other shifts were having so much difficulty, one would think that foreman Miller would have at least been curious about his shift's secret of success. Mr. Miller was unable to offer a persuasive explanation why he simply signed the tests but made no inquiry at the time. Tr. 3644.

189. On the other hand, Mr. Miller's total lack of concern about the validity of leak rate tests constitutes the most persuasive indirect evidence that he did not know about manipulations by his CROs. Again, the strip charts, viewed together, provided the clearest evidence of the manipulations in question. But Miller testified that he did not review the strip charts for trends, a claim we can readily credit in light of his cavalier attitude toward the test. Tr. 3639.

190. Part of the reason we found that the Shift D CROs knew of and collaborated in one another's manipulations was that the normal operational performance of the test involved two CROs working together. But a foreman,

like Miller, had no operational role in the test. And if, like Miller, the foreman was indifferent to how the test was run, there is little reason to believe that he would have known how tests were run.

191. We have no clear and convincing evidentiary basis for finding knowledge or collaboration by Miller in test manipulations. However, we do find that Miller was guilty of culpable neglect in his attitude toward the test, in his total failure to supervise his CROs in performing the test, and in creating a work atmosphere where repeated manipulations could occur.

192. Mr. Miller did not apply or require his CROs to apply Administrative Procedure 1010, the "Exceptions and Deficiencies" Procedure, to leak rate test printouts in excess of 1 gpm. Miller was unable to provide any substantial explanation for his consistent failure to follow an applicable and important procedure. Stier Report, Vol. VI(I), Miller 3/20/85 Interview at 76. Tr. 3648.

193. Mr. Miller did not require his CROs to log the start and completion times of all leak rate surveillance tests. Tr. 3611. He did recall that his shift logged the completion of "good" leak rate tests — i.e., tests under 1 gpm — to keep track of the 72-hour period. Stier Report, Vol. VI(I), Miller 3/20/85 Interview at 81. His shift did not log the start or finish of unsatisfactory leak rate tests, i.e., tests over 1 gpm. No valid reason was offered for this violation of procedure. *See id.* at 82-83 for an invalid reason.

194. Mr. Miller had no independent recollection of LER 78-62/1T, although he did initial the checkoff sheet associated with it. Tr. 3618-19. He believes that the meaning of that LER was never made clear to him (Tr. 3620), because he does not recall ever going into the Action Statement. Stier Report, Vol. VI(I), Miller 3/20/85 Interview at 55.

Gregory R. Hitz, Sr.

195. Mr. Hitz began employment with Met-Ed in 1969. After working as an AO and a CRO, he was promoted to shift foreman in 1975 at Unit 1. He became a dual-licensed shift supervisor in 1977. Hitz Prep. St., ff. Tr. 3664 at 1-2. Mr. Hitz was assigned to supervise "D" Shift at TMI-2 during the latter part of 1978 and early 1979. *Id.* at 2.

196. Mr. Hitz had interpreted the leak rate Tech Specs as requiring a leak rate test result depicting unidentified leakage below 1 gpm every 72 hours while the plant was in operation. Tr. 3718. If a satisfactory leak rate test result could not be obtained within that 72-hour period, they were required to invoke the Action Statement of Tech Spec 3.4.6.2. Tr. 3719.

197. It was Mr. Hitz' responsibility to see that leak rate tests were performed and that the plant was operating within specified leakage limits. Prep. St. at 3. Generally, however, leak rate tests did not go beyond Adam Miller, his shift foreman. Tr. 3630. Mr. Hitz understood that leak rate tests depicting unidentified

leakage in excess of 1 gpm were discarded by his shift, without entry into the Action Statement. Tr. 3720. Mr. Hitz assumed that before the operators on his shift discarded a leak rate test they, but not the foreman, engaged in a determination whether the test was valid. Tr. 3677; Hitz Prep. St. at 3. Mr. Hitz acknowledged, however, that he never observed his operators engaging in that process. Tr. 3677-78. The record demonstrates that, in fact, the members of D Shift did not attempt to validate test results by reference to other plant parameters. On the contrary, Shift D accepted any test under 1 gpm and discarded any test over 1 gpm. *See* Tr. 3615, 3644, and § VI, ¶ 146, above. Mr. Hitz had no factual bases for his assumptions about validation.

198. In 1978-1979, Mr. Hitz knew that his shift at TMI-2 was having problems obtaining leak rate test results meeting the 1-gpm LCO. Tr. 3666. He recalled seeing highly variable leak rate test results. Tr. 3667. At the time, Mr. Hitz did not blame these problems on inaccuracies in the computer program used to conduct leak rate tests. *Id.* Rather, he attributed the difficulties to plant oscillations and to secondary-side plant problems which, he believed, would be corrected over time. Tr. 3670. He acknowledged that, in retrospect, these problems prevented anyone from knowing, with certainty, whether the 1-gpm LCO for unidentified leakage was being met. Tr. 3695.

199. The existence of plant oscillations prompted Mr. Hitz to accept as valid leak rate test results depicting small negative numbers for unidentified leakage. Tr. 3680-81. He was convinced that such negative results were likely to occur, and were therefore acceptable. Tr. 3682, 3686; *see* Exh. 21 at 3.

200. Mr. Hitz recalled receiving classroom training concerning the Tech Specs, as well as the bases for those Specs. Tr. 3707. When he became a shift supervisor, he received training by observing other shift supervisors performing their administrative work. Hitz Prep St. at 2. He testified that there was no on-the-job training focusing specifically on the leak rate test, however. Tr. 3707.

201. Mr. Hitz had no recollection of the incident described by his CRO, Coleman, in which three individuals emerged from the shift supervisor's office and told Mr. Coleman they did not wish to see leak rate tests with unidentified leakage in excess of 1 gpm. Tr. 3678. Mr. Hitz believed that it was not a fair assumption that he was the shift supervisor involved, because Mr. Coleman's uncertainty about the timing of this occurrence other than that it was "early on," made it likely that he was not yet Mr. Coleman's shift supervisor. Tr. 3678. The Board believes that Mr. Coleman's recollection is too vague to support the conclusion that Mr. Hitz gave Mr. Coleman the instruction in question, especially in the face of Mr. Hitz' denial.

202. Mr. Hitz remembered hearing of the MUT "loop seal" phenomenon after the March 28, 1979 accident at Unit 2. Tr. 3712. Prior to learning of that phenomenon, he was unaware that a hydrogen addition to the MUT could affect the leak rate test. *Id.* As a Unit 1 CRO, Mr. Hitz had seen a brief, temporary

effect on the MUT level caused by a hydrogen addition, but he believed that the effect was insignificant. Tr. 3690, 3692.

203. In retrospect, Mr. Hitz could not justify the practice of not applying the "Exceptions and Deficiencies" Procedure to invalid leak rate tests. Tr. 3668-69.

204. Mr. Hitz could not remember the November 1, 1978 Licensee Event Report (78-62/1T), but recognized that his initials were on the coversheet for the version sent to the control room. Hitz Prep. St. at 5; Tr. 3698. Mr. Hitz presumed that the LER had no effect on operations at TMI-2. Tr. 3722. He agreed that it would have been his responsibility to ensure that all those under his supervision knew the importance of this LER, and he agreed that after the issuance of the LER, he should have verified that his shift was entering the Action Statement upon obtaining leak rate test results over 1 gpm. Tr. 3721, 3723.

205. Mr. Hitz had no knowledge of any operator falsifying or manipulating leak rate tests. Tr. 3725. He was convinced that his shift foreman, Mr. Adam Miller, was also unaware of any pattern of falsification or manipulation. Tr. 3728-29.

206. We know of no evidence that Mr. Hitz was aware of leak rate test falsification or manipulation. Mr. Coleman, for example, could not recall discussing his leak rate testing activities with Mr. Hitz. Tr. 2604. He was rarely involved even in the approval of leak rate tests, and signed only two tests (Stier Test Nos. 16 and 21); therefore, it is understandable that he would not have been aware of the practice of Messrs. Coleman, Olson, and Wright, during February-March 1979, of adding water to the MUT during leak rate tests to affect test results. As Mr. Hitz explained, "once you [become] a shift supervisor, you kind of get removed from the Control Room Operator somewhat." Stier Report, Vol. VI(F), Hitz 3/29/84 Interview at 26.

207. We find, however, that Mr. Hitz must be charged with culpable neglect in two respects. First, he failed to keep himself adequately informed about the conduct of leak rate tests and to oversee Adam Miller's direct supervision of such tests, particularly in light of his knowledge that the test was presenting problems. Those failures, coupled with Miller's dereliction as direct supervisor of the Shift D CROs, allowed those CROs to manipulate leak rate tests for a substantial period of time. Second, Hitz conceded that it should have been his responsibility to see to it that those under him understood and implemented the LER correcting the previous misinterpretation of the Action Statement requirement. Tr. 3721-23. We agree, and make the same finding as to each shift supervisor, except Bryan.

Shift E

208. Three CROs were assigned to Shift E — Harold W. Hartman, Jr., Raymond R. Booher, and John R. Blessing. Mr. Blessing was initially a trainee on this shift. The Shift Foreman was Kenneth P. Hoyt, and the Shift Supervisor was Bernard G. Smith.

209. Mr. Hartman and Mr. Blessing had admitted, previous to this proceeding, manipulation of leak rate tests by adding hydrogen to the MUT. Mr. Booher denies involvement in manipulation or falsification of the tests. Mr. Hoyt and Mr. Smith denied any knowledge of Mr. Hartman's or Mr. Blessing's activities that produced falsification. In view of Hartman's and Blessing's admissions, we make only limited findings with respect to them.

210. This shift, in common with others, misinterpreted the Tech Specs to require only one "good" leak rate test in 72 hours, regardless of the results of other "bad" tests. Ff. Tr. 4175 at 2 (Booher); ff. Tr. 4233 at 3 (Hoyt); ff. Tr. 4331 at 3 (Smith). They routinely discarded tests that indicated leakage in excess of 1 gpm, and they filed "good" tests, even though they had had serious doubts about the accuracy of the test results. Ff. Tr. 4175 at 2 (Booher); Tr. 4236 (Hoyt); ff. Tr. 4331 at 3 (Smith).

211. The shift did not receive adequate training with regard to the potential safety significance of the leak rate test. Tr. 4229-30 (Booher); Tr. 4361-62 (Smith). Administrative Procedures 1010 and 1012, requiring filing of exception and deficiency statements and the logging of *all* start times of surveillances, were not followed. Ff. Tr. 4175 at 3 (Booher); Tr. 4269 (Hoyt); Tr. 4344 (Smith).

Harold W. Hartman, Jr.

212. Mr. Hartman precipitated the several investigations that led to this proceeding by alleging in a television interview on March 24, 1980, that various methods had been used at TMI-2 by several personnel to obtain false leak rate test results. Stier Report, Vol. I at 1. Mr. Hartman did not become a party to this proceeding, but appeared voluntarily to respond to Board questions.

213. At the hearing, Mr. Hartman confirmed that he had used hydrogen additions during leak rate tests as a means of manipulating the test. He testified that he could not recall seeing anyone else using hydrogen but that he got the information on the hydrogen effect from other operators and he believed that there was common knowledge of the hydrogen effect among operators. Tr. 2240. Mr. Hartman was unable to specifically identify any operator who had told him of the hydrogen effect. *Id.* He could not recall any knowledge of hydrogen additions by Mr. Blessing, even though Blessing has admitted such actions. Tr. 2304. Mr. Hartman did not claim that his shiftmates were involved in manipulation by hydrogen additions.

214. With respect to Mr. Hoyt and Mr. Smith, he stated that "I'd never do it during a day shift you know when there was a lot of people around, that's it, you know and I even kind of hide it from Shift Foreman, Shift Supervisor so that they didn't see me generally that was no problem." Stier Report, Vol. VI(E), Hartman 3/26/80 Interview at 29.

215. With respect to the addition of water to the MUT for the purpose of manipulating the leak rate test, Mr. Hartman denied that he used this technique. Tr. 2242. However, he testified that he believed that he had observed Mr. Booher making slow (jogged) additions of water for the purpose of test manipulation on one occasion. *Id.* He thought the time frame might have been 3 months before the accident. He also stated, however, that the incident occurred during a period of considerable leakage through the pressurizer relief valves, which on this record probably was 6 weeks or less before the accident. *Id.* Mr. Hartman could not identify the particular time when this occurred, which poses difficulties in confirming this allegation.

John R. Blessing

216. Mr. Blessing did not respond to the Board's invitation to participate in this proceeding and also disobeyed the Board's subsequent subpoena requiring an appearance. Board Chairman letters, dated August 6, 1986, and October 22, 1986. Since Mr. Blessing had admitted to having added hydrogen to the MUT on numerous occasions during leak rate tests in his April 10, 1980 interview by Mr. Christopher and Mr. Martin of the Region I office, the Board did not pursue Mr. Blessing. The Board finds his admission sufficient basis to conclude that Mr. Blessing manipulated tests and falsified the tests by signing the test result document. We find his excuse that on nine out of ten occasions the hydrogen addition did not work totally lacking as a justification. Indeed, on those nine unsuccessful attempts, Mr. Blessing was guilty of attempted manipulation, which reflects as unfavorably on him as successful manipulation.

217. Mr. Blessing was interviewed by NRC Staff on April 10, 1980, and December 14, 1984, and summaries of these two interviews were admitted into the record of this inquiry as Exhs. 5 and 6 included in Exh. 6 of our proceeding. Mr. Blessing was provided copies of these interview summaries in a Board mailing on August 6, 1986. Absent any response from Mr. Blessing, and noting that at the December 14, 1984 interview, he affirmed the correctness of the April 10, 1980 interview summary, the Board accepts these two documents as reliable and probative.

Raymond R. Booher

218. Prior to joining Metropolitan Edison in 1971, Mr. Booher was in the United States Navy for 6 years. From 1971 to 1981, he was employed by Met-Ed, first as an auxiliary operator in TMI Unit 1, then as a control room operator in TMI Unit 2. He obtained a TMI-2 license in 1977 and retained it until he terminated his employment with Met-Ed in 1981. He then became employed by Louisiana Power & Light (LP&L) as a control room supervisor, licensed as a Senior Reactor Operator. In 1985, he terminated his employment with LP&L. He was then employed as Training Consultant at Palisades Nuclear Power Plant in Michigan.

219. Mr. Booher testified that he discarded tests that did not come out within the specified limit because he believed that he only needed one acceptable test with less than 1-gpm unidentified leakage during the 72-hour period. Booher Prep. St., ff. Tr. 4175 at 2. He stated that "I never felt that my job would be in jeopardy if I did not produce a successful test result." *Id.* at 3.

220. Mr. Booher testified that "although the NRC has accused me of deliberately adding water during the leak rate tests to affect the results, I never did this, and I believe that I have been unfairly accused." *Id.* at 5. He stated further that "I do not know why Harold Hartman stated I added water to falsify leak rate tests. According to the NRC investigators, he believed that I was not a good operator; perhaps that is why he feels that I was involved in the conduct similar to his." *Id.*

221. The "Results of Joint NRR/OI Investigation and Evaluation of Raymond R. Booher" are found as Enclosure 3 of Exh. 5-A of this inquiry. Mr. Russell concludes that "[i]n summary, the weight of the evidence, including technical analysis and statements by other operators on Mr. Booher's shift, strongly suggest that Mr. Booher was not truthful in answering questions regarding his participation in or knowledge of leak rate test manipulation at TMI-2 during the period September 30, 1978, to March 28, 1979." The basis for this appears to be Items 6 and 7 on page 3 of this report.

222. Item 6 on page 3 reads "Mr. Booher stated that he was unaware that hydrogen additions to the make-up tank could affect make-up tank level indication, and, thus favorably influence leak rate test results." Exh. 5-A, Enclosure 3 at 3. In contrast to this characterization of the Booher Interview on 11/15/84, page 46 of that interview reads in part:

> Q Were you aware that it could?
>
> A I remember of hearing discussions. I don't remember when the discussions were. But I thought it was kind of ridiculous, to tell you the truth, to have some kind of a gas make a level change. I still believe that, to tell you the truth.
>
> I don't understand how adding hydrogen to a tank would make the level change.

Q But you had heard about it back at that time?

A I heard that. I don't remember when.

The Board finds that Mr. Booher was aware that other operators thought adding hydrogen might have an effect. At any rate, the NRR technical analysis did not implicate Mr. Booher with respect to hydrogen additions. Also, Mr. Hartman at the September 25, 1986 hearing responded to a question "[i]s it a fact that you do not recall seeing any TMI-2 operator add hydrogen to the reactor coolant system to affect a leak rate test result?" with the response "That's correct." Tr. 2285-86. We do not find untruthfulness with respect to hydrogen additions.

223. Item 7 reads "Mr. Booher stated that he never added water to the make-up tank for the purpose of altering leak rate tests results." Exh. 5-A, Enclosure 3 at 3. It also states that "the technical analysis shows that during every leak rate test in which Mr. Booher took part from December 26, 1978, through the date of the accident (8 tests), all include water additions to the make-up tank that were not accounted for in the leak rate test calculation." *Id.*

224. Based on Table 11, Individual Test Synopsis, of Exh. 5-A, we take the referenced tests to be the following:

NRR Test No.	Date	CROs Surveillance/Panel
77	12/26	Booher/Hartman
94	1/13	Hartman/Booher
97	2/02	Blessing/Booher
128	2/23	Hartman/Booher
143	3/10	Hartman/Booher
144	3/12	Booher/Blessing
145	3/13	Hartman/Booher
148	3/15	Booher/Blessing

225. The Board has reviewed the individual test records and we find that they all involve possible water additions but in different manners and to different degrees; i.e., a clear pattern is not apparent.

226. Test 77 was conducted under unstable plant conditions and it is clear that Mr. Booher violated the surveillance procedure requirement of "steady state conditions." Staff speculation that there was a possible water addition of 20 to 30 gallons is impossible to confirm since the strip chart record shows transient changes or oscillations during the test and both before and after the test time period that are larger than the postulated small addition.

227. Test 94 appears to be a situation where Mr. Booher as the panel operator added 117 gallons of water and logged the addition. Mr. Hartman

did not include the water addition in the leak rate calculation. Since the water addition was logged, there was no hidden manipulation. Mr. Booher can be faulted for adding water and violating the procedure's stricture that water additions should be avoided "if at all possible." Mr. Hartman can be faulted for not inquiring whether water had been added and for failing to check the log book. This appears to us to be simple carelessness in conducting the test, primarily on the part of Mr. Hartman.

228. Test 97 is unusual in that Mr. Booher logged a 300-gallon water addition as having taken place at 0100, but there is no indication of such an addition on the strip chart record. It is conceivable that a feed-and-bleed operation could have taken place and water removed at the same time and at the same rate that water was added but we consider it more probable that this represents a logging error. Be that as it may, this test does not represent manipulation by water addition. However it clearly reflects an error by Mr. Booher.

229. Test 128 has a strip chart record that shows a feed-and-bleed operation was carried out during the test time interval. Water addition of 150 gallons was logged by Mr. Booher at 1135. However, an additional 150 gallons appears to have been added as part of a second feed-and-bleed and was not logged. Mr. Hartman did not include the logged water addition in the leak rate calculation. Mr. Hartman can be blamed for failing to check the log or learn from Mr. Booher that water had been added. This erroneous test reflects sloppy performance by both Mr. Booher and Mr. Hartman with either a failure to communicate or a casual disregard for the test requirements.

230. Test 143 is regarded by NRR as displaying a jogged (added slowly) water addition. Figure 4 is a copy of the MUT strip chart for the time period that includes the test interval. MPR Associates reviewed the NRR conclusion and stated that the water addition was "not confirmed. Trace flattening appears typical of other times." Exh. 1-B. The Board agrees that the MUT strip chart record shows numerous slope flattenings (*see* Figure 4), and the change in slope near the end of the test may be only a chance occurrence. We note further that Hartman was conducting the surveillance and he has not alleged that he and Booher collaborated in manipulating tests by jogging water. We cannot reach a finding that this test is evidence for jogged water additions.

231. Test 144 was carried out by Mr. Booher, and NRR ascribed a 100-gallon jogged water addition starting at 0150. MPR Associates reviewed the NRR conclusion and stated "not confirmed. No clear deflection at 0150, trace deflection appears typical of others during the day" and also noted that "from 0130 to 0315 overall slope is clearly less than before or after that period" and "the test may have started before the 300-gallon addition logged at 0130 was complete. Note initial MUT level may be appr. 2 in. low." Exh. 1-B.

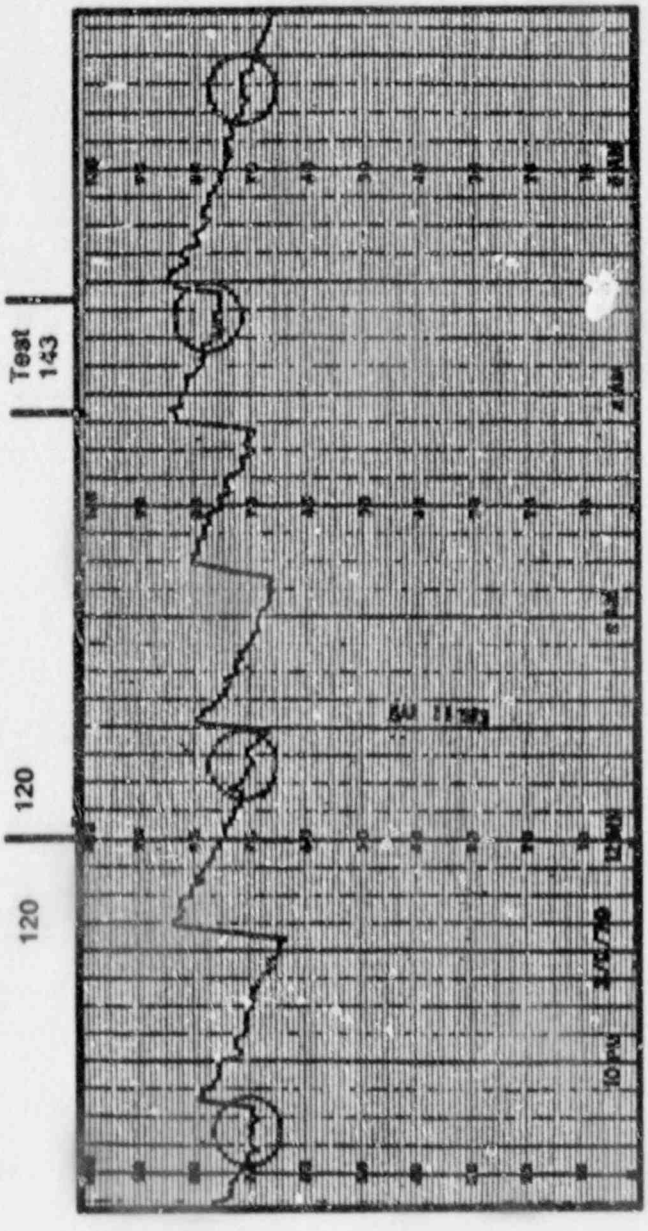

Figure 4. MUT strip chart record showing slope decrease near end of NRR Test No. 143 and similar decreases at times when tests were not being conducted. Sharp, vertical increases associated with logged water additions.

232. Figure 5 is a copy of the MUT strip chart record for the time interval encompassing Test No. 144. Mr. Russell testified that "NRR believes that the slope changes at 0150 and 0220 were caused by jogged water additions." Tr. 1716. The referenced slope changes are visible in Figure 5, but the Board finds such changes were not uncommon when the test was not being run. Transitory slope flattenings such as these or, for example, the more pronounced one at 1115 to 1130 on March 11, 1979, may be ascribed, in our view, to poor performance by the level-sensing system or plant transients rather than slow and intermittent addition of water by the operators. Also, we note that the anomalous slope persists for 30 minutes after Test No. 144 was completed — a very unlikely operator action.

233. Mr. Russell testified further that there were "no logged evolutions in progress that would cause this change in slope unless it were operator-induced . . . ." Tr. 1717. However, as seen in Figure 5, the level-sensing system produced an apparent reduced slope from ca. 7 to 8 p.m. on March 11, 1979, and we do not see anything in the panel operator's log that would have caused that reduced slope either. We find that the slopes tend to be uniform, but anomalies are to be found when no operator action would be postulated. The Board finds that Test No. 144 does not demonstrate jogged water additions by Mr. Booher.

234. Test No. 145 was conducted by Mr. Hartman. NRR concluded that water was added (jogged) near the end of the test. However, MPR Associates' review did not confirm this conclusion, and the Board agrees with the testimony by Mr. Stier that "there is a trace deflection during the course of this test, but you can see from examining our copy of the strip chart that it is similar to trace deflections in other positions of the strip chart where leak rate tests are not on file." Tr. 1727. We note that a water addition should produce a persistent upward offset, and this strip chart shows a temporary (15-minute) upward offset with a return to substantially lower values. The Board finds this test to be inconclusive with respect to manipulation.

235. Test No. 148 was executed by Mr. Booher while Mr. Blessing was the control panel operator. The MUT strip chart record shows a clear, persistent upward offset that starts near the middle of the test. NRR ascribed this offset to a possible jogged water addition, but MPR Associates did not confirm this as a water addition and felt that "because of the similarity of this trace to a known hydrogen addition on February 15th., that it was a possible hydrogen addition." Tr. 1730. Mr. Blessing has stated during his April 10, 1980 interview that "he had in fact added hydrogen to the make-up tank while running leak rates" and the Board finds that the possibility that hydrogen was added, as suggested by MPR, cannot be excluded. This is clearly a questionable test but, since a similar pattern can be found from midnight to 0030 when a leak rate test was not being run, there exists a question whether any clear conclusion can be reached.

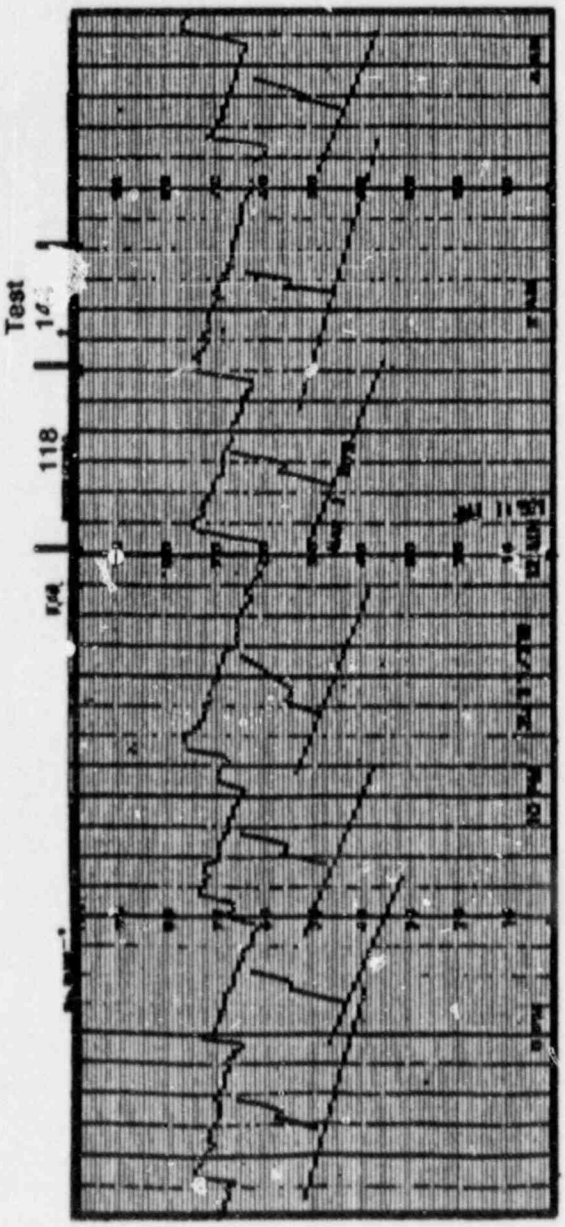

Figure 5. MUT strip chart record showing slope during Test No. 144 and slopes during other times.

236. In summary, the Board finds that the eight tests (above) show careless and unprofessional performances by this shift. The several cases where water was added and not considered in the test calculations are either failures to communicate or sloppy errors. There does not appear to be collusion by these operators. Mr. Booher testified that his relationship with Mr. Hartman was not "extremely close." Tr. 4184. Mr. Hartman thought Mr. Booher was not a good operator. Exh. 5-A, Enclosure 3 at 11. Mr. Blessing testified that neither he nor Mr. Hartman were friendly with Mr. Booher, and communications were particularly bad. Exh. 5-A, Enclosure 13 at 3. As a result, his activities as a trainee were supervised by Mr. Hartman and not Mr. Booher. *Id.*

237. In contrast to Mr. Hartman's negative views, Mr. Hoyt, the Shift Foreman, testified that Mr. Booher was his "right-hand man" when Mr. Hoyt was not in the TMI-2 Control Room, and that Mr. Booher was the CRO that "really carried the shift." Tr. 4287. We find that resentment of Mr. Booher by Mr. Hartman is a reasonable conjecture. At any rate, the Board is unable to confirm Mr. Hartman's allegation of manipulation with water by Mr. Booher on this record.

Kenneth P. Hoyt

238. Following almost 10 years in the United States Navy, Mr. Hoyt was employed by Metropolitan Edison in 1971 as an auxiliary operator at Unit 1. He became a CRO at Unit 2 in 1976 and a shift foreman in 1977. He is currently employed at GPU Nuclear Corporation as a Decontamination Supervisor in Recovery Operations. Hoyt Prep. St., ff. Tr. 4331 at 1.

239. Mr. Hoyt testified that he did not feel the inputs to the computer were "totally accurate" and he doubted the results of the leak rate tests. Tr. 4260, 4262. He stated that "I believe that I could ensure that unidentified leakage did not present a safety problem by checking other monitoring methods, which I used routinely. These methods included observing makeup tank level, pressurizer level, system temperature and the sump pump." Hoyt Prep. St., ff. Tr. 4331 at 2. He stated that he spent approximately one-half of his time touring and inspecting the plant. *Id.* at 1. Mr. Hoyt testified that he depended on these visual inspections to a substantial extent and, therefore, discarded all leak rate tests showing unidentified leakage in excess of 1 gpm "because in my judgment those tests were invalid." *Id.* at 3.

240. Mr. Hoyt testified that he talked about the problems in the test with his shift supervisor. Tr. 4265. He had the impression that the problems were being worked on and he had no control of the schedule. Tr. 4266.

241. The Board finds Mr. Hoyt's visual inspections were not a proper substitution for the Tech-Spec-required leak rate surveillance. His failure to

document the difficulties that Shift E had in conducting this surveillance and his written approval of unreliable tests constitute culpable neglect.

242. The Board found Mr. Hoyt to be straightforward and knowledgeable at the hearing. In contrast to many others, he understood the safety significance of leaks and the difference in importance between a valve stem leak and a pipe or weld crack. Tr. 4292-93. We find no evidence that he put pressure on the operators or was aware of any manipulation of the leak rate tests. As Mr. Hartman testified (*see* § VI. ¶ 214), he would not carry out manipulations when he could be observed, which confirms Mr. Hoyt's posture that he had no reason to be suspicious of the operators.

Bernard G. Smith

243. Mr. Smith was a shift foreman at Unit 1 and then became a shift supervisor in both units. During 1978-1979, he supervised "E" Shift at TMI-2. Smith Prep. St., ff. Tr. 4331 at 1.

244. Mr. Smith was aware that his shift encountered difficulties in obtaining leak rate test results that depicted unidentified leakage below 1 gpm. He attributed the problem primarily to the TMI-2 computer's software. Tr. 4341. Mr. Smith believed that those who were technically competent to do so were devoting time to correct the computer program. Tr. 4352-53; Smith Prep. St. at 5.

245. Mr. Smith placed greater reliance on his ability to detect leakage through visual review of plant parameters than he did on the numbers reflected on the leak rate test computer printout. Tr. 4367; Smith Prep. St. at 4. He recognizes now that his reliance on his own ability to visually detect leakage was misplaced. Tr. 4360.

246. Mr. Smith could not recall any training to comply with Administrative Procedure 1010 insofar as leak rate testing was concerned. Tr. 4344. Mr. Smith testified that, in retrospect, "we didn't do things the right way at that time." Tr. 4347. Mr. Smith also testified that, in general, the training he received was very limited compared to present industry practices. Tr. 4361-62.

247. Mr. Smith was unaware of any falsification or manipulation of leak rate tests that may have occurred on his shift. Tr. 4374; Smith Prep. St. at 6-7. His lack of knowledge of such actions was confirmed by Mr. Hartman. Tr. 2241, 2286, 2292, 2303. Mr. Hartman has consistently testified that Mr. Smith was not necessarily aware of his leak rate test falsification. Stier Report, Vol. VI(F), 7/16/82 *GPU v. B&W* Deposition at 1-2; *id.* 8/18/82 *GPU v. B&W* Deposition at 276. Mr. Smith testified that he was surprised by Mr. Hartman's and Mr. Blessing's admissions regarding leak rate test manipulation. Tr. 4374; Smith Prep. St., ff. Tr. 4331 at 7.

248. The Board finds that Mr. Smith was tolerant of improper practices at TMI-2 which can be attributed to inadequate training and supervision. In

common with other shift supervisors, he failed in his duties to ensure that the Tech Specs were properly understood and applied, which constitutes culpable neglect.

Shift F

249. Shift F was constituted in early January 1979. It was comprised of two CROs — Hugh A. McGovern and Earl D. Hemmila — one CRO Trainee, Leonard P. Germer, Shift Foreman Carl L. Guthrie, and Shift Supervisor Kenneth P. Bryan.

250. Shift F's understanding and handling of leak rate tests was typical of other shifts in the following respects:

- They misinterpreted the Tech Specs to require only one "good" leak rate test in 72 hours, regardless of the results of other tests. Tr. 3219-20 (McGovern); Hemmila Prep. St., ff. Tr. 4039 at 2; Germer Prep. St., ff. Tr. 5236 at 2; Tr. 4115, 4121 (Guthrie); *cf.* Tr. 4564 (Bryan)
- Tests reflecting excessive leakage were routinely discarded. "Good" tests were filed, without regard to their validity. Thus, leak rate tests were regarded as a meaningless administrative requirement, not as a real measure of leakage. Tr. 3199, 3204 (McGovern); Hemmila Prep. St., ff. Tr. 4039 at 4; Germer Prep. St., ff. Tr. 5236 at 2-3; § VI, ¶ 272, below (Guthrie).
- The operators did not receive any significant training in leak rate testing. Tr. 3207 (McGovern); Germer Prep. St. at 2.
- The operators did not follow Administrative Procedures 1010 and 1012 requiring the filing of exception and deficiency statements and logging of start and stop times. Tr. 3221 (McGovern); Tr. 4024 (Hemmila); Tr. 4116 (Guthrie); Tr. 4588 (Bryan); Bryan Prep. St., ff. Tr. 4540 at 3-4.

There are no disputes about the foregoing points. The operators, foreman, and supervisor conceded them in their testimony; or they are conclusively demonstrated by the record. Therefore, as to those points, there is no need to freight this opinion with detailed findings about each member of Shift F, beyond the foregoing summary.

251. Shift F and its members can be discussed relatively briefly because we find that no manipulation occurred on that shift. There is no strong evidence of manipulation on Shift F, and none of the investigators believed that it had occurred. There is some indirect evidence of possible manipulation which we analyze below. Our negative conclusion about manipulation rested in part on our favorable impression of the Shift F members as witnesses, who came across as candid and responsible people.

Hugh A. McGovern

252. Mr. McGovern is currently employed by GPU Nuclear as Plant Operations Manager for TMI-2. McGovern Prep. St., ff. Tr. 3148 at 1. He maintains an SRO license in that position. *Id.* at 2. He commenced his employment with Met-Ed in 1976 as an AO at TMI-2, and he advanced to the position of licensed CRO at TMI-2 in late 1978. *Id.* at 2. In January 1979, he was assigned to "F" Shift in TMI-2.

253. Mr. McGovern's shift had the typical division of responsibilities. For example, water additions to the RCS typically would be made by the panel operator (Tr. 3164-65), and the individual assigned to perform surveillance tests typically would complete the questions that were part of the computer-generated leak rate procedure. Tr. 3165. His shiftmates attempted to communicate with each other concerning the commencement of a leak rate test, and Mr. McGovern could not remember having communication problems with respect to leak rate testing. Tr. 3165-66.

254. Mr. McGovern knew that he was to avoid adding water to the MUT during a leak rate test unless there was an operational need to do so. Tr. 3152. The typical operational reasons for adding water during a leak rate test were to maintain proper inventory and to adjust boron concentration. Tr. 3225. Mr. McGovern was unaware that the MUT level strip chart could reflect an amount of water higher than the amount actually added to the MUT. McGovern Prep. St. at 5.

255. Mr. McGovern signed four leak rate tests in which water was added during the course of the test, and the amount of water recorded in the log was different than the amount reflected on the MUT level strip chart. They are NRR Test No. 150 (Stier Test No. 8), NRR Test No. 151 (Stier Test No. 7), NRR Test No. 153 (Stier Test No. 5), and MPR Test No. 2 (which was not analyzed by NRR). These tests were performed between March 17 and 27, 1979. MPR found that these water additions, while carrying some indications of manipulation, could not be found "with certainty" to have been "made with the intention to influence the tests." Stier Report, Vol. I at 101. Stier and MPR analyzed these tests as follows.

> There are two factors that militate against a finding of intentional conduct. First, there is no direct evidence implicating any of the members of the two crews that performed all of the filed tests in this form of manipulation. Knowledge of the effect of water additions on the leak rate test does not appear to have circulated as widely as information about the effects of hydrogen. For example, Hartman stated that he was unaware that a water addition that was accounted for in the calculation could affect the leak rate test.
>
> Second, the pattern of water additions between mid-March and March 28 differed from the previous period. Water was not consistently added within the last few minutes of each test as had been the case from mid-February through mid-March. In addition, the reactor coolant

drain tank collection rate became so high by mid-March that water additions were required at short intervals to compensate for the loss to the reactor coolant system. Operators may have added water to the makeup tank during tests out of necessity. Therefore, we cannot be certain that the water additions made between mid-March and March 28 were for the purpose of manipulating tests.

Id. at 101-02. The NRR analysis of these tests is generally consistent with the Stier-MPR analysis. *See* NRR Report, Vol. I, Enclosure 10 at 4-5.

256. These tests, particularly Nos. 151 and 153 (where water was added near the end) suggest manipulation. However, the addition during No. 151 could have been caused by a perceived need to maintain make-up tank inventory. More importantly, the increased rate of leakage during this time period made frequent water additions necessary. In the absence of some other strong evidence of manipulation, we cannot find an intent to manipulate in these tests.

257. Mr. McGovern was unaware that the addition of hydrogen to the make-up tank could affect leak rate test results. Tr. 3167, 3202. He knew that hydrogen had to be added periodically to the make-up tank to maintain overpressure and to provide net positive suction head for the make-up pumps. Tr. 3201. NRR identified only one test involving Mr. McGovern (NRR Test No. 121) during which it alleges hydrogen may have been added to the MUT. Exh. 5-B, Attachment 5, Table 11 at 5. We reject NRR's analysis of its Test No. 121. MPR did not agree that there was a possible hydrogen addition during NRR Test No. 121, because the trace deflections on the make-up tank level strip chart did not show a definite offset similar to the confirmed hydrogen addition on February 15, 1979 (NRR Test No. 120, Stier Test No. 38). Exh. 1-B (Green Volume), Stier Test No. 37. Rather, MPR concluded that the MUT level strip chart trace deflections during NRR Test No. 121 appeared typical of other deflections that occurred on the same day. The Board agrees.

Earl D. Hemmila

258. Mr. Hemmila appeared in response to a subpoena issued by the Board; he agreed to come to Bethesda to testify. He is currently employed as a contract consultant at Davis-Besse in the plant training department. Hemmila Prep. St., ff. Tr. 4039 at 1. Mr. Hemmila was employed at TMI-2 from 1976 until 1982. *Id.* at 2. In 1978, he was a CRO in training. *Id.* He received his RO license on December 6, 1978. Tr. 4043. Beginning on January 1, 1979, he was assigned as a CRO on "F" Shift. Tr. 4044.

259. Mr. Hemmila was aware that the leak rate procedure cautioned against the addition of water to the MUT. Tr. 4050. However, there were occasions when it became necessary to add water to the MUT during a leak rate test. Hemmila Prep. St. at 4. For example, after mid-March 1979, water was being added with

increasing frequency to keep the MUT level above the required minimum or to keep the control rods within the proper operating band. Tr. 4051-52. TMI-2 had a low-level alarm on the MUT. Tr. 4140. The alarm would sound if the operator let the level go below 60 inches. Tr. 4148-49. Mr. Hemmila's shift foreman, Mr. Guthrie, testified that a prudent operator would endeavor to replenish the MUT level before the alarm went off. Tr. 4151-52. The frequency of required water additions is illustrated by NRR Test No. 150, at which time water was added ten times to the MUT during an 8-hour shift. Tr. 4059. Similarly, in connection with NRR Test No. 153, water was added 12 times during an 8-hour shift. Tr. 4090-93.

260. In 1978-1979, Mr. Hemmila was not aware of any phenomenon by which the volume of water added reflected in the make-up tank level strip chart was greater than the volume measured by the totalizer. Hemmila Prep. St. at 4-5; Tr. 4080. He testified that neither he nor any other operator, to his knowledge, deliberately falsified leak rate tests by making unrecorded or underrecorded water additions to the make-up tank. Hemmila Prep. St. at 5. He felt that a lack of communication between operators would account for any instances in which water was added during a test but not properly included in the test calculation. *Id.*

261. Mr. Hemmila was the CRO assigned to the panel during NRR Test Nos. 150-153. We have already discussed these tests in our consideration of Mr. McGovern. *See* § VI, ¶ 253, above. We reach the same conclusion here — that Mr. Hemmila was not engaged in manipulation in these or any other tests.

262. During 1978-1979, Mr. Hemmila was not aware that the addition of hydrogen to the MUT during a leak rate test could affect the test result. There was no explicit rule prohibiting the addition of hydrogen during a leak rate test. On the contrary, Mr. Hemmila was aware that Unit 2 Superintendent Logan checked hydrogen levels frequently, and so Mr. Hemmila believed that maintaining proper hydrogen pressure was very important. During 1979, when he was a licensed operator, it was not always possible to add hydrogen from the control room. When that happened, the addition had to be done manually by an AO. It is possible that an AO may have added hydrogen to the make-up tank during a leak test without the CROs knowing about it. *Id.*

263. Mr. Hemmila stated that he never added hydrogen to the make-up tank in an effort to falsify leak rate tests and that he had no knowledge that other operators had done so. *Id.* at 5-6. There is only one test (NRR Test No. 152) signed by Mr. Hemmila during which hydrogen was added. *See* Exh. 5-B, Attachment 5, Table 11 at 20. The hydrogen addition was duly noted in the CRO log (*id.*), and there is no evidence that it was made with intent to manipulate or that Mr. Hemmila even knew about it (he was not on the panel). *See* Suer Report, Vol. IV(C), Test No. 6, CRO log at 70.

Leonard P. Germer

264. In 1977, Mr. Germer began his employment with Met-Ed as an AO at TMI-2. Germer Prep. St., ff. Tr. 5236 at 1. Mr. Germer became a CRO trainee assigned to "E" Shift in October or November of 1978, and was transferred to "F" Shift in early January 1979. *Id.* at 1-2. As a trainee, Mr. Germer was permitted to perform leak rate tests only under the supervision of a licensed CRO. *Id.* at 2.

265. In light of our finding that as a CRO trainee, Mr. Germer's involvement in leak rate testing at TMI-2 was minimal (Tr. 4169 (Kelley, J.)), we decided not to call Mr. Germer as a witness. Tr. 4541. Instead, we ordered that Mr. Germer's prefiled testimony be bound into the record as the testimony he would have given had he been called as a witness. Tr. 5236.

266. Mr. Germer had very minimal involvement in the logging of leak rate tests during 1978-1979, because that typically was a function performed by a licensed CRO. Germer Prep. St. at 3. He has no present recollection of ever being instructed to conceal the fact that a leak rate test had been performed by not logging it. *Id.*

267. Mr. Germer did not falsify any leak rate result during 1978-1979, nor was he aware of any other operator who falsified any leak rate test during that time. *Id.* at 3-5.

268. Several findings of fact proposed for Mr. Germer (Numerous Employees' ¶¶ 536-540), seek to equate NRR's "questionable" label with deliberate manipulation of tests. That equation is not valid. When NRR classifies a test as "questionable," it is merely taking the position that the test appears to have been conducted in violation of procedures. That is *not* equivalent to charging the person or persons who conducted the test with manipulation. There is some basis for a finding of irregularity in each of the tests cited in NRR's Table 8 as involving Mr. Germer either as surveillance CRO or panel operator.

Carl L. Guthrie

269. Mr. Guthrie was a shift foreman at TMI-2 during the 1978-1979 period. He had been employed by Met-Ed since 1971. His first assignment was as an AO at Unit 1, then as a Unit 1 shift foreman. In January 1979, he was assigned to "F" Shift in Unit 2. Mr. Guthrie currently is a radwaste foreman at TMI-2. Guthrie Prep. St., ff. Tr. 4413 at 1. He maintains an SRO license in that position. Exh. 5-A, Enclosure 2 at 11.

270. Leak rate tests were run by Mr. Guthrie's CROs. Stier Report, Vol. VI(D), Tab G, Guthrie 2/12/85 Interview at 7. Mr. Guthrie did not directly monitor their performance of leak rate tests. Moreover, he might not have been in the TMI-2 control room when a leak rate test was performed, because

the selection of the time for running the test was a decision left to the operator. *Id.* Mr. Guthrie did not personally perform a leak rate test at TMI-2. *Id.*

271. Mr. Guthrie recognized "his responsibility . . . to provide first line supervision of the control room operators." Prep. St., ff. Tr. 4113 at 1. He further stated that "[g]enerally, I directed the performance of various surveillance tests . . . and had to ensure compliance with the Technical Specifications." *Id.* at 1-2. The record reflects, however, that Mr. Guthrie did not provide proper supervision of the control room operators in performing leak rate tests and in ensuring that the 1-gpm LCO in the Tech Specs was being met. As previously noted, the Shift F CROs treated the leak rate test in a perfunctory manner. A test was considered valid or invalid depending entirely on its result, not upon the manner or conditions of its performance.

272. The Stier-MPR analyses of Shift F tests led them to conclude that:

> In addition to tolerating, and participating in, the discarding of all unsatisfactory test results obtained on his shift, Guthrie approved the filing of numerous satisfactory leak rate test results that were inaccurate or performed in violation of a test procedures. Almost half of the tests that Guthrie approved should have been determined to be invalid.

Stier Vol. II(A), Guthrie Assessment at 6. Similarly, the NRR investigation concluded that:

> Mr. Guthrie's review only involved looking at the "bottom line" test results. Thus, if a test result was greater than 1 gpm, it would be discarded and another test would be started. If a test was less than 1 gpm it would be retained with little or no review to ensure it was a valid test.

NRR Report, Enclosure 8 at 4. The record underlying the quoted statements amply supports them.

273. Mr. Guthrie spent substantial time attempting to detect plant leakage. He measured leaks in accessible areas of the plant and estimated leakage in inaccessible areas. Tr. 4117-18. Mr. Guthrie often found that leakage depicted by the leak rate test was inconsistent with his own assessment of plant leakage. *Id.* His inability to corroborate leak rate test results caused him to question the accuracy of the test. *Id.* Mr. Guthrie was also skeptical of the leak rate test because it did not produce consistent results. *Id.*

274. In 1978-1979, Mr. Guthrie heard a rumor from a source he has since forgotten, that the addition of hydrogen to the MUT during a leak rate test could affect leak rate test results. Tr. 4116. While in Unit 1, he had observed the effect of a hydrogen addition to the MUT, but he thought that the very temporary, very slight increase he observed could not affect a leak rate test result. Guthrie Prep. St. at 4; Tr. 4139. We find no substantial evidence to dispute Mr. Guthrie's

statement that he was unaware of the fact that the addition of hydrogen to the MUT could affect leak rate test results.

275. Mr. Guthrie did not know until after the March 28, 1979 accident that a water addition to the MUT, even if accounted for in the leak rate test procedure, could produce a more favorable leak rate test result, nor was he aware of any operator who manipulated leak rate tests in that fashion. Stier Report, Vol. VI(D), Tab C, Guthrie 2/12/85 Interview at 74-75; Tr. 4145-46. Mr. Guthrie was not aware of any unrecorded water additions to the MUT made to falsify a leak rate test. *See* Tr. 4116. None of the operators on his shift talked about this phenomenon or acted as though this was a method they might use to manipulate leak rate tests. *Id.*

276. Mr. Guthrie approved NRR Test No. 150 (Stier Test No. 8), NRR Test No. 151 (Stier Test No. 7), and NRR Test No. 153 (Stier Test No. 5). We have previously discussed these tests and concluded that no manipulation occurred. *See* § VI, ¶ 2.5.

277. In conclusion, we find that, in addition to the procedural violations cited in § VI, ¶ 250, above, in which he was personally involved (e.g., discarding tests, not filing E&Ds), Mr. Guthrie was guilty of culpable neglect in his attitude toward the test and in allowing the CROs under his supervision to treat the test in a perfunctory manner.

Kenneth P. Bryan

278. Mr. Bryan began employment with Met-Ed in 1967. He became a CRO at TMI-1 in 1974 and a shift foreman at TMI-1 in 1976. Between October 1978 and June 1979, he was a dual-licensed shift supervisor. Bryan Prep. St., ff. Tr. 4540 at 1.

279. Between October and December 1978, Mr. Bryan was a supervisor in training. Tr. 4573. He received a permanent assignment to "F" Shift in January 1979. Tr. 4571-72. Mr. Bryan currently is a nonlicensed, self-employed nuclear consultant. Bryan Prep. St. at 1.

280. Mr. Bryan testified as follows:

> Unit 2's technical specifications required that a successful leak rate test be performed every 72 hours. Company policy required us to perform one every shift. By obtaining a test with unidentified leakage less than 1 gpm, we extended the 72-hour time clock. If the computer printout indicated that the unidentified leakage was high or excessively low, it was my understanding that the operators would evaluate it based on plant parameters including makeup tank levels, radiation levels, and so forth. If nothing indicated why there was a change from previous leak rates, the test performer would discard that printout and initiate another. It was my understanding that we had to enter the action statement if we obtained a leak rate higher than 1 gpm that we could not invalidate. I did believe that if I had looked

at everything else and did not think that I had obtained a valid leak rate, I did not have to start the time clock.

Bryan Prep. St. at 2-3. The foregoing testimony, viewed in the light of our findings on the other members of Shift F, shows that Mr. Bryan was out of touch with the performance of the leak rate test by his shift. As we have seen, the CROs made little or no attempt to "validate" tests. They simply filed all tests under 1 gpm and discarded all tests over 1 gpm. Although they ran many tests over 1 gpm, they never entered the Action Statement.

281. Mr. Bryan did not review leak rate test results. There are no tests from September 1978 through March 28, 1979, that he performed or approved. Exh. 5-B, Attachment 5, Tables 9 and 11; Stier Report, Vol. III, Table 1. He did not recall any instance of Guthrie's bringing him a test for review. Tr. 4550. Nevertheless, he was aware that there were problems with the leak rate test. As he testified, "[l]eak rates were hard to get." Tr. 4570.

282. Mr. Bryan realized that adding hydrogen to the MUT could affect the leak rate test. Tr. 4563-64. He candidly testified that while he hoped that he had instructed his operators not to add hydrogen to the MUT during a leak rate test, he could not specifically recall issuing such an order. Tr. 4564. There are only two leak rate tests (NRR Test Nos. 121 and 152) performed by his shift during which NRR alleged that hydrogen was added to the MUT. Exh. 5-B, Attachment 5, Tables 5, 6, and 11; Stier Report, Vol. III(A), Table 1. We agree that neither of these tests supports a conclusion that "F" Shift's operators manipulated test results through hydrogen additions to the MUT. Tr. 1660 (Capra).

283. Although Mr. Bryan witnessed the effect of hydrogen addition on MUT level, he did not observe that a water addition could produce a similar, false MUT reading. Tr. 4555. NRR found three instances where "F" Shift "partially included" water additions during leak rate tests. Exh. 5-B, Attachment 5, Tables 6 and 10, NRR Test Nos. 150, 151, 153. As previously discussed (*see* § VI, ¶ 255), we believe that these tests do not represent operator efforts to manipulate leak rate test results. Tr. 1486-87 (Russell); Tr. 1847-49 (Stier).

284. Mr. Bryan permitted his shift to file a leak rate test result depicting negative unidentified leakage if the result was a small negative number. Tr. 4570. He could not remember the range of negative values he would accept or whether there was a specific rule concerning an acceptable range. Tr. 4571. He considered that the status of Unit 2's development made it possible that negative leak rate tests would result. Tr. 4570. While he agreed that negative leak rate tests might not appear logical, he was convinced that the "swings" in instrumentation in the ICS made it just as likely to obtain a negative as well as a positive leak rate. Tr. 4596. We essentially agree with Mr. Bryan on this point.

285. Mr. Bryan recalled that the Technical Change Notification (TCN) to the leak rate surveillance procedure was implemented to correct an error in the

leak rate test procedure and not to create an improper bias toward the production of favorable test results. Tr. 4597, 4605. He believed that he would not have noticed any problems in the TCN or objected to tests performed pursuant to it. Tr. 4596, 4605.

286. Mr. Bryan did not initial the sign-off sheet attached to LER 78-62/1T. Tr. 4608. Mr. Bryan believed that he did not read the LER, because someone else erroneously entered his initials alongside Mr. Bryan's name. Tr. 4609. Not surprisingly, therefore, Mr. Bryan had no recollection of that LER. Bryan Prep. St. at 5. Although, arguably, Mr. Bryan should nevertheless have read the LER and seen to it that his foreman and shift corrected their interpretation of the Tech Specs, under these circumstances we do not charge him with culpable neglect with respect to the LER.

287. We find that Mr. Bryan must be charged with culpable neglect in that he failed to keep himself adequately informed about the conduct of leak rate tests and to oversee Mr. Guthrie's direct supervision of such tests, particularly in light of Bryan's knowledge that the test was presenting problems. Tr. 4570, 4607-08.

James R. Floyd, Supervisor of Operations

288. Mr. Floyd was the Supervisor of Operations of TMI-2 during the period relevant to this proceeding. Floyd Prep. St., ff. Tr. 4894 at 2. Mr. Floyd reported to the Unit 2 Superintendent, Mr. Gary Miller, until December 1978, and Mr. Logan thereafter. Miller Prep. St., ff. Tr. 5039 at 2-5. He did not report at any time to Mr. Seelinger. Tr. 4625-26, 4769 (Seelinger); Tr. 5004-05 (Floyd).

289. We have already discussed Mr. Floyd in relation to (1) the events leading to the November 1, 1978 LER, (2) his knowledge of difficulties the operators were having with leak rate tests, and (3) his knowledge of the practice of discarding tests. We will not repeat those discussions in detail here. The findings in those discussions stand independently. The purpose of this section is to summarize and provide our overall assessment of Mr. Floyd's performance.

290. As the Supervisor of Operations, Mr. Floyd bears greater responsibility for what went wrong with leak rate tests at TMI-2 than any other single individual. He — above the operators, foremen, and shift supervisors — had overall responsibility for seeing to it that the leak rate test was conducted correctly and that the unit was operated in accordance with the Tech Spec limit on unidentified leakage. He failed in that responsibility in several respects. Furthermore, taking into account the many conflicts between Floyd's testimony and the evidence in the record and Floyd's demeanor before this Board, we find that Floyd was not fully forthcoming and candid. Indeed, Floyd was, in our judgment, the least candid witness to appear in this proceeding.

291. As discussed above (§ IV, ¶ 46), there is considerable evidence, and we find, that Floyd knew about the difficulties the operators were having with the leak rate test. Apart from the specific evidence we have cited, that conclusion is compelled by Floyd's close relationship with the CROs and the way he functioned on the job. It is inconceivable to us that a self-styled "crisis fighter" like Floyd who "lived out of the control room" (Tr. 4875) would not have been quite familiar within the difficulties we have described. We reject as incredible Floyd's claim that he had "no recollection of knowing any of these problems," that he was "basically . . . ignorant of what was going on." Tr. 4976.

292. The most striking lack of candor in Floyd's testimony relates to the misinterpretation of the Tech Specs under which seemingly valid tests reading over 1 gpm were not considered to trigger the Action Statement if one "good" test had been obtained in the preceding 72 hours. The great weight of the evidence shows that that was *Floyd's* interpretation until the Havercamp incident, and that it continued under Floyd when the "Havercamp correction" was not implemented. Mr. Seelinger, a believable witness, testified that that was the Floyd interpretation. Tr. 4745-47, 4764-65. Mr. Havercamp, also a believable witness, testified that:

> I clearly recall Mr. Floyd telling me, in effect, that RCS unidentified leakage test results must be calculated to be within acceptable limits (less than 1 gpm) only once every 72 hours in order to be in legal compliance with TS surveillance requirements. In his view, any number of RCS unidentified leakage measurement test results could be greater than 1 gpm, so long as every 72 hours acceptable leakage results were obtained. I did not attempt to determine whether this was a long-standing view or a hastily-formed justification or excuse that Mr. Floyd had argued to avoid a violation of the TS. However, I informed Mr. Floyd that in my view his interpretation was clearly incorrect.

Floyd himself, in his prefiled testimony, testified that:

> Until October of 1978, it was the general opinion that we had to get one valid leak rate of less than one gallon per minute unidentified leakage into the record every 72 hours to comply with the Unit's technical specifications. After October 20, 1978, if there was a bad leak rate and an operator could not convince himself that it was invalid, steps were to be taken to shut the Unit down. . . . I issued a memorandum in October of 1978 to explain the change in interpretation of Operations personnel.

At the hearing, however, Mr. Floyd apparently recognized that his long-standing Tech Spec interpretation was untenable. Accordingly, he engaged in some unconvincing backpedaling from his own prefiled testimony. Tr. 4903-07. The Board credits the Seelinger and Havercamp testimony on this point and rejects Floyd's attempt to obfuscate the record.

293. In addition to the foregoing, we adopt the following quoted portions of findings proposed by GPUN:

208 . . . Floyd admitted that he should have been aware of the failure by operators to record the start and stop times of leak rate tests in the CRO Log Book, as required by AP 1012, "because I was required to review the log book once a week." Floyd, ff. Tr. 4984 at 6. Floyd also admitted that he did not enforce the application of E&Ds to leak rate tests, as required by AP 1010. *Id.* at 3; *see also* Tr. 4991-93 (Floyd). Operators thus were "failing to take [actions] in violation of technical specification requirements." CLI-85-18, 22 NRC at 881. By failing to review the CRO Log and enforce the application of E&Ds to leak rate tests, Floyd through "dereliction or culpable neglect" was allowing such improper actions to occur. These very actions, if corrected, might well have highlighted the greater underlying problems with leak rate testing practices and led to their correction.

210 . . . Floyd admitted that the analysis of plant status he provided on October 18, 1978, was invalid because he attempted to determine the "legality" of continuing to operate the plant without asking for all of the relevant information. Tr. 4919-20 (Floyd); *see* ¶ 115, *supra*. In response to the Board's inquiry concerning how Floyd could correctly answer Seelinger, who had sent Bezilla with three tests for analysis, NRR Test Nos. 12C-E, Floyd responded, "All I was asked for was to look at these three pieces of paper." Tr. 4919 (Floyd). The Board believes that the Supervisor of Operations must initiate and probe as well as receive and observe. By failing to demand the further information necessary for a valid analysis, Floyd lost a critical opportunity to discover that operators were again failing to take an action — entry into the Action Station immediately upon obtaining a valid leak rate over 1 gpm — in violation of Tech Spec 3.4.6.2. We therefore find that Floyd by his "dereliction or culpable neglect" allowed one of the improper actions enumerated by the Commission in its Order and Notice of Hearing.

294. Mr. Floyd testified that he was unaware, prior to the TMI-2 accident, that adding hydrogen to the MUT might affect leak rate test results. Floyd Prep. St. at 6; Tr. 5026-27. Because of Mr. Floyd's understanding of differential MUT level transmitters, it is plausible that he would not believe that hydrogen additions would have had such an effect. *See* Faegre & Benson Report, Vol. 1 at 42-43. We find that Mr. Floyd was not aware of hydrogen additions to the MUT made during leak rate tests for the purpose of manipulation. *See* Tr. 5027-28. There is no evidence that Mr. Floyd had any knowledge of or participated in manipulation or falsification of leak rate tests by water or by any other means.[40]

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[40] The Aamodts did not attend the hearing. As a matter of grace, not of right, the Board allowed the Aamodts to submit questions to the Board to be put to witnesses, subject to prior review by the Board and possible objections by the parties. We sustained an objection to a question proposed by the Aamodts for Mr. Floyd. Tr. 5008-09, 5034-35. The Aamodts subsequently filed a belated "Request for Relief" arguing that the objection to their question was invalid, accusing the counsel for Mr. Floyd who made the objection of "fraud," and urging us to put the question now to Mr. Floyd. Other counsel for Mr. Floyd responded to the Aamodt requests by letter dated April 3, 1987, objecting to them in various respects, but providing a response to the question in order to put the matter to rest.

The original objection was sustained on the basis of a stipulation described by counsel, a description that the Aamodts now question. This point is arguable. The literal language of the stipulation favors the Aamodts, but the purpose and likely intent of the stipulation favors counsel for Mr. Floyd. We need not resolve that issue because, in any event, the question is irrelevant to any issue in this proceeding. Furthermore, the question has now been answered. The Aamodt's personal attack on Mr. Floyd's counsel is baseless and is rejected. In view of our prior warning to the Aamodts about baseless personal attacks, and were this not the final chapter in this Board's proceeding, we might grant counsel's request to "terminate the Aamodts' disruptive participation in this proceeding." *See* Memorandum and Order of March 26, 1986, at 5 n.*.

The Board trusts that the foregoing recommended decision is responsive to the Commission's requests.

Respectfully submitted,

James L. Kelley, Chairman
ADMINISTRATIVE JUDGE

Glenn O. Bright
ADMINISTRATIVE JUDGE

James H. Carpenter
ADMINISTRATIVE JUDGE

Bethesda, Maryland

APPENDIX A

LIST OF EXHIBITS
TMI-2 LEAK RATE PROCEEDING

Exh. No.	Description	Identified at Tr. Page	Received at Tr. Page
1-A	TMI-2 Reactor Coolant Inventory Balance Testing, prepared for GPU Nuclear Corp. by Edwin H. Stier, September 5, 1985, all volumes.	388, 391 (as modified at 569)	388 (as modified at 570), 5104, 5221
1-B	Review of NRR and OI Reports on TMI-2 Reactor Coolant Inventory Balance Testing, prepared for GPU Nuclear Corp. by Edwin H. Stier, August 28, 1986.	388, 391 (as modified at 569)	388 (as modified at 570), 5104, 5221
1-C	Letter from Edwin H. Stier to Philip R. Clark, dated September 2, 1986.	388, 391 (as modified at 569)	388 (as modified at 570), 5104, 5221
2	Results of Faegre & Benson Investigation of Allegations of Harold W. Hartman, Jr., Concerning Three Mile Island Unit 2, September 17, 1980, all volumes, but excluding Vol. 1, § IV, and Vol. 2, Ch. 9.	388-89	389, 5104, 5221
3	Portion of Page 12 of Report of GPU Assessment Panel for Individuals Involved in TMI-2 Leak Rate Testing (in 1978-1979), January 6, 1986 (re Herbein).	389	389, 5104, 5221
4	TMI-2 Computer Log (October 27, 1978).	389	389, 5104, 5221
5-A	Results of NRR's Investigation and Evaluation of Ten Licensed Operators Involved in TMI-2 Preaccident Leak Rate Testing Irregularities, including attachments and supporting documents (per the Board's 6/24/86 Order at 7,	389 (as modified at 569-71	389 (as modified at 571), 5104, 5221

Exh. No.	Description	Identified at Tr. Page	Received at Tr. Page
	undifferentiated references to "management" are to be disregarded).		
5-B	Memorandum from William Russell to Harold Denton, dated September 20, 1985, with enclosed report.	389 (as modified at 569-71	389 (as modified at 571), 5104, 5221
6	Office of Investigations Report entitled: Three Mile Island-2: Investigation of Individual Operator Actions Concerning the Falsification of Leak Rate Test Data, including all attachments.	389-90	390, 5104, 5221
7	U.S. Nuclear Regulatory Commission, Office of Nuclear Reactor Regulation TMI-1 Restart: An Evaluation of the Licensee's Management Integrity as It Affects Restart of Three Mile Island Nuclear Station Unit 1, Docket 50-289 (July 1984) (NUREG-0680, Supp. No. 5, §4.0).	390	390, 5104, 5221
8	Memorandum of Oct. 27, 1978.	390	Withdrawn 5103, 5221
9-A thru 9-F	Photographs of TMI-2 Control Room.	377-81 (as renumbered)	381 (as renumbered at 391), 5104, 5221
9-G	Photograph of the TMI-2 make-up storage tank level indicator, pressure indicator, and temperature indicator.	1182	1183, 5104, 5221
10-A	Sample SRO license.	1025-26	1027, 5104 5221
	Sample RO license.	1026	1027, 5104 5221

Exh. No.	Description	Identified at Tr. Page	Received at Tr. Page
11-A and 11-B	J. Moore Charts, Effect of Oscillations.	1025	5104, 5221
12-A	Administrative Procedure 1036, Instrument Out-of-Service Control, Rev. 0, March 1978.	1354-55	5104, 5221
12-B	Administrative Procedure (AP) 1036, Instrument Out-of-Service Control, Rev. 1, August 1978.	1354-55	5104, 5221
13	Drawing of peak-to-peak v. slope offset calculation (included in Exh. 24).	1845 (as modified at 5103-04)	5104, 5221
14	Stier cover letter to Board with two strip charts showing hydrogen additions (included in Exh. 24).	1862 (as modified at 5103-04)	1862
15-A and 15-B	Curriculum vitae of Dr. Harrison and Mr. Cole.	2008	2008, 5104, 5221
16	Training Department Administrative Memorandum Number 5, Change 2, dated October 8, 1976 (Subject—Category IV CRO Training Program).	2219-20	2234, 5104 5221
17	Excerpts from Instrument Out-of-Service Log.	2400	2400, 5104 5221
18	RCIB Test of 2/15/79, portion of CRO Log and MUT Strip Chart.	3470	3470, 5104 5221
19	TMI-2 Control Room Layout diagram.	3500-01	3501, 5104 5221
20	D. Haverkamp Prefiled Testimony and Attachments.	4136	4337, 5104 5221
21	Bettenhausen Affidavit.	4136	4337, 5104 5221

Exh. No.	Description	Identified at Tr. Page	Received at Tr. Page
22	TMI-2 FSAR Pages 9.3-26 thru 9.3-30 and 5.2-16 thru 5.2-27.	4431	4431, 5104 5221
23	TMI-2 FSAR § 5.2.3.4, and Table 5.2-12.	4431	4431, 5104 5521
24	Stier Letter to Judge Kelley, dated September 30, 1986, with Attachments.	5103-04	5221
25	MRP Letter to Edwin Stier, dated September 30, 1986.	5104	5221
26	Letter dated Nov. 3, 1986, from R. Gallo to Rochester Gas and Electric Corp., enclosing NRC Region I Inspection Report No. 50-244/86-16, and Numerous Employees' Follow up Questions for Donald R. Haverkamp.	5266-67	Rejected 5267
27	Letter dated Oct. 21, 1986, from J P. Moore to W.A. Rockwell, Subject: MUT Level Transmitter.	Bd. Order 1/19/86	Bd. Order 1/19/86

APPENDIX B

LIST OF WITNESSES AND TESTIMONY

Witnesses	Written Testimony	Oral Testimony	Date
Adams, Charles D.	ff. Tr. 3776	3775 to 3841	10/15
Boltz, Dennis J.		2218 to 2234	9/25
Booher, Raymond R.	ff. Tr. 4175	4175 to 4232	10/28
Brummer, John A.*	ff. Tr. 5236		
Bryan, Kenneth P.	ff. Tr. 4540	4539 to 4610	10/31
Capra, Robert A.		374 to 1904	9/8, 9/9, 9/10, 9/11,
		2207 to 2209	9/12, 9/16, 9/17,
		2313 to 2439	9/18, 9/25, 9/30
Christopher, Keith		2314 to 2438	9/30
Chwastyk, Joseph J.	ff. Tr. 3407	3405 to 3600	10/10
Cole, Norman M., Jr.		374 to 2034	9/8, 9/9, 9/10,
			9/11, 9/12, 9/16,
			9/17, 9/18, 9/19
Coleman, Mark S.	ff. Tr. 2579	2578 to 2657	10/1
Conaway, William T., II	ff. Tr. 3097	3096 to 3141	10/7
Congdon, Joseph R.	ff. Tr. 2709	2708 to 2782	10/2, 10/3
Cooper, Martin V.	ff. Tr. 2835	2835 to 2945	10/6
Faust, Craig C.	ff. Tr. 2511	2511 to 2577	9/30, 10/1
Fels, William J.		4489 to 4535	10/30
Floyd, James R.	ff. Tr. 4894	4892 to 5036	11/4, 11/5
Frederick, Edward R.	ff. Tr. 2447	2446 to 2510	9/30
Germer, Leonard P.*	ff. Tr. 5236		
Guthrie, Carl L.	ff. Tr. 4113	4112 to 4159	10/17
Harrison, Dwight H.		374 to 2034	9/8, 9/9, 9/10,
			9/11, 9/12, 9/16,
			9/17, 9/18, 9/19
Hartman, Harold W., Jr.		2239 to 2309	9/25
Haverkamp, Donald R.	Exh. 20	2042 to 2210	9/24
		5237 to 5267	11/12
Hemmila, Earl D.	ff. Tr. 4039	4038 to 4111	10/17
Herbein, John G.	ff. Tr. 5268	5267 to 5320	11/12
Hitz, Gregory R.	ff. Tr. [illegible]4	3663 to 3732	10/14
Hoyt, Kenneth R.	ff. Tr. 4233	4233 to 4299	10/28
Illjes, Theodore F.	ff. Tr. 3010	3010 to 3096	10/7

Witnesses	Written Testimony	Oral Testimony	Date
Kidwell, John M.	ff. Tr. 3285	3285 to 3399	10/9
Kirkpatrick, Donald C.**	ff. Tr. 376	374 to 1243	9/8, 9/9, 9/10, 9/11, 9/12
Kunder, George A.	ff. Tr. 4800	4799 to 4889	11/4
Logan, Joseph B.		5105 to 5220	11/6
Marshall, Walter J.	ff. Tr. 4380	4379 to 4424	10/29
McGovern, Hugh A., Jr.	ff. Tr. 3148	3147 to 3235	10/8
Mehler, Brian A.	ff. Tr. 3842	3841 to 3907	10/15
Mell, Charles F.	ff. Tr. 3239	3239 to 3282	10/9
Miller, Adam W.	ff. Tr. 3608	3607 to 3662	10/14
Miller, Gary P.	ff. Tr. 5039	5038 to 5096	11/5
Moore, James P.		374 to 1165	9/8, 9/9, 9/10, 9/11
Olson, Dennis I.	ff. Tr. 3911	3911 to 4034	10/16
Phillippe, Mark D.	ff. Tr. 4432	4431 to 4489	10/30
Rockwell, Winthrop A.		374 to 1165	9/8, 9/9, 9/10, 9/11
Russell, William T.		371 to 1904 2313 to 2438	9/8, 9/9, 9/10, 9/11, 9/12, 9/16, 9/17, 9/18, 9/30
Seelinger, James L.	ff. Tr. 4623	4614 to 4784	11/3
Scheimann, Frederick J., Jr.	ff. Tr. 2831	2783 to 2831	10/3
Stier, Edwin H.		374 to 2034	9/8, 9/9, 9/10, 9/11, 9/12, 9/16, 9/17 9/18, 9/19
Smith, Bernard G.	ff. Tr. 4331	4330 to 4379	10/29
Wermiel, Jared S.**	ff. Tr. 376	374 to 801	9/8, 9/9, 9/10
Wright, Lynn O.***	ff. Tr. 2663	2651 to 2707	10/2
Zewe, William H.	ff. Tr. 2946	2945 to 3006	10/6

Documentary Material Bound into the Transcript

Description	Page	Date
Professional Qualifications of Robert A. Capra.	ff. Tr. 651	9/9
Surveillance Data Flow Chart.	ff. Tr. 731	9/9

Description	Page	Date
Questions 5 thru 8 Submitted by Numerous Employees for D.R. Haverkamp.	ff. Tr. 2169	9/24
Personal Resume of Dennis J. Boltz.	ff. Tr. 2217	9/25
Paragraph from Page 7 of Prefiled Testimony of B.G. Smith.	Tr. 2262	9/25
List of Exhibits.	ff. Tr. 5221	11/6

*The Board did not call Brummer and Germer as witnesses. Their prefiled testimony, however, was bound into the record and reflects what the witnesses would have sworn to had they appeared. Their statements could be referred to as if the witnesses had appeared to testify. Tr. 5236 (Kelley, J.).

**Joint prefiled — Kirkpatrick and Wermiel

***Because Wright did not adopt his prefiled testimony, it was bound into the record, not as substantive evidence, but as a brief accurate summary of a longer statement placed in the record (Board Exh. 6, OI Report, Exh. 18, Wright Interview) and regarded as substantive evidence. Tr. 2662-63 (Kelley, J.).

APPENDIX C*

CORRELATION OF NRR AND STIER TEST NUMBERS FOR EACH TMI-2 LEAK RATE SURVEILLANCE TEST PERFORMED BETWEEN 9/30/78 AND 3/28/79

NRR Test No.	Stier Test No.	NRR Test No.	Stier Test No.
SEPTEMBER 1978		28	130
1	161	29	130
OCTOBER 1978		30	128
2	160	31	127
3	159	NOVEMBER 1978	
4	158	32	126
5	157	33	125
6	156	34	124
7	155	35	123
8	154	36	122
9	153	37	121
10	152	38	120
11	151	39	119
12	150	40	118
12A	149	41	117
12B	148	DECEMBER 1978	
12C	147	42	116
12D	146	43	115
12E	145	44	114
13	144	45	113
14	143	46	112
15	142	47	111
16	141	48	110
17	140	49	109
18	139	50	108
19	138	[illegible]	107
20	137	52	106
21	136	53	105
22	135	54	104
23	134	55	103
24	133	56	102
25	—	57	101
26	132	58	100
27	131	59	99

NRR Test No.	Stier Test No.	NRR Test No.	Stier Test No.
60	98	FEBRUARY 1979	
61	97	97	61
62	96	98	60
63	95	99	59
64	94	100	58
65	93	101	57
66	92	102	56
67	91	103	55
68	90	104	54
69	89	105	53
70	88	106	52
71	87	107	51
72	86	108	50
73	85	109	49
74	84	110	48
75	83	111	47
76	82	112	46
77	81	113	45
78	80	114	44
79	79	115	43
80	78	116	42
81	77	117	41
82	76	118	40
JANUARY 1979		119	39
83	75	120	38
84	74	121	37
85	73	122	36
86	72	123	35
87	71	124	34
88	70	125	33
89	69	126	32
90	68	127	31
91	67	128	30
92	66	129	29
93	65	130	28
94	64	131	27
95	63	132	26
96	62	133	25

NRR Test No.	Stier Test No.	NRR Test No.	Stier Test No.
MARCH 1979		146	12
134	24	147	11
135	23	148	10
136	22	149	9
137	21	150	8
138	20	151	7
139	19	152	6
140	18	153	5
141	17	154	4
142	16	155	3
143	15	— (No test)	2
144	14	156	1

*See Board Exh. 5-B, NRR Report, Attachment 1.

APPENDIX D

The following individuals, in addition to those who appeared and testified, were sent copies of the Board's December 31, .985 letter offering them the opportunity to appear. They did not participate in these proceedings. After review by the Board, it was found that their appearance would be peripheral to the case in point and that therefore no further action by the Board was necessary. *See* ¶ 19 and note 6 at p. 684.

Mr. James R. Barry
Mr. Joseph R. Bashista
Mr. Robert P. Beeman
Mr. Marshall L. Beers
Mr. Nelson K. Bennett
Mr. Richard W. Bensel
Mr. Michael L. Benson
Mr. Donald A. Berry
Mr. Mark B. Bezilla
Mr. George J. Bixler
Mr. John J. Blessing
Mr. Floyd D. Bomgardner, Jr.
Mr. Stuart W. Brantley
Mr. Dennis A. Buchter
Mr. Curtis A. Conrad
Mr. Barry L. Corkle
Mr. Ember A. Curry
Mr. George L. Cvijic
Mr. Terry S. Daugherty
Mr. Michael D. Demmy
Mr. Walter R. Desh
Mr. Richard W. Dubiel
Mr. Ronald K. Fountain, Sr.
Mr. Jack K. Garrison
Mr. Timothy R. Gilbert
Ms. Juanita A. Gingrich
Mr. Thomas M. Hawkins
Mr. Danny L. Heilman
Mr. James L. Hetrick
Mr. Phillip L. Hetrick
Mr. John Hilbish
Mr. Brad E. Hoffman
Mr. Richard S. Hutchison*
Mr. Dwayne B. Jenkins
Mr. Richard E. Johnson, Jr.
Mr. Thomas M. Kauffman
Mr. Richard G. Kleinfelter
Mr. David C. Knerr
Mr. Henry M. Kohl
Mr. Peter A. LaBar
Mr. Dale J. Laudermilch
Mr. John D. Lawton, Jr.
Mr. Lawrence L. Lawyer
Mr. Randy H. Lightner
Mr. John K. Lionarons
Mr. P. Lydon*
Mr. Joseph Manoskey, Jr.
Mr. Edward T. Matincheck*
Mr. David B. Mayhue
Mr. Donald R. Miller
Mr. Thomas Morck
Mr. Steven L. Mull
Mr. David A. Neumann*
Mr. William G. Olge, Jr.
Mr. James R. Paules
Mr. George A. Pierce
Mr. Ivan D. Porter, Jr.
Mr. William E. Potts
Mr. William H. Sawyer
Mr. Charles C. Seitz
Mr. Merrill R. Shaffer
Mr. Patrick H. Shannon
Mr. Richard W. Sieglitz
Mr. Henry B. Shipman
Mr. Daniel M. Shovlin
Mr. Earl D. Showalter

Mr. Eugene H. Shue
Mr. David M. Smith
Mr. James Stair
Mr. Joseph Stupak
Mr. Frank D. Telenko
Mr. Gerald Thompson*
Mr. Garry J. Tilley
Mr. William J. Wantling
Mr. Ronald P. Warren
Mr. Douglas Weaver
Mr. David B. Wilson
Mr. James T. Wright
Mr. Richard W. Zechman

*Individuals we were unable to make contact with.

Cite as 25 NRC 830 (1987) LBP-87-16

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD PANEL

Before Administrative Judge:

Dr. Oscar H. Paris

In the Matter of **Docket No. 70-364-MLA**
(ASLBP No. 815-511-01-ML)

BABCOCK AND WILCOX
(Parks Township, Pennsylvania,
Volume Reduction Facility) **May 18, 1987**

This Supplemental Decision (on Remanded Issue) reverses Condition 2 ordered by LBP-86-40, 24 NRC 841, 900 (1986), which authorized the NRC Staff to issue a license amendment to Babcock & Wilcox authorizing it to operate an incinerator at its Parks Township Facility, provided certain conditions had been met. Condition 2 required an expansion of the NRC's environmental monitoring contract with the Commonwealth of Pennsylvania to include monitoring of tritium (H-3), carbon-14 (C-14), and iodine-125 (I-125). Subsequently the Commonwealth refused to sign the contract calling for the expansion of the monitoring system, and as a result the Commission remanded LBP-86-40 to the Presiding Officer for reconsideration of Condition 2. This Supplemental Decision reverses Condition 2 on the grounds that the NRC Staff will require B&W to expand its monitoring program to include routine offsite environmental monitoring.

TECHNICAL ISSUES DISCUSSED

Releases of H-3, C-14, and I-125 by the incinerator and their health effects.
Reasons for requiring offsite environmental monitoring of these radioisotopes.
The expanded environmental monitoring that the Staff will require of B&W.

APPEARANCES

Maurice Axelrad, Michael A. Bauser, and **Frank R. Lindh, Esqs.,** Newman & Holtzinger, P.C., Washington, D.C., for the Licensee, Babcock and Wilcox.

Dennis Paul Zawacki, Esq., Pittsburgh, Pennsylvania, for the Intervenors, **John P. Bologna** and **Frutie Johnson.**

Thomas Au and **John R. McKinstry, Esqs.,** for the Commonwealth of Pennsylvania.

George E. Johnson, Esq., for the Nuclear Regulatory Commission Staff.

SUPPLEMENTAL DECISION
(On Remanded Issue)

BACKGROUND

On December 23, 1986, a Decision entered in this proceeding authorized the Director of Nuclear Material Safety and Safeguards to issue Babcock and Wilcox (B&W) an amendment to NRC Materials License No. SNM-414 authorizing B&W to operate a Volume Reduction Services Facility (VRSF) at its Parks Township, Pennsylvania, facility. LBP-86-40, 24 NRC 841, 899-900. The VRSF would consist of a supercompactor and an incinerator. The Decision authorized Staff to issue the amendment to operate the compactor immediately; the amendment to authorize operation of the incinerator, however, was ordered deferred until certain conditions had been met. *Ibid.*

Condition 2 in the Decision required that the environmental sampling contract between NRC and the Commonwealth of Pennsylvania be expanded to include sampling and analysis for tritium (H-3), carbon-14 (C-14), and iodine-125 (I-125). The sampling condition was based on a statement in a letter dated July 8, 1986, from Thomas T. Martin, Director, Division of Radiation Safety and Safeguards, NRC Region I, to Mrs. Mildred Chelko, a portion of which had been read into the record during oral argument. 24 NRC at 857, 900; Tr. 475. The statement in Mr. Martin's letter gave the impression that the contract expansion had already been agreed upon by the Commonwealth. Because there was no direct testimony regarding the expansion of the NRC/Commonwealth monitoring contract, the matter was made Condition 2 of the Decision.

On March 2, 1987, a memorandum to the Commission from Richard E. Cunningham, Director, Office of Nuclear Material Safety and Safeguards, advised the Commission and the parties to this proceeding that the Commonwealth of Pennsylvania had refused to sign the contract to implement the expanded monitoring program. On March 4, 1987, B&W responded to the NRC Staff Memorandum, and on March 18, 1987, Intervenors John P. Bologna and Frutie Johnson responded.

The Commission, which had extended the period within which it could review LPB-86-40, entered an Order on March 23, 1987 (unpublished), remanding the December 1986 Decision to this Presiding Officer for reconsideration of Condition 2. The Commission's Order directed the presiding officer to consider, *inter alia*, B&W's March 4 Response.

Because the matter of expanding the environmental monitoring contract between the NRC and the Commonwealth had not been well ventilated during oral argument, the Presiding Officer wrote to the parties on March 25, 1987, providing an opportunity for them to file written argument and, if desired, written testimony with respect to Condition 2. In addition, the Staff was requested to respond to six questions raised by the Presiding Officer in the March 25 letter. On April 15, 1987, all the parties and the Staff responded in writing. Based on the record of the December 23, 1986 Decision and the subsequent filings of the parties, this Supplemental Decision reverses Condition 2 and authorizes operation of the incinerator subject to certain other conditions.

THE MONITORING ISSUE

The purpose of Condition 2 in the 1986 decision was to ensure that the expanded environmental monitoring program for H-3, C-14, and I-125 would be instigated; these isotopes will be released in the incineration process and will not be detected by the real-time radiation monitor in the incinerator's exhaust stack. B&W argues, however, that Condition 2 should be deleted because it plans to conduct a limited offsite monitoring program and in-stack continuous sampling and analysis of H-3, C-14, and I-125. B&W believes that these efforts will enable it to comply with applicable NRC regulatory requirements. B&W's Response at 1-3; B&W's March 4 Response at 5-7. B&W's affiant, A. Scott Dam, attests that B&W also is continuing to evaluate available real-time monitors that would be sensitive enough and durable enough to monitor gaseous releases of H-3, C-14, and I-125 in the incinerator stack, but none has been found. Affidavit of A. Scott Dam on Monitoring Relating to Releases from Incinerator Operation, dated April 13, 1987, at 3. In lieu of real-time monitors, B&W will continuously collect gaseous H-3, C-14, and I-125 samples and make periodic analyses of the samples. When industrial and

institutional wastes are being processed the samples will be analyzed daily; when only nuclear reactor wastes are being processed the samples will be analyzed weekly. *Ibid.* In addition, a program consisting of weekly analyses of continuous air samples from four locations for H-3 and, analyses for H-3 in weekly grab samples of precipitation from eight locations, will be conducted for a period of 13 weeks during which institutional materials constitute a substantial part of the incinerator throughput. Only H-3 will be sampled because results from the study should be applicable to C-14 and I-125. B&W will also monitor vegetation by monthly analyses of H-3 in grab samples of vegetation collected at two locations during the growing season. The purpose of the offsite monitoring program to be carried out by B&W is to confirm that dispersion estimates are accurate or conservative and that the projections of low concentration of these isotopes in the environment are correct or conservative. *Id.* at 4-5.

Intervenors argue that offsite monitoring of H-3, C-14, and I-125 will be needed to determine the doses of these isotopes to the public because I-125 is a major contributor to the thyroid dose and H-3 and C-14 are dominant contributors of doses to other organs. They argue that these isotopes will be released from both the incinerator and the compactor, and noted that the Staff assumed in the Environmental Assessment that all H-3, C-14, and I-125 would pass through the filters and into the atmosphere. Moreover, Intervenors maintain that offsite monitoring for these isotopes is needed to determine whether B&W's operations are being conducted properly. Intervenors' Response at 2-3.

The Commonwealth's Response explains the reasons it refused to sign the contract for an expanded monitoring program. It refused to sign because of the cost of the expanded monitoring program and the additional staff it would require. Commonwealth's Response at 2-4. Inasmuch as the Commonwealth's Response does not address the question of whether offsite monitoring for H-3, C-14, and I-125 is necessary or desirable, it need not be considered further here.

The NRC Staff fully addressed the six questions put to it by the Presiding Officer's March 25, 1987 letter. In the discussion to follow, the questions will be set forth and Staff's answers will be recited verbatim if short or summarized if lengthy:

Question 1

> What considerations led the Staff to suggest that the offsite monitoring contract with the Commonwealth be expanded to include sampling for H-3, C-14, and I-125?

Staff stated that it sponsored a state confirmatory environmental monitoring contracts program in order to evaluate the quality of licensees' environmental monitoring. Staff Response at 1. The Commonwealth of Pennsylvania currently

has an NRC-funded state contract for environmental confirmatory measurements, but neither the Licensee's program nor the state contract confirmatory program includes the measurement of the three isotopes, H-3, C-14, and I-125, that are at issue here. Because the Commonwealth has participated in cooperative confirmatory environmental monitoring for five nuclear power plants as well as the B&W sites, Staff had assumed that the Commonwealth would also participate in an environmental sampling program that was modified to include H-3, C-14, and I-125 around the Parks Township site. *Id.* at 2.

Question 2

> Has the Staff considered or attempted further negotiations with the Commonwealth in an attempt to reach an agreement on the expanded contract?
>
> > Yes, the staff has had further discussions with the Commonwealth of Pennsylvania. However, for the reasons set forth in its February 5, 1987 letter, the Commonwealth has not altered its position.

Ibid.

Question 3

> Does the Staff believe that an attempt to negotiate further might be fruitful? Please give the reasons for your answer.

Staff responded affirmatively, stating that once B&W's monitoring requirements are established (*see* Response to Question 5), additional participation by the Commonwealth in the voluntary state-federal program could be explored. It noted, however, that in such future negotiations the NRC's budget constraints would have to be considered. *Ibid.*

Question 4

> How essential or desirable does Staff consider offsite monitoring for H-3, C-14, and I-125 to be?
>
> > The Staff believes that offsite monitoring for H-3, C-14, and I-125 is important as a supplement to the stack effluent monitoring program to ensure that regulatory limits are not exceeded and that environmental impacts will be negligible. Because of the very low levels of releases anticipated during normal operations, the Staff does not believe environmental monitoring will detect these radionuclides if the incinerator operates as designed. Nevertheless, obtaining such negative results is one of the purposes of

environmental monitoring. The monitoring program should, however, be able to detect releases due to improper operations or from accidents.

Id. at 3.

Question 5

If Staff considers such offsite monitors to be desirable or essential, could B&W be required to install them if the Commonwealth continues to refuse to cooperate?

Staff stated that in light of the considerations noted in answer to Question 4, it has reconsidered its previous evaluation of B&W's environmental commitments. As a result, the Staff will require B&W to expand its planned environmental monitoring program for the purpose of sampling appropriate indicator media for air and ingestion exposure pathways for H-3, C-14, and I-125. In addition to B&W's existing environmental monitoring program and the commitments made by B&W in its license amendment application for the VRSF, Staff will request B&W to submit for approval prior to authorizing operation of the incinerator a revised and expanded environmental sampling program that includes the following: (1) sampling and analysis for H-3 in air and in precipitation as part of the routine sampling program;[1] (2) periodic sampling and analysis of appropriate vegetation for H-3, C-14, and I-125; and (3) an evaluation to determine appropriate sampling locations that takes into consideration the effect of the incinerator's 50-foot stack. In addition, Staff will require particulate air sampling and periodic soil sampling to assess any buildup of particulate activity in the environment. B&W will be required, by a license condition, to establish such a program whether or not the Commonwealth expands its participation in the voluntary federal-state confirmatory monitoring program. *Ibid.*

Question 6

Does Staff consider the independence of offsite monitors from Licensee control to be important? If so, is there any alternative means of achieving such independence?

Staff considers confirmatory environmental monitoring to be desirable but not essential. It requires licensees to conduct onsite effluent and offsite environmental monitoring with or without independent verification. In fulfilling its

[1] In addition, Staff stated that it may require sampling and analysis for C-14 and I-125 in air also, depending on its evaluation of the program that B&W proposes. Staff Response at 3.

responsibility to protect public health and safety and the environment, Staff ensures the adequacy of licensees' monitoring programs through its inspection program. Should NRC's inspectors find reason to suspect or question the adequacy of B&W's program, the NRC would perform additional evaluations that could include independent sampling and analyses. *Id.* at 4.

FINDINGS OF FACT

1. An expanded environmental monitoring program is necessary to ensure that offsite releases of H-3, C-14, and I-125 remain within regulatory limits and to detect releases resulting from improper operations or accidents.
2. The Staff will require B&W to revise and expand its routine environmental monitoring sampling program to include sampling and analysis of air and precipitation for H-3 (and possibly C-14 and I-125 as well), sampling of vegetation for H-3, C-14, and I-125, and sampling of air and soil for buildup of particulate activity.
3. The expanded offsite monitoring that Staff intends to require of B&W is an adequate substitute for the expanded monitoring program required by Condition 2 of the 1986 Decision.

CONCLUSIONS OF LAW

Based upon the evidentiary record and upon the findings set forth above, the Presiding Officer makes the following conclusions of law:

1. The expanded environmental monitoring program that Staff proposes to require B&W to perform will ensure the protection of the public health and safety and the environment.
2. Given the implementation of the expanded monitoring program by B&W, Condition 2 can be deleted from LPB-86-40.

ORDER

The Director of Nuclear Material Safety and Safeguards or his designee is *authorized* to issue B&W an amendment to NRC Materials License No. SNM-414 authorizing operation of the incinerator at B&W's Volume Reduction Services Facility, provided that conditions 1, 3, 4 and 5 as set forth in LBP-86-40 have been met prior to issuance. In addition, the requirements set forth in the Findings of Fact and Conclusions of Law herein are made a condition for issuance of the license, and therefore Condition 2 of LBP-86-40 is reversed.

This Supplemental Decision shall become effective immediately. Pursuant to the Commission's Orders issued July 24, 1985, and March 23, 1987, it will become final agency action thirty (30) days after date of issuance unless the Commission, on its own motion, undertakes a review of the Decision. No petition for review will be entertained by the Commission regarding this Supplemental Decision.

PRESIDING OFFICER

Dr. Oscar H. Paris
ADMINISTRATIVE JUDGE

Dated at Bethesda, Maryland,
this 18th day of May 1987.

Cite as 25 NRC 838 (1987) LBP-87-17

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Charles Bechhoefer, Chairman
Glenn O. Bright
Dr. James H. Carpenter

In the Matter of

Docket No. 50-271-OLA
(ASLBP No. 87-547-02-LA)

VERMONT YANKEE NUCLEAR
POWER CORPORATION
(Vermont Yankee Nuclear Power
Station)

May 26, 1987

In a proceeding involving the proposed expansion in capacity of a spent fuel pool, the Licensing Board rules on standing and contentions, grants two petitions to intervene, and establishes schedules for discovery and oral argument.

RULES OF PRACTICE: INTERVENTION

Under NRC rules, admission to a proceeding as an intervenor requires the submission of at least one valid contention within the scope of issues set forth in the notice initiating the proceeding.

RULES OF PRACTICE: CONTENTION, ADMISSIBILITY OF

A contention must have its bases set forth with reasonable specificity. In setting forth the bases for contentions, however, a petitioner need not detail the evidence that will be offered to support each contention.

RULES OF PRACTICE: CONTENTION, ADMISSIBILITY OF

In reviewing a contention and its bases for adequacy, a licensing board must not reach the merits of the contention.

OPERATING LICENSE AMENDMENT: NO SIGNIFICANT HAZARDS CONSIDERATION

The "no significant hazards consideration" determination under 10 C.F.R. § 50.91 is a procedural determination stemming from the *Sholly* amendments to § 189a of the Atomic Energy Act. The determination can only be made by the NRC Staff or Commission and cannot be challenged in an adjudicatory licensing proceeding.

LICENSING BOARD: CONSIDERATION OF GENERIC ISSUES

An allegation falling within the scope of a licensing proceeding that relates to a proposal under review may be heard notwithstanding that it may also constitute a generic issue.

POLICY STATEMENT ON SEVERE REACTOR ACCIDENTS: REVIEW OF BEYOND-DESIGN-BASIS ACCIDENTS

The Commission's Policy Statement on Severe Reactor Accidents, 50 Fed. Reg. 32,138 (Aug. 8, 1985), explicitly removes plant-specific reviews of control or mitigation of beyond-design-basis accidents from adjudicatory consideration. Only the risk of such accidents may be explored, as contemplated by the Commission's Statement of Interim Policy on "Nuclear Power Plant Accident Considerations Under the National Environmental Policy Act of 1969," 45 Fed. Reg. 40,101 (June 13, 1980).

OPERATING LICENSE AMENDMENT: SAFETY EVALUATION REPORT

In an operating license amendment proceeding, the public is entitled to be apprised in clear terms in the Staff's SER that a particular issue is being resolved in a given manner. Where a detailed description of an issue does not appear in the application documents or in the Staff's SER a party is not barred by *res judicata* from raising the issue in a later proceeding.

NEPA: ENVIRONMENTAL ASSESSMENT

If the NRC Staff were to determine, pursuant to 10 C.F.R. § 51.22(c)(9), that an environmental assessment need not be prepared because a proposed action involves "no significant hazards consideration," that determination would become litigable under 10 C.F.R. § 51.104(b).

NEPA: ENVIRONMENTAL IMPACT STATEMENT

Although there is no *per se* requirement for an environmental impact statement in a proceeding involving the expansion in capacity of a spent fuel pool, there is also no categorical exclusion. Whether such a statement need be prepared is a litigable question.

NEPA: LONG-TERM WASTE STORAGE

The possibilities or effects of a reactor site being used as a long-term or open-ended storage facility for high-level radioactive waste may not be considered in a licensing proceeding seeking expansion of the storage capacity of a spent fuel pool. 10 C.F.R. §§ 2.758(a), 51.23, and 51.95(b).

NEPA: ENVIRONMENTAL ASSESSMENT

The adequacy of an environmental assessment may be litigated pursuant to 10 C.F.R. § 51.104(b). However, a contention questioning the potential inadequacy of such assessment may not be submitted prior to the issuance of such assessment. Instead, it may only be considered as a late-filed contention following issuance of the assessment. *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), ALAB-687, 16 NRC 460, 466-67 (1982), *rev'd in part on other grounds*, CLI-83-19, 17 NRC 1041 (1983).

NEPA: ENVIRONMENTAL REPORT

The Commission encourages the litigation of environmental questions as early as possible in a proceeding. Notwithstanding the lack of any formal requirement for an applicant's environmental report in a proceeding involving expansion of the capacity of a spent fuel pool, a contention questioning the adequacy of an applicant's environmental information submitted in support of such expansion may be accepted.

LICENSING BOARD: JURISDICTION

If a licensing board in a license amendment proceeding were to reject all proposed contentions of every petitioner for intervention, the board would have to dismiss the petitioners and terminate the proceeding. Following termination, it would lose its jurisdiction to consider late-filed contentions.

NEPA: PROCEDURES

Interpretation of NRC rules to permit the timely filing of safety-based contentions at a given time but to allow environmental contentions only to be submitted later, on a late-filed basis, constitutes an improper disparity between the litigation of Atomic Energy Act and NEPA issues. *Calvert Cliffs' Coordinating Committee v. AEC*, 449 F.2d 1109, 1117 (197[illegible]).

NEPA: CONSIDERATION OF ALTERNATIVES

An agency's evaluation of alternatives is governed by two sections of NEPA — § 102(2)(C) when an impact statement is required, and § 102(2)(E) whether or not an impact statement is prepared.

PREHEARING CONFERENCE ORDER
(Rulings on Standing, Contentions, Schedules)

This proceeding involves the proposed expansion of the capacity of the spent fuel pool at the Vermont Yankee Nuclear Power Station, a boiling water reactor located in Vernon, Vermont, approximately 5 miles south of Brattleboro, Vermont. The early history of the proceeding is recounted in our Memorandum and Order (Schedules for Further Filings and for Prehearing Conference), LBP-87-7, 25 NRC 116 (1987). As there set forth, three requests for a hearing and petitions for intervention have been filed — by the New England Coalition on Nuclear Pollution (NECNP), the State of Vermont (Vermont), and James M. Shannon, Attorney General of the Commonwealth of Massachusetts (Massachusetts).

We scheduled a prehearing conference for April 21-22, 1987, in Brattleboro, Vermont, to consider the petitions before us.[1] Represented at the conference

[1] A formal Notice of Prehearing Conference was issued on March 11, 1987, and published at 52 Fed. Reg. 8393 (Mar. 17, 1987).

were the three petitioners, the Applicant[2] (Vermont Yankee Nuclear Power Corporation), and the NRC Staff. (The State of New Hampshire, which has thus far not filed any intervention petition, also sent a representative to the conference.)

Following is a description of the matters considered at the conference, and rulings stemming therefrom. For reasons set forth below, we are admitting two of the petitioners as parties to the proceeding (NECNP and Massachusetts) and are permitting the third (Vermont) to participate as an interested State (if it wishes to do so).

I. STANDING

As set forth in LBP-87-7, two of the petitioners for intervention (Vermont and Massachusetts) had successfully demonstrated their standing to participate in the proceeding, whereas the other (NECNP) needed to file additional information in order to perfect its showing of standing (namely, authorization by at least one NECNP member living near the plant for NECNP to represent his or her interests in the proceeding). NECNP timely filed such information.[3] Neither the Applicant nor the NRC Staff objected to NECNP's showing of standing.[4] We find that NECNP has adequately demonstrated its standing to participate in this proceeding.

II. CONTENTIONS

Under NRC rules, admission to a proceeding as an intervenor requires the submission of at least one valid contention, within the scope of issues set forth in the notice initiating the proceeding. 10 C.F.R. § 2.714(b); *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-316, 3 NRC 167, 170 (1976). Such a contention must have its "bases . . . set forth with reasonable specificity" (10 C.F.R. § 2.714(b)). In setting forth the bases for contentions, however, a petitioner need not detail the evidence that will be offered to support each contention. *Mississippi Power & Light*

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[2] Vermont Yankee Nuclear Power Corp. is seeking an amendment to its operating license in this proceeding. Although it refers to itself as a licensee (presumably by virtue of its possession of an operating license), no modification of its license is being sought by any party or petitioner, except the foregoing amendment. In the posture of this proceeding, therefore, Vermont Yankee is more appropriately deemed an applicant for new authority rather than a licensee. We will thus refer to it as "Applicant."

[3] "New England Coalition on Nuclear Pollution's Response to Board Order of February 27, 1987: Statement of Contentions and Standing," dated March 30, 1987 (hereinafter "NECNP Contentions").

[4] Tr. 9 (Applicant); "NRC Staff Response to Contentions of the State of Vermont, Commonwealth of Massachusetts and New England Coalition on Nuclear Pollution," dated April 13, 1987 (hereinafter "Staff Response"), at 16.

Co. (Grand Gulf Nuclear Station, Units 1 and 2), ALAB-130, 6 AEC 423, 426 (1973). Furthermore, in reviewing a contention and its bases for adequacy, a Board must not reach the merits of a contention. *Houston Lighting and Power Co.* (Allens Creek Nuclear Generating Station, Unit 1), ALAB-590, 11 NRC 542, 548 (1980); *Grand Gulf*, ALAB-130, *supra*. We need only determine "whether (1) the requisite specificity exists; (2) there has been an adequate delineation of the basis for the contention; and (3) the issue sought to be raised is cognizable in an individual licensing proceeding" (*Alabama Power Co.* (Joseph M. Farley Nuclear Plant, Units 1 and 2), ALAB-182, 7 AEC 210, 216-17 (1974)). If those criteria are satisfied, the contention is admissible "irrespective of whether resort to extrinsic evidence might establish the contention to be insubstantial" (*id.* at 217).

All three petitioners submitted proposed contentions on a timely basis. NECNP submitted six such contentions,[5] Vermont submitted four,[6] and Massachusetts two.[7] The Applicant and Staff responded to the contentions,[8] each claiming that no contention of any petitioner was valid. NECNP filed a reply to the responses of the Applicant and Staff.[9]

Certain of the proposed contentions overlap in their coverage. As a result, at the conference we discussed the various contentions by subject matter, using the NECNP contentions as a point of departure (since they to a great degree envelope the other parties' contentions).[10]

A. Safety-Based Contentions

There are several categories of safety-based contentions (i.e., contentions based on requirements of the Atomic Energy Act and implementing regulations) submitted by one or more of the petitioners. All three of them have submitted "severe-accident" contentions — claiming in effect that the facility is not adequately designed to handle the consequences of certain greater-than-design-

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[5] "NECNP Contentions," *supra* note 3. Although numbered as NECNP Contentions 1-5, we regard Contention 5 as including two contentions and are treating it as such.

[6] "Introductory Statement and Contentions of the State of Vermont," dated March 30, 1987 (hereinafter "Vermont Contentions"). We view ¶ III of this document to include two contentions (III.A and III.B) and ¶¶ IV and V to include one each.

[7] "Contentions of the Commonwealth of Massachusetts," dated March 30, 1987 (hereinafter "Massachusetts Contentions").

[8] Licensee's Response to the Contention[s] of the State of Vermont, the Commonwealth of Massachusetts, and New England Coalition on Nuclear Pollution, separate documents each dated April 9, 1987 (hereinafter "Applicant's Response to . . ."); Staff Response, *supra* note 4.

[9] "New England Coalition on Nuclear Pollution's Response to Objections to Contentions," dated April 16, 1987 (hereinafter "NECNP Response").

[10] Vermont and Massachusetts did not object to this approach (Tr. 13). We separately discussed the Vermont contentions (¶¶ III.A and III.B) which were different from any of NECNP's contentions.

basis accidents.[11] NECNP has submitted two contentions questioning the adequacy of the cooling system for the expanded-capacity spent fuel pool.[12] Vermont additionally has submitted two contentions the terms of which are directed at the potential "no significant hazards consideration" determination which NRC may be called upon to address.[13]

1. At the outset, we turn to Vermont's contentions directed at the "no significant hazards consideration" determination. As we understand it, Vermont has in mind the determination that the Commission may make under 10 C.F.R. § 50.91.

That determination is a procedural one stemming from the so-called *Sholly* amendments to § 189a of the Atomic Energy Act, 42 U.S.C. § 2239(a). The determination is one that can only be made by the NRC Staff or the Commission. When such a finding has been made, the NRC may make effective a proposed license amendment prior to any hearing on the request. The determination itself, however, cannot be challenged in a licensing proceeding of this type:

> No petition or other request for review of or hearing on the staff's significant hazards consideration determination will be entertained by the Commission. The staff's determination is final, subject only to the Commission's discretion, on its own initiative, to review the determination.

10 C.F.R. § 50.58(b)(6) (1987); *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-86-12, 24 NRC 1, 4 (1986), *rev'd in part on other grounds, San Luis Obispo Mothers for Peace v. NRC*, 799 F.2d 1268 (9th Cir. 1986).

For this reason, we agree with the Applicant and NRC Staff that, to the extent Vermont's Contentions III.A and III.B seek to affect the Staff's "no significant hazards consideration" determination under § 50.91, they are beyond our jurisdiction and must be rejected on that ground.[14]

2. The "severe accident" contentions of NECNP, Vermont, and Massachusetts all claim essentially that the consequences of severe accidents will be exacerbated by the expansion in capacity of the spent fuel pool. In none of these contentions (NECNP Contentions 1 and 2, Vermont Contentions, ¶ V, and Massachusetts Contention I) is it alleged that the planned expansion fails to meet the governing safety requirements of 10 C.F.R. Part 50 or applicable regulatory guidelines.

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[11] NECNP Contentions 1 and 2; Vermont Contentions, ¶ V; Massachusetts Contention I (except to the extent that it asserts "risk" questions).

[12] NECNP Contentions 3 and 4.

[13] Vermont Contentions, ¶¶ III.A and III.B.

[14] To the extent these contentions may raise environmental questions, *see* pp. 860-61, *infra*.

a. In its Contentions 1 and 2, NECNP claims that the exacerbated consequences pose an "undue risk to public health and safety," are contrary to the Commission's Policy Statement on Severe Accidents, and that the expansion should therefore be disapproved. It bases its exacerbated-consequences claims on a combination of circumstances: (1) the greater likelihood of failure in the event of an accident of a GE Mark I BWR containment (as is used at Vermont Yankee) as contrasted with other designs; (2) the location of the pool in the reactor building, which is not designed to take severe accident loads; (3) the failure of the pool or its cooling systems to be designed to accommodate such severe accident loads; (4) the possibility of hydrogen leakage to the reactor building in such an accident, resulting in hydrogen deflagration and detonation; and (5) an increase in potential consequences of such an accident by the 40% increase in the amount of fuel stored, particularly because of the increased inventory of cesium and strontium.

In evaluating the litigability of these claims, we note first that the concept of "risk" to which NECNP refers falls under the purview of both the Atomic Energy Act and the National Environmental Policy Act (NEPA). By incorporating by reference these same claims into its Contention 5, NECNP has raised the NEPA aspects of risk, and we will discuss those aspects in connection with the EIS portion of Contention 5 (*see* pp. 853-55, *infra*). As NECNP states, Contention 1 clearly raises Atomic Energy Act claims based on the concept of "undue risk" appearing in 10 C.F.R. Part 50, Appendix A, and by NRC's use of those terms to describe the Atomic Energy Act's statutory standard of "adequate protection to the health and safety of the public." 42 U.S.C. § 2232(a).[15] Moreover, as we shall see, the regulatory standards for accepting risk-based contentions differ significantly depending on the statutory foundation for the contention.

As for the opposition to Contention 1, we must first reject the Applicant's claim that the contention challenges only those aspects of the facility's design that were reviewed earlier and hence (according to the Applicant) are not subject to challenge in this proceeding. The contention raises questions as to the ability of the facility to withstand additional fission product and heat loads allegedly imposed by the sought amendment. As such, it falls within the ambit of this proceeding. For the same reason, we reject the Applicant's claim that the increased consequences relate only to the "no significant hazards consideration" determination over which we have no jurisdiction. As NECNP points out, while the contention may be relevant to the "no significant hazards consideration" determination, it is clearly also relevant to the "undue risk to public health and safety" questions that the amendment may create and we may consider.[16]

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[15] NECNP Response, *supra* note 9, at 1-2.

[16] *Id.* at 3-4. Moreover, as set forth *infra* p. 861, under certain circumstances we may have authority to review a "no significant hazards consideration" finding by the Staff.

We also reject the Staff's claim that certain elements of NECNP's hypothesized accident raise generic issues that have no particular applicability to Vermont Yankee or to the proposed amendment. NECNP is setting forth a proposed accident scenario which includes enhanced consequences allegedly resulting from the increased storage capacity of the spent fuel pool. That this allegation falls within the scope of this proceeding is obvious; whether it has merit may not be considered by us at this stage of the proceeding.[17]

We find, however, that we must reject this contention for a different reason. The accident scenario that is sought to be considered is clearly a "beyond design basis accident."[18] There is no allegation (in this contention) that the proposed license amendment fails to meet one or more safety standards (regulation or other criteria). The Commission's Policy Statement on Severe Reactor Accidents, 50 Fed. Reg. 32,138, 32,144 (Aug. 8, 1985), explicitly removes plant-specific reviews of control or mitigation of severe accidents from the review of operating license applications. The same policy "also applies to any hearing proceedings that might arise for an operating reactor" — such as the instant proceeding. As set forth by the Commission for these proceedings:

> Individual licensing proceedings are not appropriate forums for a broad examination of the Commission's regulatory policies relating to evaluation, control and mitigation of accidents more severe than the design basis (Class 9). . . . The Commission believes that considerations which go . . . to the possible need for safety measures to control or mitigate severe accidents in addition to those required for conformance with the Commission's safety regulations or conformance with the Clarification of TMI Action Plan Requirements, should not be addressed in case-related safety hearings.

50 Fed. Reg. at 32,144-45 (footnote omitted).

Litigation of NECNP Contention 1 as a safety-based contention seeking denial of the proposed amendment as a means of controlling or mitigating the alleged enhanced consequences of a beyond-design-basis accident clearly is proscribed by the Policy Statement. (As a risk contention under NEPA, however, we reach a different conclusion.[19]) NECNP Contention 2, which seeks to examine whether the proposed amendment is consistent with the Policy Statement itself, may be a subject that the NRC Staff may examine under the Policy Statement. The

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[17] To the extent that the Staff is implying that a generic issue cannot be considered in this proceeding, that claim also must be rejected. *Virginia Electric and Power Co.* (North Anna Power Station, Units 1 and 2), ALAB-491, 8 NRC 245, 248 (1978); *Gulf States Utilities Co.* (River Bend Station, Units 1 and 2), ALAB-444, 6 NRC 760 (1977); *cf. Consumers Power Co.* (Midland Plant, Units 1 and 2), LBP-82-63, 16 NRC 571, 584-85 (1982); *id.*, LBP-82-118, 16 NRC 2034, 2037-39 (1982).

[18] As additional support for this contention, NECNP has pointed to the Brookhaven National Laboratory Draft Report on "Beyond Design-Basis Accidents in Spent Fuel Pools." NECNP Response, *supra* note 9, at 3 n.1.

[19] The Policy Statement permits us to examine the *risk* of the type of accident sought to be litigated by NECNP Contentions 1 and 2 as well as by Massachusetts Contention 1. In assessing the EIS portion of NECNP Contention 5 (*infra* pp. 853-55), we are examining such risk.

portions of the Policy Statement cited by NECNP define activities that the Staff may undertake.[20] But consideration by a licensing board in an adjudicatory proceeding is barred by the hearing provisions quoted above. For that reason, we must reject both NECNP Contentions 1 and 2.

b. In its Contention I, Massachusetts also seeks to litigate the alleged increase in consequences of a severe accident not dissimilar to the accident posed by NECNP. To the extent this contention seeks mitigative or control measures for severe accidents, it must be rejected for reasons comparable to those underlying our ruling on NECNP Contentions 1 and 2. (To the extent the contention raises risk issues, see our discussion of NECNP Contention 5, *infra* pp. 854-56.)

c. For its part, Vermont Contentions, ¶ V, likewise seeks to litigate the enhanced consequences of a "severe" accident. But it fails to define, in other than the most general terms, which accidents it has in mind. The two accident sequences that it portrays are so general that a party could not properly respond. Accordingly, for lack of a particularized basis (as well as the proscriptions of the Policy Statement), we reject Vermont Contentions, ¶ V.

3. NECNP's Contentions 3 and 4 raise questions concerning the effect of the amendment on the facility's system for maintaining the temperature of the spent fuel pool water within certain specified limits. Contention 3 claims that the system as proposed "violates the single failure criterion." Contention 4 claims that the system would "reduc[e] the safety margin and increas[e] the probability of a radioactive release from the pool." The pool cooling system, upon which both of these contentions focus, consists of the dedicated spent fuel pool cooling pumps augmented or superseded in specified instances by one train of the reactor's residual heat removal (RHR) system.

a. Citing the relevant portions of the Applicant's expansion application, together with the Applicant's responses to certain Staff questions, NECNP in Contention 3 maintains that the Applicant has not established that its proposed method of spent fuel pool cooling ensures that both the fuel pool cooling system and the RHR system are single-failure proof.[21] The Applicant and Staff each would have us reject this contention as lacking a nexus to the present application and, accordingly, not within the ambit of issues properly before us.

The Applicant describes the augmented cooling system as "a question of original plant design."[22] The Applicant and Staff both claim that, under existing technical specifications, the reactor may utilize the RHR system to augment the fuel pool cooling system for all periods during which the Applicant seeks to use it. They assert that no further modification of the technical specifications is

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[20] NECNP Contentions at 5-6.
[21] *Id.* at 6-7.
[22] Applicant Response to NECNP at 3.

required for the current application. Absent any required change, they perceive the use of the RHR system as not within the scope of the presently sought amendment.[23] In response, NECNP asserts that, at the very least, the RHR system will have to be used to a greater extent than previously and that the Applicant had previously sought authority to use the RHR system for pool cooling only for standby or backup purposes.[24]

Based on the material before us, we have found no review of or authorization for use of the RHR system for cooling of the spent fuel pool at the time of the original operating license authorization.[25] As far as we can ascertain, use of the RHR system to augment the spent fuel pool cooling system was first considered in conjunction with a 1977 application to increase the storage capacity of the spent fuel pool.[26] NECNP was, of course, a party to the 1977 license amendment proceeding. The question, therefore, is whether it should be barred at this time from raising an issue which, according to the Applicant, NECNP could have raised in the 1977 proceeding.

The record of the 1977 proceeding appears to support NECNP's position that, during that proceeding, the RHR system was considered only for backup purposes or in situations where a greater-than-usual amount of fuel was offloaded from the reactor — for example, a full-core offload. Thus, the 1977 expansion application states, with regard to the adequacy of the spent fuel pool cooling system to handle the heat load resulting from additional fuel assemblies:

> The heat load resulting from the presence of additional spent fuel assemblies is within the capacity of the existing cooling system.
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> * * *
>
> In the event of the loss of primary spent fuel pool forced circulation cooling, the residual heat removal system can be cross connected to the spent fuel pool to provide the necessary cooling flow.[27]

Moreover, the Staff's analysis of spent fuel pool cooling in connection with the 1977 expansion discussed the use of the RHR system only in conjunction with "larger than normal batches of spent fuel" — more particularly, situations where a full-core offload is necessary.[28]

According to the present application, the RHR cooling system would have to be used much more frequently than for full-core offload situations. In fact, the

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[23] *Id.* at 3-4; Staff Response at 18-19.
[24] Tr. 54.
[25] *See* Staff's SER, dated June 1, 1971, at 58 (§ 9.2).
[26] The Applicant concedes as much (Tr. 62, 63).
[27] Application letter from Vermont Yankee to NRC Staff, dated November 5, 1976, Enclosure 2 at 3, 6. We have found no other submission by the Applicant providing any further details concerning proposed usage of the RHR system for cooling the spent fuel pool.
[28] Staff SER, dated June 10, 1977, at 3-4; SER, Supp. 1, dated June 20, 1977, at 1-2.

Applicant seemed to indicate that the RHR system not only would be used but in fact is being used for every fuel offload.[29] There apparently are no technical specifications that define limits for the use of the RHR system for spent fuel pool cooling during periods when the reactor is in a cold shutdown mode. But did NECNP (which was a party to the 1977 proceeding involving the first capacity expansion of the spent fuel pool) have a fair opportunity to challenge the use of the RHR system for use other than for full-core offload or other larger-than-normal offload situations?

NECNP claims it did not have such an opportunity,[30] and we are inclined to agree. Indeed, the public is entitled to be apprised in clear terms in the Staff's SER that a particular issue is being resolved in a given manner. *See River Bend Station*, ALAB-444, *supra*, 6 NRC at 774-75. The 1977 SER discussed the use of the RHR system only for extra-normal fuel offloads, such as full-core offloads which are likely to occur only three or four times during the life of a reactor. As indicated by NECNP, the current application presents a question that is different in degree (if not in kind) from the 1977 issue.[31] Notwithstanding the current status of the technical specifications, NECNP has not previously had a fair chance to challenge the proposed routine (yearly) use of the RHR system for cooling the spent fuel pool.[32]

During the prehearing conference, the Applicant also argued that the single-failure criterion does not apply to the spent fuel pool cooling system.[33] It reasoned that Criterion 61, "Fuel storage and handling and radioactivity control," which governs spent fuel pools, does not refer to the single-failure criterion, whereas other criteria — e.g., Criterion 38, referring to "Containment heat removal" — specifically incorporate the single-failure criterion where applicable.[34]

NECNP did not cite any particular design criterion as being applicable but referred instead to the introductory portion of the General Design Criteria, which states that the definition of systems subject to the single-failure criterion is still under development.[35] NECNP also claims that where no particular rule governs a subject, the applicable standard for judging the admissibility of contentions is whether "the matter poses a significant safety problem." *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), LBP-86-21, 23 NRC 849, 852 (1986). As for the Staff, it asserts that Criterion 44, "Cooling

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[29] Tr. 59, 61.
[30] Tr. 78.
[31] Tr. 55.
[32] We are not raising any question as to whether the Staff in 1977 should have authorized use of the RH system for other than full-core offload situations. We are only determining whether a party such as NECNP should be barred by *res judicata* principles from raising the issue at this time.
[33] Tr. 64, 67.
[34] Tr. 58.
[35] Tr. 57-58.

water," is applicable to spent fuel pools but, at the present time, is applied by the Staff only to "active" components; it has under study whether to apply the single-failure criterion to "passive" components.[36] In addition the Applicant acknowledged that the current Standard Review Plan (which is not a regulation) applies the single-failure criterion to spent fuel pools.[37]

Given the differences in opinion as to whether the single-failure criterion is or should be applicable, either through regulatory requirement or Staff guidance, we will not at this time rule out NECNP Contention 3 on legal grounds. Because NECNP did not have a fair chance to raise the issue at an earlier date, we will also not bar it on that basis. We accordingly will admit NECNP Contention 3, in the form set forth as Contention 1 in Attachment A to this Order.

We note that the contention raises questions as to the applicability of the single-failure criterion both to the spent fuel pool cooling system and to the RHR system. The Applicant acknowledges that the criterion is applicable to the RHR system when the system is being used as part of the ECCS system but not during periods when the reactor is in cold shutdown (during which the RHR system could and would be used for spent fuel pool cooling).[38] NECNP claims, however, that the RHR system may be needed for decay heat removal even when the reactor is in cold shutdown; and under those circumstances, were one train of the RHR system being used for spent fuel pool cooling, the required redundancy would not be achieved.[39] A recently issued licensing board opinion (in another proceeding) acknowledged a paucity of information concerning accidents that may be initiated during periods of reactor shutdown. *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), LBP-87-12, 25 NRC 324, 333-34, 338 (1987). We would expect that the need for a redundant RHR system for decay heat removal purposes during periods of cold shutdown would be explored as part of this contention.

In addition, the Applicant noted that the RHR system could be used for spent fuel pool cooling for limited periods of time during which the reactor is in full operation.[40] We read the contention as broad enough to encompass the applicability of the single-failure criterion during such periods.

Finally, the contention as submitted questioned RHR system usage as proposed to keep pool water at a bulk temperature of 150°F. That temperature was used in the 1977 evaluation of the pool, and it was carried over into the current application. The Staff's current Standard Review Plan, however, which was

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[36] Tr. 68. The Applicant disagrees with the Staff as to the applicability of Criterion 44 to spent fuel pools (*id.*). The Applicant and Staff agree that Criteria 60, 62, 63, and 64 (as well as 61) govern spent fuel pools (Tr. 69) but none except 61 are relevant to NECNP's proposed contention.

[37] Tr. 69. The Staff is using the current Standard Review Plan to review the instant application (Tr. 74).

[38] Tr. 59-60, 61.

[39] NECNP Response at 6-7; Tr. 77.

[40] Applicant's Response to NECNP at 3-4 n.1; Tr. 72-73, 79-81, 83-86.

adopted in 1981, provides that pool water temperature be kept to 140°F, except in the event of "abnormal heat load." SRP (NUREG-0800), Rev. July 1981, § 9.1.3, ¶ III.1.d and h. In litigating this contention, we propose to consider the applicable temperature to be 140°F, unless the Applicant can demonstrate why some other temperature should be controlling.

b. As for NECNP Contention 4, the other cooling-system contention, it relies on the same basis as Contention 3 but claims, instead, that the system as proposed lessens the margin of safety currently available. Margins of safety, however, are not prescribed by regulation or guidelines. They are primarily relevant to the "no significant hazards consideration" finding which, as we have stated earlier, is not within our jurisdiction to review. If a system meets applicable public health and safety criteria or guidelines, it perforce will have an adequate safety margin for licensing purposes. (That question, of course, is part of Contention 3, which we have accepted.) Accordingly, for jurisdictional reasons, we reject NECNP Contention 4.

We note, however, that if the Staff were to determine under 10 C.F.R. § 51.22(c)(9) that an EA need not be prepared for the proposed amendment because of the lack of significant hazards consideration (*see infra* note 41), a reduction in safety margin might be relevant and would be litigable under 10 C.F.R. § 51.104(b). A proposed contention such as NECNP Contention 4 might then become litigable, and we would consider doing so subject to appropriate standards. *See* ¶ II.B.6 of the Order, *infra* p. 861.

B. Environmental Contentions

Each of the three petitioners has submitted at least one environmental contention. In general, they focus upon NRC's failure to have prepared an Environmental Impact Statement (EIS) and/or an Environmental Assessment (EA). NRC concededly has not at this time prepared either an EIS or an EA — indeed, the Staff reports that an EA is being prepared but will not be issued until July 1, 1987, at the earliest (Tr. 91-92).[41]

1. The broadest of the environmental contentions is NECNP Contention 5, which asserts generally that the NRC has not complied with the provisions of the National Environmental Policy Act (NEPA) or of its own rules in 10 C.F.R. Part 51 (which implement NRC's compliance with the requirements of NEPA). As bases, NECNP cites (a) the failure of NRC to prepare an EIS reflecting the environmental impact of the proposal and discussing alternatives, and (b) the failure of NRC to prepare, as a minimum, an EA. (As noted earlier, at note 5, we regard NECNP Contention 5 as constituting two separate contentions.)

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[41] The Staff also indicated, however, that this application may not require an EA, since it may be categorically excluded by 10 C.F.R. § 51.22(c)(9). *See* Tr. 110. We will discuss the ramifications of this position, *infra* p. 861.

in this connection, NECNP describes the areas of specific concern to it as the increased health risks (as set forth in its health-and-safety contentions) and the consideration of alternatives — particularly dry-cask storage and independent pool storage, both of which allegedly provide safety advantages over the proposed expansion in capacity of the spent fuel pool.

Vermont also seeks an EIS. Its sole basis is the alleged lack of availability of long-term waste disposal facilities and the resulting open-ended storage at the Vermont Yankee site (Vermont Contentions, ¶ IV). For its part, Massachusetts Contention II complains of a failure to consider alternatives such as a dry spent fuel storage facility (i.e., dry-cask storage) or an in-ground spent fuel pool — essentially the same alternatives that NECNP seeks to have examined. As a basis, Massachusetts cites the possibility of a severe accident, as defined in its contention on that subject, and asserts that an EA has not been prepared by the Staff. Although Massachusetts does not specifically seek an EIS, the accident it hypothesizes as a basis for an EA (set forth in Massachusetts Contention I) is essentially the same as that hypothesized by NECNP as grounds for issuance of an EIS. Moreover, Massachusetts has indicated that it is seeking an EA only if an EIS is not to be prepared (Tr. 126). Therefore, we will discuss the similar accident claims of Massachusetts and NECNP in our discussion of the EIS portion of NECNP Contention 5.

2. The Applicant and Staff each find all of these proposed contentions unacceptable. They first observe that there is no *per se* requirement that an EIS be prepared in a case such as this (*citing* 10 C.F.R. § 51.20) and that the NRC determines whether to do so on a case-by-case basis (*citing Diablo Canyon*, CLI-86-12, *supra*, 24 NRC at 12). The Staff has not yet made such a determination in this case. The Applicant and Staff go on to assert that, in order to challenge a determination not to prepare an EIS, a petitioner must allege some specific deficiency in the environmental evaluation, not just a generalized disagreement with the Staff's conclusion (*citing Diablo Canyon*, CLI-86-12, *supra*), and that NECNP and Vermont have advanced only generalized conclusory statements as their bases for why an EIS should be prepared. As for Vermont, the Applicant adds that the basis advanced is outside the scope of matters that we are authorized to consider, pursuant to 10 C.F.R. § 51.23.

With respect to the EA contentions of NECNP and Massachusetts, the Applicant takes the position that, since the EA has not yet been issued, a petitioner cannot advance a contention that purports to challenge an EA. It views the EA allegations as an effort to have us direct the Staff with respect to a matter committed to the Staff's jurisdiction and hence beyond our authority. Moreover, with regard to NECNP's EA contention, the Applicant regards it as the equivalent of a "bookmark article" in a Town Meeting Warrant, a practice it deems to be not an accepted practice in NRC proceedings (*citing Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), ALAB-687, 16 NRC 460, 466-67 (1982),

rev'd in part on other grounds, CLI-83-19, 17 NRC 1041 (1983)). In response to our inquiry, the Applicant also expressed reservations whether a petitioner may formulate environmental contentions based on the Applicant's submissions, since there is no regulatory requirement in a case such as this for an applicant to submit any such information (Tr. 93, 108).

The Staff takes a somewhat different approach to NECNP's and Massachusetts' EA contentions. It states that, at this stage of the proceeding, these contentions should be directed to perceived deficiencies in the Applicant's environmental report and not to the Staff's yet-to-be-issued document (*citing Catawba*, CLI-83-19, *supra*, 17 NRC at 1049). It adds that any challenge to the Staff's EA advanced after issuance of the EA would have to be considered as late filed, under the criteria in 10 C.F.R. § 2.714(a) (*citing Catawba*, CLI-83-19, *supra*, 17 NRC at 1045, 1048). In response to our inquiry, however, the Staff recognized that an environmental report need not be filed in a case such as this (Tr. 92-93) and also, for that reason, questioned whether a petitioner could formulate an environmental contention based on information submitted by the Applicant (Tr. 114).

3. Turning first to the proposed contentions seeking preparation by NRC of an EIS, governing rules appear to permit litigation of an issue of this type (10 C.F.R. § 51.104(a) or (b)). Similar contentions have been accepted in a number of spent fuel pool expansion cases, although (insofar as we can determine) there is no such case where an EIS has been found to be required. *See, e.g., Portland General Electric Co.* (Trojan Nuclear Plant), ALAB-531, 9 NRC 263, 264-68 (1979); *Northern States Power Co.* (Prairie Island Nuclear Generating Plant, Units 1 and 2), LBP-77-51, 6 NRC 265, 267-74 (1977), *modified on other grounds*, ALAB-455, 7 NRC 41 (1978).

However, there is no categorical exclusion to considering contentions seeking an EIS in spent fuel pool expansion cases (*see* 10 C.F.R § 51.22(c)). Indeed, the Commission has stressed that this determination is open for case-by-case consideration. *Diablo Canyon*, CLI-86-12, *supra*, 24 NRC at 12. Moreover, to raise a contention of this type, a petitioner must allege some specific deficiency in the Staff's environmental review (where that has been performed) or a specific demonstration of sufficient impacts to warrant preparation of an EIS (*id.*). Thus, if a petitioner advances adequate reasons in a particular case why there may be sufficient environmental impact resulting from a proposed action to warrant an EIS, the contention may be accepted, irrespective of the validity of those reasons.

The reasons advanced by Vermont cannot serve as a basis for a valid contention. They seek to examine the possibilities or effects of the Vermont Yankee site being used as a long-term or open-ended storage facility. However, we are precluded by regulation from entertaining or considering a contention embody-

ing those concerns in a proceeding such as this. *See* 10 C.F.R. §§ 2.758(a), 51.23, and 51.95(b). For that reason, we reject Vermont's Contention IV.

On the other hand, NECNP's major reason for seeking an EIS is to discuss a particular accident scenario: the same accident scenario the safety aspects of which it sought to examine in its Contention 1.[42] (Massachusetts seeks to explore the environmental impacts of a similar accident in its Contention I.) In support of this scenario, NECNP relies on several studies or draft studies — in particular, NUREG-1150, draft dated February 1987; Brookhaven Report A-3825R, draft dated October 1986; NUREG/CR-4624; and NUREG-1250, draft dated February 1987.

At the outset, we must reject the Applicant's claim that NECNP has presented "nothing more than generalized statements to the effect that the proposed rerack is a 'major federal action significantly affecting the quality of the human environment' and would increase the risk to the public health and safety."[43] The scenario described above (which is incorporated by NECNP through reference to its safety contentions) is considerably more than that and is sufficient to constitute a basis set forth with reasonable specificity.[44] Assuming the basis is not objectionable for some other reason, it is sufficient to undergird an acceptable contention.

The Staff also claims that this contention has not been set forth with adequate basis and specificity. We reject that claim for the same reason as we rejected the Applicant's claim. However, by reference to its arguments on Vermont's severe accident contention (which we are designating as Vermont Contention V), the Staff also raises the question whether a contention of this type is consistent with the Commission's Policy Statement on Severe Accidents.

We earlier held that the Policy Statement precluded us from examining measures to control or mitigate the proffered accident, which is an accident more severe than the design-basis accident for this facility. The Staff would also read the Policy Statement as barring the examination of this accident under NEPA, citing the Appeal Board's statement in *Limerick*, ALAB-819, *supra*, 22 NRC at 696 n.10, that consideration of such accidents need not be undertaken under NEPA, as "NEPA could not logically require more than the safety provisions of the Atomic Energy Act."

We do not read the litigation bar of the Policy Statement to extend as broadly as the Staff suggests. We construe it to apply only to the consideration of control or mitigative measures to counter the effects of such an accident.[45] It does not

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[42] NECNP Contentions at 2-3, 8-9. *See* p. 845, *supra*, for a further description of this accident scenario.

[43] Licensee's Response to Contentions of NECNP at 5.

[44] *See, e.g., Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-819, 22 NRC 681, 693-95 (1985).

[45] The Appeal Board's statement in *Limerick*, ALAB-819, quoted above, related to a contention that sought to explore certain "design alternatives to *mitigate* severe accidents." 22 NRC at 692 (emphasis supplied).

extend to the NEPA-mandated consideration of the *risks* of such an accident. In the explicit language of the Policy Statement:

> The Commission has announced a policy regarding Class 9 environmental reviews and hearings in its Statement of Interim Policy on "Nuclear Power Plant Accident Considerations Under the National Environmental Policy Act of 1969" (45 FR 40101, June 13, 1980) and *expects to continue* this policy. The environmental issues deal essentially with the *estimation and description of the risk* of severe accidents.

50 Fed. Reg. 32,138, 32,144-45 (Aug. 8, 1985) (emphasis supplied). The Commission stressed that only "considerations which go *beyond that* to the possible need for safety measures to control or mitigate severe accidents in addition to those required for conformance with the Commission's safety regulations . . . should not be addressed in case-related safety hearings." *Id.* at 32,145 (emphasis supplied).

This language clearly leaves open, to a limited degree, the examination of the risks of a beyond-design-basis accident. NECNP clearly wishes to explore such risks[46] (even though its contention probably goes further than that). We will admit the EIS portion of its proposed Contention 5 to the extent it asserts that the particular accident scenario set forth (*see supra* p. 845) represents an impact serious enough to warrant an EIS to discuss its risk. The discussion of risk would be undertaken as provided by the Commission's Interim Policy Statement on "Nuclear Power Plant Accident Considerations Under the National Environmental Policy Act of 1969," 45 Fed. Reg. 40,101 (June 13, 1980). The contention is set forth as Contention 2 in Attachment A to this Order. (Because of the similarity of the accident scenario posed by Massachusetts Contention 1, we will consider Massachusetts to be a joint sponsor of this contention.)

4.a. In seeking to introduce their EA contentions (both of which by their terms seek a Staff analysis of two specified alternatives), NECNP and Massachusetts find themselves in a procedural quagmire (at least under the analyses presented to us by the Applicant and Staff). On the one hand, the petitioners are advised that it is premature for them at this time to raise challenges to an EA that has not yet been issued. Such a challenge is deemed to fall within the scope of nonspecific contentions condemned by the Appeal Board in *Catawba*, ALAB-687, *supra*. Any such challenge must await the issuance of the EA and would then be considered (if at all) under the late-filing criteria of 10 C.F.R. § 2.714(a).

On the other hand, the petitioners are told that they cannot challenge the adequacy of the Applicant's treatment of alternatives, since NRC imposes no regulatory requirement on an applicant in a case such as this to submit an analysis

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[46] Tr. 43-44.

of alternatives. The only obligation to consider alternatives (if there be any) is said to lie with the Staff.

We must further note that, if we were to reject all contentions at this time, as the Applicant and Staff urge, we would have to dismiss the petitioners and terminate the proceeding. We would lose our jurisdiction to consider late-filed contentions.[47] Thus, the statement that petitioners could challenge the EA by virtue of a late-filed contention means that, to do so, they would have to petition the Commission (or [illegible] the Appeal Board, if it still retained jurisdiction) to institute a new proceeding or reopen the record — both tasks much more difficult even than [illegible] late-filed contention. Although we are accepting other contentions at this time, we must consider the EA contentions as if we had not done so, since the Applicant and Staff oppose all contentions and could exercise their appeal rights if we accepted any of them.

Under this analysis, both procedurally and environmentally speaking, the petitioners find themselves caught between a rock and a hard place. They are told that they cannot challenge the adequacy of the Applicant's environmental information, because there is no regulatory requirement that the Applicant submit any such information. But they also cannot challenge the [illegible] unissued EA, because it is premature to do so. Further, they also cannot challenge the EA when it is issued (or the Staff's determination that an EA is not required) because (if the Applicant and Staff were to succeed in all their arguments) the proceeding would be terminated and we would no longer have jurisdiction to consider late-filed contentions. The very act of the Staff's delaying issuance of an EA (or a determination that an EA is not necessary) — whether or not justified — could operate to deprive a petitioner of a hearing on environmental issues, irrespective of the potential merit of a petitioner's position on such issues.

The Applicant (supported by the Staff) urges this result as a necessary consequence of the various *Catawba* rulings. We do not agree. Such a reading of those rulings, in our view, constitutes the type of "crabbed interpretation of NEPA" and its implementing regulations that we thought had long ago been laid to rest. *See Calvert Cliffs' Coordinating Committee v. AEC*, 449 F.2d 1109, 1117 (1971).[48]

Fortunately, the *Catawba* rulings need not be read so proscriptively. In the first place, the *Catawba* rulings were in the context of an operating license proceeding with multiple contentions already at issue. The only question was the showing needed to accept a late-filed contention, not the situation where a late-filed contention would be ruled out jurisdictionally. In that context, the

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[47] *See* Tr. 121.

[48] Under the Applicant's reading, the disparate treatment in cases of this type of Atomic Energy Act issues (for which an application must be filed) and NEPA issues (where no information need be filed) — and the differing procedural consequences stemming therefrom — represents a situation as egregious as the procedural disparities condemned by the *Calvert Cliffs'* court. *See* 449 F.2d at 1118-19, 1127-28.

Appeal Board ruled that a valid contention could not be submitted challenging a Staff document not yet issued, and the Commission appears to support that ruling. CLI-83-19, *supra*, 17 NRC at 1049.

Beyond that, the Appeal Board in *Catawba* had permitted a less-than-usual showing to support a late-filed contention following issuance of one of the Staff review documents. The Commission reversed that narrow aspect of the Appeal Board's ruling, holding that the usual standards for considering late-filed contentions, as spelled out in 10 C.F.R. § 2.714(a), would have to be followed. In so holding, the Commission stressed that

> application of the five factors in 10 CFR 2.714(a)(1) only increases the showing required for the admission of a late contention, *and does not act to automatically or unreasonably cut off hearing rights*.

Id., 17 NRC at 1047 (emphasis supplied).

The Commission also rejected the claim that use of the five factors would allow applicants and the NRC Staff "to manipulate the availability of licensing-related documents to deprive intervenors of their rights to a hearing." It explained:

> The situation under consideration here results from the Commission's generic establishment of schedules and, thus, is not susceptible to manipulation by the parties to a proceeding. If undue delay should occur, it can be as easily dealt with in a balancing test as by a *per se* rule.

Id.

Finally, with respect to environmental issues, the Commission recognized that the adequacy of NRC's environmental review is an appropriate issue for litigation. Although the adequacy of such review could not be determined before the issuance of the Staff documents, the Commission emphasized that environmental concerns reflected in an applicant's environmental report should be raised as early as possible and should not await issuance of the Staff documents. *Id.* at 1049. It concluded:

> intervenors are expected to raise issues as early as possible. To the extent that this leads to contentions that are superseded by the subsequent issuance of licensing-related documents, those changes can be dealt with by either modifying or disposing of the superseded contentions.

Id. at 1050.

b. The EA contentions of NECNP and Massachusetts each seek the consideration of two specified alternatives — dry-cask storage and independent pool storage. The Applicant, in its application documents, rejected each of these alternatives as not being available in the time frame within which it allegedly

needed additional fuel storage capacity, specifically because no such facilities had "previously been fully licensed" by NRC.[49] The Applicant indicates that, "in general" the unlicensed options had "not been demonstrated on other than a theoretical or prototype basis, adding to the uncertainty concerning the schedule for design and construction."[50] The Applicant's application documents do not discuss the environmental aspects of either of the two suggested alternatives (or, for that matter, any other alternative).

An agency's evaluation of alternatives is governed by two sections of NEPA, §§ 102(2)(C) and 102(2)(E), 42 U.S.C. §§ 4332(2)(C) and 4332(2)(E). The former section is applicable only when an EIS is required, the latter applies whether or not an EIS is prepared. These sections are implemented within NRC by 10 C.F.R. §§ 51.45(b)(3), 51.53, 51.71, and 51.91(a) (for the discussion of alternatives in an EIS, as required by § 102(2)(C) of NEPA), and 10 C.F.R. § 51.30(a)(1)(ii) and (iii) (for the discussion of alternatives in an EA, as required by § 102(2)(E) of NEPA).

In addition, although an applicant need not submit an environmental report for a spent fuel pool capacity expansion application (*see* 10 C.F.R. §§ 51.45, 51.50, 51.53, 51.54, 51.60, 51.61, 51.62, and 51.68), the Staff may require an applicant for a license amendment to submit "such information . . . as may be useful in aiding the Commission in complying with section 102(2) of NEPA" (10 C.F.R. § 51.41). By letter to licensees dated April 14, 1978, which transmitted NRC guidance on spent fuel pool modifications (entitled "Review and Acceptance of Spent Fuel Storage and Handling Applications"), the NRC outlined the type of information (including environmental information) needed by the Staff to review spent fuel pool modification applications, together with acceptance criteria to be used by the Staff in authorizing such modifications.[51] Environmental information is outlined on pp. II-1 and V-1 through V-4. The Applicant here has referenced at least some portions of this guidance document in submitting its application.[52]

Notwithstanding its approval and use by the Staff, and the reliance upon it by this Applicant, the NRC guidance document does not constitute a formal regulatory requirement. Neither, however, does information provided by the Applicant in response to such guidance constitute an entirely gratuitous submission. For it is clear that the Staff envisages using such information in its review of appli-

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[49] Letter from Applicant to NRC, dated April 25, 1986, at 3, and attached Replacement Report at 5-6.
[50] *Id.*, Letter at 3; Replacement Report at 6.
[51] The April 14, 1978 letter was supplemented by a letter dated January 18, 1979, but the supplement did not deal with environmental information.
[52] Application letter, *supra* note 49, at 6, 7; Replacement Report at 1.

cations such as this, and might well request it if not voluntarily supplied by the Applicant.[53]

Given this situation, it is not surprising that NECNP and Massachusetts focused their EA contentions on the failure of the Staff to analyze alternatives, rather than on an alleged failure of the Applicant to analyze alternatives adequately. The Applicant need not submit an environmental report, although it may be asked by the Staff to provide environmental information.[54] The Staff has the sole regulatory burden of reviewing and analyzing alternatives in a case such as this, and its analysis clearly is a proper subject for litigation. Only because of the Staff's delay in issuing an EA would contentions worded as are NECNP's and Massachusetts' EA contentions become questionable.

In its *Catawba* ruling, the Commission emphasized that a major foundation of its holding was to commence the consideration of particular issues as soon as possible, using the Applicant's information as grounds for contentions. Thereafter, when the Staff's review was completed, contentions could be modified or disposed of, as appropriate (subject to proper standards). Notwithstanding the lack of any formal requirement in a case such as this for an applicant to submit an environmental report, it would appear to be consistent with *Catawba* to accord the Staff's April 14, 1978 guidance with some regulatory significance and to entertain contentions on the sufficiency of an applicant's environmental submissions under those guidelines (or, as applicable, the lack of any such submission). Such contentions have been accepted in cases such as this. *See, e.g., Diablo Canyon*, LBP-86-21, *supra*, 23 NRC at 869 (Mothers for Peace Contention 1). And, as the Commission observed, such contentions can later be modified, as appropriate, but at an early date can serve to permit the commencement of proceedings.

NECNP's and Massachusetts' EA contentions do not, by their terms, focus on the Applicant's analysis of alternatives. But they clearly are aimed at the substance of the Applicant's analysis, since they criticize the lack of any environmental evaluation of alternatives and claim that the alternatives provide safety advantages. NECNP even sets forth facts undercutting the Applicant's claim of lack of availability of one of the alternatives (dry-cask storage).[55] And, at the prehearing conference, it became apparent that the time frame in which the availability of alternatives should properly be analyzed may be far lengthier than is reflected in the application documents.[56]

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[53] *See* April 14, 1978 Staff Letter to Licensees: "Providing the information needed to evaluate the matters covered by this document would likely avoid the necessity for NRC questions . . . ."

[54] Beyond the information encompassed by the April 14, 1978 guidance letter, the Staff has thus far not sought any information on alternatives in this case (Tr. 95).

[55] NECNP Contentions at 10.

[56] Tr. 9-12.

Given the clear intent of these contentions, we perceive the wording used by NECNP and Massachusetts as imprecise, attributable to the absence of an environmental report requirement coupled with the overlay of the *Catawba* procedural requirements for contentions. The substance of NECNP's and Massachusetts' claims is that the analysis of alternatives thus far is deficient. Contentions of this sort have been accepted with far less specificity and basis than are provided by NECNP and Massachusetts. *See Grand Gulf*, ALAB-130, *supra*, 6 AEC at 425-26. Moreover, as the Appeal Board has observed, "[i]t is neither Congressional nor Commission policy to exclude parties because the niceties of pleading were imperfectly observed. Sounder practice is to decide issues on their merits, not to avoid them on technicalities." *Houston Lighting and Power Co.* (South Texas Project, Units 1 and 2), ALAB-549, 9 NRC 644, 649 (1979).

For the foregoing reasons, we are accepting the EA contentions of NECNP and Massachusetts in substance but are rewriting them to constitute a challenge to the adequacy of the Applicant's submission. Given their similarity, we are also combining NECNP's and Massachusetts' contentions and are limiting the approved contention to the two alternatives specifically mentioned therein. This contention is set forth as Contention 3 in Attachment A to this Order.

5. In ¶ III.B of its contentions, Vermont asserts an impact of the proposed amendment on its ability to handle low-level waste, as to which it assumes certain responsibilities in 1993. Although as worded the contention appears to be directed at the "no significant hazards consideration" determination under 10 C.F.R. § 50.91 (and hence beyond our jurisdiction, except to the extent it might be considered under 10 C.F.R. § 51.104(b)),[57] we inquired what basis Vermont had for its concerns. It could not particularize how Vermont's obligations would be changed, although it sought to examine the environmental impact that might result (Tr. 139-44, 147). The Staff volunteered that removal of the old racks themselves would perhaps increase the amount of low-level waste (Tr. 146) but added that such removal would occur long before 1993 (Tr. 152, 153).

That being so, we find no basis for this contention and additionally reject it on that ground.

6. We earlier pointed out that we lack jurisdiction to entertain claims concerning the "no significant hazards consideration" determination that the Staff may make pursuant to 10 C.F.R. § 50.91. We also noted that the Staff indicated (Tr. 110) that it may determine that it need not prepare an EA on that same basis — i.e., that an EA is categorically excluded for an action that involves no significant hazards consideration. 10 C.F.R. § 51.22(c)(9).

If the Staff should determine that an EA is categorically excluded for that reason, however, such a determination would be subject to litigation pursuant to

[57] *See supra* p. 844.

10 C.F.R. § 51.104(b). If the Staff were to make such a determination, we would be prepared to consider, albeit on a late-filed basis, contentions that challenge such a determination.

In that connection, we note that Vermont Contentions, ¶¶ III.A and III.B, would not qualify on other grounds — III.A as inconsistent with 10 C.F.R. § 51.23, III.B for lack of basis. But NECNP Contentions 1 and 4, to the extent they may be read as challenges to a "no significant hazards consideration" finding, might well be litigable on the basis of a challenge to a determination under 10 C.F.R. § 51.22(c)(9), if they were not litigable on some other basis. Absent any Staff action, we express no opinion at this time on this question.

III. STIPULATION BETWEEN PARTIES

As part of the resolution of issues in the 1977 fuel pool expansion application, the parties entered a stipulation of certain facts. LBP-77-54, Appendix A (slip op.) (Aug. 30, 1977).[58] The Applicant, NRC Staff, NECNP, and the State of Vermont were, *inter alia*, parties to that stipulation. Reflecting Vermont's reference to this stipulation as part of the material supporting its contentions, we asked parties and petitioners to address the effects of the stipulation (if any) at the prehearing conference. Memorandum dated April 14, 1987 (unpublished).

Based on the views of all of the parties and petitioners (Tr. 154-68), we conclude that the stipulation does not bar the Applicant (either on an estoppel or a "clean hands doctrine" basis) from seeking the current expansion. We also conclude that the stipulation does not by its terms impose any additional obligation on the Applicant to explore alternatives. We note, however, that the stipulation does suggest a need to explore alternatives, but that current regulatory guidelines also reflect that need. Our admission of NECNP Contention 5 (both portions) and Massachusetts Contention II reflects those guidelines.

IV. SCHEDULES

Under the hybrid hearing procedures that are to govern this proceeding, a period of discovery follows the admission of contentions. Except in exceptional circumstances, such period shall not exceed 90 days. 10 C.F.R. § 2.1111. With respect to the three *admitted* contentions, we are providing approximately 60 days' discovery, with additional discovery provided for new contentions (if any) or with respect to the effect of yet-to-be-issued Staff documents on existing contentions. Following discovery, parties are to submit to us "all the facts, data,

[58] Although the body of LBP-77-54 was published at 6 NRC 436 (1977), Appendix A was not published (*id.* at 449).

and arguments that are known to the party at such time" and on which the party proposes to rely with respect to a contention. We are to consider such material at an oral argument prior to determining whether any issues shall go to hearing. 10 C.F.R. §§ 2.1113 and 2.1115.

We hereby establish the following schedule:

1.	Formal discovery commences:	Within 5 days of service of this Order (approximately June 1, 1987)
2.	Formal discovery closes (i.e., answers to interrogatories received, second round questions asked and answered, document production completed, etc.)	August 3, 1987 (or within 45 days of our acceptance of new contentions based on Staff review documents, or within 45 days of the issuance of such documents, whichever is later)
3.	Filing date for new contentions based on Staff review documents	Within 14 days of service of the particular review document
4.	Filing date for oral argument material (tentative)	September 8, 1987
5.	Oral argument (tentative)	Late September or early October 1987

Although we are not at this time consolidating any of the parties, we recognize the multiple sponsorship of several of the admitted contentions. We expect the parties to coordinate their discovery efforts so that duplicative requests are not filed.

V. ORDER

For the foregoing reasons, it is, this 26th day of May 1987, ORDERED

1. NECNP Contentions 3 and 5 (both portions), and Massachusetts Contentions I (to the extent it raises risk questions) and II are hereby *accepted*, rewritten as described in the Attachment to this Order;

2. NECNP Contentions 1, 2, and 4, Massachusetts Contention I (except to the extent it raises risk questions), and all of Vermont's contentions are hereby *rejected*.

3. The requests for a hearing and petitions for intervention of NECNP and Massachusetts are hereby *granted*. NECNP and Massachusetts are *admitted* as parties to this proceeding, pursuant to 10 C.F.R. § 2.714. Massachusetts is also *admitted* as an interested State, pursuant to 10 C.F.R. § 2.715(c). Vermont's request pursuant to 10 C.F.R. § 2.714 is *denied*. If Vermont wishes to participate as an interested State, it should so advise us and we will permit it to do so.

4. A Notice of Hearing, in the form set forth in Attachment B (not published) to this Order, will be published in the *Federal Register*.

5. Petitions for reconsideration will be considered on the same terms as if 10 C.F.R. § 2.751a were applicable to this proceeding.

6. This Order is subject to review by the Atomic Safety and Licensing Appeal Board under the terms of 10 C.F.R. § 2.714a. A notice of appeal with accompanying supporting brief must be filed within ten (10) days after service of this Order. Please note that any appeals must satisfy the criteria set forth in 10 C.F.R. § 2.714a(b) or (c), as applicable.

THE ATOMIC SAFETY AND
LICENSING BOARD

Charles Bechhoefer, Chairman
ADMINISTRATIVE JUDGE

Glenn O. Bright
ADMINISTRATIVE JUDGE

Dr. James H. Carpenter
ADMINISTRATIVE JUDGE

Dated at Bethesda, Maryland,
this 26th day of May 1987.

ATTACHMENT A

CONTENTIONS

Contention 1
(Derivation: NECNP Contention 3)

The spent fuel pool expansion amendment should be denied because, through the necessity to use one train of the reactor's residual heat removal system (RHR) in addition to the spent fuel cooling system in order to maintain the pool water within the regulatory limits of 140°F, the single-failure criterion as set forth in the General Design Criteria, and particularly Criterion 44, will be violated. The Applicant has not established that its proposed method of spent fuel pool cooling ensures that both the fuel pool cooling system and the reactor cooling system are single-failure proof.

Contention 2
(Derivation: NECNP Contention 5, Massachusetts Contention I)

The proposed amendment would create a situation in which consequences and risks of a hypothesized accident (hydrogen detonation in the reactor building) would be greater than those previously evaluated in connection with the Vermont Yankee reactor. This risk is sufficient to constitute the proposed amendment as a "major federal action significantly affecting the quality of the human environment" and requiring preparation and issuance of an Environmental Impact Statement prior to approval of the amendment.

Contention 3
(Derivation: NECNP Contention 5, Massachusetts Contention II)

The Applicant has failed to submit an adequate analysis of alternatives to the proposed action, as required by §§ 102(2)(C) and 102(2)(E) of the National Environmental Policy Act, 42 U.S.C. §§ 4332(2)(C) and 4332(2)(E), and implementing NRC regulations or guidelines. Specifically, the Applicant has failed to analyze adequately the alternatives of (1) dry-cask storage and (2) independent pool storage. Both of these alternatives are available options and provide obvious safety advantages over the instant proposal.

[Attachment B has been omitted from this publication but can be found in the NRC Public Document Room, 1717 H Street, NW, Washington, DC 20555.]

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ADMINISTRATIVE LAW JUDGE

Ivan W. Smith

In the Matter of

Docket No. 30-16055-SP
(ASLBP No. 87-545-01-SP)
(BML No. 34-19089-01)
(EA 86-155)

ADVANCED MEDICAL SYSTEMS, INC.
(One Factory Row
Geneva, Ohio 44041)

May 4, 1987

MEMORANDUM AND ORDER CONCERNING NRC STAFF'S MOTION FOR STAY OF PROCEEDING

I. BACKGROUND

Advanced Medical Systems, Inc. (AMS), of Geneva, Ohio, is authorized by an NRC byproduct material license to possess and use cobalt-60 and cesium-137 in the manufacture, installation, and servicing of radiography and teletherapy devices. On October 10, 1986, the Director of the Office of Inspection and Enforcement issued an immediately effective order suspending AMS' authority under the license to install, service, maintain, or dismantle the devices.

AMS demanded a hearing. Before the proceeding progressed very far, the NRC Staff administratively relaxed the terms of the order. Licensee is now authorized to resume the suspended activities, but under new conditions.[1] Counsel for the parties have reported during several informal prehearing conferences that, despite the relaxation of the suspension order, there are legal and factual issues remaining to be heard. Those issues have never been sufficiently defined

[1] Letter from Regional Administrator James G. Keppler to Advanced Medical Systems, Inc., February 2, 1987.

because, at the informal request of the Department of Justice, and with the consent of AMS, prehearing conferences were postponed. Formal discovery has not yet been authorized, although the Staff had begun voluntarily providing information to AMS.

On March 9 the Department formally requested NRC Deputy General Counsel James P. Murray to seek a stay of this proceeding.[2] On March 19 the Staff filed the instant motion appending the Department's request and adding the Staff's own arguments for a stay.[3] AMS opposes a stay.

The Department's request explains that its Criminal Division received a case referral from the NRC's Office of Investigations in August 1986, but that the Department then deferred action pending the NRC's investigation because the allegations presented immediate public health and safety concerns. Noting that the NRC has since issued the suspension order and has permitted resumption of operations under conditions that have apparently resolved those health and safety concerns, the Department now wishes to proceed on the earlier allegations and on more recent allegations. The Department notes further that this proceeding has advanced to the point where AMS will have the right to make discovery demands of materials developed by NRC's Staff offices to the detriment of the criminal investigation. For example, the Department represents that there is a "grave risk" that witness statements and other information may be unnecessarily and prematurely disclosed to criminal targets through administrative discovery in this proceeding. The problem arises because discovery under the Federal Rules of Civil Procedure, and by analogy the NRC discovery rules, is much more liberal than the Federal Rule of Criminal Procedure 16. *See, e.g.*, 4A Moore's Federal Practice § 34.04 (2d ed. 1984).

The NRC Staff has accepted the Department's representations and moves that this proceeding be stayed until the completion of the ongoing criminal investigation of AMS and any prosecution by the Department of Justice. The Staff recognizes that an open-ended stay may raise due-process questions, but suggests that the stay need not be extended beyond a reasonable time because resumption of the hearing is within the discretion of the NRC. The Staff believes that since AMS may now perform its normal business under the conditions of the relaxed suspension order, a stay would not be unduly burdensome on AMS. Staff Motion at 7-8.

AMS opposes the motion for a stay on two principal grounds: (1) the motion is without adequate evidentiary support, and (2) a long stay could prejudice AMS by delaying the discovery essential to its defense. Significantly, AMS does

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[2] Letter from William F. Weld, Assistant Attorney General, Criminal Division, By Victoria Toensing, Deputy Assistant Attorney General, U.S. Department of Justice, to James P. Murray, Associate General Counsel, Nuclear Regulatory Commission, March 9, 1987.

[3] There is privity of interest between the NRC Staff and the Department. For the purpose of the motion, I sometimes regard them jointly as the "Government."

not assert a financial burden in operating under the unwanted conditions of the relaxed suspension order. In fact, AMS disdains an economic defense on the grounds that it is irrelevant to the due-process issue of delayed discovery. AMS Brief at 5-6, 10-11.

II. DISCUSSION

A. Evidentiary Basis for Stay

AMS challenges even the authenticity of the March 9 letter from the Department of Justice, which according to AMS was "supposedly issued by a William F. Weld who is apparently an Assistant General Counsel in the Criminal Division . . . ." AMS Brief at 2.

There is no reasonable doubt that there really is a William F. Weld, who is an Assistant Attorney General of the Department of Justice, and that his Deputy, Victoria Toensing, signed the March 9 letter to Mr. Murray requesting the stay. Nor is there reasonable doubt that there actually is a criminal investigation into the activities of the Licensee here and that the statements to that effect contained in the letter and the motion are generally accurate. Nevertheless, the matter is a very significant concern to the Licensee. AMS is entitled to be assured that the motion for a stay has a solid evidentiary footing.

In *Commonwealth Edison Co.* (Byron Nuclear Power Station, Units 1 and 2), ALAB-735, 18 NRC 19 (1983), the Appeal Board refused to accept the generalized representation of counsel that premature disclosure of matters under investigation by the Office of Investigations could seriously compromise those investigations. *Id.* at 23-24. Affidavits of officials having first-hand knowledge of the impact of such disclosure were deemed essential to Staff efforts to prevent disclosure. *Id.*

Accordingly, in the order below, the Staff is granted an opportunity to provide affidavits in support of its motion consistent with the Appeal Board's discussion in *Byron*. *Id.* In the meantime, however, to spare AMS further procedural delay in this proceeding, I assume the authenticity of the March 9, 1987 letter from the Department of Justice. I also assume that the criminal investigation alluded to in the letter and in the Staff's motion are based essentially on the same factual allegations at issue in the NRC civil proceeding at hand.

B. Authority to Stay NRC Proceeding

AMS does not dispute the authority of the NRC to stay the proceeding; its argument is directed to the unfairness of any such stay. The NRC Staff, *citing Landis v. North American Co.*, 299 U.S. 248, 254-55 (1936), correctly asserts

that it is well established that courts may stay a civil proceeding if the harm from staying the civil proceeding is outweighed by the difficulty imposed on the criminal proceeding if both are permitted to go forward simultaneously. Motion at 6.

The NRC Staff also forthrightly acknowledges that, as the party seeking the stay, it "must make a clear case of hardship or inequity in being required to go forward if there is even a fair possibility that the stay for which he prays will work damage to someone else." Motion at 6, *citing Landis v. North American, supra*, 299 U.S. at 254-55. The Staff also concedes that the NRC is not required to suspend its administrative proceeding because of a criminal investigation into the same matter. Motion at 5, *citing General Public Utilities Nuclear Corp.* (Three Mile Island Nuclear Station, Unit 2), CLI-83-24, 18 NRC 315, 318 (1983).

In the *General Public Utilities* decision, the Commission declined to quash administrative investigative subpoenas inquiring into the TMI-2 leak rate matter. The Commission, relying upon *SEC v. Dresser Industries, Inc.*, 628 F.2d 1368 (D.C. Cir. 1980) (*en banc*), *cert. denied*, 449 U.S. 993 (1980), explained that the NRC, as did the Securities and Exchange Commission in the *Dresser* case, had a mandate to make investigations promptly for the protection of the public, which mandate should not be blocked because of a Grand Jury inquiry into the same matter. In *United States v. Kordel*, 397 U.S. 1 (1970), also cited in the *General Public Utilities* decision, the Court held that a governmental agency such as the FDA need not invariably choose either to forego recommending a criminal prosecution once it seeks civil relief, or to defer its civil proceedings pending the ultimate outcome of the criminal trial. *Id.* at 9, 10.

While the Commission, in *General Public Utilities*, declined to suspend its civil proceeding solely on the basis of the Grand Jury's inquiry, it went on to consider whether the parallel investigations would "demonstrably prejudice substantial rights of the investigated parties." *Supra*, 18 NRC at 323-24. Again drawing upon *SEC v. Dresser* for its rationale, the Commission acknowledged that the constitutional privilege against self-incrimination might require a stay of the civil proceeding. Nevertheless, the Commission decided that, as in *Dresser*, a weak case for staying the administrative proceeding was made, and, as noted, declined to stay the NRC investigation.

The decisions of the Commission in *General Public Utilities* and the courts in *SEC v. Dresser* and *United States v. Kordel*, relied upon by the Staff, provide incomplete guidance in this proceeding. Those decisions establish only that it is within my discretion to stay the civil proceeding before me if substantial rights are threatened, and that, where the public interest requires going forward, a civil proceeding need not be stayed pending the completion of the parallel criminal matter. Factually the instant proceeding is quite different from the cited cases. In the *General Public Utilities* case and those cited there, the targets of the parallel

investigations sought the stay. In this case the Government seeks the stay. Unlike the situations in the cited cases, in this proceeding there is no immediate public interest in a stay. As all parties agree, the immediate public health and safety aspects of the proceeding have been satisfied by the conditions of the Regional Administrator's action relaxing the suspension order.

C. Legal Standards for Balancing the Government Need for a Stay Against the Licensee's Need for an Undelayed Proceeding

In a recent case cited by the NRC Staff (at 6), *United States v. Eight Thousand Eight Hundred and Fifty Dollars ($8,850)*, 461 U.S. 555 (1983), the Supreme Court described the test to be applied in determining whether a delay in bringing the government's administrative proceeding prejudiced the defendant's rights to a speedy trial. The similarities in the proceeding here against AMS and the case in *$8,850* provide useful guidance. In *$8,850* the Customs Service (under the Bank Secrecy Act of 1970), before any hearing, seized the money at issue from the defendant upon her entry into the United States. In this proceeding, the NRC Staff, by imposing the immediately effective suspension order against AMS, seized its relief before any hearing, notwithstanding the partial relaxation of that order later. In *$8,850*, the government delayed some 18 months in bringing its civil forfeiture action against the defendant. In this case, the stay sought by the Government could amount to a similar delay in AMS' hearing. In *$8,850*, as in this proceeding, the Government sought to justify the delay in going forward with the administrative proceeding by arguing that the parallel criminal proceeding justified the delay because of concern for improper opportunities for the defendant to discover administratively the details of the pending criminal case. *Id.* at 567.

The Court in *$8,850* recalled that, in *Barker v. Wingo*, 407 U.S. 514 (1972), it had established a balancing test composed of weighing four factors for determining when the government has abridged the right to a speedy trial. The "Barker test" factors were: length of the delay, the reason for the delay, the defendant's assertion of his right to a trial, and prejudice to the defendant. *$8,850*, *supra*, 461 U.S. at 564.

1. Length of Delay

In *$8,850* the Court considered being deprived of such a sum of money over 18 months was a significant burden. But the Court acknowledged that when a delay becomes presumptively improper depends upon the facts of a particular case. In this case, as noted above, AMS does not assert a financial burden. In considering the length of a possible delay sought by the Government in this

proceeding. I am guided most by the amount of injury any such delay might impose upon the Licensee in defending the charges against it.

2. Reason For Delay

The Government in the instant proceeding has advanced a traditional and appropriate reason for seeking a delay, as discussed above. An argument could be advanced that a total stay of the proceeding is unwarranted, as compared to, for example, going forward under a protective order, or limiting discovery to noncriminal aspects of the proceeding. But as I understand the facts now available to me, a distinction between the noncriminal and the civil aspects of the matter cannot now be easily made. As to a protective order, no party has suggested that approach. For the short term of the stay imposed below, the problems of devising and administering a protective order outweigh any benefits to be realized.

It does not appear that the Government has failed to move expeditiously on both the civil and criminal tracks. The period between the time that the Department first reported that it wanted a postponement to consider the consequences of civil discovery in the NRC proceeding, until its March 9 formal request for a stay, and then until the Staff's March 19 motion for the stay was only a few weeks. Presumably the request for a stay was not lightly made. The time in seeking it would reflect the fact that the idea was carefully considered beforehand.

3. Licensee's Assertion of Its Right to a Prompt Hearing

The Court in *$8,850* found that the defendant there did not avail herself of her remedies to ensure an early judicial hearing on her rights. No such finding can be made in this proceeding. AMS has moved the proceeding along as expeditiously as possible. While counsel for AMS did not oppose the requests for continuances, the delays were not long. Counsel's acquiescence in those delays was no more than normal professional courtesy. In any event, AMS is now demanding a prompt hearing.

4. Prejudice to the Licensee

The final "Barker test" factor is whether AMS will be prejudiced by any significant delay in the NRC proceeding. AMS asserts that it has a discovery plan it wishes to pursue and that if denied its opportunity for discovery, its defense will be irreparably harmed "as memories of key witnesses will inevitably fade." The Court in *$8,850* looked to whether the delay in the civil proceeding

hampered the defendant there in presenting its defense, for example, through the loss of a witness or other evidence. Finding that the defendant had not alleged that the delay affected her ability to defend against the government's civil action, the decision was rendered against her. *Id.*, 461 U.S. at 569.

In contrast, the Commission in *General Public Utilities* expressed its concern that "the recollection of individuals may be fading with the passage of time, and delaying the NRC's investigation any longer could seriously prejudice the NRC's ability to resolve this matter." *Supra*, 18 NRC at 325. *See also SEC v. Dresser, supra*, 628 F.2d at 1377.

AMS' concern about its ability to prepare its defense after a long delay is well founded. Memories do fade. Witnesses become unavailable and documents are lost. The Staff's case seems to depend relatively little on technical documents and other objective, enduring evidentiary records. This proceeding seems to depend more upon human motivation, memories, and perceptions than most conducted by the NRC. This is precisely the type of evidence I have found to be the most perishable in NRC proceedings. *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), Partial Initial Decision (Reopened Proceeding), LBP-82-56, 16 NRC 281 (1982), and Partial Initial Decision on the Remanded Issue of the Dieckamp Mailgram, LBP-85-30, 22 NRC 332 (1985). A long delay in the civil aspects of the proceeding will have the dangerous potential of fatally impairing Licensee's ability to mount a defense. If such be the case, the NRC Staff may also be impaired in its ability to impose the relief it deems needed in the public interest.

I have not accepted the Staff's statement that "AMS is fully aware of the Staff's evidentiary case." Motion at 9. That statement is contradicted by the very grounds asserted for the motion, i.e., civil discovery will disclose more information about the Staff's case to the detriment of the Government's criminal investigation. Nor do I understand the Staff's next assertion: "A delay in the hearing will not affect the evidence which AMS seeks to challenge." *Id.* True, while the delay may not affect the nature of the evidence the Staff may present for AMS to challenge, a long delay would affect AMS' ability to challenge that evidence.

III. CONCLUSION

There is no basis to believe that the Licensee in this proceeding has any scheme or plan to use the NRC discovery process to frustrate the Government's criminal investigation. In many of the cases touching on the tension between a criminal target's broad discovery rights in a related civil proceeding, and the very limited rights to discover in a criminal proceeding, there has been a solid basis to fear that the target would abuse the civil process to discover for the criminal

proceeding. For example in the frequently cited case of *Campbell v. Eastland*, 307 F.2d 478 (5th Cir. 1962), the court viewed with suspicion the discovery efforts of a taxpayer who, knowing he was the target of a criminal proceeding, initiated a civil suit for a refund of the taxes in issue. The court inferred the filing of the civil suit and the motion for discovery were tactical maneuvers and a "dodge" to gain advance information over the criminal proceeding. *Id.* at 483, 487, 490; *distinguishing Frazier v. Phinney*, 24 F.R.D. 406 (S.D. Tex. 1959), and *Commissioner v. Licavoli*, 252 F.2d 268 (6th Cir. 1958) (taxpayers were targets of criminal proceedings and involuntary defendants in tax deficiency suits).

In this proceeding, AMS is an involuntary party to a proceeding brought by the NRC and is entitled to all due-process rights consistent with the public interest in the criminal investigation.

As noted, the Department requested an open-ended stay until the conclusion of any criminal prosecution. The Staff supported that request although it suggested that some earlier, unspecified resumption might be appropriate. Neither discusses anything short of a total stay, e.g., the possibility of a protective order, answering interrogatories under seal, or other forms of limited discovery. This is not surprising because the NRC Staff already has what it needs by way of relief and possibly by way of information. But the Government's position shows an insensitivity to the due-process rights of the Licensee. Having failed to request anything short of an absolute stay for as long as the Department wishes, it falls upon me to fashion a more reasonable solution,[4] which may or may not serve the Government's convenience.

IV. ORDER

This proceeding is stayed until August 15, 1987. The stay, however, is subject to the Staff's filing supporting affidavits for the stay as discussed above on or before June 1, 1987.

The Staff may file a motion for a continuation of the stay, but any such motion shall be supported by affidavits, shall report the expected time needed to complete the criminal investigation, and any other information bearing on the reasonableness of the length of any continuation. In the event a motion to continue the stay is filed, arguments may be presented on whether relief short of an absolute stay will serve the Government's needs. For example, the feasibility of an order limiting information to AMS' counsel, responses to discovery kept under seal until the conclusion of the criminal investigation, or

[4] *Dellinger v. Mitchell*, 442 F.2d 782, 787 (D.C. Cir. 1971); *McSurely v. McClellan*, 426 F.2d 664, 672 (D.C. Cir. 1970).

permitting discovery only on specifically defined subject-matter areas may be relevant to any such motion.

In the meantime, as a condition of granting this stay, the NRC Staff shall carefully preserve all evidence that would otherwise be available to AMS in discovery and make a particular effort to identify and preserve evidence that might be exculpatory to AMS.

IT IS SO ORDERED.

Ivan W. Smith
ADMINISTRATIVE LAW JUDGE

Bethesda, Maryland
May 4, 1987

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Lando W. Zech, Jr., Chairman
Thomas M. Roberts
James K. Asselstine
Frederick M. Bernthal
Kenneth M. Carr

In the Matter of

Docket Nos. 50-443-OL-1
50-444-OL-1
(Onsite Emergency Planning
and Safety Issues)

PUBLIC SERVICE COMPANY OF
NEW HAMPSHIRE, *et al.*
(Seabrook Station, Units 1
and 2)

June 11, 1987

The Commission finds that under existing circumstances there can be no low-power operation at Seabrook beyond fuel loading and precriticality testing unless and until the Applicants file a bona fide utility offsite emergency plan for Massachusetts that satisfies the Commission's threshold requirements. The Commission accordingly denies Applicants' request to vacate CLI-87-2 (25 NRC 267 (1987)) as moot and to lift the stay on low-power operations at Seabrook.

EMERGENCY PLAN: UTILITY PLAN AS SUBSTITUTE

Commission case law has very clearly defined a utility plan as one that provides measures to be taken by the utility to compensate for the absence of governmental participation in emergency planning. *See Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), LBP-83-22, 17 NRC 608, 625, *aff'd*, CLI-83-13, 17 NRC 741 (1983); *id.*, CLI-86-13, 24 NRC 22 (1986).

EMERGENCY PLAN: UTILITY PLAN AS SUBSTITUTE

Where, as here, the Commission has required submittal of an emergency plan in the absence of state and local governmental cooperation in providing some of the materials that normally are essential to support a full-power license under Commission regulations, an adequate filing would be one intended for actual implementation as a utility emergency plan and intended to be subjected to Staff and FEMA review and litigation on that basis.

EMERGENCY PLAN: UTILITY PLAN AS SUBSTITUTE

While "realism" may play a role in the ultimate decision on the acceptability of planning that lacks state participation, it cannot repair the void caused by the failure to submit a utility plan that reflects the utility's compensatory measures and efforts to facilitate the state's participation in the event of an emergency.

MEMORANDUM AND ORDER

Today we deny the motion of Public Service Company of New Hampshire ("PSNH" or "Applicants") to vacate our decision in CLI-87-2[1] as moot and to lift the stay on low-power operations at Seabrook. The result of today's decision is that under existing circumstances there can be no low-power operation at Seabrook beyond fuel loading and precriticality testing unless and until the Applicants file a bona fide utility offsite emergency plan for Massachusetts that satisfies the Commission's threshold requirements. As we explain below, the plan that PSNH filed with the Commission on April 8 is not, in fact, a bona fide utility plan, and cannot by its very nature satisfy the Commission's threshold requirements specified in CLI-87-2.

I. BACKGROUND

A. Proceedings Before Adjudicatory Boards

By order dated October 7, 1986, the Licensing Board designated to hear onsite emergency planning and safety issues authorized the issuance of an operating license allowing fuel loading and precriticality testing at Seabrook. *See* LBP-86-34, 24 NRC 549. The Attorney General of Massachusetts ("Attorney General" or "Massachusetts"), a party to this proceeding, appealed this decision to the

[1] 25 NRC 267 (1987).

Atomic Safety and Licensing Appeal Board (Appeal Board) on a single issue[2]: whether 10 C.F.R. § 50.33(g) requires that utility applicants file a radiological emergency response plan for the entire plume exposure pathway emergency planning zone (EPZ) for the facility before any license may be issued. It had been conceded that PSNH had not submitted such a plan for the portion of the EPZ that lies within the Commonwealth of Massachusetts. In ALAB-853, the Appeal Board decided that the lack of a plan for the entire Massachusetts portion of the Seabrook EPZ did not bar the issuance of a license to permit low-power operations.

B. Proceedings Before the Commission

Shortly thereafter, the Commission commenced a deliberative process on whether its *sua sponte* review of this issue would be warranted. The Commission recognized that although fuel loading and precriticality testing had gone forward, the Appeal Board's interpretation of the regulations expressed in ALAB-853 would, if unreviewed, become at the low-power stage subject to later modification or overruling by the Commission. Because the same issue would be relevant to any later decision on issuance of a low-power license, the Commission decided *sua sponte* to resolve the issue so that the later decision on low-power licensing could be made with Commission guidance in hand. Thus, on January 9, 1987, the Commission took review. Order, this docket (unpublished), at 1 (January 9, 1987).[3] By the same order the Commission stayed the Director of Nuclear Reactor Regulation (NRR) from authorizing further low-power operations at the Seabrook facility until the Commission's review was concluded.

On consideration of the briefs submitted on review of ALAB-853, the Commission decided not to affirm the Appeal Board. It said:

> We acknowledge that there is some merit to both sides' positions, and we commend the Appeal Board for its careful analysis of the question. But the question before us is not a strictly legal one, but rather a question of regulatory policy which ultimately we alone should decide. In the special circumstances of this case our judgment is that sound policy favors requiring the filing of a state, local, or utility plan before any operating license is issued, including a license confined to fuel loading or low-power testing.

CLI-87-2, 25 NRC at 270.

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[2] Intervenor Seacoast Anti-Pollution League (SAPL) joined in the Attorney General's appeal and in addition raised separate issues. For reasons explained by the Appeal Board (*see* ALAB-853, 24 NRC 711, 713 n.2 (1986), the original issue was heard and decided separately and is the sole issue of that phase reviewed by the Commission.

[3] *See also* CLI-87-2, *supra*, 25 NRC at 268 n.2. *See id.* at 268-69 for parties, their positions, and the like, which we need not here repeat.

Consistent with its decision the Commission left its stay in place, noting that on the eve of its formal affirmation of CLI-87-2 it had received PSNH's notification that it was submitting "a utility emergency plan" for that portion of the EPZ that lies in Massachusetts. PSNH had suggested that because of this new development the issue on review was moot, and requested the Commission to lift its stay. *See* PSNH's "Suggestion of Mootness and Request for Vacation of Stay," April 7, 1987. Instead of deferring its CLI-87-2 decision, the Commission said it would consider PSNH's motion as one to vacate CLI-87-2 as moot and to lift the stay. It is that motion that we now decide.

II. OPINION

A. The Issue

The issue that governs the Commission's decision on the motion before us is whether PSNH's April 8, 1987 submittal of "a utility emergency plan" for Seabrook satisfied the Commission's intent in CLI-87-2 in requiring the filing of a state or local governmental or utility plan.

As explained below, CLI-87-2 imposed two requirements: (1) PSNH was to file a bona fide utility plan, and (2) must demonstrate on summary review that adequate emergency planning is "at least in the realm of the possible." Since we find that PSNH's submittal fails to meet the first requirement, and therefore that the low-power stay must be maintained, we need not and do not address the further question of whether the second requirement can be met by PSNH's submittal.

B. The Standards — a Bona Fide Utility Plan

In the circumstances of this proceeding, it is clear that neither the state nor local governments in Massachusetts had sponsored or currently intended to sponsor a plan. Thus it is beyond doubt that the Commission intended PSNH to submit a utility emergency plan.[4] It has very clearly been developed in Commission case law that a utility plan is one that provides measures to be taken by the utility to compensate for the absence of governmental participation in emergency planning. *See Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), LBP-83-22, 17 NRC 608, 625, *aff'd*, CLI-83-13, 17 NRC 741 (1983); *id.*, CLI-86-13, 24 NRC 22 (1986).

[4] The Commission here reiterates what it has stated in a variety of fora, that it would welcome and prefer governmental participation. Nonetheless, its decision in CLI-87-2 recognized the current unlikelihood of such participation occurring in the near future.

In CLI-87-2, the Commission required submittal of a plan in circumstances where "some of the materials that normally are essential to support a full-power license under our regulations were missing." 25 NRC at 270. It cannot then be supposed that the Commission contemplated that it was requiring anything less than would be required of any submittal of materials supporting a license application under the regulations. The very minimum for such a submittal would be a bona fide utility plan. An adequate filing in this case would be one intended for actual implementation as a utility emergency plan, and one intended to be subjected to Staff and FEMA review and litigation on that basis.

C. Positions of the Parties[5] and Judgment of the Commission

At the outset, PSNH described its submittal as "a utility plan," but it did not repeat that characterization.[6] Moreover, in effect PSNH later conceded that its submittal was not a utility plan by acknowledging that it was a plan developed by the state for execution by the state, and contained no measures to compensate for the lack of governmental participation. Letter from George S. Thomas, April 24, 1987. The Applicants apparently were satisfied to fill this void by the statement that such measures could be developed.[7]

The parties that oppose the motion and the Staff are in accord that the plan is not in fact a utility plan.

There appears to be no dispute that PSNH's independent contribution to the plan that it submitted was solely a new cover page. For each volume each such page bears the marking "For Information Only." The letter of submittal includes a sworn statement by a cognizant official of the Applicants that the information in the plan is true "on knowledge and belief." PSNH does not specifically discuss as a separate matter the bona fides of its filing.

The parties in opposition take the position that the plan is not a good-faith filing for a number of reasons, most significantly that PSNH failed to eliminate

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[5] The parties that submitted views are the Applicants, New England Coalition on Nuclear Pollution, Seacoast Anti-Pollution League, Massachusetts Attorney General James M. Shannon, Town of West Newbury, Town of Hampton, Town of Amesbury, and the NRC Staff. For convenience we characterize generally as the opposing position the thrust of the Intervenors and governmental entities, all of which that filed did so in opposition to PSNH's motion. We note that the State of New Hampshire took no position in the instant matter.

[6] *See* Applicants' "Suggestion of Mootness and Request for Vacation of Stay" at 2, ¶ 4 (April 7, 1987), and Letter from George S. Thomas to NRC, April 8, 1987 (transmitting "utility plan." *Cf.* "Views of the Applicants in Response to CLI-87-2" and Letter from George S. Thomas to NRC, April 24, 1987 (clarification "to assist in the review and understanding of th[e] submittal").

[7] Alternatively, PSNH appears to place reliance on a "realism" argument that the state and local governments would perform in an emergency under the plan that they had developed. "Views of the Applicants in Response to CLI-87-02" at 12. They also assert that due to various specified reasons, the governments will be capable of responding pursuant to the plans. Letter from George S. Thomas, *supra*, at 2. While "realism" may play a role in the ultimate decision on the acceptability of planning that lacks state participation, it cannot repair the void caused by the failure to submit a utility plan that reflects the utility's compensatory measures and efforts to facilitate the state's participation in the event of an emergency.

information demonstrably known by it to be obsolete or otherwise wrong, especially including participation of governmental and private institutions that had made contrary written statements.

While the Staff does not directly address the good-faith issue, it notes in the course of its evaluation that the plan includes a restrictive marking, "For Information Only." While Staff advises us that PSNH has sought a meeting on the plan, Staff also informs us that PSNH has neither requested FEMA review nor suggested that litigation should commence on the merits of the plan in conjunction with their realism argument.

On balance, the Commission is unable to find that the submittal satisfies the intent of CLI-87-2. PSNH was (or certainly should have been) well aware that what it was submitting was not its plan, was not a utility plan, and contained obsolete and wrong information that *no* effort had been made to remove.[8] Moreover, PSNH has marked the submitted plan "For Information Only" and has not specifically requested a FEMA review of the plan. Such a specific request, as the Staff points out, would be made in the normal course of events, were the plan submitted with the intent to be implemented and as the subject of review and eventual findings on emergency planning adequacy. *See* NRC Staff's Response to Applicants' "Suggestion of Mootness and Request for Vacation of Stay," nn.15 & 19.

III. JUDGMENT

In light of the foregoing, the Commission finds that the Applicants' submittal is insufficient to meet the requirement imposed on it by the Commission's decision in CLI-87-2. Accordingly, the Commission neither vacates its decision nor lifts its stay.

Commissioners Carr and Roberts disapproved this order. Commissioner Carr's dissenting views (with which Commissioner Roberts agrees) are attached. Commissioner Asselstine's additional views are also attached.

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[8] *See* NRC Staff's Response to Applicants' "Suggestion of Mootness and Request for Vacation of Stay," n.6 (May 1, 1987) and Affidavit there cited. *See also* Town of Amesbury's Response to Applicants' "Suggestion of Mootness and Request for Vacation of Stay" at 2, ¶ 5 (April 10, 1987), and Exhs. A-C.

It is so ORDERED.

For the Commission*

SAMUEL J. CHILK
Secretary of the Commission

Dated at Washington, D.C.,
this 11th day of June 1987.

COMMISSIONER CARR'S DISSENTING VIEWS

I dissent from this order for the simple reason that I would not have reversed ALAB-853, nor continued the stay and embarked on the course that the majority chose in CLI-87-2. I offer no view on the correctness of the majority's application of the criteria against which it assesses the adequacy of the Applicants' submittal of an emergency plan for the Commonwealth of Massachusetts.

SEPARATE VIEWS OF COMMISSIONER ASSELSTINE

I approve the order as far as it goes. I also would have found that the plan filed by the utility does not meet the threshold established in CLI-87-2, i.e., that it does not demonstrate that adequate emergency planning is "at least in the realm of the possible."

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*Commissioner Bernthal was not present for the formal affirmation of this order; had he been present he would have approved it. In order to allow the will of the majority to prevail, Commissioner Carr did not participate in the formal affirmation of this order.

Cite as 25 NRC 882 (1987) CLI-87-4

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Lando W. Zech, Jr., Chairman
Thomas M. Roberts
James K. Asselstine
Frederick M. Bernthal
Kenneth M. Carr

In the Matter of **Docket No. 50-322-OL**

LONG ISLAND LIGHTING COMPANY
(Shoreham Nuclear Power Station, Unit 1)

June 11, 1987

The Commission decides that while emergency planning issues remain unresolved it has no legal basis to grant without a hearing a utility request for immediate authorization to increase power for Shoreham from 5% to 25% of rated capacity. In the absence of means to resolve differences over these issues, an immediate authorization is not possible because it would be necessary to resolve new factual issues raised by the request under normal adjudicatory procedures pursuant to 10 C.F.R § 50.57(c) and 10 C.F.R. Part 2, Subpart G. Because the Licensee appears to desire a more expedited procedure than would be required, the Commission therefore denies the utility's request for a 25% license without prejudice to Licensing Board consideration of the request if the Licensee so desires.

MEMORANDUM AND ORDER

On April 14, 1987, Long Island Lighting Company (LILCO) requested immediate Commission authorization to increase power for Shoreham from 5% to 25% of rated capacity. Accompanying the request was a motion for

expedited Commission consideration. The primary basis for the request and motion was LILCO's belief that 25% operation was necessary to prevent a critical shortage of electrical power for Long Island this summer. The NRC Staff offered no views on the merits of the request, but supported LILCO's motion for expedition. Intervenors New York State, Suffolk County, and Town of Southampton opposed both the request and the motion, asserting, among other things, that LILCO's claims of an impending power shortage were baseless.

LILCO's request introduces a series of new material factual issues into this already complicated and prolonged proceeding, but neither LILCO nor the NRC Staff has offered any suggestion as to how these factual issues can possibly be resolved before the end of this summer if we follow our normal adjudicatory hearing procedures in 10 C.F.R. § 50.57(c) and 10 C.F.R. Part 2, Subpart G. LILCO may be suggesting some different decision procedure for its motion, but has made no specific suggestion in this regard and has offered no explanation of how the Commission may lawfully circumvent its usual rules for decisions.

We are not in a position to agree or disagree with LILCO's assertion that a 25% license is needed for electrical power on Long Island this summer. But on the basis of the filings before us, we can say that unless the State of New York, Suffolk County, and the other parties to this proceeding agree on Long Island's power needs and propose some means to settle the outstanding issues, there is nothing the Commission can lawfully do to grant LILCO's request for immediate authorization to operate at 25% power.[1]

Accordingly, LILCO's request for a 25% license is denied. LILCO may refile its request under § 50.57(c) with the Licensing Board when and if it believes that some useful purpose would be served thereby.

It is so ORDERED.

For the Commission*

SAMUEL J. CHILK
Secretary of the Commission

Dated at Washington, D.C.,
this 11th day of June 1987.

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[1] In response to LILCO's motion to the NRC Staff's plans for review of the studies underlying the request, Intervenors submitted a motion asking us to direct the Staff to cease its review. In view of our disposition of the request, we presume that Staff will no longer need to expend resources to review the request, unless necessary to respond to a renewed request for such authorization at some future time. Of course, nothing should prevent Staff from reviewing any of LILCO's supporting material for any other lawful purpose. For example, review of the PRA could offer useful insights into the safety of the Shoreham plant and how plant safety might be improved.

*Commissioner Bernthal was not present when this order was affirmed. If he had been present, he would have approved it.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Lando W. Zech, Jr., Chairman
Thomas M. Roberts
James K. Asselstine
Frederick M. Bernthal
Kenneth M. Carr

In the Matter of **Docket No. 50-322-OL-3**
(Emergency Planning)

LONG ISLAND LIGHTING COMPANY
(Shoreham Nuclear Power Station, Unit 1)

June 11, 1987

The Commission evaluates, under the criteria of 10 C.F.R. § 2.734, Intervenors' motion to reopen the Shoreham emergency planning record on three issues. The Commission grants the motion to reopen as to the withdrawal of WALK Radio as the primary emergency broadcast system (EBS) radio station for the emergency plan. However, the reopened issue is remanded to the Licensing Board with instructions to delay the admission of contentions until receipt of the utility's modified emergency plan.

The Commission denies Intervenors' request to reopen on the two other issues: (1) the lack of an agreement between the utility and the American Red Cross (ARC) for its participation in emergency response; and (2) the absence of agreements between the ARC and certain shelter owners for the use of shelters in a Shoreham emergency. Because the ARC's charter and policy require it to assist in emergency response whether or not there is an agreement, the Commission concludes that movants have not demonstrated that there would have been a materially different result, or that such a result would have been likely, had the absence of the agreements been considered initially.

RULES OF PRACTICE: REOPENING OF AN EVIDENTIARY RECORD

A motion to reopen a closed evidentiary record will not be granted unless the movant satisfies all of the criteria for reopening under 10 C.F.R. § 2.734.

MEMORANDUM AND ORDER

Intervenors ask the Commission to reopen the emergency planning record based on two "new" developments: (1) the withdrawal of WALK Radio as the primary emergency broadcast system (EBS) station for the Shoreham emergency plan, and (2) a letter from the Nassau County Chapter of the American Red Cross (ARC) to LILCO denying that there is any agreement between LILCO and ARC pertaining to emergency response for Shoreham. These developments, Intervenors allege, show that the LILCO plan is deficient because there are no viable provisions for activating tone-alert radios or for broadcasting EBS messages, there is no indication of the willingness or ability of ARC to provide assistance "as required under the plan," and there are no congregate care facilities due to ARC's "inability and refusal to agree, identify, designate, open, or operate such centers in a Shoreham emergency." Motion at 1-2 (November 10, 1986). While maintaining that there are existing contentions under which these issues could be litigated, Intervenors submit proposed contentions with their motion so as to focus any further hearings. On the proper ground that it lacked jurisdiction to reopen as requested, the Licensing Board dismissed Intervenors' request,[1] and Intervenors now seek relief directly from the Commission.[2]

THE COMMISSION'S REOPENING STANDARDS

The Commission has evaluated the motion under 10 C.F.R. 2.734, which provides:

> (a) A motion to reopen a closed record to consider additional evidence will not be granted unless the following criteria are satisfied:

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[1] Both the Licensing and the Appeal Boards have already completed hearings and rendered decisions on the issues for which reopening is sought.

[2] The Licensing Board dismissed for lack of jurisdiction after the parties had submitted their pleadings on the motion. The parties agreed that the pleadings submitted initially to the Licensing Board represented their views sufficiently to avoid the necessity for new filings. The Commission endorsed this approach in a November 19, 1986 Order (unpublished), permitting but not requiring new papers. Only LILCO submitted new material (in a brief "Answer . . .") (Nov. 21, 1986). Thus unless otherwise noted, the pleadings referenced are those initially filed with the Licensing Board.

(1) The motion must be timely, except that an exceptionally grave issue may be considered in the discretion of the presiding officer even if untimely presented.

(2) The motion must address a significant safety or environmental issue.

(3) The motion must demonstrate that a materially different result would be or would have been likely had the newly proffered evidence been considered initially.

(b) The motion must be accompanied by one or more affidavits which set forth the factual and/or technical bases for the movant's claim that the criteria of paragraph (a) of this section have been satisfied. Affidavits must be given by competent individuals with knowledge of the facts alleged, or by experts in the disciplines appropriate to the issues raised. Evidence contained in affidavits must meet the admissibility standards set forth in § 2.743(c). Each of the criteria must be separately addressed, with a specific explanation of why it has been met. Where multiple allegations are involved, the movant must identify with particularity each issue it seeks to litigate and specify the factual and/or technical bases which it believes support the claim that this issue meets the criteria in paragraph (a) of this section.

* * *

(d) A motion to reopen which relates to a contention not previously in controversy among the parties must also satisfy the requirements for nontimely contentions in § 2.714(a)(1)(i-v).

We conclude, as to WALK Radio, that the motion satisfies these standards and that, as to the other issues, it does not.[3]

WALK RADIO

The Staff and LILCO agree that the withdrawal of WALK Radio does justify reopening the record, but submit that the admission of contentions should await LILCO's proposal of plan modifications to deal with the WALK situation. Staff Response at 6 n.2; LILCO Response at 4. LILCO opposes the remainder of the motion, while Staff supports the remainder.

We grant the request to reopen on this matter. Intervenors' request was timely, addresses a significant safety issue, demonstrates that a materially different result would have been likely, and was supported by an appropriate affidavit. However, we believe that it's premature to admit contentions on the EBS situation until LILCO provides updated information on public notification procedures which may elicit additional contentions. We see no gain to going through the contention admission process twice rather than once.

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[3] In assessing the motion, we also considered a recent FEMA evaluation of LILCO's plan. On December 30, 1985, FEMA delivered to the NRC's Executive Director for Operations an assessment by its Regional Advisory Committee (RAC) of LILCO's Plan. Letter from Dave McLoughlin (FEMA) to Victor Stello (NRC). Based on the letters from WALK Radio and the ARC, FEMA concluded that there were several inadequacies in the Plan. As to the latter, the RAC concluded that the ARC letter "raises many questions concerning the participation of the Red Cross in a Shoreham incident. . . ." *Id.*, Attachment 1 at 10. The RAC also found "unworkable" the lack of letters of agreement between the ARC and shelter owners. *Id.*

AMERICAN RED CROSS

Under LILCO's plan, the Nassau County Chapter of the American Red Cross is relied upon to provide substantial assistance in caring for evacuees, and is to identify, open, and operate congregate care centers (shelters) for evacuees. Intervenors' Contention 24.P alleged that LILCO lacked an agreement with ARC to ensure the provision of these services. Based on a 1984 letter from the Chapter's then-Chairman to the effect that there *was* such an agreement, the Licensing Board found for LILCO. PID, LBP-85-31, 22 NRC 410, 416-17, 420 (1985).

In an August 21, 1986 letter to LILCO, the present Chapter Chairman of the ARC made clear that there's no ARC "agreement" with the utility. Rather, he characterized the 1984 ARC letter as a "statement of the policy of the Red Cross," as "mandated by the charter granted to the Red Cross by the U.S. Congress." Letter from Walter Osterbrink (ARC) to Elaine D. Robinson (LILCO). This letter, Intervenors assert, mandates a reopening of the record on Contention 24.P. The Staff agrees, and LILCO opposes.

The Staff argues that:

> [t]he letter disavowing that such an agreement exists might be significant and might lead to a different [Licensing Board decision], *if* the ARC did not in the same letter seem to recognize that the ARC still has an obligation, under its policies and under its charter from Congress, to provide aid to LILCO in the event of an emergency at Shoreham. The meaning of the ARC letter, and just what aid the ARC would provide in the event of a Shoreham emergency, is far from clear. . . . Because . . . hearings are necessary on other matters raised by the letter in regard to whether the ARC can provide an adequate number of [shelters], this matter of the ARC's obligations in a Shoreham emergency should be consolidated with those other matters.

Staff Response at 7 (emphasis in original). The Staff also notes that it may be possible to decide on the basis of documentary evidence — without an evidentiary hearing — whether ARC's obligations under its policies are any different from its obligations under the purported agreement. *Id.* at 8 n.4.

LILCO argues, in contrast, that this issue fails to meet two of the three Commission criteria for reopening. First, LILCO argues, the issue isn't a "significant safety or environmental issue." Second, the new letter doesn't "demonstrate that a materially different result would be or would have been *likely* had the newly proffered evidence been considered initially." Thus, according to LILCO, the ARC's "'statement of policy . . .' is at least as good as an agreement [because] the role described in the earlier letter is 'mandated by the charter granted to the Red Cross by the U.S. Congress.'" Answer at 5. Further, says LILCO, the proffered contention on this issue fails to satisfy the standards for late-filed contentions because it alleges the absence of an agreement where

there's a "policy" as good as an agreement, thus raising no significant safety issue. *Id.*

The critical questions here are whether the new letter raises a significant safety issue and is likely to lead to a different result. The Staff observed that the ARC letter "might be significant and might lead to a different result *if* the ARC did not in the same letter seem to recognize that the ARC still has an obligation, under its policies and under its charter from Congress, to provide aid to LILCO." But, Staff adds, the letter is "far from clear," and FEMA's December 30, 1986 assessment states that the letter "raises many questions concerning [the ARC's] participation in a Shoreham incident." *Id.*, Attachment 1 at 10.

We find no implication in the letter that for Shoreham, ARC is disavowing its general policy. The Licensing Board found the earlier letter to provide reasonable assurance that the Red Cross will perform the duties that LILCO relies upon the Red Cross to perform in the Shoreham emergency plan. 22 NRC at 420. The new letter does not appear to erode this reasonable assurance finding. Indeed, the ARC letter states that the earlier letter relied upon by the Board was "a statement of the policy of the Red Cross in *any* radiological, or natural disaster." Emphasis added. The apparent purpose of Mr. Osterbrink's letter is to make clear that ARC neither "supports [n]or opposes the opening of Shoreham."

As we noted above, the Red Cross letter led FEMA to find the Plan inadequate in certain aspects. While we believe that FEMA's assessment is entitled to our deference, at least initially, for the reasons given above we are unpersuaded that the lack of an agreement in this instance would lead to a different result.

Since Intervenors have failed to carry their burden as movants to show that reopening the record is likely to lead to a materially different result, we deny the motion to reopen on this issue.

CONGREGATE CARE FACILITIES

Intervenors claim that the recent ARC letter places in doubt the Licensing Board's findings concerning adequate shelter for evacuees. Motion at 11-12, *citing* PID, 22 NRC at 422-23. Intervenors had argued to the Licensing Board that the agreements for shelters between ARC and other organizations (generally churches and schools) were revocable at will, did not explicitly provide for the use of those shelters in a Shoreham emergency, and that the owners of the facilities would not agree to such use.

Based in part on the letter from the ARC stating that there was an agreement with LILCO for ARC to provide shelters, and based upon an attached list of facilities, the Board found that ARC's agreements with LILCO and with other organizations provided reasonable assurance that ARC would perform adequately the duties expected of it under the plan, including the securing of sufficient

space for shelters. The Licensing Board didn't disagree with Intervenors' assertions that the agreements were revocable at will and that they didn't explicitly provide for use of the facilities in a Shoreham emergency. However, the Board noted that ARC is experienced in locating shelters using established criteria and procedures, and that "[i]f facilities become unavailable the Red Cross finds other suitable facilities." PID, 22 NRC at 421. The Board viewed the identification of specific facilities as a "ministerial duty" not requiring formal adjudicatory procedures. *See id.* at 423.

Intervenors argue that the recent ARC letter invalidates the Board's findings, asserting that:

> (1) the Red Cross has not agreed to identify, designate, open, or operate congregate care centers in the event of a Shoreham emergency; and (2) in any event, the facilities to which LILCO — and [the] Board — previously assumed evacuees could and would be sent in the event of a Shoreham accident, are not available for that purpose.

Motion at 12-13.

The Staff agrees with Intervenors that the record should be reopened on this issue, hinging its agreement on the statement in the latest ARC letter that a "significant" number of facilities would be unavailable, thus "creat[ing] an issue as to whether the extent of withdrawals causes the ARC, on whose representations the Board relied, to believe that it cannot implement the LILCO plan." Staff Reply at 8 n.5.

LILCO, in contrast, argues that the letters from the facility owners are old news, having been argued about to the Board on many occasions since early 1985, to the Appeal Board since early 1986, and to the Commission shortly thereafter. Further, LILCO argues, the Board relied not on specific facilities, but on "the standards the Red Cross uses to choose" shelters, the Board having directed the Staff to verify that agreements for the facilities are up to date, a ministerial act not requiring an evidentiary hearing. LILCO's Answer at 6.

While FEMA found "unworkable" the lack of agreements with shelter owners, we believe that several factors argue against reopening. First, the Licensing Board seems to have been well aware of the dispute over shelter availability at the time it issued its PID. Second, while Intervenors argue that thirty-two letters from facility owners attached to Mr. Osterbrink's letter support the request to reopen, adding that the letters also were attached to a September 26, 1986 limited appearance statement, Intervenors fail to note that most of these were bound into the transcript of the proceeding on June 25, 1985, 2 months prior to the Licensing Board's issuance of its PID.[4] Thus we find that the bulk of the evidence presented

[4] *See* Tr. 15,986. Intervenors should have noted their sponsorship of these letters in 1985. While Intervenors don't *claim* that the letters are new, that is the *implication* of the motion.

in the motion to reopen is not, in fact, new evidence. Rather, it was available to the Licensing Board when that Board rendered its PID. It also appears that the Licensing Board was not relying specifically on listed facilities, but rather on the standards used by the Red Cross to choose and locate facilities, and on the ARC's past success in locating facilities. *See* PID, 22 NRC at 423. The new ARC letter doesn't weaken this basis for the Board's decision, and therefore the motion to reopen does not demonstrate that a materially different result would have been reached by the Licensing Board, even assuming *arguendo* that the information is new.

CONCLUSION

The motion to reopen is granted as to WALK Radio. As to agreements with the ARC and shelter owners, it is denied. We remand to the Licensing Board on the reopened issue, with the Board to admit "new" contentions only to the extent they assist in focusing further the litigation on earlier-admitted issues, and only after LILCO provides updated information on public notification procedures.

Commissioner Asselstine approved in part and disapproved in part. His separate views are attached.

It is so ORDERED.

For the Commission*

SAMUEL J. CHILK
Secretary of the Commission

Dated at Washington, D.C.,
this 11th day of June 1987.

SEPARATE VIEWS OF COMMISSIONER ASSELSTINE

I agree with the decision to reopen the record on the WALK Radio issue. However, I would also have reopened the record on the other two issues as well.

*Commissioner Bernthal was not present when this order was affirmed. If he had been present he would have approved it.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Lando W. Zech, Chairman
Thomas M. Roberts
James K. Asselstine
Frederick M. Bernthal
Kenneth M. Carr

In the Matters of

BRAUNKOHLE TRANSPORT, USA (Import of South African Uranium Ore Concentrate)	Docket No. 11003919 (License Application No. IU-87001)
BRAUNKOHLE TRANSPORT, USA (Import of South African Natural Uranium Hexafluoride)	Docket No. 11003920 (License Application No. IU-87002)
BRAUNKOHLE TRANSPORT, USA (Import of South African Enriched Uranium Hexafluoride)	Docket Nos. 11003921, 11003922 (License Application Nos. ISNM-87003, ISNM-87004)
ADVANCED NUCLEAR FUELS CORPORATION (Import of South African Enriched Uranium Hexafluoride)	Docket No. 11003928 (License Application No. ISNM-87005)
EDLOW INTERNATIONAL COMPANY (Import of South African Uranium Ore Concentrate)	Docket No. 11003929 (License Application No. IU-87006)

EDLOW INTERNATIONAL COMPANY
(Import of South African Uranium Hexafluoride)

Docket No. 11003930
(License Application No. IU-87007)

EDLOW INTERNATIONAL COMPANY
(Import of South African Enriched Uranium Hexafluoride)

Docket No. 11003931
(License Application No. IU-87008)
June 12, 1987

The Commission grants a written public hearing, as a matter of discretion, on eight pending South African uranium import license applications. Because the Commission has concluded that it is appropriate to order further public proceedings in this matter and admit Petitioners as parties, it need not resolve the issue of whether Petitioners are entitled to a hearing as a matter of right.

Citing the inappropriateness under its regulations of the usage of formal procedures for export/import license applications, the Commission denies Petitioners' request that formal adjudicatory procedures be used. The Commission notes that formal procedures are particularly inappropriate in this case because the major issues facing it are legal questions which are traditionally resolved through written pleadings.

ORDER

On February 17, 1987, seven members of the United States House of Representatives (Congressmen Ronald V. Dellums, Mervyn M. Dymally, William H. Gray, III, Edward J. Markey, Charles B. Rangel, Bill Richardson, and Howard Wolpe), The Oil Chemical and Atomic Workers International Union,[1] The Nuclear Control Institute, American Committee on Africa, Transafrica, Inc., and the Washington Office of Africa filed a Petition for Leave to Intervene and Request for Hearing on the above-captioned import license applications. Each of the Applicants seeks authorization to import South African–origin uranium in various forms. Petitioners seek intervention to argue that (1) the proposed imports, if authorized, would violate the Comprehensive Anti-Apartheid Act of 1986 (P.L. No. 99-440) ("Anti-Apartheid Act"); (2) the proposed imports would be inimical to the common defense and security of the United States; (3) the proposed imports would violate the international legal obligations of the United

[1] The Union subsequently withdrew from the proceeding.

States with respect to Namibia; and (4) that the license applications are deficient because they do not contain all of the information that is required under NRC regulations.

Petitioners request that the Commission: (1) consolidate the eight license applications; (2) consolidate consideration of the consolidated license applications with consideration of a petition that these same Petitioners filed on February 17, 1987, asking the Commission to revoke eleven existing licenses that authorize the import of South African–origin uranium; (3) grant Petitioners a hearing as a matter of right on the consolidated applications and revocation request; and (4) hold a formal adjudicatory public hearing at which interested parties, after engaging in discovery, may present oral and written testimony and conduct cross-examination of witnesses.

After the period for filing intervention petitions had expired, Petitioners requested that their petition be amended to include three new parties — Robert L. Chavez, New Mexico State Senator Carlos Cisneros, and Henry Issacs.

The only Applicant to respond to the intervention petition was Advanced Nuclear Fuel. It argued that Petitioners are not entitled to a hearing as a matter of right because they lack standing, and further asserted that the Commission should not hold a hearing as a matter of discretion. The NRC Staff also argued that Petitioners were not entitled to a hearing as a matter of right and concluded that the circumstances did not necessitate the granting of the hearing request as a matter of discretion. The Staff noted, however, that the Commission may wish to hold a hearing as a matter of discretion. The Staff asserted that should the Commission decide to hold a hearing, it should not be conducted using formal adjudicatory procedures. Staff opposed consolidation of the pending applications with consideration of the license revocation petition filed by Petitioners.

After reviewing these submissions, the Commission has determined that it need not resolve the issue whether Petitioners are entitled to a hearing as a matter of right. This is because the Commission has concluded that it would be appropriate to order further public proceedings in this matter and admit Petitioners as parties. The Commission has determined that such proceedings would assist it in making the statutory determinations required by the Atomic Energy Act and would be in the public interest. *See* 10 C.F.R. § 110.84(a)(1) and (2).

In light of this decision to hold further public proceedings, the request of Petitioners to add the three additional parties to their petition is granted. Although their request to intervene was untimely, the grant of this motion would not broaden the scope of the proceeding or delay action on the applications. *See* 10 C.F.R. § 110.84(c)(2).

The Commission denies Petitioners' request that the proceeding be conducted using formal adjudicatory procedures. Such procedures are not provided for in the Commission's regulations set forth in 10 C.F.R. Part 110. In promulgating

those regulations the Commission made the determination that export and import license applications frequently involve sensitive foreign policy and national defense considerations and that resolution of such concerns through the use of formal adjudicatory procedures is inappropriate. This certainly is the case here. Use of formal adjudicatory procedures is particularly inappropriate here because the major issues facing the Commission are legal questions regarding what is the scope of the uranium import bar contained in the Anti-Apartheid Act. Legal issues traditionally are resolved through written pleadings, not through use of formal adjudicatory procedures such as cross-examination.

Accordingly, pursuant to 10 C.F.R. § 110.85, the hearing will consist of written comments. The Executive Branch, Petitioners, Applicants, and any other member of the public are invited to submit written comments on the issues raised by the license applications by July 15, 1987. Any participant may submit reply comments responding to the views of other participants by July 28, 1987.

There will be no discovery, but to assist commenters, the NRC Staff already has placed documents that it believes to be pertinent to these applications in the Commission's Public Document Room. All comments received by the Commission in response to this order will also be placed in the Public Document Room where they will be available for inspection and copying.

Although participants may address any issue they believe to be relevant to Commission consideration of the import license applications, the Commission is particularly interested in receiving detailed legal analysis based on a review of the legislative history of the Anti-Apartheid Act on the following questions: (1) Did Congress bar only the import of uranium ore and uranium oxide, or did Congress intend to bar all forms of uranium? (2) Does the import bar cover imported uranium regardless of its intended end use, or does it only bar the import of uranium that will be used domestically and not be reexported? (3) Did Congress bar South African–origin uranium ore and uranium oxide that have been "substantially transformed" into another form of uranium in countries other than South Africa or the United States? The Commission is also interested in views regarding what constitutes "substantial transformation" of uranium ore or uranium oxide: (4) Did Congress assign to the Executive Branch, or to the NRC, or to both the responsibility for interpreting the scope of § 309(a) of the Anti-Apartheid Act and for implementing that section?

With regard to Petitioners' consolidation requests, the Commission is consolidating the eight applications for the sole purpose of receiving public comment. This consolidation does not bar the Commission from acting on the license applications separately at a later date as the issues raised by each application vary. The Commission is not consolidating consideration of these applications with consideration of Petitioners' motion to revoke the eleven existing licenses that authorize the import of South African–origin uranium. That request is being

handled separately because the legal framework for acting on initial applications differs from that with respect to the revocation requests.

It is so ORDERED.

For the Commission*

SAMUEL J. CHILK
Secretary of the Commission

Dated at Washington, D.C.,
this 12th day of June 1987.

*Commissioner Bernthal was absent when this Order was affirmed. If Commissioner Bernthal had been present, he would have approved it.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Alan S. Rosenthal, Chairman
Thomas S. Moore
Howard A. Wilber

In the Matter of **Docket No. 27-39-SC**

US ECOLOGY, INC.
(Sheffield, Illinois Low-Level Radioactive Waste Disposal Site)

June 16, 1987

On the appeal of the licensee from two Licensing Board memoranda and orders in this show-cause proceeding involving the Sheffield, Illinois Low-Level Radioactive Waste Disposal Site, the Appeal Board vacates the two orders and terminates the proceeding upon the representation of the parties that regulatory jurisdiction over the site has been transferred from the Commission to the State.

RULES OF PRACTICE: MOOTNESS (LOSS OF JURISDICTION)

Where a licensing board order under appeal is mooted by the loss of agency jurisdiction over the subject matter prior to the completion of appellate review, the Appeal Board may vacate the order. *United States v. Munsingwear, Inc.*, 340 U.S. 36, 39-41 (1950).

APPEARANCES

Mark J. Wetterhahn, Robert M. Rader, and **Nils N. Nichols,** Washington, D.C., for US Ecology, Inc.

Neil F. Hartigan, Henry L. Henderson, H. Alfred Ryan, Gabriel M. Rodriguez, and **Diane Rosenfeld Lopata,** Chicago, Illinois, for the State of Illinois.

Ann P. Hodgdon and **Robert M. Weisman** for the Nuclear Regulatory Commission staff.

MEMORANDUM AND ORDER

This show-cause proceeding involving the Sheffield, Illinois Low-Level Radioactive Waste Disposal Site is before us on the appeal of US Ecology, Inc., from two Licensing Board memoranda and orders.[1] Last month, the Nuclear Regulatory Commission and the State of Illinois executed an agreement[2] whereby, as no party to the proceeding disputes, regulatory jurisdiction over the Sheffield site was transferred from the Commission to the State effective June 1, 1987.[3] On full consideration of the views of US Ecology, Illinois, and the NRC staff respecting the appropriate course in the circumstances, we *vacate* the two orders subject to the appeal and *terminate* the proceeding. *United States v. Munsingwear, Inc.*, 340 U.S. 36, 39-41 (1950).[4] In this connection, it is our

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[1] *See* LBP-87-5, 25 NRC 98 (1987); March 10, 1987 memorandum and order (unpublished).

[2] *See* 52 Fed. Reg. 22,864 (1987).

[3] In a February 20, 1987 written submission, US Ecology had requested the Commission to exclude Sheffield from the scope of its then-proposed agreement with Illinois pending the completion of the show-cause proceeding at bar. *See* Comments of US Ecology, Inc., to the Nuclear Regulatory Commission on the Notice of Proposed Agreement with the State of Illinois for the Assumption of Certain of the Commission's Regulatory Authority Pursuant to Section 274 of the Atomic Energy Act. In recent filings with us, US Ecology explicitly acknowledges that the Commission rejected that request. *See* US Ecology's Motion to Vacate the Order to Show Cause of March 20, 1979, and All Resulting Adjudicatory Orders (May 20, 1987) at 3 n.6; US Ecology's Answer to NRC Staff Motion to Terminate Proceedings on Appeal and to Vacate Licensing Board's Decisions (June 2, 1987) at 2. Illinois and the NRC staff likewise have affirmatively represented to us that the agreement extends to Sheffield. *See* State of Illinois' Objections to Motions to Vacate Show Cause Order and Board Decisions (June 12, 1987) at 1-3; NRC Staff Motion to Terminate Proceeding on Appeal and to Vacate Licensing Board's Decisions, etc. (May 28, 1987) (hereafter "NRC Staff Motion") at 5.

[4] It suffices to observe that there is no merit to Illinois's position that its agreement with the NRC strips us of jurisdiction to take any action other than to terminate the NRC show-cause proceeding. Illinois insists that, although the agreement brought that proceeding to an end, the orders rendered in it by the Licensing Board retain their vitality. This is said to be so because, according to Illinois, the agreement simply transferred the authority to review those orders from us to its Department of Nuclear Safety. But Illinois has pointed to no agreement provision or other authority (and we have found none) that might possibly serve to support that proposition. More particularly, the agreement does not suggest that the Commission intended to clothe a state agency with the power to affirm, to reverse, or to modify orders issued by an NRC adjudicatory tribunal in a now-closed proceeding that had been instituted by the NRC and conducted under its Rules of Practice and other regulatory provisions. In the absence of a clear statement of such a seemingly novel purpose, one is not to be inferred. Accordingly, inasmuch as the agreement manifestly has the effect of depriving US Ecology of its pre-existing ability to obtain review within the NRC of the Licensing Board's orders, operative effect must be removed from those orders as an incident of the termination of the proceeding in which they were rendered. As *Munsingwear* teaches, this objective can be accomplished by simply vacating the orders.

(Continued)

understanding that, in light of the agreement, the staff has withdrawn, or shortly will withdraw, its March 20, 1979 show-cause order directed to US Ecology.[5]

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

It does not necessarily follow that Illinois is precluded from utilizing for any purposes the fruits of the NRC proceeding or from reaching the same result arrived at by the Licensing Board. Those are questions we neither need nor do consider here. Our action in vacating the challenged orders below means merely that Illinois cannot rely on them as representing the conclusions of this agency on the matters in controversy. Rather, by reason of the NRC-Illinois agreement that brought about the termination of the show-cause proceeding while the orders remained on appeal, the NRC must be taken as having no current (or future) position on those matters.

[5] *See* NRC Staff Motion at 10.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Christine N. Kohl, Chairman
Dr. W. Reed Johnson
Howard A. Wilber

In the Matter of **Docket No. 40-2061-SC**

KERR-McGEE CHEMICAL CORPORATION
(Kress Creek Decontamination) **June 23, 1987**

The Appeal Board concludes that the Commission's agreement (under section 274b of the Atomic Energy Act of 1954, as amended, 42 U.S.C. § 2021b) transferring certain regulatory authority to the State of Illinois has not terminated its jurisdiction over the NRC staff's appeal in this show cause proceeding, and, accordingly, the Board denies the staff's motion to terminate the proceeding.

RULES OF PRACTICE: JURISDICTION OF BOARDS

Adjudicatory bodies have the authority and the responsibility to determine in the first instance the scope of their own jurisdiction. *Duke Power Co.* (Perkins Nuclear Station, Units 1, 2 and 3), ALAB-591, 11 NRC 741, 742 (1980); *Kansas Gas and Electric Co.* (Wolf Creek Nuclear Generating Station, Unit No. 1), ALAB-321, 3 NRC 293, 299-300 (1976), *aff'd*, CLI-77-1, 5 NRC 1 (1977).

RULES OF PRACTICE: JURISDICTION OF BOARDS

Where a tribunal finds in favor of its jurisdiction to act upon a particular request for relief presented to it, it normally then goes ahead and rules upon

the merits of the request without awaiting appellate confirmation that such jurisdiction in fact exists. *Duke Power Co.* (Perkins Nuclear Station, Units 1, 2 and 3), ALAB-597, 11 NRC 870, 873 (1980).

ADJUDICATORY BOARDS: RESPONSIBILITIES

Adjudicatory boards are bound by the unequivocal determinations of the Commission.

ADJUDICATORY PROCEEDINGS: DUE PROCESS

The staff's failure to provide any reasons for a determination is akin to a party's failure to brief its case adequately and an adjudicatory board's failure to give specific reasons for its findings and conclusions; in each case, a fair opportunity for meaningful response by one who disagrees is precluded. *See Public Service Electric and Gas Co.* (Salem Nuclear Generating Station, Unit 1), ALAB-650, 14 NRC 43, 49-50 (1981), *aff'd sub nom. Township of Lower Alloways Creek v. Public Service Electric and Gas Co.*, 687 F.2d 732 (3d Cir. 1982); *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-422, 6 NRC 33, 41 (1977), *aff'd*, CLI-78-1, 7 NRC 1, *aff'd, New England Coalition on Nuclear Pollution v. NRC*, 582 F.2d 87 (1st Cir. 1978).

ATOMIC ENERGY ACT: COOPERATION WITH STATES

Section 274o of the Atomic Energy Act of 1954, as amended, 42 U.S.C. § 2021o, imposes more stringent requirements for the transfer of authority over section 11e(2) byproduct material than for the transfer of authority over source and other material. *See Petition of Sunflower Coalition*, CLI-82-34, 16 NRC 1502, 1504 (1982). *See also* "Evaluation of Agreement State Radiation Control Programs: Final General Statement of Policy," 52 Fed. Reg. 21,132, 21,135 (1987).

TECHNICAL ISSUES DISCUSSED

Source material
Byproduct material
Rare earths.

APPEARANCES

Stephen H. Lewis and **Robert M. Weisman** for the Nuclear Regulatory Commission staff.

Peter J. Nickles, Richard A. Meserve, and **Sonya D. Winner,** Washington, D.C., for licensee Kerr-McGee Chemical Corporation.

MEMORANDUM AND ORDER

The NRC staff has moved to terminate this show cause proceeding and to vacate the Licensing Board's initial decision, LBP-86-18, 23 NRC 799 (1986). The staff contends that we no longer have jurisdiction over its pending appeal from LBP-86-18 because, by agreement pursuant to section 274b of the Atomic Energy Act of 1954 (AEA), as amended, 42 U.S.C. § 2021b, the NRC has transferred all regulatory authority over the subject matter of this case to the State of Illinois. Licensee Kerr-McGee Chemical Corporation disagrees. It maintains that the state agreement does not, in fact, apply to the subject of this proceeding and that, therefore, we still retain jurisdiction over the staff's appeal. In the alternative, Kerr-McGee argues that we should dismiss the staff's appeal with prejudice and render the Licensing Board decision (which was favorable to Kerr-McGee) "final agency action." For the reasons set forth below, we conclude that the Commission's agreement with Illinois has not terminated our jurisdiction and, accordingly, deny the staff's motion.

I. BACKGROUND

Kerr-McGee holds a materials license under 10 C.F.R. Part 40 to possess thorium at its Rare Earths Facility in West Chicago, Illinois.[1] In a March 1984 order, the Director of the NRC's Office of Nuclear Material Safety and Safeguards directed Kerr-McGee to show cause why it should not be required to take certain remedial actions with regard to radiological contamination (thorium and daughter products of thorium decay) found along nearby Kress Creek and the West Branch of the DuPage River (hereafter collectively referred to as "Kress Creek"). 49 Fed. Reg. 9288.[2] Kerr-McGee invoked its right to a hearing on the matters specified in the show cause order. After a hearing in which only the

[1] Production at this facility ceased in 1973.

[2] According to the show cause order, plant wastes were discharged into the Creek. 49 Fed. Reg. at 9288.

staff and Kerr-McGee participated,[3] the Licensing Board rejected the staff's position concerning what regulatory standards should apply to the Kress Creek contamination and concluded that certain other standards were not exceeded. The Board thus dismissed the show cause order. LBP-86-18, 23 NRC at 823.

The staff appealed. After the submission of briefs and the issuance of our order scheduling oral argument for late October 1986, the staff informed us that on or about January 1, 1987, it expected the Commission to execute an agreement with Illinois under section 274 of the AEA relinquishing the NRC's "regulatory authority over the radiological material along Kress Creek and the West Branch of the DuPage River."[4] The staff also noted that, "[a]t that time [it] will move the agency tribunal before which this proceeding is then pending for an order terminating the proceeding." Letter from Stephen H. Lewis to Appeal Board Members (October 9, 1986). As a consequence of this letter, we postponed oral argument indefinitely and ordered the proceeding to be held in abeyance. Appeal Board Order of October 10, 1986 (unpublished).

Raising essentially due process concerns, Kerr-McGee objected to this action and sought, instead, expedition of the staff's appeal. Kerr-McGee argued that termination of the proceeding without final agency action would unfairly deprive it of the victory it had won before the Licensing Board. It also noted some confusion surrounding the proper characterization of the contamination and asserted that this might raise questions about the scope of the state agreement and thus our jurisdiction. Although we agreed that there were jurisdictional problems and confusion concerning the nature of the contamination, we decided that the better course at that point was "to abide the potential clarification of this matter through the agreement process." Appeal Board Order of November 13, 1986 (unpublished) at 8.

Kerr-McGee did not give up and sought reconsideration of that order. We directed the staff to respond to the motion for reconsideration and to answer certain questions we posed as well. Appeal Board Order of November 26, 1986 (unpublished); Appeal Board Order of December 3, 1986 (unpublished). We denied Kerr-McGee's motion, stressing again that we were only deferring consideration of the staff's appeal, pending execution of the state agreement, in the hope that the agreement would crystallize or clarify the perceived jurisdictional problems. In addition, we suggested that, if termination of the proceeding were eventually necessary, we would be willing (in response to Kerr-McGee's "fairness" arguments) to consider maintaining the status quo of the

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[3] Originally, the State of Illinois and another party intervened in the proceeding. The latter withdrew before the hearing began. The Licensing Board dismissed some of Illinois's contentions as a sanction for the State's failure to comply with discovery orders, but did not dismiss it as a party. Illinois, however, did not participate at the hearing. LBP-86-18, 23 NRC at 802-03. *See infra* note 6.

[4] For a brief discussion of the section 274 state agreement process, *see Petition of Sunflower Coalition*, CLI-81-13, 13 NRC 847, 849-51 (1981).

Licensing Board's initial decision — i.e., neither vacating, affirming, reversing, nor modifying it. Appeal Board Order of January 7, 1987 (unpublished).

Despite the staff's initial prediction that the agreement with Illinois would be executed around the first of the year, the agreement was not signed by both parties (the NRC and Illinois) until May 18, 1987, and became effective June 1, 1987. The staff moved quickly to terminate this proceeding and to vacate the initial decision. (The staff also indicated it would withdraw the March 1984 show cause order that initiated this proceeding.) The staff's basis for seeking termination is simply stated. Under the now-executed agreement with Illinois, the Commission has relinquished its regulatory authority over, inter alia, "source material" within Illinois. Source material is defined in section 11z of the AEA, 42 U.S.C. § 2014z, as:

> (1) uranium, thorium, or any other material which is determined by the Commission pursuant to the provisions of section 61 to be source material; or (2) ores containing one or more of the foregoing materials, in such concentration as the Commission may by regulation determine from time to time.

See also 10 C.F.R. § 40.4(h). According to the staff, it

> has characterized the radiologically contaminated materials in and around Kress Creek as source material and the Commission has approved the relinquishing of regulatory authority over these materials to the State. Because the Order to Show Cause pertained to these source materials, the agreement will terminate the Commission's jurisdiction with respect to the radiological materials that are the subject of this proceeding. . . . Once jurisdiction has passed to Illinois, the Commission, including its adjudicatory boards, may not take further regulatory action with respect to the source material in and around Kress Creek. In these circumstances, the Appeal Board is compelled to terminate this proceeding.

NRC Staff Motion to Terminate Proceeding (May 28, 1987) at 4-5 (footnotes omitted).

Kerr-McGee opposes the staff motion. It vigorously challenges the staff's characterization of the contamination in and around Kress Creek as source material. It argues that, based on the staff's own testimony before the Licensing Board, the contamination is "byproduct material" as defined in section 11e(2) of the AEA, 42 U.S.C. § 2014e(2) — i.e., "the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content."[5] As such, this material is beyond the scope of the Commission's agreement with Illinois and, therefore, we have not lost jurisdiction over the subject matter of this proceeding. Kerr-McGee also argues that, if we nonetheless conclude that we no longer have jurisdiction in

[5] This provision was added to the AEA by the Uranium Mill Tailings Radiation Control Act of 1978, Pub. L. No. 95-604, § 201, 92 Stat. 3021, 3033.

this case, the proceeding should be terminated by dismissing the staff's appeal with prejudice and making the Licensing Board's initial decision final agency action. Kerr-McGee Response to Staff Motion to Terminate (June 5, 1987).[6]

Because Kerr-McGee's response raises certain new arguments, we directed the staff to reply to it. The staff first asserts that Kerr-McGee's arguments are addressed to the wrong tribunal. The staff claims that Kerr-McGee had the opportunity to present its arguments to the Commission and in fact did so before the agreement was executed. In the staff's view, "the Commission has now adopted the Staff's determination that the contamination in and along the Creek should be classified as source material and jurisdiction over the material has been relinquished to the State." NRC Staff Reply to Kerr-McGee Response to Staff Motion to Terminate (June 15, 1987) at 3. It adds that "it would be improper for the Appeal Board not to defer to this determination of the Commission." *Id.* at 5. As for Kerr-McGee's alternate suggestion that the staff's appeal be dismissed with prejudice, the staff contends that the equities of this case militate against such action. *Id.* at 6.

II. ANALYSIS

As Kerr-McGee points out — and the staff agrees — we have the authority and the responsibility to determine in the first instance the scope of our own jurisdiction. *Duke Power Co.* (Perkins Nuclear Station, Units 1, 2 and 3), ALAB-591, 11 NRC 741, 742 (1980); *Kansas Gas and Electric Co.* (Wolf Creek Nuclear Generating Station, Unit No. 1), ALAB-321, 3 NRC 293, 299-300 (1976), *aff'd.* CLI-77-1, 5 NRC 1 (1977). *See also Duke Power Co.* (Perkins Nuclear Station, Units 1, 2 and 3), ALAB-597, 11 NRC 870, 873 (1980) ("[w]here a tribunal finds in favor of its jurisdiction to act upon a particular request for relief presented to it, it normally then goes ahead and rules upon the merits of the request without awaiting appellate confirmation that such jurisdiction in fact exists"). Because the staff argues, and Kerr-McGee disputes, that we have lost jurisdiction as a result of the agreement transferring certain of the NRC's regulatory authority to Illinois, it is thus necessary for us to construe that agreement and the premises underlying it in order to determine whether the staff is correct in its jurisdictional argument. *Compare US Ecology, Inc.* (Sheffield, Illinois Low-Level Radioactive Waste Disposal Site), ALAB-

[6] Illinois, which technically remains a party to this proceeding, has filed no pleadings with us relating to either the merits of the staff's appeal or the procedural and jurisdictional issues that we have been addressing since the staff first advised us of the expected agreement with Illinois.

866, 25 NRC 897 (1987) (no dispute that this state agreement transferred jurisdiction over facility involved in that proceeding to Illinois).[7]

The agreement itself makes no mention of either the Kerr-McGee facility or the contamination in Kress Creek. It simply states that the NRC is relinquishing its regulatory authority over "Source materials" (and other material not pertinent here) to Illinois. 52 Fed. Reg. 22,864, 22,865-66 (1987). The "legislative history" of the agreement, however, sheds some limited light on the matter. The *Federal Register* notice of the proposal for the transfer of authority to Illinois stated, without elaboration, that the *NRC staff* had determined that the contamination in Kress Creek is source material.[8] The notice further indicated that "[j]urisdiction over source material in Kress Creek and the West Branch of the DuPage River will be relinquished to Illinois when the Agreement becomes effective." The notice referred to this proceeding and stated that the staff would request its termination after the agreement takes effect. 52 Fed. Reg. 2309, 2322 (1987). Thus, the *staff's intent* is clearly that the subject matter of this proceeding be transferred to Illinois pursuant to the section 274 agreement. Equally clear is that, *if* the contamination in Kress Creek is source material, regulatory authority over it is now vested in Illinois, pursuant to the terms of the agreement. Two key questions remain, however. Is the contamination in the Creek, in fact, source material, so as to bring it within the ambit of the agreement? By executing the agreement, did the Commission actually and necessarily reach this unequivocal factual conclusion? We answer both questions in the negative.

A. Because it deemed it unnecessary for the purpose of resolving the particular issues before it, the Licensing Board did not characterize the contamination in Kress Creek as either source or section 11e(2) byproduct material. LBP-86-18, 23 NRC at 805. In an effort to obtain clarification of the matter, however,

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[7] In our Order of January 7 at 3 n.3, we stated:

> Whether the staff has correctly characterized the material involved here is neither evident from the record below nor relevant to the matter now at hand [i.e., whether to hold the appeal in abeyance pending execution of the state agreement]. If the NRC staff says it is transferring its jurisdiction over this proceeding, we perceive no basis on which to conclude otherwise and must accept that claim.

That same order and our Order of November 13, however, reflected our intent, as well as the necessity, to revisit the issues of material characterization and scope of the agreement, once that agreement was finalized and the staff was actually before us with a particular request for relief.

Now that the state agreement has been executed and new information has come to light (*see infra* pp. 907-10), there *is* a basis for challenging the staff's characterization of the material in Kress Creek and the scope of the agreement. Nevertheless, the staff urges us to adhere to our previously expressed view and to accept, without questioning, the staff's ipse dixit that the Creek is contaminated with source material and that the Commission has already determined that our jurisdiction over this proceeding has ceased. But by scrutinizing the record and the parties' arguments in this regard, we are doing that which an adjudicatory body often does — interpreting and applying the pronouncements of a higher authority, whether generic or specific to the given case, to the instant matter before it. *See, e.g., Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit No. 1), ALAB-705, 16 NRC 1733, 1741 (1982); *Atlantic Research Corp.* (Alexandria, Virginia), ALAB-594, 11 NRC 841, 845-46 (1980). As we show below, there is some doubt that the Commission has determined that the material in the Creek is, in fact, source material and thus is subject to the agreement with Illinois.

[8] Section 274e of the AEA, 42 U.S.C. § 2021e, requires publication of proposed state agreements for four consecutive weeks in the *Federal Register*.

we asked the staff to advise us, "in the clearest possible terms," if "the NRC's regulatory authority over the particular subject matter of *this* show cause proceeding [was] to be transferred to the State of Illinois" under the then-proposed agreement. Order of December 3 at 1 (emphasis in original). The staff's entire response was:

> Yes. The subject matter of this show cause proceeding is thorium contamination in Kress Creek. Thorium is a source material under Section 11z of the Atomic Energy Act of 1954, as amended, 42 U.S.C. § 2014. The proposed agreement with the State of Illinois includes source material. The agreement would follow the statutory direction of Section 274b of the Atomic Energy Act, 42 U.S.C. § 2021, and discontinue Commission authority over the material. The State would then regulates [sic] under authority of State law and regulations.

NRC Staff Response to Kerr-McGee's Motion for Reconsideration (December 11, 1986) at 9.

The *Federal Register* notice preceding the execution of the agreement contained an equally conclusionary statement to the same effect: i.e., the radiological contamination in Kress Creek is source material because the NRC staff has determined it to be such. *See* 52 Fed. Reg. at 2322. The recent notice announcing execution of the agreement also contains no explanation for the staff's classification of the material as source material. It does note, however, that counsel for Kerr-McGee filed comments with respect to the agreement, that the Commission fully considered those comments, and that the staff's response to the comments could be found in the NRC's Public Document Room. 52 Fed. Reg. at 22,865. The referenced staff response is included in an internal document from the Director of the NRC's Office of Governmental and Public Affairs to the Commissioners, SECY-87-104 (April 21, 1987). This document acknowledges that "[f]rom a factual standpoint, accurate characterization of the materials at the Kerr-McGee West Chicago site is not an easy task." SECY-87-104, Enclosure C at 4. This is apparently because thorium (the contamination in the Creek) can be either source or section 11e(2) byproduct material, depending on its "history." SECY-87-104 discusses the history of the West Chicago facility and site and explains the staff's characterization of the contamination with reference to essentially three areas — a nearby landfill at Reed-Keppler Park, the now demolished Rare Earths Facility itself, and the Creek. (Only the Creek is involved in this show cause proceeding.)

The staff explains that the landfill was created prior to the early 1940s and is composed of wastes attributable to the production of rare earths. *Id.* at 6, 7.[9] Because these wastes were not produced "by the extraction or concentration of

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[9] Rare earths are elements in the "lanthanide series" in the Periodic Table of the Elements, with atomic numbers from 57 to 71. Neither uranium nor thorium is included within this series. S. Glasstone, *Sourcebook on Atomic Energy* 16, 17 (3d ed. 1967).

uranium or thorium from any ore processed primarily for its source material content," they cannot be classified as section 11e(2) byproduct material under the AEA, 42 U.S.C. § 2014e(2). Thus, the staff has placed the landfill waste under the broader rubric "source material." SECY-87-104, Enclosure C at 6-7. With respect to the onsite wastes and building rubble from the facility itself, the staff has determined that these wastes are mostly attributable to the thorium production conducted at the facility pursuant to the license it held from the Atomic Energy Commission (AEC) beginning in 1956. Consequently, the staff considers these wastes to be section 11e(2) byproduct material. *Id.* at 7.

Insofar as Kress Creek is concerned, however, a real explanation for the staff's determination is lacking. The staff states:

> The NRC staff has also characterized other offsite materials determined to be contaminated as a result of the operations of the West Chicago Rare Earths Facility as source material. These materials include landfill at Reed-Keppler Park and in certain residential areas of DuPage County, and contaminated areas in Kress Creek and the West Branch of the DuPage River. The staff based these characterizations on the fact that most of the process wastes created prior to 1953, particularly prior to the early 1940's, are properly attributable to the production of rare earths. It is these materials that were removed from the West Chicago site and used as landfill.

Ibid. The staff has thus grouped the Creek with the landfill area and *implies* that the contamination in the Creek is attributable to the same source as that of the landfill, namely, the rare earths production that occurred well before the facility was licensed in 1956. But as Kerr-McGee points out, this conflicts with the staff's own testimony before the Licensing Board in this proceeding. Kerr-McGee Response to Staff Motion to Terminate at 8-9. The staff testified that "the contamination [of Kress Creek], in part, occurred during the period the Rare Earths facility operated under AEC license" (when it was engaged in thorium production). Horn, et al., fol. Tr. 349, at 15. This testimony is supported by numerous references to events occurring after 1956. *Id.* at 15-20.[10] Based on this evidence, the Licensing Board found — without objection from the staff — that "the material in Kress Creek came from the West Chicago facility while it was licensed under the Atomic Energy Act." LBP-86-18, 23 NRC at 806. *See also id.* at 816.

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[10] There is other staff testimony to the effect that the contamination in the Creek "may . . . be classified as source material." Cool, et al., fol. Tr. 425, at 5. The staff, however, merely cites to the definition of source material found in 10 C.F.R. § 40.4(b)(1) — "Uranium or thorium, or any combination thereof, in any physical or chemical form" — and states that, because the contamination contains thorium, it thus may be classified as source material. This, of course, begs the question. As Kerr-McGee points out, this theory would require *all* uranium and thorium *tailings* to be defined as source material because they contain uranium or thorium. This is contrary to the AEA definition of byproduct material in section 11e(2) and NRC precedent. Kerr-McGee Response to Staff Motion to Terminate at 4 n.5 (citing *Petition of Sunflower Coalition*, 13 NRC at 850).

Thus, because the contamination of the Creek resulted predominantly from licensed thorium production (the same cause of the contamination of the onsite waste and building rubble), a fortiori, the contamination should be classified the same as the onsite waste — section 11e(2) byproduct material. The staff's characterization of the Creek contaminants as source material therefore does not withstand scrutiny as measured against the staff's own testimony and the Licensing Board's unchallenged findings in this proceeding.

B. Notwithstanding our belief that the contamination in Kress Creek is section 11e(2) byproduct material, if the Commission has, in fact, already announced an unequivocally contrary conclusion, we would be bound by that determination. The staff contends that this is precisely the case. We disagree, finding considerable room for doubt that the Commission has spoken so as to foreclose our consideration of the matter.

First, as previously noted, there is nothing in the actual state agreement — the only pronouncement by the Commission itself — to indicate that "the Commission has now adopted the Staff's [source material] determination." NRC Staff Reply to Kerr-McGee Response at 3. *See* 52 Fed. Reg. at 22,865-66. The accompanying *Federal Register* notice states that comments filed on behalf of Kerr-McGee — comments neither identified nor discussed in the notice — "were fully considered by the Commission in its deliberations on the Illinois request [for the agreement]." *Id.* at 22,865. It also notes the availability of the staff response to those comments (i.e., SECY-87-104) in the NRC's Public Document Room. *Ibid.* On this basis, the staff claims that "Kerr-McGee has thus had an opportunity, and has availed itself of that opportunity, to raise the same issues before the Commission that it seeks to have this Appeal Board consider." NRC Staff Reply to Kerr-McGee Response at 3. Our review of the record, however, shows otherwise.[11]

To be sure, Kerr-McGee filed comments on the state agreement with the Commission, including an argument that challenged the staff's source material characterization of the Creek contamination. The gist of its argument was that the staff thus far had provided "no explanation whatsoever" for its characterization, and that, "with a simple definitional flourish, the Staff seeks to turn thorium

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[11] The *Federal Register* notice for the final agreement notes that, although he approved the agreement, Commissioner Bernthal believes that "all materials and contaminated areas which have resulted from operations of the West Chicago Rare Earths Facility would more properly be classified as 'byproduct material' under section 11e(2) of the Atomic Energy Act," and that "jurisdiction for these materials and contaminated areas should remain with the Commission until such time as the State of Illinois elects to seek authority for *all* byproduct material." 52 Fed. Reg. at 22,864-65 (emphasis in original). The staff does not mention or rely on this statement as support for its view that the Commission has already considered Kerr-McGee's arguments. Were the staff to make such an argument, however, it would be unavailing. Commissioner Bernthal's statement, as we read it, essentially concerns the broader issue of whether jurisdiction over the several areas surrounding the Rare Earths Facility should be divided between the NRC and Illinois; it does not reflect consideration by the Commission of the *specific* arguments concerning the *Creek* that Kerr-McGee now presses before us necessarily for the first time. *See infra* pp. 909-10.

byproduct material . . . into source material . . . ." Notice of Proposed Agreement with State of Illinois, Comments by Kerr-McGee (February 20, 1987) at 17. Kerr-McGee endeavored to attack the staff determination (*id.* at 14-20), but, as we have shown, it had nothing specific to shoot at until SECY-87-104 was made publicly available — *after* the Commission had already approved the agreement. *See supra* pp. 906-08. SECY-87-104 was the first place the staff provided any reasoning for its source material characterization and, thus, that was the first real opportunity for Kerr-McGee to respond directly.[12] Upon learning of SECY-87-104, Kerr-McGee immediately seized the opportunity and sent a letter to the Commission attacking the staff's newly articulated reasoning. Letter from Richard A. Meserve to Chairman Lando W. Zec[h], Jr. (May 22, 1987). But Kerr-McGee was too late, for the agreement had already been approved and executed.[13]

Kerr-McGee's next opportunity to take on the staff's explanation was in its response to the staff's Motion to Terminate — the pleadings now before us.[14] Thus, this is the first actual airing of the material characterization issue. In the circumstances, we therefore cannot agree with the staff that Kerr-McGee had a full and fair opportunity to present its views to the Commission. And, in the absence of those views, the Commission did not have all the information necessary to have ruled definitively on whether the contamination in Kress Creek is, in fact, source or section 11e(2) byproduct material.

C. Finally, it is important to note that the characterization of the contaminants in Kress Creek is more than a matter of semantics. Section 274o of the AEA, 42 U.S.C. § 2021o, imposes more stringent requirements for the transfer of authority over section 11e(2) byproduct material than for the transfer of authority over source and other material. *See Petition of Sunflower Coalition*, CLI-82-34, 16 NRC 1502, 1504 (1982). *See also* "Evaluation of Agreement State Radiation Control Programs: Final General Statement of Policy," 52 Fed. Reg. 21,132, 21,135 (1987). There is no evidence here that these requirements have been met. Indeed, the *Federal Register* notice for the proposed agreement makes clear that Illinois does not want this authority (at least at this time) and that, therefore, section 274o is inapplicable. 52 Fed. Reg. at 2310, 2322-23. Thus,

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[12] The staff's earlier failure to provide any reasons for its determination is akin to a party's failure to brief its case adequately and an adjudicatory board's failure to give specific reasons for its findings and conclusions. We have criticized both because, in each case, a fair opportunity for meaningful response by one who disagrees is precluded. *See Public Service Electric and Gas Co.* (Salem Nuclear Generating Station, Unit 1), ALAB-650, 14 NRC 43, 49-50 (1981), *aff'd sub nom. Township of Lower Alloways Creek v. Public Service Electric and Gas Co.*, 687 F.2d 732 (3d Cir. 1982); *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-422, 6 NRC 33, 41 (1977), *aff'd*, CLI-78-1, 7 NRC 1, *aff'd, New England Coalition on Nuclear Pollution v. NRC*, 582 F.2d 87 (1st Cir. 1978).

[13] As far as we have been able to ascertain, there has been no response to Kerr-McGee's May 22 letter.

[14] In order to afford the staff a fair opportunity to respond to Kerr-McGee, we directed the staff to file a reply. Although it did so, it did not address Kerr-McGee's assertions with regard to the staff testimony in this record. *See* NRC Staff Reply to Kerr-McGee Response at 2-5.

despite the fact that the intent of the parties to the state agreement may be to transfer jurisdiction over the material in Kress Creek to Illinois, if the material is in fact section 11e(2) byproduct material (as we have concluded here), the agreement fails to effect the transfer of authority because it does not satisfy the statutory requirements of section 274o.

We therefore conclude that the staff has incorrectly characterized the contamination in and along Kress Creek as source material. Consequently, the section 274 agreement does not transfer regulatory authority over this material from the NRC to the State of Illinois. Our jurisdiction over this proceeding is likewise unaffected, affording no basis on which to terminate the staff's pending appeal.[15]

The staff's Motion to Terminate Proceeding and Vacate the Licensing Board's Initial Decision is *denied*. The staff's appeal will no longer be held in abeyance and will be disposed of in due course.[16]

It is so ORDERED.

FOR THE APPEAL BOARD

Eleanor E. Hagins
Secretary to the
Appeal Board

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[15] Obviously, we need not reach the issue of how the proceeding should be terminated.

[16] We have not yet decided if it will be necessary to reschedule oral arguments on the appeal.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Alan S. Rosenthal, Chairman
Dr. W. Reed Johnson
Thomas S. Moore

In the Matter of **Docket No. 50-445-CP**

TEXAS UTILITIES ELECTRIC COMPANY, *et al.*
(Comanche Peak Steam Electric Station, Unit 1)

June 30, 1987

On appeals of the applicants and the NRC staff pursuant to 10 C.F.R. § 2.714a(c), the Appeal Board affirms the Licensing Board's grant of the intervenors' petitions to intervene in this construction permit extension amendment proceeding.

RULES OF PRACTICE: CONTENTIONS (LATE-FILING REQUIREMENTS)

The Commission's regulations provide that a contention filed after the first prehearing conference in a proceeding may be admitted by a licensing board only upon a favorable balancing of the five factors set forth in 10 C.F.R. § 2.714(a)(1). *See* 10 C.F.R. § 2.714(a)(3).

RULES OF PRACTICE: LICENSING BOARDS

The five factors of 10 C.F.R. § 2.714(a)(1) were placed in the regulations to "giv[e] the Licensing Boards broad discretion in the circumstances of individual

cases." *Nuclear Fuel Services, Inc.* (West Valley Reprocessing Plant), CLI-75-4, 1 NRC 273, 275 (1975).

RULES OF PRACTICE: APPELLATE REVIEW

Appellate review of a licensing board's balancing of the five factors of 10 C.F.R. § 2.714(a)(1) is necessarily limited to determining whether the Board abused its discretion. *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-806, 21 NRC 1183, 1190 (1985); *Detroit Edison Co.* (Enrico Fermi Atomic Power Plant, Unit 2), ALAB-707, 16 NRC 1760, 1763-64 (1982).

RULES OF PRACTICE: APPELLATE REVIEW

To demonstrate that a licensing board abused its discretion in balancing the five factors of 10 C.F.R. § 2.714(a)(1), the appellants have a substantial burden on appeal:

> It is not enough for [them] to establish simply that the Licensing Board might justifiably have concluded that the totality of the circumstances bearing upon the five lateness factors tipped the scales in favor of denial of the [contention]. In order to decree that outcome, we must be persuaded that a reasonable mind could reach no other result.

Washington Public Power Supply System (WPPSS Nuclear Project No. 3), ALAB-747, 18 NRC 1167, 1171 (1983).

RULES OF PRACTICE: CONTENTIONS (LATE-FILING REQUIREMENTS)

Once intervenors satisfactorily explain the lateness of their contention (the first factor), a much lesser showing on the other four factors is required in order for them to prevail. *Florida Power & Light Co.* (St. Lucie Nuclear Power Plant, Unit No. 2), ALAB-420, 6 NRC 8, 22 (1977), *aff'd*, CLI-78-12, 7 NRC 939 (1978).

RULES OF PRACTICE: BRIEFS

An issue is not properly briefed by incorporating by reference papers filed with a licensing board. *See Tennessee Valley Authority* (Hartsville Nuclear Plant, Units 1A, 2A, 1B and 2B), ALAB-367, 5 NRC 92, 104 n.59 (1977).

RULES OF PRACTICE: CONTENTIONS (LATE-FILING REQUIREMENTS)

Regarding the five factors set forth in 10 C.F.R. § 2.714(a), "[f]or purposes of the fifth factor, the question is whether, by filing late, the [intervenor] has occasioned a potential for delay in the completion of the proceeding *that would not have been present had the filing been timely*." *Washington Public Power Supply System* (WPPSS Nuclear Project No. 3), ALAB-747, 18 NRC 1167, 1180 (1983) (emphasis in the original).

RULES OF PRACTICE: CONTENTIONS (SPECIFICITY AND BASIS)

Although the Rules of Practice do not state a precise equation for determining what is an adequate basis for a contention, "such judgment must be exercised case-by-case, with the underlying purposes of this requirement in mind," *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-845, 24 NRC 220, 230 (1986), and licensing boards exercise "a considerable amount of discretion . . . in this area." *Philadelphia Electric Co.* (Peach Bottom Atomic Power Station, Units 2 and 3), ALAB-216, 8 AEC 13, 21 (1974).

RULES OF PRACTICE: CONTENTIONS (SPECIFICITY AND BASIS)

The basis requirement of 10 C.F.R. § 2.714(b) is merely a pleading requirement designed to make certain that a proffered issue is sufficiently articulated to provide the other parties with its broad outlines and to provide a licensing board with enough information for determining whether the issue is appropriately litigable in the instant proceeding.

RULES OF PRACTICE: CONTENTIONS (SPECIFICITY AND BASIS)

The basis requirement of 10 C.F.R. § 2.714(b) generally is fulfilled when the sponsor of an otherwise acceptable contention provides a brief recitation of the factors underlying the contention or references to documents and texts that provide such reasons. *See Carolina Power and Light Co.* (Shearon Harris Nuclear Power Plant), ALAB-837, 23 NRC 525, 540-41 (1986); *Houston Lighting and Power Co.* (Allens Creek Nuclear Generating Station, Unit 1), ALAB-590, 11 NRC 542, 547-49 (1980); *Mississippi Power and Light Co.* (Grand Gulf Nuclear Station, Units 1 and 2), ALAB-130, 6 AEC 423, 425-26 (1973). *See also*

Baltimore Gas and Electric Co. (Calvert Cliffs Nuclear Power Plant, Units 1 and 2), CLI-72-23, 5 AEC 5, 5-6 (1972).

RULES OF PRACTICE: CONTENTIONS (SPECIFICITY AND BASIS)

The fact that a contention complies with the basis requirement of 10 C.F.R. § 2.714(b) does not mean that the issue is destined to go to hearing — such a contention is subject to being rejected on the merits prior to trial under the summary disposition provisions of the Rules of Practice. *See* 10 C.F.R. § 2.749, *Philadelphia Electric Co.* (Peach Bottom Atomic Power Station, Units 2 and 3), ALAB-216, 8 AEC 13, 21 (1974).

RULES OF PRACTICE: CONTENTIONS (SPECIFICITY AND BASIS)

The regulation, 10 C.F.R. § 2.714(b), does not require the detailing of admissible evidence as support for a contention. *See Houston Lighting and Power Co.* (Allens Creek Nuclear Generating Station, Unit 1), ALAB-590, 11 NRC 542, 547 - (1980).

RULES OF PRACTICE: CONTENTIONS (SPECIFICITY AND BASIS)

In assessing the admissibility of a contention, it is not permissible for a licensing board to reach the merits of the contention and "[w]hether the contention ultimately can be proven on the merits is 'not the appropriate inquiry at the contention-admission stage.' " *Carolina Power and Light Co.* (Shearon Harris Nuclear Power Plant), ALAB-835, 23 NRC 525, 541 (1986).

RULES OF PRACTICE: APPELLATE REVIEW

Because a licensing board exercises a substantial amount of discretion in determining the adequacy of the basis for a contention, appellate review is limited to whether the board abused its discretion. *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-845, 24 NRC 220, 231 (1986). *See Philadelphia Electric Co.* (Peach Bottom Atomic Power Station, Units 2 and 3), ALAB-216, 8 AEC 13, 21 (1974).

APPEARANCES

Thomas G. Dignan, Jr., Boston, Massachusetts (with whom **R.K. Gad, III**, **William S. Eggeling** and **Kathryn A. Selleck**, Boston, Massachusetts, were on the brief) for the applicants Texas Utilities Electric Company, *et al.*

Anthony Z. Roisman, Washington, D.C. (with whom **Juanita Ellis**, Dallas, Texas, was on the brief) for the intervenors Meddie Gregory and Citizens Association for Sound Energy.

Geary S. Mizuno for the Nuclear Regulatory Commission staff.

DECISION

Opinion for the Board by Mr. Moore, in which Mr. Rosenthal joins:

Before us are two sets of appeals by the applicants, Texas Utilities Electric Company, *et al.*, and the NRC staff in this construction permit extension amendment proceeding. In the first appeal, the applicants and the staff each challenge, pursuant to 10 C.F.R. §2.714a, the Licensing Board's May 2, 1986, order granting the intervention petitions of Citizens Association for Sound Energy (CASE) and Meddie Gregory. The Board granted the petitions on the strength of nearly identical contentions proffered by each intervenor, which the Board then combined and admitted. After oral argument of the first appeal, we certified a controlling legal question to the Commission. On the heels of the Commission's response to the certified question, and while the appeals were still pending, the intervenors jointly moved the Licensing Board to amend their original contentions in order to reflect the substance of the Commission's latest decision. We stayed our hand and the Licensing Board admitted one of the intervenors' new amended contentions in an October 30, 1986, memorandum and order. The applicants and the staff both filed a second appeal pursuant to 10 C.F.R. §2.714a, again asserting that the Licensing Board erred in admitting the contention and claiming that the petitions should have been denied.

For the reasons that follow, we affirm the Licensing Board's admission of the intervenors' amended contention. This being so, the intervenors have met the condition of 10 C.F.R. §2.714(b) that participation as a party requires the admission of "at least one contention," and the Licensing Board properly granted the intervention petitions. Accordingly, the first set of appeals of the applicants

and the staff no longer lies under 10 C.F.R. § 2.714a(c). That provision permits interlocutory appeals from an order granting an intervention petition only on the question of whether the petition "should have been wholly denied." The same section directs that "[n]o other appeals from rulings on petitions . . . shall be allowed." Thus, the first appeals of the applicants and the staff are now impermissible interlocutory ones.

I. PROCEDURAL HISTORY

Section 185 of the Atomic Energy Act provides that a construction permit "shall state the earliest and latest date[s] for completion of the construction."[1] The Act specifies that "[u]nless the construction . . . of the facility is completed by the completion date, the construction permit shall expire, and all rights thereunder be forfeited, unless upon good cause shown, the Commission extends the completion date."[2] The agency's regulations parallel the statute and, in addition, state that

> [t]he Commission will recognize, among other things, developmental problems attributable to the experimental nature of the facility or fire, flood, explosion, strike, sabotage, domestic violence, enemy action, an act of the elements, and other acts beyond the control of the permit holder, as a basis for extending the completion date.[3]

The events leading to the instant appeals began with the applicants' January 29, 1986, application for a two-year extension, *nunc pro tunc*, of their construction permit for Comanche Peak Unit 1, which by its terms had expired almost six months earlier on August 1, 1985. The applicants labeled their failure to file a timely extension application "an administrative oversight."[4] The Commission, however, later termed it "a regrettable and wholly avoidable omission" that represented "the first time in the history of the civilian nuclear power program that the holder of a construction permit allowed its permit to expire without making a timely request for an extension."[5] As good cause for the extension, the applicants asserted that

> [p]hysical construction on Comanche Peak Unit 1 was essentially completed in early 1985. However, major efforts to reinspect and reanalyze various structures, systems, and components have been ongoing since the fall of 1984 in order to respond to the questions

[1] 42 U.S.C. § 2235 (1982).
[2] *Id.*
[3] 10 C.F.R. § 50.55(b).
[4] Letter from William G. Counsil, Executive Vice President, Texas Utilities Generating Company, to Harold R. Denton, Director, Office of Nuclear Reactor Regulation (January 29, 1986) at 2.
[5] CLI-86-4, 23 NRC 113, 115 (1986).

raised by the NRC Staff's Technical Review Team ("TRT"), by the Board and parties in the ASLB operating license proceedings, and raised by other external sources. The TRT was formed by senior NRC Staff management in March of 1984 to consolidate and carry out the various reviews necessary for the Staff to reach its decision regarding plant licensing. Applicants formed the Comanche Peak Response Team and submitted a Program Plan to respond to the TRT's questions, the ASLB issues, and the other external sources issues. That Plan is presently being implemented. It is anticipated that such implementation will not be complete before the second quarter of 1986.[6]

In response to the applicants' construction permit extension application, CASE (an intervenor in the ongoing Comanche Peak operating license proceeding) immediately sought various relief from the Commission. First, it requested that the Commission assess civil penalties against the applicants for all construction activities taking place after the permit expired. Next, it asked that the Commission require the applicants to file a new application for a construction permit. Alternatively, CASE requested that the Commission find that the application raised significant hazards considerations and that it order a hearing before a licensing board on the extension amendment.[7]

While CASE's request for relief was pending before the Commission, the staff published an environmental assessment concluding that the grant of the construction permit extension would not have a significant impact on the environment.[8] Thereafter, the staff determined that the requested construction permit extension involved no significant hazards considerations requiring prior public notice and issued the amendment extending the Comanche Peak Unit 1 construction permit.[9] In doing so, the staff stated that the applicants' characterization of their need for more time raised matters that "were not foreseen" by the applicants and that the applicants had not "been dilatory in pursuing completion of the plant."[10] It then concluded "that 'good cause' for the delay has been demonstrated by the applicants so as to warrant an extension of the construction permit for Unit 1."[11]

After the staff granted the construction permit extension, CASE sought from the Commission a stay of the permit amendment.[12] A month later, the Commission denied the stay motion as well as CASE's requests that the applicants

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[6] Letter from William G. Counsil, *supra* note 4, at 1.

[7] CASE Request for Imposition of Fine, for Suspension of Construction Activities, and for a Hearing on Application to Renew Construction Permit (January 31, 1986).

[8] 51 Fed. Reg. 4834 (February 7, 1986).

[9] 51 Fed. Reg. 5622 (February 14, 1986).

[10] Evaluation of Request for Extension of the Construction Permit Completion Date, Comanche Peak Steam Electric Station, Unit No. 1, Texas Utilities Electric Company, et al., Docket No. 50-445 (February 10, 1986) at 1.

[11] *Id.* at 1-2.

[12] CASE Request for Stay of Effectiveness of Construction Permit Extension and for Other Relief (February 11, 1986).

be directed to file a new construction permit application and that the Commission find the extension amendment involved significant hazards considerations.[13] The Commission, however, referred CASE's call for enforcement action to the staff. Similarly, it referred CASE's hearing request to the Licensing Board, noting that CASE "is entitled to a hearing on the construction permit extension" but cautioning that "the scope of the proceeding is limited to challenges to [applicants'] effort to show 'good cause' for the extension."[14]

Subsequently, CASE and Meddie Gregory each filed petitions to intervene containing the contentions they sought to litigate.[15] Over the objections of the applicants and the staff, the Licensing Board granted the intervention petitions after finding that each petition set forth one admissible contention, which the Board then consolidated.[16] It rejected all of the intervenors' other proffered contentions.[17] As later characterized by the Commission, the admitted contention alleged that the applicants had failed to demonstrate good cause for the extension because they "had a corporate policy to construct the plant in violation of NRC requirements, and that subsequent discovery and efforts to correct these violations caused the delay."[18]

Both the applicants and staff appealed the Licensing Board's grant of the intervention petitions. Specifically, they each challenged the Board's admission of the consolidated contention claiming that it lacked a reasonable basis as required by 10 C.F.R. § 2.714(b). Further, the applicants argued that the contention was barred by the Commission's decision in *WPPSS*.[19] In that construction permit extension proceeding, the Commission considered the admissibility of a contention alleging that the applicant had not demonstrated good cause for an extension because plant construction had been delayed as a result of the applicant's violation of agency regulations. In holding the contention inadmissible in *WPPSS*, the Commission stated that

> the admission of such a contention in a construction permit extension proceeding . . . would be contrary to the overall intent of the Atomic Energy Act and the Commission's regulations. . . . a permit holder were to construct portions of a facility in violation of NRC regulations, when those violations are detected and corrections ordered or voluntarily undertaken, there is likely to be some delay in the construction caused by the revisions. Nonetheless, such delay, as with delay caused by design changes, must give "good cause" for an extension. To consider it otherwise could discourage permit holders from disclosing and correcting

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[13] CLI-86-4, 23 NRC at 117-24.

[14] *Id.* at 121.

[15] Petition to Intervene of Citizens Association for Sound Energy (April 7, 1986); Petition to Intervene of Meddie Gregory (April 7, 1986).

[16] Special Prehearing Conference Memorandum and Order (May 2, 1986) at 6-10, 13.

[17] *Id.* at 11-12.

[18] CLI-86-15, 24 NRC 397, 399 (1986).

[19] *Washington Public Power Supply System* (WPPSS Nuclear Project Nos. 1 & 2), CLI-82-29, 16 NRC 1221 (1982).

> improper construction for fear that corrections would cause delays that would result in a refusal to extend a construction permit, a result obviously inconsistent with the Commission's efforts to ensure the protection of the public health and safety.[20]

The applicants claimed this policy-based reasoning created a per se rule that precluded the admitted contention because the need for more time to find and to correct possible construction deficiencies constitutes good cause for an extension, regardless of the underlying cause.

We certified to the Commission the single question whether the CASE/Gregory contention was foreclosed as a matter of law by *WPPSS*.[21] In its decision responding to the certified question, the Commission rehearsed its view of section 185 of the Atomic Energy Act, the regulations implementing the statute, and agency case law, and it concluded that there are two independent avenues available for an applicant to establish good cause for a construction permit extension.[22] An applicant can either show that there was good cause for the past delay in completing the facility or, alternatively, demonstrate that there currently is good cause to permit more time for plant completion.[23]

The Commission apparently then assumed that the applicants' extension application addressed both avenues and it analyzed, in reverse order, the intervenors' admitted contention as challenging each means of establishing good cause. First, it stated that if the applicants were seeking to show there now is good cause for the extension, the intervenors' contention was inadequate because it focused only upon past conduct. Second, the Commission indicated that if the intervenors' contention was challenging the applicants' assertion that there was good cause for the past delay in not completing the facility, the contention was insufficient because it did not also allege that the applicants' regulatory violations were continuing.[24] In reaching this result, however, the Commission concluded that the analytical framework of its precedents had not been formulated to deal with charges of intentional misconduct and its analysis could not be applied to a claim that the real cause of an applicant's failure to complete the plant was its "past and still ongoing policy of deliberate violations" of agency regulations because that "would . . . reward such wrongdoing."[25] Thus, the Commission held "that if there was a corporate policy to speed construction by violating NRC requirements, and that policy was discarded and repudiated by the permittee, any delays arising from the need to take corrective action would be delays for good

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[20] CLI-82-29, 16 NRC at 1230-31.
[21] Memorandum and Order (July 2, 1986).
[22] CLI-86-15, 24 NRC at 400.
[23] *Id.* at 400-01.
[24] *Id.* at 401-02.
[25] *Id.* at 402.

cause."[26] It then instructed us to determine the admissibility of the intervenors' contention in accordance with this guidance.

Immediately after the Commission's decision on the certified question, the intervenors filed a joint motion with the Licensing Board seeking admission of two new contentions (labeled "amended" contentions) or, in the alternative, the reconsideration of certain contentions that had been denied previously by the Board.[27] We withheld any further consideration of the pending appeals until the Licensing Board acted on the intervenors' motion.[28] Thereafter, on October 30, 1986, the Licensing Board, over the objections of the applicants and the staff, admitted amended contention 2.[29] That contention alleged that "[t]he delay of construction of Unit 1 was caused by Applicants' intentional conduct, which had no valid purpose and was the result of corporate policies which have not been discarded or repudiated by Applicants."[30] As its bases, the intervenors offered a three-page description of the past and present activities of the applicants that they claimed indicated the applicants had an ongoing corporate policy to violate the Commission's licensing requirements that had not been discarded or repudiated. The applicants and the staff each then filed a second appeal challenging the Licensing Board's order admitting the intervenors' amended contention.

II. THE LATE-FILED AMENDED CONTENTION

The Commission's regulations provide that a contention filed after the first prehearing conference in a proceeding may be admitted by the Licensing Board only upon a favorable balancing of the following five factors:

> (i) Good cause, if any, for failure to file on time.
> (ii) The availability of other means whereby the petitioner's interest will be protected.
> (iii) The extent to which the petitioner's participation may reasonably be expected to assist in developing a sound record.
> (iv) The extent to which the petitioner's interest will be represented by existing parties.
> (v) The extent to which the petitioner's participation will broaden the issues or delay the proceeding.[31]

Because the intervenors' amended contention 2 was filed after the initial prehearing conference in the case, the Licensing Board was required at the outset

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[26] *Id.* at 403.

[27] Motion to Admit Amended Contentions or, in the Alternative, for Reconsideration of Certain Previously Denied Contentions (September 30, 1985).

[28] Memorandum (October 9, 1986).

[29] LBP-86-36A, 24 NRC 575 (1986).

[30] *Id.* at 578.

[31] 10 C.F.R. § 2.714(a)(1), (3).

to balance these five factors in determining whether the contention was admissible.[32] Although it offered several theories suggesting that such balancing was unnecessary in the circumstances, the Licensing Board nevertheless considered each of the factors and determined that, on balance, they called for the contention to be admitted. The Board found that the intervenors had good cause for not filing their amended contention on time and that the second, third and fourth factors also favored admission, while only the fifth factor counselled against it.[33] On appeal, the applicants first attack this Licensing Board determination.

As the Commission long ago indicated, the five factors of 10 C.F.R. § 2.714(a)(1) were placed in the regulations to "giv[e] the Licensing Boards broad discretion in the circumstances of individual cases."[34] Thus, our review of the Licensing Board's balancing of these factors is necessarily limited to determining whether the Board abused its discretion.[35] To demonstrate that the Licensing Board has crossed that line, these applicants have a substantial burden on appeal:

> It is not enough for [them] to establish simply that the Licensing Board might justifiably have concluded that the totality of the circumstances bearing upon the five lateness factors tipped the scales in favor of denial of the [contention]. In order to decree that outcome, we must be persuaded that a reasonable mind could reach no other result.[36]

They have fallen far short of meeting this burden. Based on our review of the Licensing Board's consideration of the five factors of 10 C.F.R. § 2.714(a)(1), we cannot conclude, as the applicants apparently would have it, that a reasonable mind could reach no other result than to reject the intervenors' late-filed contention.

The applicants initially question the Licensing Board's good cause determination. In its order admitting the late-filed contention, the Board first reviewed the Commission's decision in CLI-86-15. It concluded that the Commission "struck a new balance" in those construction permit extension proceedings where an applicant sought more time to correct deficiencies and the extension was opposed on the grounds that the applicant had an unrepudiated past and

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[32] *See Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-806, 21 NRC 1183, 1190 (1985).

[33] LBP-86-36A, 24 NRC at 579-80.

[34] *Nuclear Fuel Services, Inc.* (West Valley Reprocessing Plant), CLI-75-4, 1 NRC 273, 275 (1975).

[35] *Limerick*, 21 NRC at 1190; *Detroit Edison Co.* (Enrico Fermi Atomic Power Plant, Unit 2), ALAB-707, 16 NRC 1760, 1763-64 (1982); *Cincinnati Gas and Electric Co.* (Wm. H. Zimmer Nuclear Power Station), ALAB-595, 11 NRC 860, 865 (1980); *Florida Power & Light Co.* (St. Lucie Nuclear Power Plant, Unit No. 2), ALAB-420, 6 NRC 8, 13 (1977), *aff'd*, CLI-78-12, 7 NRC 939, 946 (1978).

[36] *Washington Public Power Supply System* (WPPSS Nuclear Project No. 3), ALAB-747, 18 NRC 1167, 1171 (1983). *See Harrington v. DeVito*, 656 F.2d 264, 269 (7th Cir. 1981), *cert. denied*, 455 U.S. 993 (1982) ("abuse of discretion only occurs where no reasonable person could take the view adopted by the trial court [and] [i]f reasonable persons could differ, no abuse of discretion can be found").

present policy to violate licensing requirements.[37] Based on this reading of CLI-86-15, the Board ruled that the Commission's decision provided good cause for the intervenors not having filed their amended contention originally.[38] Before us, the applicants argue, with little elaboration, that "[a]t most, CLI-86-15 was a decision which decided a legal question of first impression," and it cannot provide good cause for a late-filed contention because "[t]o hold otherwise would be to invite administrative chaos and have the potential to flood any ongoing proceeding with late-filed contentions every time the Commission or an Appeal Board speaks to a legal question."[39]

The applicants' "parade of horribles" reasoning fails to undercut the Licensing Board's conclusion. Indeed, the applicants' attack on the Board's good cause finding has a hollow ring in light of their own delay, due to "an administrative oversight," in seeking a construction permit extension.[40] In any event, the applicants' argument ignores the fact that, as in most cases, the good cause determination here is case specific and based solely upon the impact of CLI-86-15 on this proceeding. Moreover, the applicants' inability to provide us any agency decisions granting or denying late-filed contentions in similar situations seemingly belies their dire predictions of administrative chaos in the future. More important, however, is the fact that the applicants' argument overlooks the significant legal and policy question the Commission resolved in CLI-86-15 — the very reason we certified the question to it. Before the Licensing Board, as well as in their appellate brief, the intervenors have spelled out, chapter and verse, their view of the agency's prior case law and the reason they could not have anticipated the Commission's ruling in CLI-86-15 so as to have filed their amended contention originally. We need not rehearse that case history here. Suffice it to state that the applicants have not challenged the Licensing Board's characterization (with which we agree), that the Commission "struck a new balance" in construction permit extension cases.[41] Thus, the Commission's announcement of a new pleading standard in CLI-86-15 clearly sets this case apart from those that the applicants label as merely "speak[ing] to a legal question." In the circumstances, we cannot conclude that the Licensing Board acted unreasonably in ruling that the Commission's decision provided good cause for the intervenors' late-filed contention.

With respect to the second and fourth factors (i.e., the availability of other means to protect intervenors' interest and the extent other parties will represent

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[37] LBP-86-36A, 24 NRC at 577.

[38] *Id.* at 579.

[39] Brief of the Applicants (November 10, 1986) at 11-12.

[40] *See supra* p. 917.

[41] We also note that the Commission's new standard for challenging an applicant's assertion of good cause for an extension based upon its need to correct deficiencies in the facility applies to both an applicant's claim that there is good cause for past delays, as well as its claim that there now is good cause for granting the extension.

intervenors' interest), the Licensing Board found these factors favored admission of the late-filed contention. On appeal, the applicants have not challenged these determinations so we need not consider them further. We note, however, that once the intervenors satisfactorily explained the lateness of their contention, a much lesser showing on the other four factors is required in order for them to prevail.[42]

The Licensing Board determined that the third factor — the extent intervenors may reasonably be expected to assist in developing a sound record — also favored admission of their contention. In reaching this conclusion, the Board stated that one of the intervenors already had demonstrated its ability to contribute to the technical and nontechnical portions of the proceeding in the related operating license proceeding. It further decided that because the issues in the construction permit extension proceeding were not technical ones, but issues "involving the interpretation of management conduct concerning willful violations of regulations or repudiation of past conduct, intervenors' lawyers' extensive experience in NRC proceedings is highly relevant."[43] The applicants' challenge to the Licensing Board's treatment of this factor is brief and unadorned. They argue that the intervenors' failure to identify their prospective witnesses and testimony as required by agency case law, and the Board's reliance instead on the skills of intervenors' counsel and the ability of one of the intervenors in the *Comanche Peak* operating license proceeding is "at complete odds" with the Commission's decision in *Braidwood*.[44]

Although a cursory reading of *Braidwood* lends some credence to the applicants' argument, we do not think that decision properly can be read as broadly as the applicants advocate, so as to compel rejection of the Licensing Board's determination on this factor. In *Braidwood*, the Commission reviewed,

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[42] *St. Lucie*, 5 NRC at 22.

In opposing the admission of the intervenors' amended contentions before the Licensing Board, the staff "[did] not contest Consolidated Intervenors' view that good cause exists for the filing of amended contentions." NRC Staff Response in Opposition to CASE's Motion for Admission of Amended Contention (October 15, 1986) at 3. In light of this staff concession, the lesser showing needed on the other factors once good cause is established, and the narrow appellate review of the Licensing Board's balancing of the factors enumerated in 10 C.F.R. § 2.714(a)(1), we are not surprised that the staff has not vigorously pursued its appeal of this issue. Rather, in a footnote to its brief, the staff merely states that a balancing of the five factors weighs against admission of the intervenors' contentions and it then cites its opposition below to the intervenors' contentions. Brief of the NRC Staff (November 13, 1986), at 5 n.7. As the staff is well aware, a party's failure to brief adequately an issue on appeal "is tantamount to [its] abandonment." *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), ALAB-355, 4 NRC 397, 413, *reconsideration denied*, ALAB-359, 4 NRC 619 (1976). *Accord Carolina Power and Light Co.* (Shearon Harris Nuclear Power Plant), ALAB-856, 24 NRC 802, 805 (1986); *Pennsylvania Power and Light Co.* (Susquehanna Steam Electric Station, Units 1 and 2), ALAB-693, 16 NRC 952, 955-57 (1982). Nor should we have to remind the staff that an issue is not properly briefed by incorporating by reference papers filed with the Licensing Board. *See Tennessee Valley Authority* (Hartsville Nuclear Plant, Units 1A, 2A, 1B and 2B), ALAB-367, 5 NRC 92, 104 n.59 (1977); *Long Island Lighting Co.* (Shoreham Nuclear Power Station), ALAB-156, 6 AEC 831, 832-33 (1973). Accordingly, we shall treat the staff's attempt to appeal on this issue as abandoned.

[43] LBP-86-36A, 24 NRC at 579-80.

[44] Brief of the Applicants at 13 (*citing Commonwealth Edison Co.* (Braidwood Nuclear Power Station, Units 1 and 2), CLI-86-8, 23 NRC 241, 246-47 (1986)).

sua sponte, and reversed the Licensing Board's admission of an intervenor's late-filed quality assurance contention in an operating license proceeding. With respect to the third factor, the Commission declared that the sponsor of a late-filed contention must demonstrate its special expertise on the subjects it seeks to raise. It stated that, to do this, the intervenor "'should set out with as much particularity as possible the precise issues it plans to cover, identify its prospective witnesses, and summarize their proposed testimony.'"[45] Rather than judging the intervenors' likely assistance in developing a sound record on this basis, the Licensing Board relied upon the contribution to the record made by intervenors' counsel in another reactor licensing proceeding — a practice the Commission criticized, stating: "No principle of law has been called to our attention that allows a court or an agency to make judgments, positive or negative, about the merits of a party's case based upon its evaluation of the performance of its counsel in a different proceeding."[46] Accordingly, the Commission held that the Licensing Board's determination that the third factor favored admission of the contention was erroneous because the intervenors had failed to provide specifics as to their witnesses and issues and the Board had relied upon counsel's action in another proceeding.[47]

Here, the Licensing Board was faced with a different situation than the Commission dealt with in *Braidwood*. As the Board recognized, the primary issues in the extension proceeding are not technical ones that require specialized technical expertise to litigate. Rather, the ultimate issue is the garden variety one of whether the applicants established good cause for a construction permit extension. Unlike the complex quality assurance contention in *Braidwood*, the good cause issue here, as set out in the intervenors' amended contention, translates into whether the applicants had a past and still ongoing, unrepudiated corporate policy to violate licensing requirements. In this instance, the intervenors had already spelled out the issue they sought to litigate in their amended contention with its attendant bases.[48] Additionally, as the Licensing Board again recognized, the nontechnical questions involved in this case boil down to whether applicants

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[45] CLI-86-8, 23 NRC at 246 (*quoting Mississippi Power and Light Co.* (Grand Gulf Nuclear Station, Units 1 and 2), ALAB-704, 16 NRC 1725, 1730 (1982)).

[46] CLI-86-8, 23 NRC at 247.

[47] *Id.*

[48] As indicated previously (*see supra* note 45), the Commission in *Braidwood* quoted our statement in *Grand Gulf* for the proposition that "[w]here a petitioner addresses this [third] criterion it should set out with as much particularity as possible the precise issues it plans to cover . . . " 16 NRC at 1730. *Grand Gulf* involved a late-filed intervention *petition*, not merely a late-filed *contention*, as in the present case. Although the five factors of 10 C.F.R. § 2.714(a)(1) apply in both instances (*see* 10 C.F.R. § 2.714(a)(3)), this distinction is important insofar as the third factor is concerned. A timely intervention petition need not contain any proffered contentions (*see* 10 C.F.R. § 2.714(a)(2)) because the Rules of Practice provide that a supplemental petition shall be filed containing the contentions (*see* 10 C.F.R. § 2.714(b)). The Rules do not provide a similar opportunity to file a supplemental petition containing contentions in the case of a late-filed intervention petition that is filed after the first prehearing conference. Consequently, the late-filed petition necessarily must contain the issues it seeks to raise. But in the case of any contention, timely or late-filed, the issue is already identified by the contention itself.

intentionally violated Commission regulations and whether such conduct was repudiated. Faced with questions of this stripe (where any testimonial evidence likely would come from applicants' employees or contractors), the intervenors could not reasonably be expected to identify their prospective witnesses and testimony at such an early stage of the proceeding before they had an opportunity to conduct discovery. This is in marked contrast to the type of issues involved in *Braidwood* where, at least in theory, it was possible to identify expert witnesses and the gist of some of their testimony in advance of formal discovery. Indeed, in the present situation, it is unlikely the intervenors could ever proffer such witnesses' testimony because, even though called by the intervenors, they would be hostile witnesses who, as a practical matter, would have to be cross-examined.[49] Here, of course, the intervenors had already provided the bases for their amended contention, which, in this instance, also referenced documentary material that spelled out the foundation for much of their claim. To demand more would require the intervenors to be clairvoyant about the results of their yet-to-be-conducted discovery.

Furthermore, in these circumstances, we cannot logically fault the Licensing Board's determination that it was "highly relevant" that these intervenors, in contrast to many intervenors who appear in agency proceedings pro se, had experienced counsel to wage their battle. This is so because nontechnical issues like "good cause" and "intent" are matters attorneys routinely confront, while such issues are not standard fare for lay representatives. Similarly, because the intervenors' testimonial case would most likely be made by cross-examination (and that skill is experienced counsel's stock-in-trade), the fact that the intervenors were represented by such counsel markedly increased "[t]he extent to which the [intervenors'] participation may reasonably be expected to assist in developing a sound record."[50] Nor does *Braidwood* compel a different result. Although there the Commission spoke broadly in criticizing the Licensing Board's reliance on the participation of intervenors' counsel, it also specifically noted that the parties had not called to its attention any competing factors calling for a different result.[51] The Commission was not faced with a contention raising a nontechnical issue where the intervenors could make their testimonial case only by cross-examination — a well-established principle of NRC practice.[52] Therefore, the importance of counsel's participation in that specific context was

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[49] *See WPPSS*, ALAB-747, 18 NRC at 1182-83 (Edles, concurring).

[50] 10 C.F.R. § 2.714(a)(1)(iii). For this same reason, the applicants' reliance on *Houston Lighting and Power Co.* (Allens Creek Nuclear Generating Station, Unit 1), ALAB-671, 15 NRC 508, 513 n.14 (1982) is inapposite.

[51] 23 NRC at 247.

[52] *See Tennessee Valley Authority* (Hartsville Nuclear Plant, Units 1A, 2A, 1B, and 2B), ALAB-463, 7 NRC 341, 356 (1978); *Commonwealth Edison Co.* (Zion Station, Units 1 and 2), ALAB-226, 8 AEC 381, 389 (1974); *Wisconsin Electric Power Co.* (Point Beach Nuclear Plant, Unit 2), ALAB-137, 6 AEC 491, 504-05 (1973).

not before the Commission in *Braidwood*.[53] For these reasons, we cannot find that the Licensing Board acted unreasonably in concluding that the third factor favored the admission of the intervenors' amended contentions.

Finally, the Licensing Board found that the fifth factor — the extent the contention will broaden the issues or delay the proceeding — weighed against admission of the contention "as it almost always does."[54] The applicants accept without comment this Licensing Board determination and, in their brief, offer no alternative supporting arguments to buttress the Board's conclusion. On the other hand, in defending the Licensing Board's admission of their late-filed contention, the intervenors suggest that the Board's conclusion on this factor is unduly harsh because any delay would be quite limited. The intervenors' point is valid. As we have held, "[f]or purposes of the fifth factor, the question is whether, by filing late, the [intervenor] has occasioned a potential for delay in the completion of the proceeding *that would not have been present had the filing been timely*."[55] Applying this test, it is difficult to attribute any delay in the completion of the construction permit extension proceeding to the intervenors' late-filed contention in light of the unique procedural posture of the case. And, as the intervenors point out, the extension amendment has already been granted which harms them, not the applicants.[56] Further, without deciding the first set of appeals — a course we have eschewed — these same unique procedural factors preclude a definitive answer to whether the late-filed contention broadens the issues in the proceeding. Thus, assuming the fifth factor can be considered to weigh against the admission of the contention as the Licensing Board found, it does not do so significantly.

In sum, we concur with the Licensing Board's balancing of the five lateness factors. We clearly cannot find, as the review standard dictates we must in order to reverse the Board's balancing of these factors, that a reasonable mind could reach no other conclusion than to reject the contention. On this score, we need only add that, although totally persuaded that the third factor tips in favor of the admission of the late-filed contention, acceptance of the applicants' position that this factor should be placed on the other side of the ledger would not change our ultimate result. Even when viewed in the light most favorable to the applicants, the analyses of both the third and fifth factors produce extremely close calls. In contrast, as we have seen, the second and fourth factors concededly support the

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[53] Similarly, because of the context in which *Braidwood* arose, the Commission had no occasion to consider that the Rules of Practice, 10 C.F.R. § 2.713(b), authorize lay representation, and that feature of NRC practice, as licensing boards are well aware, often results in a wide disparity in the quality of evidentiary presentations and cross-examination in agency adjudications.

[54] LBP-86-36A, 24 NRC at 580.

[55] *WPPSS*, 18 NRC at 1180 (emphasis in the original). *Accord Detroit Edison Co.* (Greenwood Energy Center, Units 2 and 3), ALAB-476, 7 NRC 759, 763 n.8 (1978).

[56] *See St. Lucie*, 6 NRC at 23.

intervenors' side of the controversy. It is equally apparent that the very significant first factor — the existence of a good reason why the contention was not earlier filed — also inures to the intervenors' benefit by a wide margin. This being so, there is simply no way in which the third factor could be employed to pin the label of irrationality on the outcome of the Licensing Board's balancing of all five factors.

III. THE BASES FOR THE INTERVENORS' AMENDED CONTENTION

A. In their amended contention challenging the applicants' assertion of good cause for a construction permit extension, the intervenors allege, in effect, that the delay in construction of Comanche Peak, Unit 1, was due to the applicants' intentional violation of agency licensing requirements and that such corporate policies have not been discarded and repudiated. In support of this allegation, the intervenors provided a three-page statement of bases. As further support, the statement referenced over fifty pages of summaries of findings and excerpts from some twenty different survey reports, safety evaluation reports, inspection reports and the like all dealing with Comanche Peak, as well as Licensing Board findings from the *Comanche Peak* operating license proceeding.[57]

In a nutshell, the intervenors' statement of bases for the contention maintains that the applicants had a long-standing corporate policy that caused the delay in completing the facility. It specifies that the applicants deliberately refused to reform their flawed quality assurance–quality control (QA/QC) program, as well as the faulty design of the facility. This was in the face of long-standing, consistent criticism of recurring deficient practices and procedures called to their attention by independent auditors, the NRC and the Licensing Board. The statement next indicates that, despite these criticisms, the applicants have given no valid reason why they refused to change the implementation of their QA/QC program or to address and to correct design deficiencies in the plant. Consequently, we are told, the applicants have built an unlicensable plant that now must be reinspected, redesigned and reconstructed.[58] The statement

[57] The collection of documents the intervenors incorporate by reference was originally filed by one of the intervenors as Appendix B to CASE's initial filing with the Commission in this matter. *See supra* note 7. In the statement of bases, however, the intervenors state the documents were filed as Appendix B to CASE's Motion for Establishment of an Evidentiary Standard and Request for Board Directed Independent Inspection (February 4, 1985) in the Comanche Peak operating license proceeding. Apparently no confusion as to which documents the intervenors sought to reference resulted from this error, however, because the intervenors attached the packet of documents to their brief opposing the first appeals of the applicants and the staff. Consequently, this package of documents was readily available to the parties when the intervenors' amended contention was filed. Indeed, neither the applicants nor the staff mention this labeling error in their briefs and the applicants' brief even perpetuates the mistake.

[58] Consolidated Intervenors' Amended Contentions 1 and 2 (September 30, 1986) at 2-3.

of bases then says that the "applicants have never acknowledged that this or any other corporate policy was the cause of the delay or that anything in the control of corporate management caused the delay, and thus Applicants have never discarded or repudiated the policies that caused the delay."[59] Further, it points out that the applicants have left in place their previous corporate policies and the personnel primarily responsible for the delay. Among other examples, it lists a number of specific individuals who were purportedly responsible for the original judgments leading to deficient conditions and who continue to work on the project. Similarly, the statement notes the applicants' use of production quotas for inspectors on the Comanche Peak Response Team and the continued harassment and intimidation of inspectors as indicators that the applicants' faulty policies persist and have not been discarded and repudiated. Finally, the statement indicates that the applicants need to embrace numerous items, such as a fully independent response team, in order to establish that they have discarded and repudiated their past delay-causing policies and practices.[60]

After reviewing the intervenors' asserted bases and referenced documents for their amended contention, the Licensing Board noted that "we are not authorized to analyze those documents in depth at this stage of the proceeding."[61] Rather, it stated, "[a]t this stage of the proceeding, we do not finally determine facts. Our sole job is to pass on whether contentions have provided an adequate basis for inquiring further."[62] It then found that the stated bases for amended contention 2 were "more than adequate."[63]

Before us, the applicants and the staff argue that the Licensing Board erred in concluding that the intervenors' contention set forth an adequate basis. Both agree that the Commission's decision in CLI-86-15 establishes a two-pronged pleading standard and that the intervenors must provide a basis for both prongs. First, the intervenors must set forth a basis for the proposition that the applicants had a corporate policy to violate agency licensing requirements. Second, they must state a basis for the proposition that the applicants have not discarded and repudiated the policy. From this point of agreement, their arguments diverge. As their counsel made clear at oral argument, the applicants claim that the intervenors' asserted bases do not *directly* support either prong of the standard and that inferences cannot provide the bases for a contention.[64] On the other hand, the staff argues that the intervenors' asserted bases do not support a

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[59] *Id.* at 3.
[60] *Id.* at 4-5.
[61] LBP-86-36A, 24 NRC at 581.
[62] *Id.*
[63] *Id.*
[64] Brief of the Applicants at 15-18; App. Tr. 26.

reasonable inference that the applicants had a deliberate policy to violate NRC requirements or that the applicants continue to have such a policy.[65]

The Commission's Rules of Practice provide that an intervenor's contention must set forth "the bases for each contention . . . with reasonable specificity."[66] Although the Rules do not state a precise equation for determining what is an adequate basis, we have noted that "such judgment must be exercised case-by-case, with the underlying purposes of this requirement in mind,"[67] and that the licensing boards exercise "a considerable amount of discretion . . . in this area."[68] Moreover, the purposes of the requirement are well established. The bases requirement is intended to ensure, at the pleading stage, that the agency's adjudicatory process is not invoked for impermissible purposes, such as attacks on statutory requirements or challenges to Commission regulations, and that the issue at hand is appropriate for litigation in the particular proceeding.[69] Additionally, the requirement "help[s] assure that other parties are sufficiently put on notice so that they will know at least generally what they will have to defend against or oppose."[70] Thus, the bases requirement is merely a pleading requirement designed to make certain that a proffered issue is sufficiently articulated to provide the other parties with its broad outlines and to provide the Licensing Board with enough information for determining whether the issue is appropriately litigable in the instant proceeding. The requirement generally is fulfilled when the sponsor of an otherwise acceptable contention provides a brief recitation of the factors underlying the contention or references to documents and texts that provide such reasons.[71] But the fact that a contention complies with the bases requirement of section 2.714(b) does not mean that the issue is destined to go to hearing — such a contention is subject to being rejected on the merits prior to trial under the summary disposition provisions of the Rules of Practice.[72]

The bases requirement most assuredly "should not be read and construed as establishing secretive and complex technicalities such as in some other areas of the law are associated with special pleading requirements for which some

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[65] Brief of NRC Staff at 5-14.

[66] 10 C.F.R. § 2.714(b).

[67] *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-845, 24 NRC 220, 230 (1986).

[68] *Philadelphia Electric Co.* (Peach Bottom Atomic Power Station, Units 2 and 3), ALAB-216, 8 AEC 13, 21 (1974).

[69] *Id.* at 20-21. *See Florida Power and Light Co.* (Turkey Point, Units 3 and 4), 4 AEC 787, 787 n.2, 798 (1972).

[70] *Peach Bottom*, 8 AEC at 20.

[71] *See Carolina Power and Light Co.* (Shearon Harris Nuclear Power Plant), ALAB-837, 23 NRC 525, 540-41 (1986); *Houston Lighting and Power Co.* (Allens Creek Nuclear Generating Station, Unit 1), ALAB-590, 11 NRC 542, 547-49 (1980); *Mississippi Power and Light Co.* (Grand Gulf Nuclear Station, Units 1 and 2), ALAB-130, 6 AEC 423, 425-26 (1973). *See also Baltimore Gas and Electric Co.* (Calvert Cliffs Nuclear Power Plant, Units 1 and 2), CLI-72-23, 5 AEC 5, 5-6 (1972).

[72] *See* 10 C.F.R. § 2.749; *Peach Bottom*, 8 AEC at 21.

practitioners have an almost superstitious reverence."[73] The regulation does not require the detailing of admissible evidence as support for a contention.[74] And, in assessing the admissibility of a contention, it is not permissible for a licensing board to reach the merits of the contention.[75] As we have held repeatedly, "[w]hether the contention ultimately can be proven on the merits is 'not the appropriate inquiry at the contention-admission stage.' "[76]

Because the Licensing Board exercises a substantial amount of discretion in determining the adequacy of the bases for a contention, our review of its ruling on this score is limited to whether the Board abused its discretion.[77] Neither the applicants nor the staff mentions the required review standard in calling for reversal of the Licensing Board's determination. But, in order for us to reverse the lower Board, we must be persuaded that no reasonable person could take the view adopted by it.[78] Manifestly, that is not the case here.

As amplified by the statement of bases, the intervenors' contention clearly raises an issue that is a fit candidate for resolution in the agency's adjudicatory process and, specifically, this particular proceeding. The intervenors contest the applicants' claim in the construction permit amendment application that there is good cause for an extension of time for the applicants to complete Comanche Peak, Unit 1. As evident from their statement of bases accompanying the contention, the intervenors' challenge is aimed directly at the applicants' past and present conduct and raises factual matters of the type that are appropriate for resolution by adjudication. From this focus of the contention, it is equally clear that the intervenors do not seek to invoke the agency's hearing process for any impermissible purpose. For example, the contention does not seek to challenge any regulatory or statutory provisions.[79] Rather, in attacking the applicants' assertion of good cause — the only grounds recognized by section 185 of the Atomic Energy Act[80] and 10 C.F.R. § 50.55(b) for granting a construction permit extension — the intervenors' contention seemingly seeks to enforce compliance with the Act and NRC regulations.

Similarly, the intervenors' statement of bases demonstrates that the good cause issue is appropriate for resolution in this particular proceeding. Indeed, the intervenors' challenge to the applicants' claim of good cause for an extension

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[73] *Peach Bottom*, 8 AEC at 20.

[74] *See Allens Creek*, 11 NRC at 547-49.

[75] *Shearon Harris*, 23 NRC at 541.

[76] *Id.* (*quoting Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-819, 22 NRC 681, 694 (1985)).

[77] *Limerick*, ALAB-845, 24 NRC at 231. *See Peach Bottom*, 8 AEC at 21.

[78] *See supra* note 36 and accompanying text.

[79] *Compare Turkey Point*, 4 AEC at 787 n.2, 788 (where intervenors' contentions sought to raise the issue of the effect of an enemy attack on a plant in contravention of 10 C.F.R. § 50.13 and sought to contest the statutory limitation on liability contained in section 170 of the Atomic Energy Act, 42 U.S.C. § 2210 (1982)).

[80] 42 U.S.C. § 2235 (1982).

can be adjudicated within the NRC only in this construction permit extension amendment proceeding and nowhere else. After referring CASE's hearing request to the Licensing Board for further proceedings, the Commission expressly limited any extension amendment proceeding to challenges of the applicants' claims of good cause for the extension.[81] In narrowly prescribing the bounds of this proceeding, the Commission referenced and followed its earlier interpretation of section 185 of the Atomic Energy Act and 10 C.F.R. § 50.55 announced in *WPPSS*: "that the scope of a construction permit extension proceeding is limited to direct challenges to the permit holder's asserted reasons that show 'good cause' justification for the delay."[82] Here, of course, the contention directly attacks the applicants' claim of good cause for the extension, so it is suited for resolution in this extension amendment proceeding.[83]

Moreover, the intervenors level their attack against the applicants' good cause assertion in the manner prescribed by the Commission in CLI-86-15. As the statement of bases in effect asserts (and the intervenors' referenced documents tend to corroborate), the applicants had a policy to violate agency licensing requirements in building Comanche Peak, connoted by the long history of repeated warnings from the NRC and others of recurring improper practices and procedures that resulted in the need for the applicants to reinspect, redesign and repair the plant. The intervenors' statement also asserts that the applicants' improper policies are still occurring and have not been discarded and repudiated as indicated by the applicants' use of such things as production quotas for inspectors and their continuing harassment and intimidation of inspectors. Thus, it is apparent that the intervenors' contention complies with the Commission's requirements for challenging the applicants' claim of good cause so that it is appropriate for adjudication in this proceeding.

Finally, the asserted bases for the intervenors' contention let the applicants and the staff "know at least generally what they will have to defend against or oppose" — the final purpose served by the bases requirement.[84] Despite the applicants' assertion that they have no idea what they need to defend against,[85] the

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[81] CLI-86-4, 23 NRC at 121.

[82] CLI-82-29, 16 NRC at 1229.

[83] In its brief, the staff also asserts that, in reality, the intervenors' contention challenges the adequacy of the applicants' corrective action program for Comanche Peak. The staff claims this is so because in the intervenors' statement of bases they rely upon alleged inadequacies in that program to demonstrate that the applicants have not discarded and repudiated their faulty past policies. From this asserted premise, the staff argues that the sufficiency of the applicants' corrective action program is a health and safety issue that can be raised only in an operating license proceeding, not a construction permit proceeding. The short answer to the staff's argument is that the intervenors are bound by the literal terms of their contention. *Carolina Power and Light Co.* (Shearon Harris Nuclear Power Plant), ALAB-852, 24 NRC 532, 545-46 (1986). Any matters contained in the statement of bases for the contention that are outside the intervenors' challenge to the applicants' claim of good cause are simply extraneous and irrelevant. *See also infra* p. 938.

[84] *Peach Bottom*, 8 AEC at 20.

[85] App. Tr. at 22.

statement of bases reasonably delineates the outline of the intervenors' challenge to the applicants' claim of good cause for construction permit extension. Like modern notice pleading in the federal courts, the purpose of the bases requirement is to provide only general notice of the intervenors' claim.[86] As the applicants are well aware, they may fill any gaps in their knowledge of the intervenors' case through discovery against the intervenors. Thus, the intervenors' statement of bases in support of amended contention 2 fulfills each of the purposes of the basis requirement and, as the Licensing Board found, the asserted bases are "more than adequate."[87]

The applicants assert, however, that the statement of bases and its referenced documents are inadequate because they do not present direct evidence that the applicants had a corporate policy to violate agency requirements and that such policy is still in place. They claim that an inference cannot provide the basis for a contention and that a statement of asserted facts from which one infers a conclusion is inadequate. The applicants' position misapprehends the basis requirement of 10 C.F.R. § 2.714(b) and its underlying purposes. This provision sets forth a pleading requirement, not an evidentiary standard. The Rules of Practice do not mandate the detailing of admissible evidence as support for a contention.[88] Nor, obviously, do the Rules proscribe pleading a conclusion drawn from asserted facts, as the applicants contend.[89] As should hardly need mention, an inference is merely a deduction based on asserted facts or indications.[90] At the initial pleading stage of determining the admissibility of a contention, the merits of the issue, i.e., its truth or falsity, simply is not the subject of inquiry.[91] In like vein, the staff's position that the intervenors' asserted bases do not support a reasonable inference of intentional, unrepudiated, impermissible conduct by the applicants must also fail because, at bottom, its argument requires us to reject the intervenors' position in the face of the countervailing information they assert. The earliest that inquiry can take place, however, is in deciding motions for summary disposition. We are not persuaded, therefore, that the Licensing Board abused its discretion when it found the bases for the intervenors' contention adequate.

B. Our dissenting colleague also claims that the Licensing Board erred in admitting the intervenors' amended contention. He arrives at this conclusion, however, using arguments that were neither advanced nor endorsed by any of

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[86] *See, e.g.*, Fed. R. Civ. P. 8.

[87] LBP-86-36A, 24 NRC at 581.

[88] *See Shearon Harris*, ALAB-837, 23 NRC at 540-41; *Allens Creek*, ALAB-590, 11 NRC at 547-49; *Grand Gulf*, ALAB-130, 6 AEC at 425-26.

[89] *See Washington Public Power Supply System* (WPPSS Nuclear Project No. 2), ALAB-722, 17 NRC 546, 551 (1983).

[90] *See id.*; *Shearon Harris*, 23 NRC at 540-41.

[91] *Shearon Harris*, 23 NRC at 541; *Limerick*, ALAB-819, 22 NRC at 694.

the parties. By taking a few words from a Commission decision totally out of context, he avers that the Commission reads the basis pleading requirement of 10 C.F.R. § 2.714(b) — a generic rule applicable to all agency construction permit, operating license and amendment proceedings — to require evidentiary proof when applied to a construction permit amendment proceeding. He then concludes that the intervenors' amended contention fails to measure up to his novel interpretation of the basis requirement by delving into the record of the ongoing *Comanche Peak* operating license proceeding — a proceeding not even before us — and deciding on the merits that the contention is wrong. Alternatively, the dissent asserts, again by taking a few words from a Commission decision out of context, that the Commission has proscribed litigating in a construction permit extension proceeding the intervenors' challenge to the applicants' claim of good cause for an extension. As is shown below, neither of the dissent's arguments can withstand analysis. Both are in the teeth of the Commission's precedents and our own decisions as well as the Rules of Practice. If followed, the dissent's position would, in contravention of the Administrative Procedure Act, arbitrarily deny the intervenors' right under the Atomic Energy Act to a hearing on the extension amendment.

The dissent first alleges that the Commission in *WPPSS*[92] interpreted the basis requirement of 10 C.F.R. § 2.714(b) to impose, at the initial pleading stage, a unique evidentiary burden of proof on the sponsor of the contention.[93] But the dissent's claim finds absolutely no support in the Commission's opinion. Indeed, that decision does not address the basis pleading requirement at all.

In *WPPSS*, the Commission confronted the question of the proper scope of a construction permit extension amendment proceeding. Faced with petitions for hearings on extension requests that raised "a broad range of issues concerning the construction and operation of the two units by WPPSS," the Commission deviated from its usual procedure of referring the petitions to the Licensing Board for decision "because of the uncertainty the Commission perceives exists as to the proper scope of a construction permit extension proceeding . . . ."[94] Instead, it "determined to take up this matter in the first instance in order to clarify for all concerned the nature of the issues that can be asserted in challenging a permit holder's extension request."[95] The Commission then detailed the statutory and regulatory provisions on construction permit extensions and stated that

> [f]rom these two provisions it is apparent that the focus of any construction permit extension proceeding is to be whether "good cause" exists for the requested extension. Likewise, this

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[92] 16 NRC at 1231.
[93] *See infra* pp. 939, 940-41 and note 6.
[94] 16 NRC at 1223.
[95] *Id.*

> requirement of "good cause" is the focal point of any consideration of the scope of the contentions that can be admitted at such a proceeding.[96]

Next, after reviewing two appeal board precedents on the scope of an extension proceeding, the Commission reiterated that it was "tak[ing] this opportunity to reexamine the scope of construction permit extension proceedings"[97] and held that "[w]e believe that the most 'common sense' approach to the interpretation of section 185 and 10 CFR § 50.55 is that the scope of a construction permit extension proceeding is limited to direct challenges to the permit holder's asserted reasons that show 'good cause' justification for the delay."[98] It explained its conclusion by stating that

> [t]he avenue afforded for the expression of health, safety, and environmental concerns in any pending operating license proceeding, or in the absence of such a proceeding, in a petition under 10 C.F.R. § 2.206 would be exclusive despite the pendency of a construction permit extension request. This does not mean, however, that no challenge can be made to an application for an extension of a construction permit completion date. In seeking an extension, a permit holder must put forth reasons, founded in fact, that explain why the delay occurred and those reasons must, as a matter of law, be sufficient to sustain a finding of good cause. Certainly, the factual basis for the reasons for delay asserted are always open to question in that the permit holder cannot invent reasons that did not exist. Moreover, the permit holder cannot misrepresent those reasons upon which it seeks to rely, for, as the Appeal Board in [*Indiana and Michigan Electric Co.* (Donald C. Cook Nuclear Plant, Units 1 and 2), ALAB-129, 6 AEC 414 (1973)] noted, any determination of the sufficiency of a permit holder's reasons for delay "would be influenced by whether they were the sole important reasons for the delay or whether, instead, the delay was in actuality due in significant part to other causes (which perhaps might have indicated that the applicants have been dilatory in the conduct of the construction work and that this factor was the principal explanation for the need for an extension of the completion deadlines)." 6 AEC at 417. An intervenor is thus always free to challenge a request for a permit extension by seeking to prove that, on balance, delay was caused by circumstances that do not constitute "good cause."[99]

Turning next to the proffered contentions contained in the hearing petitions, the Commission determined that all but two were "outside the scope of the proceeding."[100] With respect to those two, it found one must be dismissed for policy reasons.[101] As for the other, which claimed that construction delays had been under the full control of WPPSS management, the Commission concluded that "[t]o the extent [petitioner] is seeking to show that WPPSS was both

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[96] *Id.* at 1225-26. *See supra* p. 917.
[97] 16 NRC at 1228.
[98] *Id.* at 1229.
[99] *Id.* at 1229-30 (footnotes omitted).
[100] *Id.* at 1230.
[101] *Id.* at 1230-31. *See supra* pp. 919-20.

responsible for the delays and that the delays were dilatory and thus without 'good cause' this contention, *if properly particularized and supported*, would be litigable. *See* 10 C.F.R. § 2.714."[102] The Commission then referred the petition to a Licensing Board to determine if the requirements of 10 C.F.R. § 2.714 had been met.

The dissent focuses on the above five underlined words to claim that they represent the Commission's new interpretation of the basis pleading requirement of 10 C.F.R. § 2.714. According to the dissent, that interpretation requires the pleader to meet an evidentiary burden at the initial pleading stage and to submit evidence proving its contention in order to fulfill the basis requirement. Contrary to the dissent's assertion, however, the Commission made no such ruling in *WPPSS*. Rather, the Commission addressed only the scope of a construction permit proceeding and, in considering the proffered contentions, determined only which contentions fell within the subject matter jurisdiction of such a proceeding. It then found that one contention fell within that jurisdiction and referred the petition containing it to a Licensing Board to determine whether the requirements of 10 C.F.R. § 2.714 had been met. In making that determination, the Commission, *citing* 10 C.F.R. § 2.714, merely used synonyms (i.e., "particularized" and "supported") for the regulatory terms "specificity" and "bas[i]s" when it stated that the contention was within the jurisdiction of an extension proceeding and thus would be litigable if it met the requirements of section 2.714. Accordingly, neither the context of the *WPPSS* decision nor the language of the Commission's opinion supports the dissent's claim.[103]

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[102] 16 NRC at 1231 (emphasis supplied).

[103] The dissent's claim also disregards our decision in *WPPSS*, ALAB-722, 17 NRC 547 (1983), handed down on appeal after the Commission referred the hearing petition to the Licensing Board. That Board denied the petition, finding that the contention at issue was inadmissible, and we affirmed the Licensing Board's ultimate ruling. In the course of our discussion concerning the bases of the petitioner's contention, we stated that

> [t]hat is not to say that the [petitioner's] mismanagement claims are accurate. At the pleading stage all that is required is that the contention be specific and have a basis. Whether or not the contention is true is left to litigation on the merits in the licensing proceeding. *See Houston Lighting and Power Co.* (Allens Creek Nuclear Generating Station, Unit 1), ALAB-590, 11 NRC 542 (1980).

17 NRC at 551 n.5. Although the dissent decries the basis standard enunciated in *Allens Creek*, our reliance upon that case in *WPPSS* necessarily indicates an acceptance of the same basis requirement for construction permit amendment extension proceedings as any other licensing or amendment proceeding to which 10 C.F.R. § 2.714(b) applies.

The dissent also claims that our decision in *Shearon Harris*, 13 NRC at 540-42, is inconsistent with *Allens Creek* and states that in ALAB-537 we found the contention at issue acceptable solely because the factual averments in the contention derived support from extraneous sources. Our dissenting colleague seriously misapprehends what we held in *Shearon Harris*. We are confident that a reading of the relevant four-paragraph *Shearon Harris* discussion will dispel any such notion. In this regard, it is also plainly not true, as the dissent states, that we have given the *Allens Creek/Grand Gulf* line of decisions a new broader interpretation in this case. To the contrary, our dissenting colleague reads those decisions more broadly than they have been before or than is warranted, when he asserts that "[t]hese cases seem to say that it does not matter whether the recitation has any foundation in fact or if the references are totally incredible" and that "[u]nder the *Grand Gulf* and *Allens Creek* standard for the basis and specificity requirement, virtually any contention can be made admissible, if well-crafted, with little or no supporting basis." *See infra* p. 939.

To ascribe to the Commission the interpretation of *WPPSS* put forth by the dissent necessarily assumes that the Commission, without any mention that it was addressing the basis requirement of section 2.714(b), would propound a significant new standard of pleading reserved exclusively for construction permit extension cases and then not explain its actions. Such a claim would have the Commission ignore the fundamental tenet of administrative law that agency actions must be explained.[104] Additionally, the dissent's assertion would attribute to the Commission a reading of the regulations that does violence to the plain meaning of section 2.714. That generic rule applies to all construction permit, operating license and amendment proceedings without exception.[105] To engraft upon that section, without any textual support, an exception applicable only to construction permit extension amendment proceedings, as the dissent would do in the guise of interpreting the rule, would be arbitrary. It is elementary that the Commission may not interpret its regulations "as meaning something other than what those words . . . may rationally convey."[106] Unlike the dissent, we are unwilling to attribute such arbitrary action to the Commission.[107]

The reliance in the dissent upon *Seabrook*[108] is equally misplaced. Once again, our colleague has seized upon the Commission's employment of a particular word — here "show" — to support his thesis that, without expressly acknowledging it has done so or explaining its action, the Commission has taken an avowedly generic rule and given it different operative effects in different

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[104] *See Brooks v. Atomic Energy Commission*, 476 F.2d 924, 926-27 (D.C. Cir. 1973).

[105] *See* 10 C.F.R. § 2.700.

[106] *GUARD v. NRC*, 753 F.2d 1144, 1146 (D.C. Cir. 1985).

Our dissenting colleague opines that his construction of 10 C.F.R. § 2.714(b) is permissible because this is merely a construction permit extension amendment proceeding and, before the construction permit was issued, there already was a hearing on the health, safety and environmental consequences of plant operation. He then equates an extension proceeding to a request to reopen the record and opines he can raise the pleading threshold to ensure the extension proceeding would be productive. But, as previously indicated, section 2.714(b) is a generic practice rule that contains no hint of textual support for his novel interpretation. Moreover, the dissent's reasoning overlooks that the good cause requirement for an extension is mandated by statute and does not necessarily have any connection to health, safety or environmental issues. Similarly, it should hardly need mention that regardless of the type of proceeding involved, there is a significant difference in the function of the pleading requirement to initiate the adjudicatory process and the requirements to reopen a matter after a hearing already has been conducted.

[107] Our dissenting colleague's application of his new interpretation of the basis requirement illustrates why such a standard has little to commend it. For example, he asserts that the basis for the intervenors' amended contention is insufficient to prove that the applicants have not discarded and repudiated their purported improper corporate policy that the intervenors claim caused the delay in completing the nuclear plant. According to the dissent, just the opposite is true because the record of the *Comanche Peak* operating license proceeding shows it is the "indisputable fact that substantial changes have been made in the applicants' management structure and in their senior management personnel." (*See infra* p. 942.) As "proof" of that view, the dissent then relies upon several hearsay documents that are not even part of the *evidentiary record* of that proceeding, which proceeding, in any event, is not even before us. Unlike our colleague, we think any decision on the issues in controversy should await resolution of a motion for summary disposition or a hearing on the merits and that it is improper to decide the truth of the matter on the initial pleadings or the administrative record of another proceeding that is not even before us.

[108] *Public Service Co. of New Hampshire* (Seabrook Station, Units 1, 2), CLI-84-6, 19 NRC 975, 978 (1984).

types of amendment proceedings.[109] What he apparently has overlooked is that "show" has more than one definition. While he would have it that the term is invariably used as a synonym of "prove," it can also be a substitute for "allege" or "plead."[110]

Alternatively, the dissent asserts that the intervenors' contention should be rejected because it raises issues that the Commission has prohibited from being litigated in construction permit extension proceedings. Specifically, the dissent claims that in *WPPSS* the Commission ruled that "[a] contention cannot be litigated in a construction permit extension proceeding when an operating license proceeding is pending in which the issue can be raised."[111] It then argues that because the intervenors' contention, in part, challenges the efficacy of the applicants' corrective action program, the intervenors' challenge can be raised only in the pending *Comanche Peak* operating license proceeding. The dissent's argument, however, is again premised on an out-of-context statement from the *WPPSS* decision. The remark at issue was made in the context of the Commission's observation regarding two appeal board decisions indicating that "the purpose of a construction permit extension proceeding is not to engage in an unbridled inquiry into the safety and environmental aspects of reactor construction and operation . . . , an observation in which we wholeheartedly concur."[112] Thus, properly read, it is only health, safety and environmental issues that cannot be raised in a construction permit extension proceeding. As the Commission in *WPPSS* held, "the scope of a construction permit extension proceeding is limited to direct challenges to the permit holder's asserted reasons that show 'good cause' justification for the delay" and it emphasized that "[a]n intervenor is thus always free to challenge a request for a permit extension by seeking to prove that, on balance, delay was caused by circumstances that do not constitute 'good cause.'"[113] Thus, to read *WPPSS* to preclude the intervenors' challenge to the applicants' claim of good cause for a construction permit extension is inconsistent with that Commission opinion. Moreover, such a reading also would be inconsistent with the intervenors' statutory right under section 185 of the Atomic Energy Act to a hearing on the good cause issue.[114]

Accordingly, the Licensing Board's grant of the intervention petitions is *affirmed*.

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[109] *See infra* p. 940 note 6.
[110] *See Webster's Ninth New Collegiate Dictionary* 1091 (1984).
[111] CLI-82-29, 16 NRC at 1227. *See infra* p. 943.
[112] 16 NRC at 1227.
[113] *Id.* at 1229-30.
[114] 42 U.S.C. § 2235 (1982). *See Brooks v. AEC*, 476 F.2d at 927-28.

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

Dr. Johnson, dissenting:

In my opinion the Licensing Board erred in admitting the intervenors' amended contention. By doing so, it unnecessarily allows the proceeding to go forward on matters that are already in litigation (or that could have been raised by the intervenors) in the ongoing operating license proceeding. I would reverse the Licensing Board, with instructions to deny the admission of the contention and terminate this construction permit extension proceeding.[1]

Admission of the amended contention is wrong for two fundamental reasons. First, the contention fails to meet the basis requirement of our Rules of Practice for construction permit extension cases as those rules have been interpreted by the Commission.[2] Second, it raises issues of the kind the Commission has proscribed for construction permit extension cases.

A.1. In deciding to affirm the Licensing Board's admission of the contention, my colleagues conclude that it meets the basis and specificity requirements of our Rules of Practice. Citing the *Grand Gulf* and *Allens Creek* line of cases, they find that those cases require only that the contention be accompanied by "a brief recitation of the factors underlying the contention or references to documents and texts that provide such reasons."[3] These cases seem to say that it does not matter whether the recitation has any foundation in fact or if the references are totally incredible; all the recitation or references need to do is give an applicant and other affected parties notice of what they will have to defend against and not seek to invoke the agency's hearing process for any impermissible purpose.

Thus, under this *Grand Gulf* and *Allens Creek* standard for the basis and specificity requirement, virtually any contention can be made admissible, if

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[1] In this regard, I believe the Commission determined in CLI-86-15 that the intervenors' original contention was inadmissible. As pointed out by the Commission, "this particular contention [the original one] is barred by our *WPPSS* decision because, as currently worded, it focuses only on the permittee's [i.e. the applicants'] *past* conduct." 24 NRC at 402. In any event, I find the original contention subsumed by the amended contention. Hence, denial of the amended contention would end the proceeding.

[2] As noted earlier (*see supra* p. 929), 10 C.F.R. § 2.714(b) requires that to be admissible for litigation, a contention must have its basis set forth with reasonable specificity.

[3] *See supra* p. 930.

well-crafted, with little or no supporting basis. This, to me, is unreasonable, particularly in the context of a construction permit extension proceeding where the Commission has emphasized following a "common sense" approach.[4]

Be that as it may, I do not find *Grand Gulf/Allens Creek* controlling for determining the admissibility of contentions in a construction permit extension case.[5] For, as I read the Commission's intent in decisions I find more pertinent, something more than mere allegations or references to documents is required to justify a permit extension hearing: there must be supporting evidence that shows that the allegations have a basis in law or in fact.[6]

Moreover, there is no statutory or regulatory requirement that the very liberal threshold that has evolved for admitting contentions at the outset of a construction permit or operating license proceeding be likewise applied to permit extension cases.[7] To the contrary, there is good reason for requiring that a more stringent standard be met before subjecting an application for a construction permit extension to a hearing. In every such case, a hearing has already been held on the health, safety, and environmental consequences of plant construction, and there is the likelihood that a hearing on plant operation either is under way or will take place. As I view the matter, therefore, an attempt to obtain a hearing simply to litigate the extension of the permit completion date is akin to a request

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[4] *WPPSS*, 16 NRC at 1229.

[5] The majority points to the footnote reference to *Allens Creek* in the *WPPSS* case, ALAB-722, 17 NRC at 551 n.5, to indicate that an appeal board had applied the *Allens Creek* basis standard to permit extension proceedings and that the case is thus controlling here (*see supra* p. 936 note 103). I do not agree. First, this position ignores the Commission's indications to the contrary. *See infra* note 6. Second, the majority reads more into *WPPSS* than is there. The Appeal Board there, after all, *evaluated* the documents submitted by the petitioners, at the Commission's direction (*see infra* note 7), to see if there was any basis for the proffered contention, and found that there was. As for footnote 5, its wording shows that the Board cited *Allens Creek* solely for the principle that, at the preliminary stage, the issue for determination is not the ultimate truth of a contention. *See* 11 NRC at 549. I have no quarrel with that principle. But it simply does not address the standard to be applied for the admission of a contention.

[6] For example, when the Commission considered the contentions submitted in *WPPSS*, it stated:

> To the extent [the intervenor] is seeking to *show* that *WPPSS* was both responsible for the delays and that the delays were dilatory and thus without "good cause" this contention, if *properly particularized and supported, would be litigable*. *See* 10 C.F.R. § 2.714.

16 NRC at 1251 (emphasis added). And in *Public Service Co. of New Hampshire* (Seabrook Station, Unit 2), CLI-84-6, 19 NRC 975, 978 (1984), the Commission explained (emphasis added):

> To be admissible, a contention must either challenge applicants' reason for delay or *show* that other reasons, not constituting good cause, are the principal basis for the delay. . . .
>
> . . . . In other words, *the proponent of the contention must articulate some basis to show* that the applicant is responsible for the delay and has acted intentionally and without a valid business purpose.

The Commission reiterated these last words in this very proceeding in response to the question we certified to it. *See* CLI-86-15, 24 NRC at 401. It is significant the Commission repeatedly used the word "show" — "to make apparent or clear by evidence, to prove." *Black's Law Dictionary* 1237 (5th ed. 1979).

[7] I would observe that the broad interpretation the majority now gives to *Allens Creek/Grand Gulf* is not fully consistent with past Appeal Board practice. For example in *Shearon Harris* cited by the majority (*see supra* p. 930 note 71), the Board noted, among other things, the accuracy of the factors recited in the contention and pointed to other "well-known circumstances" in ordering the contention's admission. 23 NRC at 541. Had the Appeal Board there taken the majority's view here of the basis and specificity requirement, there would have been no occasion for the Board to rely on those factors in arriving at its decision. *See also supra* p. 940 note 6.

to reopen a record. In the circumstances, it makes practical sense to demand a more stringent test for admission of a contention, to provide a reasonable expectation that an ensuing hearing would be productive. An appropriate test for permit extension cases might be the one we set forth in *Diablo Canyon* for reopening the record in an operating license proceeding, which the Commission endorsed in *Waterford*:

> At a minimum . . . the new material in support of a motion to reopen must be set forth with a degree of particularity in excess of the basis and specificity requirements contained in 10 C.F.R. 2.714(b) for admissible contentions. Such supporting information must be more than mere allegations; it must be tantamount to evidence . . . [and] possess the attributes set forth in 10 C.F.R. 2.743(c) defining admissible evidence for adjudicatory proceedings. Specifically, the new evidence supporting the motion must be "relevant, material, and reliable."[8]

I see no difficulty in applying pleading criteria for satisfying the basis requirement of 10 C.F.R. §2.714(b) in permit extension cases that differ from those applied in construction permit or operating license cases. Although section 2.714(b) is applicable to all types of Commission proceedings, it merely establishes a requirement that an intervenor set out the basis for each contention with reasonable specificity. It does not elaborate on how the requirement is to be met. Our particularization of the pleading or evidentiary requirements necessary to satisfy section 2.714(b) has evolved through case interpretation, essentially in the context of construction permit or operating license cases. I see no necessity to apply that case law automatically to the very different circumstances of permit extension proceedings.[9]

2. I do not believe that the intervenors have satisfied the basis requirement appropriate for permit extension cases. To be admissible here, the contention must rest on some bases that show that the applicants had a corporate policy to violate NRC regulations and that this policy is continuing and unrepudiated. I find that the intervenors' submission demonstrates neither.

As the basis for the first part of their contention, the intervenors direct our attention to some 50 pages of material from the operating license proceeding that purportedly support their position that there was a deliberate corporate policy

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[8] *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-775, 19 NRC 1361, 1366-67 (footnote omitted), *aff'd sub nom. San Luis Obispo Mothers for Peace v. NRC*, 751 F.2d 1287 (D.C. Cir. 1984), *aff'd*, 789 F.2d 26 (D.C. Cir. 1986) (en banc); *Louisiana Power & Light Co.* (Waterford Steam Electric Station, Unit 3), CLI-86-1, 23 NRC 1, 5 (1986).

[9] *See, e.g., Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-853, 24 NRC 711, 715 (1986), *rev'd on other grounds*, CLI-87-2, 25 NRC 267 (1987) (requirement in 10 C.F.R. §50.33(g) for the filing of state and local emergency plans as a condition for issuance of operating licenses is applied differently to licenses for fuel loading and preoperability testing as opposed to licenses for full-power operation even though "section 50.33(g) does not distinguish between full power licenses and licenses for operations at less than full power"); *cf. Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), CLI-86-13, 24 NRC 22, 32 (1986) (specific emergency planning measures not explicitly mentioned in the regulations may nevertheless be required for a "reasonable assurance" finding).

to violate Commission regulations.[10] Relying on this, they argue that applicants ignored criticism of their quality assurance and quality control (QA/QC) system over a long period of time, that the plant is not properly designed, and, hence, that the plant is not licensable.[11] However, contrary to the intervenors' allegations, none of these documents provides, either directly or by inference, any indication of a corporate policy to violate Commission regulations. The documents reference cases of failure to reform portions of the QA program and note other QA shortcomings. On the other hand, they also include instances of the applicants' response to inadequacies. What they do not show is that the QA failures were the result of a deliberate corporate policy to violate regulations.

The intervenors' basis for the second aspect of their contention consists, first, of their statements to the effect that the policy has not been discarded or repudiated, and that the personnel responsible for this policy are still in their same positions. This is followed by a series of criticisms of the Comanche Peak Response Team Program (CPRT), and a recitation of intervenors' proposals for that program's revision.

It is undeniable that the applicants have not issued a statement in which they explicitly discard and repudiate any past corporate policy to violate NRC regulations. This is not surprising. Unless the applicants were first to admit that they had a deliberate policy to violate regulations (which here they do not do), it is unlikely that they would (or could) explicitly discard and repudiate such a policy.[12] In any event, the intervenors do not assert that the applicants had announced a policy that they have failed to discard. Rather, their position is that the documents they cite inferentially support the existence of such a continuing policy.

Those documents, selectively chosen, however, tell only part of the story. A broader look at the record of the *Comanche Peak* operating license proceeding clearly shows that the applicants have taken steps to correct the deficiencies in plant construction.[13] Particularly significant is the indisputable fact that

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[10] *See supra* p. 928 and note 5. No specific citations are provided by the intervenors to particular statements in those documents.

[11] Intervenors' Amended Contentions 1 and 2 (September 30, 1986) at 2, 3.

[12] This would be the regulatory equivalent of trying to answer the question "Have you stopped beating your wife." I do not believe that is what the Commission had in mind when it spoke of discarding and repudiating a policy. In discussing this issue in CLI-86-15, the Commission said (24 NRC at 931):

> For example, if a utility were to adopt a corporate policy to construct the plant in willful violation of NRC requirements, but were then to reverse that policy, remove the wrongdoers, and embark on a new effort to reconstruct a safe plant in full compliance with NRC requirements, we could find that the new policy constituted "good cause" for an extension. We will not penalize a current management for the mistakes of its predecessors in this regard.

[13] My colleagues criticize my reliance on material from the operating license proceeding. But much of the material intervenors tendered in support of the contention is part of the record of that proceeding and even includes, as my colleagues acknowledge, "Licensing Board findings from the *Comanche Peak* operating license proceeding." *See supra* p. 928. Moreover, as the staff points out, in concluding that there was an adequate basis for the contention "the Licensing Board was relying upon information known to it from the operating license proceeding in an attempt

substantial changes have been made in the applicants' management structure and in their senior management personnel.[14] In particular, an Executive Vice-President, a Vice-President, and the three senior personnel in the QA/QC area, all with extensive nuclear experience, have recently been hired from the outside to serve in a revised organizational structure for the construction of Comanche Peak.[15] In addition, the applicants have expressed dissatisfaction with the state of affairs at Comanche Peak, and their determination to put the plant right, outlining the new effort designed to bring the plant into compliance with NRC regulations.[16] In summary, the applicants have initiated "a new effort to construct a safe plant in full compliance with NRC requirements" and thus satisfy the Commission's test for determining good cause for permit extension.[17]

B. Apart from the lack of an adequate basis to support it, the contention should be rejected for another reason. The intervenors' amended contention is so broadly worded as to encompass every possible deficiency and rule violation associated with the design and construction of the plant. Its few particularized aspects, however, deal almost exclusively with the CPRT and associated efforts to seek out and correct construction and quality assurance deficiencies at the plant.[18] Thus, fairly read, the contention and supporting documents indicate that the intervenors' real quarrel is with the mechanism the applicants have set up to correc deficiencies — not with whether good cause exists for the permit extension. Issues involving the CPRT clearly fall within the ambit of the pending operating license proceeding, and the Licensing Board has already made it known that these hearings will focus on the CPRT.[19] It is clear to me that that is the proper forum for litigating the concerns encompassed by intervenors' contention. As the Commission has said: "A contention cannot be litigated in a construction permit extension proceeding when an operating license proceeding

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to remedy the deficiencies in the Consolidated Intervenors' statement of basis." NRC Staff Brief in Support of Appeal at 9-10.

[14] *See* "Applicants' Current Management Views and Management Plan for Resolution of All Issues" (June 28, 1985) (henceforth, Management Views).

[15] *Id.* at 9-11, Attachment (Updated section 13.1 of CPSES FSAR, Amendment 55). *See also* NUREG-0797, Comanche Peak Safety Evaluation Report Supplement 12 (October 1985) at 13-3, where the NRC staff evaluates the revised organization and finds it acceptable.

[16] Management Views at 7, 12, 15, 16-17, 18-21. *See also* NUREG-0797, Supplement 13 (May 1986) at 5-1, where the NRC staff concludes that the CPRT "provides an overall structure for addressing all existing construction and design issues and any future such issues that may be identified from further evaluation." In this document the staff also evaluates, and finds acceptable under 10 C.F.R. Part 50 Appendix B, the CPRT quality assurance plan. *Id.* at 4-1 to 4-7.

[17] *See supra* p. 942 note 13. The Commission *did not* condition its basis for a good cause determination on the degree of success that a new management pursuing a new policy and mounting a new effort might have in completing a plant that was safe and in compliance with the regulations. And rightly so. For under the existing two-stage licensing process, the evaluation of the as-built plant and the applicants' ability to operate it are health and safety issues that may be considered at the time of the application for an operating license.

[18] Intervenors' Amended Contentions 1 and 2 at 4, 5. *See also* App. Tr. 48, 78.

[19] LBP-85-32, 22 NRC 434 (1985). *See also* LBP-85-39, 22 NRC 755 (1985).

is pending in which the issue can be raised."[20] The gist of the intervenors' amended contention — challenging the efficacy of applicants' organization and methods to correct design and construction deficiencies at Comanche Peak — is precisely the type of matter that should be litigated in the operating license case.

[20] *See WPPSS*, 16 NRC at 1227 (Commission approval of our earlier observation "that the purpose of a construction permit extension proceeding is not to engage in an unbridled inquiry into the safety and environmental aspects of reactor construction and operation"). *See also id.* at 1231 n.4.

Cite as 25 NRC 945 (1987) LBP-87-18

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Peter B. Bloch, Chairman
Dr. Kenneth A. McCollom
Dr. Walter H. Jordan

In the Matter of

Docket Nos. 50-445-OL
50-446-OL
(ASLBP No. 79-430-06-OL)

TEXAS UTILITIES ELECTRIC COMPANY, *et al.*
(Comanche Peak Steam Electric Station, Units 1 and 2)

June 1, 1987

The Licensing Board holds that work prepared for Intervenors as part of a nonrecord filing is privileged under the nontestifying witness corollary to the attorney work product privilege and need not be produced in discovery. The fact that the nonrecord filing of the Intervenors was made in response to a Board Memorandum and Order does not make the people who prepared the filing "witnesses."

RULES OF PRACTICE: DISCOVERY (NONTESTIFYING WITNESS)

Intervenors need not respond to discovery requests addressed to nontestifying witnesses. The participation of a person in making a nonrecord filing does not make him a witness.

RULES OF PRACTICE: DISCOVERY (DEFINING TERMS USED IN THE RECORD)

A party is not obligated to make a detailed search of the record in order to respond to interrogatories concerning how it has used a certain term ("Walsh-Doyle issues") in the record.

MEMORANDUM AND ORDER

(Discovery Sets 1987-6, -7)

Memorandum

On April 10, 1987, Texas Utilities Electric Co. *et al.* filed a Motion to Compel with respect to four questions comprising Sets 1987-6 and -7.[1] Citizens' Association for Sound Energy (CASE) responded on April 27, 1987 (Response).

I. LEGAL PRINCIPLES

The applicable legal principles are straightforward. Under 10 C.F.R. § 2.740(b), parties may obtain discovery regarding any matter, not privileged, which is relevant to the subject matter involved in the proceeding. An exception has been created for nonwitness experts (experts hired in anticipation of litigation but not expected to testify), whose testimony may not be elicited except under special circumstances. *Kerr-McGee Chemical Corp.* (West Chicago Rare Earths Facility), LBP-85-38, 22 NRC 604, 610, 613-14 (1985).

II. MOTION TO COMPEL 1987-6

Set 1987-6 is a single interrogatory asking CASE to provide information concerning each and every expert witness, without limitation as to scope. Applicants claim that it is only fair that CASE respond because Applicants have already been required to respond concerning their expert witnesses.

CASE's response is that it has answered this question as well as it can by stating that it has not yet identified any expert witnesses.[2] It also states that this Board has never required Applicants to file information concerning *nonwitness experts*, but that we have clearly ruled at Tr. 24,793-94 that CASE could obtain

[1] Motion to Compel at 2.
[2] Response at 2.

information about the work of the Comanche Peak Response Team, which is work that is directly relevant to the correction of deviations found in the plant and is therefore not covered by the nonwitness expert exception.[3]

We agree with CASE that we have *not* required Applicants to disclose information about work being done by consultants employed solely as nonwitness experts. Likewise, we would not require CASE to disclose the names of individuals whose role is solely as nonwitness experts.

A part of the difference here is that Applicants are still responding to Board findings, in December 1983, that the design of the plant and Quality Assurance (QA) for design are deficient. They are also responding, within the scope of Contention 5, to findings of the Nuclear Regulatory Commission Staff of deficiencies in QA for construction. Other portions of their current efforts are now indirectly related to CASE and Staff allegations, stemming from Cygna findings and CPRT findings. All of this is basic information about the plant relevant to Contention 5.

In the present instance, there is some ambiguity as to what a witness is. The ambiguity arises because the Board issued an order stating some of its concerns about the adequacy of the CPRT plan. No one needed to respond to those concerns, which were stated for the purpose of disclosing the Board's thinking and avoiding surprise that might occur after the Applicants had implemented an extensive program of research and corrective action. However, both Applicants and CASE have responded. We received and read their responses, but we treated them in the nature of Board notifications. They are not part of the record and not in evidence. We do not consider that the filing of an affidavit as part of such a filing makes the individual a "witness."

There will come a time when CASE will need to disclose expert witnesses. It has acknowledged that in its Response. CASE also has agreed that when it has identified expert witnesses, it will file their names.

There is nothing for us to compel with respect to this interrogatory.

III. MOTION TO COMPEL 1987-7

These interrogatories appear to be designed to clarify what the meaning of "Walsh/Doyle Allegations" is. CASE's response is that it did not originate the term and is not sure what it means.[4]

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[3] Whether a subpoenaed party is an expert specially retained in anticipation of litigation is necessarily a factual determination, in this case based on the evidence of the expert's relationship with the licensee. *Kerr-McGee*, 22 NRC at 513.

[4] Response to Interrogatories, March 23, 1986, at 4.

The Board considers CASE's response to be complete, particularly considering the six-page history furnished by CASE in its response.[5] The Walsh/Doyle allegations are in the record, and CASE need not have assisted Applicants to search the record, even to the extent that they have.

This said, we realize that we are only asked to speak on a definitional matter. Applicants should be aware that what is transpiring appears to be a continuously opening cone of items descended from initial Walsh/Doyle contentions. It appears that both Applicants and CASE agree that Walsh/Doyle issues are defined in the record of the proceedings. Under the circumstances, the Applicants are as able to search the record (and undoubtedly already have done so as part of the CPRT project) to identify Walsh/Doyle issues.

Of course, in the following stage of proceedings, after Applicants have determined the proper resolution of Walsh/Doyle issues, there will be massive new documentation concerning plant safety. At that time, it will be essential to recognize the developing nature of this case and to narrow the issues for trial. A fair procedure will, in time, be adopted for that purpose, upon motion. At the present time, however, we are still awaiting Applicants' effort to accurately depict their current program. Applicants themselves do not yet have a final position on which Walsh/Doyle issues they accept as valid.

Given that the issues to be litigated are still unfolding and that we have no proposal for efficiently addressing the constantly changing flux of Applicants' work, the time for narrowing issues has not yet come. Nor do we think it appropriate to require CASE to further list or discuss issues already raised by it on the record of this case.

IV. SUMMARY

The complexity of this case results from CASE's success in raising questions of substance that have not yet been resolved. Given Applicants' own difficulty in resolving those questions, as well as the Staff's reluctance to approve Applicants' evolving response, it would not be proper for us to require CASE to clarify its position at this time.

Hence, we shall deny the motion to compel in its entirety.

Order

For all the foregoing reasons and based on consideration of the entire record in this matter, it is, this 1st day of June 1987, ORDERED:

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[5] *Id.* at 5-10.

That Applicants' Motion to Compel, filed April 10, 1987, is *denied.*

FOR THE ATOMIC SAFETY
AND LICENSING BOARD

Peter B. Bloch, Chairman
ADMINISTRATIVE JUDGE

Bethesda, Maryland

Cite as 25 NRC 950 (1987) LBP-87-19

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Ivan W. Smith, Chairman
Dr. A. Dixon Callihan
Dr. Richard F. Cole

In the Matter of **Docket Nos. 50-456-OL**
50-457-OL
(ASLBP No. 79-410-03-OL)

COMMONWEALTH EDISON COMPANY
(Braidwood Nuclear Power Station, Units 1 and 2)

June 10, 1987

MEMORANDUM AND ORDER DENYING INTERVENORS' MOTION TO ADMIT LATE-FILED CONTENTIONS ON FINANCIAL QUALIFICATIONS

On May 6, 1987, the Intervenors, Rorem *et al.*, filed a motion, purportedly pursuant to 10 C.F.R. § 2.714, moving the Board to admit a late-filed contention concerning "the financial qualifications of the potential new co-licensees of Braidwood." The motion is founded on information supplied by Commonwealth Edison about the proposed new ownership and financing arrangements for Byron 2 and the Braidwood Units. As Intervenors' motion acknowledges, Edison has to date applied for an operating license amendment to authorize the changes for only Byron 2. However, Edison has signaled its intention to apply for a similar amendment to the Braidwood operating licenses.

In effect Intervenors' motion is not a motion to add a late contention to the Braidwood operating license proceeding. It is functionally an effort to anticipate the filing of an application for a Braidwood operating license amendment and to insert the financial qualification issue into any proceeding stemming from that application.

This Board is without jurisdiction to consider the merits of Intervenors' motion. The Board was established pursuant to the Commission's notice of hearing to preside over the operating license proceeding.[1] Our jurisdiction over the Braidwood facility will terminate when our jurisdiction over the operating license proceeding terminates.[2] That is to say, as the Commission's delegates under the notice of opportunity for hearing, we were granted jurisdiction solely for the hearing thereby ordered, but not for any future proceeding founded upon new applications.

This principle of licensing board jurisdiction is well settled. For example, in *Carolina Power and Light Co.* (Shearon Harris Units 1, 2, 3, and 4), LBP-79-19, 10 NRC 37 (1979), a licensing board, established to preside over the Shearon Harris construction permit proceeding, attempted to extend its jurisdiction into a future proceeding by requiring that the issue of management capability be included in the operating license notice of hearing. *Id.* at 98-99. The *Shearon Harris* Appeal Board, however, reversed and vacated the Licensing Board's action, noting that "[A]n authorization to conduct an adjudicatory proceeding pursuant to a notice of hearing issued by the Commission does not carry with it by necessary implication the power to order the initiation at a later date of a separate and distinct proceeding." ALAB-577, 11 NRC 18, 30 (1980). Although the Commission in *Shearon Harris* reversed the Appeal Board on other grounds, it agreed that the Licensing Board's attempt to influence future proceedings exceeded the authority granted by the notice of hearing. CLI-80-12, 11 NRC 514, 516 (1980), *citing Florida Power and Light Co.* (Turkey Point Nuclear Generating Plant, Units 3 and 4), 4 AEC 9, 15-16 (1967).

Approaching the issue from a slightly different perspective, it is true that the Notice of Opportunity for Hearing in the *Braidwood* operating license proceeding, in the common form for such notices, did not exclude consideration of financial qualification issues from the proceeding. Except for the Commission's Policy and the provisions of 10 C.F.R. § 2.104(c)(4), this Board might have had jurisdiction over the issue of Commonwealth Edison's financial qualification to engage in the activities under the license applied for. But Intervenors' motion, by

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[1] *See* 43 Fed. Reg. 58,659 (Dec. 15, 1978) (Notice of Opportunity for Hearing) and 44 Fed. Reg. 5732 (Jan. 29, 1979) (Establishment of Atomic Safety and Licensing Board to Preside in Proceeding).

[2] The Licensing Board's initial decision authorizing operation of the Braidwood facility issued on May 19, 1987, and May 22, 1987. LBP-87-14, LBP-87-14A, 25 NRC 461 (1987). A notice of appeal by Intervenors was filed on June 1, 1987. However, the Intervenors' motion was not disposed of before the initial decision issued. Therefore we retained jurisdiction to address in the first instance, at least, the jurisdictional aspects of the motion.

its very terms, is relevant only to a corporate structure and method of financing not yet in existence. The proffered contention can become an issue only when, and if, the Licensee applies for a Braidwood operating license amendment, and when, and if, the Commission publishes a notice of opportunity for hearing on that application. For this Board to accept the financial qualification issue before the respective proceeding even commences would be clearly contrary to the Appeal Board and the Commission *Shearon Harris* decisions, *supra*.

The motion therefore is denied for want of jurisdiction.

This is an appealable order. It disposes of the last issue before the Licensing Board.

FOR THE ATOMIC SAFETY
AND LICENSING BOARD

Ivan W. Smith, Chairman
ADMINISTRATIVE LAW JUDGE

Bethesda, Maryland
June 10, 1987

Cite as 25 NRC 953 (1987) LBP-87-20

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Peter B. Bloch, Chairman
Dr. Kenneth A. McCollom
Dr. Walter H. Jordan

In the Matter of

Docket No. 50-445-CPA
(ASLBP No. 86-528-02-CPA)

TEXAS UTILITIES ELECTRIC COMPANY, *et al.*
(Comanche Peak Steam Electric Station, Unit 1)

June 22, 1987

The Licensing Board finds a management report prepared by Applicants in preparation for rate-making proceedings to be privileged under the nontestifying witness corollary to the attorney work product privilege, but requires the information to be supplied to the intervenors if relevant to Appendix B, Part 50 determinations of the cause of deficiencies in construction or design.

RULES OF PRACTICE: DISCOVERY (NONTESTIFYING WITNESS)

Information that is relevant to the contention and is related to Applicants' obligation to determine the cause of deficiencies in their plant, shall be disclosed in discovery even though it is privileged under the nontestifying witness corollary to the attorney work-product privilege.

MEMORANDUM AND ORDER
(Discovery Concerning Cresap Report)

Memorandum

In its discovery request, Joint Intervenors[1] seek access to a Retrospective Audit of the Comanche Peak Steam Electric Station Project, being conducted by Cresap, McCormick & Paget (Cresap Report). Applicants[2] contend that the Cresap Report, which does not yet exist in final form, should not be produced for the Joint Intervenors because it is privileged under the attorney work product privilege and the privilege covering the work of nontestifying experts. Joint Intervenors deny the applicability of the privileges and urge that the privileges be narrowly construed so that the requested information will be produced. They also argue that the need for the information is great because it is difficult to obtain otherwise.

I. LEGAL PRINCIPLES

The applicable legal principles are straightforward and have been explained by us on June 1, 1987, in a discovery order (LBP-87-18, 25 NRC 945) in the companion Operating License proceeding. Under 10 C.F.R. § 2.740(b), parties may obtain discovery regarding any matter, not privileged, which is relevant to the subject matter involved in the proceeding. An exception has been created for nonwitness experts (experts hired in anticipation of litigation but not expected to testify), whose testimony may not be elicited except under special circumstances. *Kerr-McGee Chemical Corp.* (West Chicago Rare Earths Facility), LBP-85-38, 22 NRC 604, 610, 613-14 (1985). The special circumstances required to override the privilege are discretionary with the court, although there are a variety of precedents that may be used as guidance.

The purpose of the discovery rules is to make information readily available in licensing cases. The purpose of the nonwitness expert rule is to provide a party an incentive to thoroughly prepare for trial without having to turn over the fruits of its preparation to its adversary. The purpose of the special circumstances exception to the privilege is to balance the interest in disclosure against the need to create incentives for thorough trial preparation.

In this case, Applicants have argued that they employed a nontestifying witness for the purpose of gathering information for a related proceeding, a public utilities proceeding concerning appropriate utility rates. Thus, by

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[1] Citizens Association for Sound Energy and Maddie Gregory.
[2] Texas Utilities Electric Co. *et al.*

protecting the confidentiality of this report, we would protect Applicants' rights in the other proceeding.

Nevertheless, Applicants still have obligations under Appendix B to 10 C.F.R. Part 50. Pursuant to that Appendix, Applicants must:

> In the case of significant conditions adverse to quality, . . . assure that the cause of the condition is determined and corrective action taken to preclude repetition. The identification of the significant condition adverse to quality, the cause of the condition, and the corrective action taken shall be documented and reported to appropriate levels of management.

Consequently, whenever Applicants have found significant conditions adverse to quality, they must determine the cause of the conditions. That is their routine obligation. To the extent that Applicants would have been required to collect this information anyway, the purpose of the privilege — creating an incentive for trial preparation — is not even applicable. The information would have been produced and made available if pertinent to this proceeding.

Of course, the task of determining the "cause" of deficiencies in a plant with many deficiencies is a task of great complexity. Applicants must consider all information available to them affecting the judgment about "cause," including information about management decisions that could affect the quality of the plant and that were obtained in the course of a management study commissioned for a rate proceeding. Hence, information generated by the Cresap team may fall within this category of relevant information. If information supplied to Cresap is relevant to Appendix B "cause" determinations, then we find that it is discoverable and should be provided to Joint Intervenors in response to discovery and should also be studied by appropriate personnel of Applicants dealing with issues of cause of deficiencies.

II. THE NATURE OF THE CRESAP AUDIT

A. Work Specification

The work specification for the audit states that:

> TUEC [Texas Utilities Electric Co.] is initiating a retrospective audit of the project management decisions during construction of CPSES. . . . The auditor performing the retrospective audit will present findings in a detailed written report to TUEC. The auditor also may be called to provide expert testimony at public hearings in support of its findings.[3]

[3] Joint Intervenors' Opposition to Motions for Protective Order and Motion to Compel Re: Gregory Discovery (Sets 5 and 6) (Motion) at 3.

We also know, based on the Affidavit of Homer C. Schmidt, that the Cresap Report was begun on advice of counsel and that the audit team reports to a Management Review Committee, one of whose members is TUEC's attorney responsible for rate case litigation.[4]

Under the circumstances, we agree with Applicants that these materials were prepared in anticipation of litigation and are covered by the attorney work product privilege.[5]

B. Relevance

In its brief,[6] invited by the Board, the Staff of the Nuclear Regulatory Commission (Staff) concludes that the Cresap Report appears to be relevant to issues in the construction permit amendment case, which include whether past delay was due to intentional misconduct and whether misconduct has been repudiated.[7] Staff, with whom we agree, states that the following subissues are relevant to this case:

> To determine TUGCO's ability to control each of these factors and related events.
>
> To assess the performance of TUGCO management in identifying and responding to these factors.[8]

It is Joint Intervenors' allegation in both the operating license case and the construction permit case that Applicants have favored completion of the plant on schedule over the safety of the plant. We admitted Joint Intervenors' contention that Applicants' favoring of schedule over safety amounted to the intentional disregard of Commission regulations. The contention of which that allegation is a part is before us, pending appeal.

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[4] Permittees' Response to Joint Intervenors' Opposition to Motions for Protective Order and Motion to Compel Re: Gregory Discovery (Sets 5 and 6), March 17, 1987 (Response), at attached Affidavit of Homer C. Schmidt.

[5] We were not persuaded by Joint Intervenors' argument that the Work Specification contradicts the affidavit of Mr. Homer Schmidt concerning the principal purpose of the Cresap audit. A study of management for purposes of a utility rate hearing necessarily would cover many of the subjects that Joint Intervenors find contradictory. Consolidated Intervenors' Reply to TUEC's Opposition to Motion to Compel Re: Gregory Discovery (Sets 5 & 6), April 20, 1987.

[6] NRC Staff Views on Discovery Dispute Involving Intervenor Meddie Gregory's Discovery Request for the Cresap Audit, May 18, 1987 (Staff Views).

[7] *Id.* at 7.

[8] *Id.*

III. CONCLUSIONS

We find that Applicants are entitled to the work product privilege for the Cresap Report. Nevertheless, we also find that Applicants are obligated to supply to Joint Intervenors all information[9] and all admissions[10] (including factual statements obtained from present or former project employees by Cresap personnel[11]) relevant to Appendix B requirements and cause determinations and supplied to Cresap.[12] At an appropriate time, under the *McGuire*[13] doctrine, information also should be made available to the Board by the Applicants.

We shall require Applicants to comply with this Memorandum and Order promptly.

Order

For all the foregoing reasons and based on consideration of the entire record in this matter, it is, this 22d day of June 1987, ORDERED:

Texas Utilities Electric Co. *et al.* (Applicants) shall comply promptly with the Board's conclusions in the accompanying memorandum.

FOR THE ATOMIC SAFETY
AND LICENSING BOARD

Peter B. Bloch, Chairman
ADMINISTRATIVE JUDGE

Bethesda, Maryland

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[9] Information includes records or statements about specific plant conditions or about construction, design, actions of particular managers or supervisors, management responsiveness, management policy, or management practices. It does not include information that is solely related to plant financing; but this exception does not exclude information related to the basic question of whether Applicants have placed schedule or short-run efficiency above safety.

[10] Any statement that could be construed unfavorably to any of Applicants' positions in this litigation should be considered an admission. Applicants may, of course, choose to release all opinion statements by interviewees in order to balance the record or place the admissions in full context.

[11] These factual statements, because they were obtained from responsible personnel by "friendly" fact finders, cannot readily be duplicated by interviews conducted by Intervenors. We do not consider this situation analogous to giving Intervenors access to interviews of third-party witnesses who have no relation to applicants. Nor do we consider the balancing test to operate in the same fashion as in civil cases where there is less of a public interest than occurs for issues related to the safe construction and operation of nuclear power plants.

[12] It is the intent of Appendix B that deficiencies be promptly identified and corrected. We expect that Applicants have a comprehensive system for keeping track of the serious concerns of any responsible person (including Cresap employees or agents or consultants hired by Applicants' lawyers) with access to information about this plant.

[13] *Duke Power Co.* (William B. McGuire Nuclear Station, Units 1 and 2), ALAB-143, 6 AEC 623, 625-26 (1973).

Cite as 25 NRC 958 (1987) LBP-87-21

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Dr. Robert M. Lazo, Chairman
Dr. Richard F. Cole
Dr. Emmeth A. Luebke

In the Matter of

Docket Nos. 50-250-OLA-1
50-251-OLA-1
(ASLBP No. 84-496-03-LA)
(Vessel Flux Reduction)

FLORIDA POWER & LIGHT COMPANY
(Turkey Point Nuclear Generating Plant, Units 3 and 4)

June 23, 1987

In this Memorandum and Order, the Licensing Board concludes that an issue raised by a Staff Board Notification, over which it had retained jurisdiction, does not adversely affect its previous disposition of the sole remaining contention in the proceeding. The Board grants Licensee's motion to terminate the proceeding.

RULES OF PRACTICE: MOTION TO REOPEN

To justify reopening the record, supporting information must be more than mere allegation; it must be tantamount to evidence. Thus, intervenors' "belief" that a regulatory criterion would be exceeded if reanalysis were required is not sufficient to warrant reopening.

RULES OF PRACTICE: MOTION TO REOPEN

The licensing board has no authority to order the licensee to perform a reanalysis for the purpose of determining whether the record should be reopened. The board must decide the motion to reopen on the information before it.

MEMORANDUM AND ORDER
(Terminating Proceeding)

I. INTRODUCTION

On July 24, 1986, the Licensing Board in the above-captioned proceeding issued an initial decision (LBP-86-23, 24 NRC 108) in which it found that the amendments for Turkey Point Units 3 and 4 "shall remain in full force and effect without modification." *Id.* at 130. The Licensing Board resolved Contention (d), the sole remaining contention, in Licensee's favor by finding that: (1) the Licensee's analysis of departure from nucleate boiling ratio was performed using NRC Staff-approved methodology and compensates for appropriate uncertainties and (2) the issuance of the amendments has not reduced the margin of safety for the operation of the plant. *Id.* at 129. The Board, however, retained jurisdiction with respect to an issue related to Contention (b) — a contention the Board had summarily disposed of — pending receipt of further information from the Staff in view of the Staff's June 30, 1986 Board Notification (BN-86-17). *Id.* at 130-31.[1]

In BN-86-21, dated October 23, 1986, the Staff provided information about the Staff's followup actions in the matter and reiterated its previous conclusion that the Board's grant of summary disposition of Contention (b) is not adversely affected by the need for changes in the Westinghouse ECCS evaluation models using either the FLECHT correlation or the BART code.

On November 20, 1986, Licensee filed a motion (Motion to Relinquish Jurisdiction and Terminate Proceeding) requesting that the Board terminate this proceeding. As grounds for its motion that the Board relinquish jurisdiction and terminate the proceeding, Licensee states that the additional information relating to Contention (b) which the Board was awaiting has now been provided and that

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[1] In BN-86-17, the Staff stated that it had been informed by Westinghouse Electric Corporation of the need to make certain additions and corrections to the 1981 Westinghouse Emergency Core Cooling System (ECCS) evaluation models using the FLECHT correlation and the BART computer code. The Staff also indicated in BN-86-17 that it was considering the actions necessary for interim and continued operation of Westinghouse plants which, after taking into account the maximum increases in peak cladding temperature resulting from the errors, remain within or exceed the 2200°F acceptance criterion specified in 10 C.F.R. § 50.46(b).

the Staff has indicated that no further action is required of the Licensee. Motion at 2.

The Staff filed an answer on December 10, 1986, fully supporting Licensee's motion.[2] Intervenors submitted an opposing response on December 15, 1986, 10 days out of time.[3] Intervenors' response was accompanied by a motion for extension of time.[4]

II. DISCUSSION

Before the Board was informed of the need to make corrections or additions to the ECCS models used by Licensee, the calculated peak cladding temperature (PCT) using the FLECHT correlation was 2130°F plus 10°F for the effects of the transitional core, and the calculated PCT using the BART code was 2051°F (plus 10°F for the effects of the transitional core). Supplement to the Safety Evaluation in Support of Amendment Nos. 99 and 93 for the Turkey Point Plant (SSE), dated May 14, 1985, § 4.2.

In BN-86-17, the Staff opined that the rationale underlying the Board's summary disposition ruling would not be adversely affected by the new information concerning the model errors. Specifically, the Staff stated that:

> First, the Board's dismissal of Contention (b) was based primarily on the ECCS evaluation model calculation using the FLECHT correlation and there is only, at most, a 12°F estimated increase in the previously calculated PCT (i.e., 2152°F). Second, the staff expects that the PCT calculation using the corrected ECCS evaluation model using BART would be below 2200°F. Thus, the staff expects that a corrected analysis with both models would satisfy 10 C.F.R. Part 50, Appendix K, and 10 C.F.R. § 50.46.

BN-86-17 at 5. The Licensing Board, noting that (1) the Board's grant of summary disposition of Contention (b), although based primarily upon the Licensee's ECCS analysis using the FLECHT correlation, also considered the ECCS analysis using the BART computer code; (2) the Staff indicated in BN-86-17 that it was considering actions necessary for interim and continued operation with respect to Westinghouse plants which would continue to meet, or may exceed, the 10 C.F.R. § 50.46(b) acceptance criterion of 2200°F; and (3) the Staff would keep the Board informed of Staff actions in the matter, concluded that it would retain jurisdiction pending further actions by the Staff. LBP-86-23, 24 NRC at 130.

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[2] "Staff Response to Motion to Terminate Proceeding" (December 10, 1986).

[3] "Intervenors' Response to Licensee's Motion to Relinquish Jurisdiction and Terminate Proceeding" (December 15, 1986) (hereafter "Intervenors' Response").

[4] "Intervenors' Motion for Extension of Time to Respond to Licensee's Motion for Termination of Proceeding" (December 15, 1986). For good cause shown, the motion is *granted*.

In BN-86-21, dated October 23, 1986, the Staff informed the Board that the calculated PCTs resulting from both the corrected ECCS model with the FLECHT correlation and a reanalysis using the approved addendum to the BART code are less than 2200°F and satisfy 10 C.F.R. Part 50, Appendix K, and 10 C.F.R. § 50.46. The Staff also told the Board that the Staff is not requiring a reanalysis to be performed by any applicant or licensee using the FLECHT correlation, and the Staff is not requiring any applicant or licensee to perform a reanalysis using the corrected evaluation model using the BART code unless such applicant or licensee has a licensing action that uses the BART code pending before the NRC. BN-86-21 at 3.

In their Response to Licensee's Motion, the Intervenors asked the Licensing Board to require "the Licensee to perform an ECCS analysis with the corrected version of the BART computer code" and "to revoke the subject license amendments" if the results of the analysis do not comply with the requirements in § 50.46 and Part 50, Appendix K. Intervenors' Response at 4. Since these requested actions are without justification based upon the evidence currently in the record, the requests necessarily contemplate a reopening of the record on Contention (b) in this proceeding. However, it is apparent that the Intervenors have not provided a sufficient basis for reopening the record on Contention (b).

Section 50.46 and Part 50, Appendix K, set forth acceptance criteria for emergency core cooling systems (ECCS) and the models used to evaluate these systems. Among other things, these criteria state that an ECCS is acceptable if the peak cladding temperature (PCT) calculated by an acceptable evaluation model does not exceed 2200°F in the event of a loss-of-coolant accident (LOCA). Contention (b) questions whether a model used by the Licensee in support of its amendment application meets the Commission's ECCS acceptance criteria.

In an Order dated August 16, 1985, the Licensing Board granted summary disposition of Contention (b).[5] LBP-85-29, 22 NRC 300 (1985). This Order recited the facts that the Licensee performed evaluations using two different ECCS models approved by the NRC (one model used the FLECHT correlation and the other used BART code), that the Intervenors only raised concerns regarding BART, and that the PCT calculated by each model was less than 2200°F. Since the Intervenors raised no genuine issue about FLECHT or whether the PCT predicted by FLECHT meets the 2200°F standard, the Board granted summary disposition of Contention (b) notwithstanding the Intervenors' concerns regarding BART.

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[5] This Order necessarily found that the Intervenors had presented no genuine issue of material fact requiring an evidentiary hearing with respect to Contention (b). Nothing in the Intervenors' Response raises a genuine issue of material fact on Contention (b) or calls into question the correctness of that Order.

After issuance of this Order, the NRC Staff submitted Board Notification BN-86-17 on June 30, 1986. BN-86-17 stated that there was a "need for additions and corrections to the currently approved 1981 Emergency Core Cooling System (ECCS) evaluation model [including FLECHT] and the 1981 ECCS evaluation model including BART." In particular, BN-86-17 stated that both of these models did not properly account for the effect of control rod thimbles, which results in a 6 to 12°F increase in PCT calculations using FLECHT and a 10 to 20°F increase in PCT calculated using BART. Additionally, BN-86-17 stated that 100°F should be added to the PCT calculated using BART to account for removal of a hot assembly power adjustment. BN-86-16 further stated that, when these increases are taken into account, the PCT calculated by each model would still be less than the regulatory limit of 2200°F. Consequently, BN-86-17 concluded that this information does not adversely affect the rationale underlying the Board's grant of summary disposition of Contention (b). Finally, BN-86-17 noted that the Staff was considering whether additional action was necessary and promised to keep the Board informed of the Staff's actions regarding this matter.

Thereafter, the Staff issued Board Notification BN-86-21 (October 23, 1986) which, among other things, pointed out again that a reanalysis using the FLECHT correlation would result in at most a 12°F estimated increase in the previously calculated peak cladding temperature, and that the 120°F increase using the BART code would be largely mitigated by an addendum in the code approved by the NRC. Thus, BN-87-21 concluded:

> in summary, the slight change of 12°F has no significant impact on the previously calculated PCT of 2130°F for the Turkey Point Plant and a reanalysis using the approved addendum to the BART code would result in only a slight change in the previously calculated PCT of 2051°F for the Turkey Point Plant, thus both analysis would result in a PCT less than 2200°F and satisfy 10 C.F.R. 50, Appendix K, and 10 C.F.R. 50.46.

The Intervenors' requests for Board action regarding Contention (b) are based almost entirely upon BN-86-17. However, BN-86-17 does not form a sufficient basis for reopening the record on Contention (b). Under 10 C.F.R. § 2.734, a motion to reopen a closed record to consider additional evidence will not be granted unless (1) the motion is timely, addresses a significant safety or environmental issue, and demonstrates that a materially different result would be or would have been likely had the newly proffered evidence been considered initially; and (2) the motion is accompanied by one or more affidavits by competent individuals or experts in the appropriate disciplines, which set forth the factual or technical bases for the movant's claim that the criteria in (1) are satisfied. Thus, a party seeking to reopen the record has a "heavy burden" to bear. *Kansas Gas and Electric Co.* (Wolf Creek Generating Station, Unit 1),

ALAB-462, 7 NRC 320, 338 (1978). Intervenors' reliance on BN-86-17 does not satisfy this burden.

BN-86-17 does not raise a significant safety or environmental issue and does not support a result that is materially different from the Board's order granting summary disposition of Contention (b). As BN-86-17 itself notes, use of a corrected ECCS model with FLECHT would only cause a 6 to 12°F increase in calculated PCT. A change of this magnitude is not significant. *See* 10 C.F.R. Part 50, Appendix K, ¶ II.1.b (which defines a "significant change" in an ECCS evaluation model as a change that would result in a change of more than 20°F in PCT). Furthermore, as noted in BN-86-17, use of corrected models including either FLECHT or BART would not result in a calculated PCT temperature that exceeds the 2200°F regulatory limit. Therefore, the performance of a reanalysis using these corrected models would not result in a material change in the Board's conclusions granting summary disposition of Contention (b).

Intervenors state that they "have reason to believe" that the regulatory criterion would be exceeded if the Board were to require the Licensee to perform a reanalysis with the corrected version of BART. Intervenors' Response at 3. However, the Intervenors have offered no evidence in support of this speculation and have not supplied any affidavits from competent experts to justify this claim. As the Appeal Board stated in *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-775, 19 NRC 1361, 1366-67 (1984), "supporting information must be more than mere allegations; it must be tantamount to evidence." Consequently, the Intervenors' "belief" is not sufficient to warrant a reopening of the record on Contention (b).

The Intervenors appear to be of the opinion that the Board should require a reanalysis of whether the license amendments comply with the Commission's limits, merely because the analysis performed in support of the amendments did not use the corrected BART code. *See* Intervenors' Response at 3-4. However, the Staff has concluded, based upon its review, that these limits would not be exceeded; in the absence of any evidence to the contrary, it would be a pointless (and expensive) exercise to perform such a reanalysis. Furthermore, the Board has no authority to order the Licensee to perform a reanalysis for the purpose of determining whether the record should be reopened. As the Commission stated in *Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), CLI-86-7, 23 NRC 233, 235 (1985):

> [A] Board is to decide a motion to reopen on the information before it and has no authority to engage in discovery in order to supplement the pleadings before it. Simply put, the burden of satisfying reopening requirements is on the movant and Boards must base their decisions on what is before them.

Thus, it would be improper for the Board to order the Licensee to perform a reanalysis in order to decide whether the record on Contention (b) should be reopened.

The Intervenors have not presented sufficient justification to reopen the record.

III. CONCLUSION

The validity of the Licensing Board's ultimate conclusion on summary disposition that the Licensee's analysis meets 10 C.F.R. Part 50, Appendix K, and 10 C.F.R. § 50.46 has not been altered, and there are no longer any issues pending concerning Contention (b). Accordingly, we are relinquishing jurisdiction and terminating this proceeding before the Licensing Board.

IV. ORDER

For all the foregoing reasons and upon consideration of the entire record in this matter, it is, this 23d day of June 1987, ORDERED:

1. That Licensee's November 20, 1986 Motion to Relinquish Jurisdiction and Terminate Proceeding is *granted*;

2. License Amendment Nos. 99 and 93 to Operating License Nos. DPR-31 and DPR-41, respectively, issued by the Office of Nuclear Reactor Regulation on December 23, 1983, shall remain in full force and effect without modification; and

3. This proceeding before the Licensing Board is terminated.

FOR THE ATOMIC SAFETY
AND LICENSING BOARD

Dr. Robert M. Lazo, Chairman
ADMINISTRATIVE JUDGE

Dr. Richard F. Cole
ADMINISTRATIVE JUDGE

Dr. Emmeth A. Luebke
ADMINISTRATIVE JUDGE

Dated at Bethesda, Maryland,
this 23d day of June 1987.

Cite as 25 NRC 966 (1987) LBP-87-21A*

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

B. Paul Cotter, Jr., Chairman
Glenn O. Bright
Dr. Jerry Harbour

In the Matter of

Docket Nos. 50-275-OLA
50-323-OLA
(ASLBP No. 86-523-03-LA)

PACIFIC GAS AND ELECTRIC COMPANY
(Diablo Canyon Nuclear Power Plant, Units 1 and 2)

May 22, 1987

In this Memorandum and Order, the Licensing Board requires the parties to submit all filings pertaining to the record for decision on computer-readable diskettes in order to permit electronic storage and retrieval.

LICENSING PROCEEDINGS: EXPEDITING THE HEARING PROCESS

Commission policy encourages licensing boards to expedite the hearing process and to produce a record that leads to high-quality decisions by using the authority granted them in 10 C.F.R. § 2.718 to regulate the course of hearings and the conduct of the parties. This Board seeks to further that policy by drawing on available computer technology to create an electronically searchable hearing record.

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*This issuance was inadvertently omitted from the May 1987 Issuances.

MEMORANDUM AND ORDER

(Order Requiring the Filing of Documents on Diskettes Suitable for Electronic Storage and Retrieval)

I. INTRODUCTION

The Atomic Safety and Licensing Board seeks to expedite this proceeding to the benefit of all parties pursuant to the directions of the Commission in its *Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452 (1981). That guidance encouraged adjudicatory boards to "expedite the hearing process" and "produce a record which leads to high quality decisions" by using the management methods set out in 10 C.F.R. Part 2, which includes the power of the boards to regulate the course of the hearing and the conduct of the parties under 10 C.F.R. § 2.718 (1987). *Statement of Policy* at 453. The guidelines in the policy statement are not inclusive, "but rather are to be considered illustrative of the actions that can be taken by individual boards." *Id.* This Board seeks to carry out those responsibilities by drawing on the computer technology that has been so long employed by many, if not most, of the attorneys in this country who litigate complex lawsuits.

The requirements and procedures described in this Memorandum and Order are *not* intended to, and do not, replace the standard filing requirements in Nuclear Regulatory Commission proceedings. The parties will file hard copy as usual in conformance with 10 C.F.R. § 2.708 (1987). That hard copy, as in all NRC proceedings, will be the record upon which the Board will make its decision.

While the procedures and requirements for electronic filing are in addition to the normal method of filing, they are intended to benefit the parties, not burden them. The purpose of creating a computer-searchable record is to increase the speed and facility of the parties and the Board in finding specific documents and transcript references, preparing findings of fact and conclusions of law, and preparing a written decision from the record in this proceeding.[1]

To those ends, this Memorandum and Order directs the capture, in computer-readable form, of a significant portion of the record for decision. Specifically, the Board seeks to capture on computer-readable diskettes three categories of record materials, namely: (a) prefiled testimony; (b) proposed findings of fact and conclusions of law; and (c) the transcript of the hearing. Electronic capture will assist the parties and the Board in the following ways:

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[1] This Memorandum and Order is part of a larger effort by the Atomic Safety and Licensing Board Panel to standardize computer-readable filings and procedures for all cases wherever and to the extent feasible.

1. Make available to the Board and the parties a full-text, electronically searchable record to aid and expedite the preparation of findings, conclusions, and the initial decision by replacing the slow and time-consuming method of manual indexing and record search with a virtually instantaneous electronic full-text index system;
2. Aid and expedite the presentation of evidence and the conduct of cross-examination during the hearing (if the requisite equipment is then available) through a fully indexed and virtually instantaneous electronic search system on a portable computer at the hearing;
3. Ensure the completeness and reliability of the parties' filings and the Board's issuances, particularly the initial decision, as they relate to prefiled testimony and the hearing transcript, by making available the eidetic memory of a computerized, full-text search system.

The full benefit of the foregoing effects will not be fully realized in the instant proceeding because some exhibits and other portions of the record up to this point have not been captured for computer search. The parties are encouraged to make available in the electronic form described below whatever exhibits they may already have captured in that medium. In any event, substantial benefit will accrue to the Board, the parties, and the proceeding from the time saved in finding record references and producing findings, conclusions, and an initial decision, because the vast majority of the record on which the Board's decision will be based will be available electronically.

II. COMPUTER RESOURCES

The Board is equipped with IBM personal computers (IBM PC-XTs with 640 kilobytes of memory, a 360-kilobyte disk drive, and a 20-megabyte hard disk). Each computer has an AT&T Dataphone II modem (1200 baud), is operated by PC-DOS 3.1, and uses the IBM DisplayWrite 3 word-processing program. The Board also has available to it a Compaq 386 personal computer (with 150 megabytes of memory and a 40-megabyte backup tape drive) and a laser printer.

For indexing, the Board uses "ZyINDEX," which can index every word for computer search in up to 15,000 files.[2] The Board will compile a central data base of all computer-readable filings received in this proceeding and index it with ZyINDEX at the request of the parties.

In response to the Board's inquiry, the parties have stated that they have IBM equipment or the capability to submit filings in pure ASCII form. Counsel

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[2] The Board also has a more powerful full-text indexing program, "Bluefish," which can handle 15 million files. Bluefish can find and list every occurrence of a given word or phrase in 15,000 pages of text within 2 seconds. However, the indexed files require twice again as much space as the text itself. Consequently, Bluefish requires more personal computer capacity than ZyINDEX.

for the Sierra Club has an IBM PC with "Word Perfect" software for word processing.

Applicant is preparing its filings on a Wang system but can convert from the Wang format to file in pure ASCII[3] with relatively little effort. Applicant also notes, however, that certain characters and symbols may not be converted successfully into pure ASCII. Applicant can file approximately 150 pages of prefiled testimony plus a significant portion of its exhibits on computer-readable diskettes and will furnish enough diskettes to receive a complete copy of the fully indexed data base. Applicant reports that it has access to the ZyINDEX program and requests that the data base be indexed with that program.

NRC Staff has IBM PCs operating with the IBM 5520 Administrative System. Staff's response to the Board's inquiry recites at some length its objections to the Board's proposed order, the initially proposed format, the value of a central data base, and various other matters. However, Staff also recites that it is "willing to accommodate the Board's legitimate interest in efficiency and expedition," and Staff is able to furnish diskettes in pure ASCII. Staff also has ZyINDEX, but not Bluefish, and apparently is unaware that the latter is readily available. Staff expects to file 100 pages of hard copy prior to the hearing and estimates that Intervenor will file a like number of pages. Consequently, it appears that prefiled material will be approximately 1000 pages, transcript pages will number approximately 750 pages, and the complete data base will total approximately 1800 pages.

Test Results

All parties have submitted diskettes to the Board in pure ASCII form to test the system proposed in our April 30, 1987 order. All submittals were successfully captured and indexed.

III. PROCEDURES

A. Filings

Each party will accompany its prefiled testimony and proposed findings of fact and conclusions of law with a computer-readable diskette copy of the text ("hard copy") in pure ASCII form and the format they normally use pursuant to

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[3] ASCII (the American National Standard Code for Information Interchange) is a standard code used for exchanging information among data processing systems and associated equipment. An ASCII file is a text file (alphanumeric characters, special characters, line feed, and carriage return characters) in which the characters are represented in ASCII codes.

10 C.F.R. § 2.708 (1981). If prefiled testimony includes drawings, that material is not to be captured in computer-readable form.

With respect to symbols, equations, and other items that are difficult to (or will not) transmit in pure ASCII, the parties are to insert asterisks where that material occurs and the Board will have that material keyed into its captured data base for completeness.

B. Indexed Central Data Base

Upon receipt of the diskettes, the Board will have them recorded in a single repository which will serve as the central data base for the computerized portion of the record in this proceeding. Each word in the data base will be fully indexed using ZyINDEX. After all materials filed have been recorded and indexed, the Board will make copies of the complete data base and return one copy on the diskettes the parties have supplied to each of them for their use. If any party wishes to receive the data base fully indexed with Bluefish, they should so request at the time they file. The Board will mail to each party a diskette(s) containing a complete copy of the data base, indexed in accordance with each party's request, within 3 working days of receipt of the last party's filing.

The Board had hoped to bring to the hearing the fully indexed data base on a portable Compaq computer for use during the hearing. It now appears, however, that the equipment may not be available. The indexed feature of the data base would have enabled the Board and the parties to substantially reduce the time needed to search for references during the course of direct and cross-examination. If circumstances change and the equipment becomes available, the Board will be the primary user of the Compaq data base, but will make it available to the parties, when and as convenient to the proceeding.

C. Transcript

Finally, the Board has arranged with its court reporter to have the hearing itself recorded on computer-readable tape so that it can be added to the proceeding data base. This recording is in addition to the normal hard-copy transcript requirement. Copies are obtainable by the parties under the terms of the Commission's court reporting contract.

The Board reiterates its desire to effect a system of mutual benefit to all at a minimum of effort and encourages the parties to seek affirmative solutions to any obstacles this order may present them. Counsel or their representatives should call Jack Whetstine, Chief, ASLBP Information Processing Section (Telephone: 301/492-7858), with any technical or procedural questions this proposed order raises. Mr. Whetstine is directed to seek flexible solutions to any such problems.

Order

Accordingly, upon consideration of the filings of the parties and the entire record in this matter, it is, this 22d day of May 1987, ORDERED

That the parties shall submit computer-readable diskettes with their hard-copy filings in the form and manner described in the foregoing memorandum.

FOR THE ATOMIC SAFETY AND
LICENSING BOARD

B. Paul Cotter, Jr., Chairman
ADMINISTRATIVE JUDGE

Dated at Bethesda, Maryland,
this 22d day of May 1987.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ADMINISTRATIVE LAW JUDGE

Ivan W. Smith

In the Matter of

Docket No. 50-320
(ASLBP No. 86-534-01-OL)
(Civil Penalty)
(License No. DPR-73)
(EA 84-137)

GENERAL PUBLIC UTILITIES NUCLEAR CORPORATION
(Three Mile Island Nuclear Station, Unit 2)

June 22, 1987

In this Memorandum and Order, the Administrative Law Judge overrules the Department of Labor's motion to quash a subpoena on the grounds that the Department's so-called "Touhey" regulation (29 C.F.R. § 2.22) does not constitute a substantive privilege against disclosure of information otherwise producible in discovery.

RULES OF PRACTICE: DISCOVERY (PRIVILEGED MATTER)

Regulations promulgated under 5 U.S.C. § 301 providing control over the custody and use of executive department records are housekeeping regulations only. The statute, by its express terms, does not authorize the withholding of information from the public.

MEMORANDUM AND ORDER RULING ON DEPARTMENT OF LABOR MOTION TO QUASH SUBPOENA

I. BACKGROUND

In this civil penalty proceeding, GPU Nuclear is charged with several counts of the "whistleblower" provisions of 10 C.F.R. § 50.7 and § 210 of the Energy Reorganization Act of 1974. The NRC Staff alleges that GPUN discriminated against Richard Parks because Parks, employed in the cleanup of TMI-2, reported safety concerns to his management, requested assistance from the NRC, and because Parks initiated a related employee-protection proceeding with the Department of Labor under the Act.

The factual issues underlying the resulting Department of Labor proceeding share the factual issues of this proceeding. A question of Mr. Parks' credibility has been identified as an important subissue in this proceeding — both as a matter of witness credibility and as related to his job performance. Whether Parks provided unreliable information to the U.S. Government agencies officially investigating his allegations is especially relevant to Licensee's defense. Tr. 24-27.

The Department of Labor, supported by the NRC Staff, however, has resisted Licensee's discovery effort, through a subpoena, to depose the key Department investigator. Consequently there is now pending before me the Department of Labor's Motion to Quash Subpoena, served June 1, 1987, and GPUN's June 15 Response to the Motion.

II. THE SUBPOENA

On May 28, 1987, at the request of GPUN, I issued a subpoena for the deposition testimony of Mr. David Feinberg, now retired, who conducted the investigation into the allegations made by Mr. Parks, including direct interviews with Mr. Parks. I also issued the same day a subpoena duces tecum to the Administrator, Wage and Hour Division, Department of Labor, for records relating to Mr. Parks' complaint.[1] On June 9, the Department moved to quash

[1] The respective subpoenas were originally the subject of GPUN's motion for subpoenas dated February 4, 1987, which the NRC opposed on March 3, and to which the Department of Labor responded by letter received on March 5. The Motion was argued by counsel for GPUN, NRC Staff, and the Department of Labor at the prehearing conference of May 8, 1987. The Department's Motion to Quash and GPUN's response thereto largely restate the arguments made earlier. I have considered all of the earlier written and oral arguments by the parties.

the Feinberg subpoena[2] on three grounds: (1) Mr. Feinberg may not testify because the Deputy Solicitor of Labor withholds authorization for him to do so under the Department of Labor "Touhey" regulations, (2) Mr. Feinberg has no information not already produced, and (3) Mr. Feinberg, approaching age 70, has health problems.

A. DOL's "Touhey" Regulations

Pursuant to 5 U.S.C. § 301,[3] the Department (as have other federal agencies) promulgated a series of regulations intended to control the method of disclosing information in the Department's official files. 29 C.F.R. §§ 2.20-2.25. Of particular relevance are the provisions of 29 C.F.R. § 2.22:

> No employee or former employee of the Department of Labor shall, in response to a demand of a court or other authority, produce any material contained in the files of the Department or disclose any information relating to material contained in the files of the Department, or disclose any information or produce any material acquired as part of the performance of his official duties or because of his official status without approval of the appropriate Deputy Solicitor of Labor.

In this case, the Deputy Solicitor of Labor, citing the foregoing, informed Mr. Feinberg that he is not authorized to testify in response to the subpoena. Exhibit C to Motion to Quash. Below, I explain why the Deputy Solicitor's action has improperly frustrated duly authorized discovery in the proceeding. It is inconsistent with the statute authorizing the so-called Touhey regulations. The cases cited by the Department in connection with its motion to quash fail to support the Deputy Solicitor's position.

Beginning with the statute, it is clear, by its express terms, that the regulations authorized thereunder are intended to be housekeeping measures, and not privileges against the disclosure of information otherwise required to be disclosed by law. Note 3, *supra*.

In *United States ex rel. Touhey v. Ragen*, 340 U.S. 462 (1951) (the name source of the so-called "Touhey" regulations), relied upon by the Department,

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[2] Apparently the issue of the subpoena duces tecum to the Administrator is moot. The Department does not move to quash it, noting the sparse contents of the case file, which in any event, will be made available to GPUN on request. Motion, Affidavit of Cordelli. GPUN has not objected to this response, but on June 18, 1987, GPUN counsel stated in a telephone conference that he assumes that interview notes taken by Mr. Feinberg would be available during any deposition of Mr. Feinberg. The order below should be understood to include producing Mr. Feinberg's interview notes.

[3] 5 U.S.C. § 301. Departmental regulations

> The head of an Executive department or military department may prescribe regulations for the government of his department, the conduct of its employees, the distribution and performance of its business, and the custody, use, and preservation of its records, papers, and property. This section does not authorize withholding information from the public or limiting the availability of records to the public.

the issue was whether employees of the Department of Justice could be held in contempt for declining to disclose information in obedience to the Attorney General's standing order not to disclose. The *Touhey* court expressly did not decide the issue of "the ultimate reach of the authority of the Attorney General to refuse to produce . . . papers in his possession" because the Attorney General himself had not been before the trial court. *Id.* at 467.

The Department cites a series of decisions for the proposition that the validity of its "Touhey" regulations has been upheld by the courts. Indeed the cases do support that general proposition. But they do not support the additional proposition, implicit in the Department's action, that information otherwise producible may be withheld under that nonsubstantive, housekeeping regulation.

For example, in *Reynolds Metal Co. v. Crowther*, 572 F. Supp. 288 (D. Mass. 1982), a question of sovereign immunity from suit was presented when DOL Occupational Safety and Health Administration investigators declined under the DOL regulation to testify in a *private litigation in a state court*. Enforcement was sought in the U.S. District Court. There the Court noted that the purposes of the regulation were to centralize control of whether subpoenas should be obeyed or challenged, and to reduce the burden upon the OSHA program. *Id.* at 290. The Court went on to note that one of the policy considerations of the Touhey regulations (contrary to the case at hand) was to "minimize government involvement in controversial matters unrelated to official business." *Id.* Moreover the Court in *Reynolds Metal* expressly left open the question of "under what circumstances a federal court could compel a federal employee to give testimony contrary to instructions from the head of a department." *Id.* at 291, *citing Touhey, supra.*

Boatright v. Radiation Sterilizers, Inc., 592 F. Supp. 1314 (D. Colo. 1984) (also cited by the Department) is very similar to the *Reynolds Metal, supra,* decision. The testimony of OSHA inspectors had been sought in private state-court litigation. The DOL regulation was, of course, upheld. But the District Court went on to muse:

> These housekeeping regulations [29 C.F.R. § 2.22] don't, of themselves, create an exemption to the disclosure requirements of the Freedom of Information Act ("FOIA"). Likewise, the FOIA does not alter the long established rule that a government official could withdraw from his subordinates the power to release public documents. This apparent "Catch-22" is addressed by the appeal provisions of the FOIA.

Id. at 1315. *See also Smith v. CRC Builders Co.*, 626 F. Supp. 12 (D. Colo. 1983). In this proceeding, the Licensee appropriately addresses the "Catch-22" aspect of the DOL regulation by exercising the discovery rights afforded to it under the Atomic Energy Act, the Administrative Procedure Act, and the NRC regulations.

Hotel Employees-Hotel Ass'n Pension Fund v. Timperio, 662 F. Supp. 606 (D. Fla. 1985) is also instructive. Again the testimony of DOL employees was

sought by the plaintiff in private litigation and again the DOL regulations were recognized as an appropriate bar to the testimony. However, the District Court made its own analysis of the adequacy of the information already provided to the plaintiff by the Department, and determined that, under the rules of evidence, the testimony sought was unnecessary to the plaintiff's case. *Id.* at 607-08. By evaluating the plaintiff's evidentiary requirements against the purpose of the regulation, the Court implicitly recognized that the DOL regulation does not bestow a substantive privilege against disclosure of information. Factually, this proceeding must be contrasted with *Hotel Employees*, because a determination has been made that the information withheld by the Department (Mr. Feinberg's testimony) has no functionally equivalent substitute, and that the information is material to the preparation of the Licensee's defense.

There are several very fundamental flaws in the Department's application of its "Touhey" regulation to the circumstances of this NRC proceeding. First, the Licensee in this case is not a private litigant in a state court proceeding. The NRC, charged by the Atomic Energy Act with affording to Licensee a fair hearing, is a sister federal agency. The NRC shares with the Department of Labor complementary responsibilities to enforce § 210 of the Energy Reorganization Act. In fact, the NRC and the Department have entered into a Memorandum of Understanding acknowledging their complementary responsibilities, and pledging "to promote access to all information each obtains concerning a particular allegation."[4] Far from the situation in *Reynolds Metal, supra*, the objective of the regulation, "minimizing government involvement in controversial matters unrelated to official business," is not relevant to the Department's refusal here. The Licensee, through NRC subpoena power, seeks information directly related to the common official business of the Department and the NRC.

Second, the Deputy Solicitor cannot fairly assert that the housekeeping purposes of the Act are served by his action. There would be no burden imposed upon the Wage and Hour Division program by taking the testimony of Mr. Feinberg. He is no longer employed by the Department and his deposition cannot adversely affect the Department. In this context, it should be noted that the Department does not suggest that the deposition of Mr. Feinberg would infringe upon any recognized privilege — for example, exemptions to the Freedom of Information Act, deliberative process, work product, attorney-client, or any other traditional category of privileged information. In fact, nowhere does the Department explain exactly why it would be injured by permitting Mr. Feinberg to testify.

Third, the Deputy Solicitor has made a unilateral judgment as to the NRC's evidentiary needs in this case. It is true that the Department has cooperated

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[4] Memorandum of Understanding Between NRC and Department of Labor, Employee Protection, 47 Fed. Reg. 54,585 (Dec. 3, 1982).

with the NRC Staff and has released a large amount of information for use in this adjudication. The issue, however, is not the *quantity* of information, but the particular needs of this adjudication. The Atomic Energy Act, the Commission's Notice of Hearing, and the Administrative Procedure Act charge the administrative law judge and NRC reviewing adjudicators with affording due process to the parties, including discovery concerning the charges against the Licensee/defendant here. After carefully considering the arguments of all the parties against the factual background of this proceeding, the Licensee has convinced me that it is entitled to the information sought through the deposition of Mr. Feinberg. By making an uninformed determination that the NRC adjudication does not need Mr. Feinberg's testimony, the Deputy Solicitor of Labor has usurped the NRC's adjudicatory responsibilities and has frustrated the orderly litigation of an important health and safety case.

B. Information Already Produced

The Department represents, with supporting affidavits, that it has already provided to GPUN all factual and substantive information contained in the investigation file. It has even obtained releases from persons whose statements were taken in confidence in the spirit of cooperation with the NRC. Motion to Quash at 5-6. Mr. Feinberg states in his affidavit that he included in his report and the case file all the factual information that he obtained, and that he retained no personal records or notes regarding his investigation. The investigation was closed 4 years ago, but Mr. Feinberg recently reviewed the factual portion of the file, and reports that he has no further information regarding the matter.

GPUN states, however, that even if Mr. Feinberg has no further factual information to offer, it means merely that the deposition will be short and that GPUN is nevertheless entitled to probe Mr. Feinberg's memory. I agree.

The issues in this proceeding are subtle. Reliable evidence may be elusive. The proceeding involves issues of motivation. Mr. Parks' credibility, as noted at the outset, may be central to the resolution of some of the issues. Counsel for Licensee has a formidable task in preparing a defense. My evaluation of that task has persuaded me that a deposition of Mr. Feinberg may go far to resolve this important credibility issue. Moreover, GPUN's persistence in seeking to depose Mr. Feinberg is driven by more than speculation. Counsel has provided evidence from a recent deposition of Mr. Parks that he, Parks, challenges the accuracy of Mr. Feinberg's interview notes. Attachment to Response. If, as the Department states, Mr. Feinberg has no additional information to offer, nothing will be lost; the deposition will be short.

C. Mr. Feinberg's Age and Health

Mr. Feinberg states in his affidavit that his age, approaching 70 years old, and some health problems would make it difficult for him to submit to a deposition. He provided no other information concerning that statement. GPUN responded by observing that as recently as March 23, 1987, Mr. Feinberg was apparently fit enough to be scheduled for court testimony. Attachment to Response.

The subpoena calls for Mr. Feinberg to appear at a place and time mutually convenient to him and GPUN representatives. In its response, GPUN further agrees to any reasonable structuring of the deposition to avoid any excessive burden on Mr. Feinberg. The record does not provide any basis upon which I may excuse Mr. Feinberg because of his age or health problems, but if Mr. Feinberg needs further protection on that account, I shall entertain his request for relief.

III. ORDER AND APPEAL

The Motion to Quash the Subpoena to Mr. Feinberg is overruled. The Department of Labor may take an appeal from this order by filing a notice of appeal within 10 days after it has been served, and a brief supporting its position within 30 days after filing its notice of appeal. Any briefing by other parties shall be in accordance with procedures established by the Appeal Board.

Ivan W. Smith
ADMINISTRATIVE LAW JUDGE

Bethesda, Maryland
June 22, 1987

Cite as 25 NRC 981 (1987) DD-87-9

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR REACTOR REGULATION

Thomas E. Murley, Director

In the Matter of **Docket Nos. 50-280**
50-281

VIRGINIA POWER COMPANY
(Surry Nuclear Power Station,
Units 1 and 2)

June 5, 1987

The Director of the Office of Nuclear Reactor Regulation denies a petition and supplemental petition submitted by Mr. Thayer Cory and Ms. Judy Zwelling, on behalf of Citizen Action for a Safe Environment (CASE) requesting (1) that the Director of Nuclear Reactor Regulation require Virginia Power Company (the Licensee) to show cause why reopening the Surry Nuclear Power Station would not endanger the health and safety of the community and (2) that the Nuclear Regulatory Commission (NRC) issue an order directing that both reactors at Surry Nuclear Power Station remain shut down until the Licensee takes a number of actions specified in the petition.

DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206

INTRODUCTION

By Western Union Mailgram dated December 11, 1986 (petition), and a supplement to that petition dated January 20, 1987, Mr. Thayer Cory and Ms. Judy Zwelling (the Petitioners), on behalf of Citizen Action for a Safe Environment (CASE), requested pursuant to 10 C.F.R. § 2.206 of the Commission's regulations that the Director of Nuclear Reactor Regulation require Virginia Power Company (the Licensee) to show cause why reopening the Surry Nuclear Power Station would not endanger the health and safety of the community and that the

Nuclear Regulatory Commission (NRC) issue an order directing that both reactors at Surry Nuclear Power Station remain shut down until the Licensee takes a number of actions discussed in their petition. The Petitioners requested that both reactors at the Surry Power Station remain shut down until the Licensee fully inspected all pipes and publicly issued a complete report on the December 9, 1986 pipe break accident at Surry Unit 2. In addition, the Petitioners requested that NRC order the Licensee to keep the Surry Power Station shut down until the Licensee demonstrated that the plant complied with NRC regulations and could be operated with reasonable assurance of safety. The Petitioners also requested that, before the Surry Power Station be allowed to resume operation, NRC condition the Surry operating license to require the Licensee to inspect all piping handling condensate and feedwater during each refueling outage, including inspection of all check valves. The Petitioners presented several bases for the requested actions, including the following:

1. the December 9, 1986 pipe-break accident at Surry Unit 2;
2. an alleged ongoing pattern of violations in areas such as plant operations, surveillance, fire protection, radiological control, emergency preparedness, security and safeguards, quality assurance, and administrative control affecting quality;
3. inadequacies in the emergency alert system and evacuation plans for the Surry Power Station; and
4. alleged falsification of welder verification and an allegedly poor quality assurance program.

Shortly after the pipe-rupture event, the NRC formed an Augmented Inspection Team (AIT) and dispatched it to the Surry site. The purpose of the AIT was to augment the inspection efforts by the Senior Resident Inspector at Surry in identifying the cause of the event and in monitoring followup actions taken by the Licensee. In addition to the AIT inspection activities, other inspectors knowledgeable in security, fire protection system, water chemistry, and check valve design were assigned to review specific concerns in these areas. The NRC Staff issued an Augmented Inspection Team Report (AIT Report) on February 10, 1987. In the AIT Report, the Staff reviewed the detailed information on the December 9, 1986 event, including a recovery plan and corrective actions the Licensee planned to take before restart. The Staff agreed with the Licensee's recovery plan and the corrective actions planned before restart.

By letter dated February 13, 1987, from Richard H. Vollmer to the Petitioners, the NRC acknowledged receiving their petition, addressed a majority of the issues raised, and concluded that delaying restart of plant operation at the Surry Power Station until all the issues raised in the petition had been resolved was not warranted. Unit 1 resumed operation on February 23, 1987, and Unit 2 resumed operation on March 20, 1987. On March 30, 1987, we sent the AIT Report to

Petitioners. For the reasons stated in this Decision, their requests are denied. My Decision in this matter follows.

DISCUSSION

On December 9, 1986, while Surry Power Station Unit 2 was operating at full power, an 18-inch suction line to main feedwater pump A failed catastrophically. The break was located in an elbow in the 18-inch-diameter line about 1 foot from the 24-inch-diameter header. The unit was taken to cold shutdown by the morning following the accident. The pipe is believed to have failed in Surry Unit 2 because the pipe wall had become thin as a result of single-phase flow erosion/corrosion mechanisms. The failure in the December 9 accident occurred in piping that is not essential for shutting down the reactor or for preventing or mitigating the consequences of an accident. The NRC does not classify this piping as "safety-related" piping, and therefore, no specific requirements are imposed on its licensees to inspect such piping. In contrast, the NRC considers reactor coolant piping safety related and specifically requires its licensees to inspect such piping periodically as required by the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code. Reactor coolant piping is fabricated from stainless steel and is not considered to be susceptible to degradation by erosion/corrosion mechanisms such as occurred in the carbon steel feedwater piping at the Surry facility.

Experimental results and field experience have shown that stainless steel exposed to reactor coolant flow is highly resistant to erosion/corrosion. The loss-of-normal-feedwater events have been analyzed in the Final Safety Analysis Report for Surry and there is no reason to conclude that the recent Surry 2 event exceeded those analyses.

By a letter dated January 14, 1987, from W.L. Stewart to Dr. J. Nelson Grace, the Licensee forwarded to NRC a report entitled "Surry Unit 2 Reactor Trip and Feedwater Pipe Failure Report, Revision 0, January 14, 1987." This report provided detailed information on the December 9, 1986 accident and the Licensee's recovery plan and planned corrective actions. Before Surry began to operate again, the NRC reviewed the report and concurred with the Licensee's actions.

After reviewing this report, we concluded that the Licensee had taken appropriate steps to inspect those piping systems that are susceptible to erosion/corrosion mechanisms, and identified the extent of the degradation of piping in both units. The Licensee has taken appropriate actions to provide reasonable assurance that both units can be operated without posing any undue risk to the health and safety of the public. The corrective actions include replacing some piping and modifying other piping, as well as increasing inspections, as appro-

priate. Although the Licensee did not inspect all piping at the Surry facilities as Petitioners requested in their petition, the Licensee did inspect piping that is highly susceptible to erosion/corrosion mechanisms experienced in feedwater systems. In addition, the Licensee inspected several safety-related piping systems (i.e., auxiliary feedwater and chemical and volume control systems) in which erosion/corrosion is not expected. The NRC found the scope of these inspections sufficient to permit the facility to operate. Based on the review of information provided by the Licensee and generic evaluation discussed in the next paragraph, the Staff concludes reasonable assurance exists that other safety-related piping at Surry is not subject to the type of erosion/corrosion mechanisms that occurred in the feedwater piping. On February 10, 1987, the NRC issued the AIT Report, documenting the Staff's finding about the December 9, 1986 event and concurring on Licensee's recovery plan and actions to take before restarting power production at the Surry Plant.

The NRC Staff is continuing to evaluate the generic implications of the erosion/corrosion mechanisms that occurred at the Surry plant. On January 15, 1987, nuclear power industry and NRC experts from several engineering disciplines met to discuss the failure mechanism in feedwater piping at Surry Unit 2. From the panel discussion, it was generally agreed that the important variables influencing the erosion/corrosion mechanisms are: material, local fluid velocity/turbulence, water chemistry, and operating temperature of the system. It should be noted that the ASME standards for inservice inspection of piping only require inspection of the welds, not a more general inspection of the pipe wall for thinning. This is based on the experience that most failures result from cracks near welds, not from thinning of the sort that occurred at Surry. The NRC Staff is collecting additional information from various plants and will make appropriate generic recommendations after analyzing all pertinent data collected from the industry.

The February 10, 1987 AIT Report also evaluated the cause of the failure of the main steam trip valve that Petitioners mentioned. The Staff concluded that the valve was tested to verify that it was in compliance with Technical Specifications, and did not fail to perform its safety function. However, the Licensee did not provide adequate detailed instructions in maintenance procedures for corrective maintenance. The Staff issued a Notice of Violation to the Licensee. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," 10 C.F.R. Part 2, Appendix C (1986), this violation was considered to be a Severity Level IV violation. This level of violation did not warrant suspending plant operation.

The AIT Report also addressed in detail the issue of check valve failure, concluding that the failure of the check valve did not cause the pipe rupture. However, the condition of the check valve would have contributed to the amount of feedwater that came out from the feedline break and, possibly, the extent of

the pipewhip that followed. The Licensee has inspected other Unit 1 and Unit 2 feedwater pump check valves and modified the valve internals. Because these valves are not considered to be safety related, they do not have specific inspection requirements similar to those required for safety-related components. The Staff is considering this issue on a generic basis and will make appropriate changes, if necessary.

In addition, Petitioners alleged that an ongoing pattern of violations existed in the areas of plant operation, surveillance, fire protection, radiological controls, emergency preparedness, security and safeguards, quality assurance, and administrative control, and that these affected quality. Petitioners stated that they believed that the Licensee should have been required to take action before restarting the units. It should be noted that the NRC Staff identified these violations earlier in the Systematic Assessment of Licensee Performance (SALP) reports. The Staff uses the reports to: (1) improve the NRC regulatory program and permit sound decisions regarding NRC resource allocations, (2) improve licensee performance, and (3) collect available observations on a periodic basis and evaluate licensee performance based on those observations through an integrated NRC Staff effort. Positive and negative attributes of licensee performance are considered. The SALP process is oriented to improve NRC's understanding of the manner in which: (1) licensee management directs, guides, and provides resources for ensuring plant safety and (2) such resources are used and applied. The integrated SALP assessment is intended to provide enough diagnosis to offer a rational basis for allocating NRC resources and to provide meaningful guidance to licensee management. All of the violations Petitioners detailed had already been factored into NRC's evaluation of the Licensee's performance. These violations are important considerations in assessing the Licensee's performance, and all of these violations have been reviewed and evaluated by the Staff on a case-by-case basis. These violations are categorized (in accordance with NRC regulations in 10 C.F.R. Part 2, Appendix C) in terms of five levels of severity to show their relative importance. Severity Level I is assigned to violations that are the most significant in terms of public safety; Severity Level V violations are the least significant. The severity levels assigned to the violations Petitioners wrote to us about did not warrant suspension of the plant operation. In addition, as indicated in a recent SALP Report, the Staff found the Licensee's overall performance to be satisfactory in all areas. Therefore, it is not appropriate to suspend plant operation on the basis of these violations.

Petitioners also raised the issue of plant aging by referring to a report from the National Research Council of the National Academy of Sciences, entitled "Revitalizing Nuclear Safety Research," and requested that before restarting the plant, the Licensee should be required to work with the NRC and the Department of Energy (DOE) to implement an extensive research program on plant aging. It should be noted that the report Petitioners referenced discussed the research

activities required to extend the lifetimes of plants beyond current license periods. Moreover, the Licensee already actively participates in a research program for extending the lifetimes of existing facilities in cooperation with NRC and DOE. In addition, the surveillance and maintenance practices that are implemented in accordance with the ASME Code and the facility Technical Specifications provide reasonable assurance that any unexpected degradation in safety-related components in the plant will be identified and corrected during current license periods. Therefore, I do not believe it is appropriate to suspend the plant operation on the basis of the generic aging considerations Petitioners asserted.

Petitioners also raised the issue of allegations brought in 1985 against the Licensee by members of the International Brotherhood of Boilermakers that raised the issues of falsification of welder certifications, poor workmanship, and health and safety concerns at the Surry Power Station. Because the NRC Office of Investigations is currently reviewing these allegations, and because no significant safety concerns have been identified at this time by the NRC Staff, it is not now appropriate to suspend the operation of the Surry Power Station on the basis of this issue.

Petitioners also expressed concerns about high radiation exposure to the workers in the Surry Power Station and the potential deficiencies in the quality assurance program. Staff addressed these issues in detail in its SALP Report dated December 11, 1986. The NRC Staff found the Licensee's overall performance in these two areas satisfactory and rated the Licensee's performance in these areas at SALP Level II, indicating that the Licensee performed at the industry average and better than minimally satisfactory. The Licensee currently meets all applicable radiation protection and quality assurance requirements. Consequently, there is no basis to take any actions based on Licensee's performance in the radiation protection and quality assurance areas.

In the area of emergency planning, Petitioners asserted that the siren system for Surry Power Station and the surrounding communities is inadequate because it is unreliable and in some cases is inaudible to certain residents.

Furthermore, Petitioners expressed concerns about the feasibility of existing evacuation plans. Section 50.54(q) of 10 C.F.R. requires the Licensee to have a satisfactory emergency plan that meets certain criteria established in 10 C.F.R. § 50.47(b) and Appendix E to 10 C.F.R. Part 50. The Licensee's emergency plan has been upgraded to meet the requirements of these rules, including the installation and testing of a public alert and notification system. On May 13, 1983, the NRC reviewed the onsite emergency plans and level of onsite preparedness and found them acceptable. Pursuant to 10 C.F.R. § 50.47(a)(2), the NRC bases its finding on the adequacy of offsite emergency plans on the findings and determinations of the Federal Emergency Management Agency (FEMA). The FEMA evaluation of the Licensee's level of offsite preparedness

included a review of state and local plans and the observation of full-scale exercises. Specifically, FEMA approved the Commonwealth of Virginia's state and local emergency plans and level of preparedness for the Surry Power Station in February 1983, under the 44 C.F.R. Part 350 rule. This approval was conditioned with successful demonstration of adequacy of the public alerting and notification system in accordance with the standards set forth in Appendix 3 of the NRC/FEMA criteria of Revision 1 of NUREG-0654/FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plan and Preparedness in Support of Nuclear Power Plants," and the subsequently published standards in FEMA-43, "Standard Guide for the Evaluation of Alert and Notification Systems for Nuclear Plants." The last full-participation exercise of the offsite preparedness plans for Surry Power Station was conducted on October 4, 1985, and state and local authorities participated fully. The evaluation prepared by FEMA did not identify any significant deficiencies in the exercise. Moreover, on the basis of the results of this exercise, FEMA concluded that offsite radiological emergency preparedness is adequate to provide reasonable assurance that appropriate measures can be taken off site to protect the health and safety of people living near the site in the event of a radiological emergency. Therefore, the 44 C.F.R. Part 350 approval granted in February 1983 remains in effect.

In June 1986, the Licensee conducted a demonstration of the adequacy of the public alerting and notification system as required by FEMA's conditional approval in 1983. FEMA is currently evaluating the results from that exercise. The Licensee has stated that the system was designed to meet the objectives for area coverage in the times prescribed by Appendix 3, NUREG-0654/FEMA-REP-1. The NRC will consider FEMA's evaluation when it is received. At this time, we have no basis for taking any action based on the emergency planning concerns raised in the petition.

CONCLUSION

For the reasons discussed above, no basis exists for initiating a show-cause proceeding pursuant to 10 C.F.R. § 2.202 and no basis exists to suspend operation of the Surry Nuclear Power Plant. Consequently, the petition is denied.

A copy of this Decision will be filed with the Secretary for the Commission's review in accordance with 10 C.F.R. § 2.206(c).

Thomas E. Murley, Director
Office of Nuclear Reactor
Regulation

Dated at Bethesda, Maryland,
this 5th day of June 1987.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF SPECIAL PROJECTS

James G. Keppler, Director

In the Matter of **Docket Nos. 50-445**
50-446

TEXAS UTILITIES ELECTRIC COMPANY, *et al.*
(Comanche Peak Steam Electric Station, Units 1 and 2)

June 25, 1987

The Director of the Office of Special Projects denies a petition by the Brazos Electric Power Cooperative, Inc. The Petitioner requested that the Nuclear Regulatory Commission order Licensee and License Applicant Texas Utilities Electric Company to assume co-owner/co-applicant Brazos' ownership interest in the Comanche Peak Project based upon the allegation that Texas Utilities Electric Company had made material false statements to the Atomic Safety and Licensing Boards presiding over the Comanche Peak operating license and construction permit extension proceedings.

LICENSING BOARDS: AUTHORITY TO REGULATE PROCEEDINGS

Where a petition pursuant to 10 C.F.R. § 2.206 challenges the sufficiency of representation by applicants in licensing proceedings, this is a matter within the power and responsibility of the boards themselves to address rather than the Director of an NRC office. *See* 10 C.F.R. §§ 2.713, 2.718(e), (m).

ATOMIC ENERGY ACT: MATERIAL FALSE STATEMENTS

False statements that relate solely to the scope of representation of several co-owners/co-applicants in NRC licensing proceedings do not involve matters

that affect the public health and safety, the environment, or the common defense and security and would not be considered material false statements under § 186 of the Atomic Energy Act.

NUCLEAR REGULATORY COMMISSION: AUTHORITY

It is beyond the NRC's authority to direct utility owners to buy out the ownership interest of a co-owner. The NRC's authority does not extend to contractual arrangements among co-owners except insofar as they might affect matters regarding public health and safety, the environment, or the common defense and security.

DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206

INTRODUCTION

On March 11, 1987, the Brazos Electric Power Cooperative, Inc. (Brazos) filed its "Request for Modification of Licenses" (Petition) before the Director of the Office of Nuclear Reactor Regulation.[1] Brazos requested the Director, pursuant to 10 C.F.R. § 2.206, to institute a show-cause proceeding pursuant to 10 C.F.R. § 2.202 to modify the construction permits and licenses already issued and to impose a prospective condition on any permits and licenses subsequently issued or renewed for the Comanche Peak Steam Electric Station, Units 1 and 2 (Comanche Peak Project), or for such other action as may be proper. Specifically, Brazos requested that the Nuclear Regulatory Commission (NRC) order Licensee and License Applicant Texas Utilities Electric Company (TU Electric) to assume co-owner/co-applicant Brazos' ownership interest in the Comanche Peak Project by purchase at Brazos' net book cost, and for such other relief as may be appropriate. The basis for the relief requested was the allegation by Brazos that TU Electric has made material false statements to the atomic safety and licensing boards (boards) presiding over the Comanche Peak operating license and construction permit extension proceedings. For the reasons that follow, Brazos' Petition pursuant to 10 C.F.R. § 2.206 is denied.

[1] Following submittal of the Petition, the Office of Special Projects was created with overall NRC Staff responsibility for the Comanche Peak Project. The Petition was subsequently referred to the Office of Special Projects for action.

DISCUSSION

In its Petition, Brazos asserted that law firms hired by TU Electric have specifically and repeatedly informed the Commission and its boards that they represented all Comanche Peak co-owners, including Brazos. Brazos further asserted that, in separate state court litigation involving the co-owners of the Comanche Peak Project, TU Electric has argued that attorneys retained to appear before the NRC have in fact never represented Brazos in any traditionally recognizable attorney-client relationship. Brazos argued, therefore, that TU Electric's representations to the NRC, through its legal counsel, have been material false statements. Such material false statements, and the situation created with respect to the representation issue in the NRC proceedings, Brazos argued, cast doubt on the veracity of all of TU Electric's statements as they pertain to Brazos. Brazos submitted that TU Electric's assertions of its representation of Brazos as a co-owner/co-applicant, through its licensing counsel in proceedings before the NRC, constitute intentional material false statements under § 186 of the Atomic Energy Act and thus are a sufficient ground under 10 C.F.R. § 2.202 for the Commission to modify the construction permit to require that TU Electric assume Brazos' interest in the Comanche Peak Project. Brazos further argued that these false representations are clearly information that a reasonable NRC Staff member should consider in performing the task of evaluating the character and management integrity of an NRC permittee, fuel licensee, and operating license applicant such as TU Electric.

For the following reasons, I have decided to deny Brazos' Petition. First, no health and safety issues have been identified in the Petition that warrant the requested relief. While specific false statements have been alleged, there has been no showing that these alleged false statements warrant any action. Brazos suggests in its Petition that its allegations bear upon the character and management integrity of TU Electric. However, the Petition presents no particulars in this regard. The Petition fails to identify any instance where information submitted to the NRC by TU Electric contained a material deficiency. The Petition also presents no information to support an argument that any potential improprieties on the part of counsel for Lead Applicant TU Electric are linked to TU Electric management itself and thus call into question the character and management integrity of TU Electric. Thus, it is inappropriate at this time to modify either the outstanding construction permits or special nuclear material licenses for the Comanche Peak Project due to health and safety concerns.[2]

Secondly, under well-established Commission principles, relief under 10 C.F.R. § 2.206 is not available when, as here, there is an existing forum

[2] This is particularly so since the facility is still under construction.

available to the Petitioner in which issues raised should more logically be presented.[3] Where a board is presiding in a proceeding with jurisdiction to consider the matter, a party to that proceeding may not choose to avoid that forum by use of 10 C.F.R §2.206.[4] The issues underlying Brazos' Petition in essence challenge the sufficiency of the representation by the Applicants in the Comanche Peak proceedings. In particular, Brazos contended that Lead Applicant's counsel represented to the Board that it represented all Applicants in the proceeding, which Brazos claims was not the case in that it, Brazos, was not represented by counsel for Lead Applicant. This is a matter within the power and responsibility of the boards themselves to address rather than the Director of an NRC Office. *See* 10 C.F.R. §§ 2.713, 2.718(e), (m). This is particularly so where the Petitioner, here Brazos, is a party to the proceedings, currently pending before the Board, in which the alleged false statements[5] were made. To the extent then that Brazos wishes to raise issues regarding the sufficiency of the representation by Lead Applicant TU Electric before presiding Comanche Peak Boards or the character or management integrity of TU Electric, Brazos should submit a specific request to such Boards.[6] Since Brazos has not identified any public health and safety issues that warrant action by the staff, deferral to the Boards is appropriate.

Finally, I note that even if all of Brazos' allegations were true, the specific relief requested by Brazos, i.e., a buy-out of Brazos' ownership interest, is beyond my authority to direct.[7] For the above reasons, I am denying the Petition.

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[3] Brazos should understand that the NRC Staff views it as a party to the Comanche Peak proceedings with the duty to bring relevant issues to the attention of presiding boards. To the extent an agreement that Brazos has entered into may purport to limit its duties to the board, such agreement must yield to Brazos' duty to fully disclose.

[4] *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-81-6, 13 NRC 443, 446 (1981).

[5] The "false statements" identified by Brazos relate solely to the scope of representation of the several co-owners/co-applicants. Since these statements do not involve matters that affect the public health and safety, the environment, or the common defense and security, they would not be considered "material false statements" under § 186 of the Atomic Energy Act.

[6] One atomic safety and licensing board has considered issues related to the Brazos' Petition and issued a Memorandum and Order discussing them. *Texas Utilities Electric Co.* (Comanche Peak Steam Electric Station, Units 1 and 2), Docket No. 50-445-CPA, Slip op. (May 4, 1987). To the extent that Brazos is not satisfied with the Board's consideration of issues to date, it may pursue the matter with the Board.

[7] The NRC's authority does not cover the contractual arrangements between TUEC and the other owners except insofar as they might affect matters affecting public health, safety, and the environment, or the common defense and security. The issue of the adequacy of TUEC's representation of the minority share owners, as presented in Brazos' Petition, has no effect on these matters. Further, even if it were found that TUEC had made material false statements, the relief sought by Brazos does not appear to be warranted or appropriate. Rather, some other remedy would have to be fashioned to ensure that information provided by all co-applicants or co-licensees would be complete and accurate. The relief sought by Brazos would have no such effect.

CONCLUSION

The relief requested in the Petition is denied. No specific health and safety issues have been identified in the Petition. To the extent that the Petition alleges misrepresentation on the part of counsel for TU Electric as Lead Applicant before the Boards sitting to resolve issues regarding the Comanche Peak facility, the issue is more logically addressed by the sitting Board. Brazos, as a party to the proceedings before the Board, should bring this issue to the Board's attention. Furthermore, the specific relief requested by Brazos is inappropriate.

A copy of this Decision will be filed with the Secretary for the Commission's review in accordance with 10 C.F.R § 2.206(c). As provided in 10 C.F.R. § 2.206(c), this Decision will become the final action of the Commission twenty-five (25) days after issuance unless the Commission elects to review this Decision on its own motion within that time.

James G. Keppler, Director
Office of Special Projects

Dated at Bethesda, Maryland,
this 25th day of June 1987.

Cite as 25 NRC 994 (1987) DD-87-11

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR REACTOR REGULATION

Thomas E. Murley, Director

In the Matter of

Docket Nos. 50-528
50-529
50-530

ARIZONA PUBLIC SERVICE COMPANY, *et al.*
(Palo Verde Nuclear Generating Station, Units 1, 2, and 3)

June 22, 1987

The Director of the Office of Nuclear Reactor Regulation denies a petition filed by Mr. Myron L. Scott and Mr. Stephen M. Kohn, on behalf of the Coalition for Responsible Energy Education (CREE), requesting action with regard to the Palo Verde Nuclear Generating Station. CREE had requested the initiation of a proceeding to revoke the licenses of Palo Verde Units 1, 2, and 3 based on an alleged deceptive response given by an Arizona Public Service Company (APS) official to a control question during a polygraph examination. CREE claimed that this response by this official raised serious questions about APS' management integrity and established that documentation at the nuclear facility had been falsified.

STANDARD FOR INITIATING A SHOW-CAUSE PROCEEDING

A show-cause proceeding under 10 C.F.R. § 2.206 must be based on substantial health and safety issues.

RESULTS OF POLYGRAPH EXAMINATIONS

A response by an APS official to a control question during a polygraph examination was not considered to be reliable information for purposes of initiating a show-cause proceeding under 10 C.F.R. § 2.206.

DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206

INTRODUCTION

By petition dated October 21, 1986, Mr. Myron L. Scott and Mr. Stephen M. Kohn, on behalf of the Coalition for Responsible Energy Education (CREE or Petitioner), filed a request pursuant to 10 C.F.R. § 2.206 with the Director, Office of Inspection and Enforcement. CREE asked the Nuclear Regulatory Commission (NRC) to provide relief by (1) issuing an Order to Show Cause why the licenses and permits for all three Palo Verde units should not be suspended or revoked because of management character, incompetence, and lack of integrity; (2) initiating an investigation to determine the severity and extent of apparent document falsification by APS officials; (3) ordering a public hearing on the foregoing; and (4) imposing a civil penalty or such additional enforcement action as may be deemed necessary. By letter dated December 12, 1986, the Director, Office of Inspection and Enforcement, advised CREE that the allegations raised in the petition were under consideration, that Arizona Public Service Company (APS or Licensee) had been asked to respond to the allegations, and that CREE would be informed of action taken with respect to its petition. By letter dated January 20, 1987, the Licensee responded to the CREE allegations. The petition was subsequently referred to the Office of Nuclear Reactor Regulation for response. For the reasons set forth below, I have determined that the petition should be denied.

DISCUSSION

This petition concerns the results of certain polygraph tests of APS officials that were conducted during an investigation of whether an APS employee leaked safeguards information to local news media. CREE alleges that the results of these tests (1) demonstrate that documentation at the Palo Verde Nuclear Generating Station was falsified and (2) raise serious questions about management competence and integrity. As a basis for its claim, CREE attached to its petition a portion of a transcript of an October 14, 1986 deposition of a polygrapher who performed the polygraph tests of these APS officials

(transcript or Tr.). In that transcript, the polygraphist states that she obtained a deceptive response from APS Executive Vice President, Mr. E.E. Van Brunt, Jr., during his polygraph exam. Mr. Van Brunt's alleged deceptive answer was in response to the question: "[b]etween the ages 40 and 50 did you falsify company paperwork or documents for personal gain?" As the petition points out, this was a "control question" which was specifically intended to elicit a deceptive response so that the polygraphist would have a standard by which she could measure untruthful answers. CREE also alleges that other APS officials also answered the same control question deceptively during polygraph tests, but it has not furnished any documentary evidence or other proof of these allegations.

On the basis of these alleged deceptive responses to this control question, CREE contends that there has been apparent falsification of company documents for personal gain by APS management officials and that serious questions have been raised concerning the honesty of these officials. CREE also claims bad faith by these officials in ordering plant employees to be polygraphed when these officials, themselves, provided deceptive answers during the tests.

A show-cause proceeding under 10 C.F.R. § 2.206 must be based on substantial health and safety issues. *See Washington Public Power Supply System* (WPPSS Nuclear Project No. 2), DD-84-7, 19 NRC 899, 923 (1984). The information provided by CREE fails to rise to this standard because its only evidence is Mr. Van Brunt's single alleged deceptive response to a control question which was to be used as a standard for comparing responses to other questions. The claims by CREE fail to consider the nature of polygraph tests. For polygraph tests to be reliable, they must include one or more control questions so that the examiner can have a point of comparison. Because polygraph tests, by design, include questions intended to elicit deceptive responses, it is expected that those being tested usually will give deceptive responses to control questions. In addition, because polygraph tests are designed only to test the truthfulness of relevant questions, they do not conclusively establish the truthfulness of control questions. To establish the truthfulness of control questions, a different set of questions would have to be asked so that the control questions would qualify as relevant questions.

In this instance, Mr. Van Brunt was asked a control question to elicit a deceptive response so that the polygraphist would have a basis for determining the truthfulness of his answers to relevant questions. *See* Tr. 13-14. Because it is likely that most people would answer this control question deceptively, Mr. Van Brunt's response did not provide any information other than that expected. Moreover, this question did not qualify as a relevant question. Under these circumstances, the answer to the control question is not reliable information that Mr. Van Brunt falsified company paperwork or documents for personal gain. Even if he had been untruthful in his response to the control question, the

generality of the question, as worded, could have elicited a deceptive response for numerous reasons unrelated to health and safety issues.

The initiation of a show-cause proceeding would also be inappropriate in this instance because CREE's charges do not include any specific incidents of document falsification which feasibly could be investigated. Because Mr. Van Brunt has been manager of the Palo Verde facility for over 10 years, an attempt to locate falsified documents among all the documents he might have been involved with during this period would entail an improper "fishing" expedition without sufficient basis and with no realistic likelihood of success.

CONCLUSION

Based upon the foregoing discussion and the information contained in the referenced documentation, I have concluded that this petition fails to provide sufficient information to take further action under 10 C.F.R. § 2.206. Accordingly, CREE's request is denied. A copy of this Decision will be filed with the Secretary of the Commission for the Commission's review in accordance with 10 C.F.R. § 2.206(c) of the Commission's regulations.

Thomas E. Murley, Director
Office of Nuclear Reactor
Regulation

Dated at Bethesda, Maryland,
this 22d day of June 1987.

CLI-87-7 was inadvertently omitted from the June 1987 issuances, and, therefore, this Order can be found at 26 NRC 1.

CASE NAME INDEX

ADVANCED MEDICAL SYSTEMS, INC.
SPECIAL PROCEEDING. MEMORANDUM AND ORDER FOLLOWING FIRST PREHEARING CONFERENCE; Docket No. 30-16055-SP (ASLBP No. 87-545-01-SP) (BML No. 34-19089-01) (EA 86-155); ALJ-87-1, 25 NRC 39 (1987)
SPECIAL PROCEEDING; MEMORANDUM AND ORDER CONCERNING NRC STAFF'S MOTION FOR STAY OF PROCEEDING; Docket No. 30-16055-SP (ASLBP No. 87-545-01-SP) (BML No. 34-19089-01) (EA 86-155); ALJ-87-4, 25 NRC 865 (1987)

ADVANCED NUCLEAR FUELS CORPORATION
IMPORT LICENSE; ORDER; Docket No. 11003928; CLI-87-6, 25 NRC 891 (1987)

ARIZONA PUBLIC SERVICE COMPANY, et al.
REQUEST FOR ACTION; DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206; Docket Nos. 50-528, 50-529, 50-530; DD-87-11, 25 NRC 994 (1987)

BABCOCK & WILCOX
MATERIALS LICENSE AMENDMENT; SUPPLEMENTAL DECISION (On Remanded Issue); Docket No. 70-364-MLA (ASLBP No. 815-511-01-ML); LBP-87-16, 25 NRC 830 (1987)
REQUEST FOR ACTION; DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206; Docket No. 70-364; DD-87-5, 25 NRC 260 (1987)

BRAUNKOHLE TRANSPORT, USA
IMPORT LICENSE; ORDER; Docket Nos. 11003919, 11003920, 11003921; CLI-87-6, 25 NRC 891 (1987)

CAROLINA POWER & LIGHT COMPANY and NORTH CAROLINA EASTERN MUNICIPAL POWER AGENCY
OPERATING LICENSE; ORDER; Docket No. 50-400-OL; CLI-87-1, 25 NRC 1 (1987)
REQUEST FOR ACTION; DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206; Docket No. 50-400; DD-87-6, 25 NRC 387 (1987)

CHEM-NUCLEAR SYSTEMS, INC.
REQUEST FOR ACTION; DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206; Docket No. 30-18618; DD-87-8, 25 NRC 410 (1987)

COMMONWEALTH EDISON COMPANY
OPERATING LICENSE; CONCLUDING PARTIAL INITIAL DECISION; Docket Nos. 50-456-OL, 50-457-OL (ASLBP No. 79-410-03-OL); LBP-87-14, 25 NRC 461 (1987)
OPERATING LICENSE; PARTIAL INITIAL DECISION ON EMERGENCY PLANNING ISSUES; Docket Nos. 50-456-OL, 50-457-OL (ASLBP No. 79-410-03-OL); LBP-87-13, 25 NRC 449 (1987)
OPERATING LICENSE; MEMORANDUM AND ORDER DENYING INTERVENORS' MOTION TO ADMIT LATE-FILED CONTENTIONS ON FINANCIAL QUALIFICATIONS; Docket Nos. 50-456-OL, 50-457-OL (ASLBP No. 79-410-03-OL); LBP-87-19, 25 NRC 950 (1987)
REQUEST FOR ACTION; DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206; Docket Nos. 50-295, 50-373, STN 50-454; DD-87-2, 25 NRC 121 (1987)

EDLOW INTERNATIONAL COMPANY
IMPORT LICENSE; ORDER; Docket Nos. 11003929, 11003930, 11003931; CLI-87-6, 25 NRC 891 (1987)

FLORIDA POWER & LIGHT COMPANY, et al.
OPERATING LICENSE AMENDMENT; MEMORANDUM AND ORDER (Dismissing Hearing Request); Docket No. 50-389-OLA (ASLBP No. 87-544-01-LA) (Spent Fuel Transfer Amendment); LBP-87-2, 25 NRC 32 (1987)

CASE NAME INDEX

OPERATING LICENSE AMENDMENT; MEMORANDUM AND ORDER (Terminating Proceeding); Docket Nos. 50-250-OLA-1, 50-251-OLA-1 (ASLBP No. 84-496-03-LA) (Vessel Flux Reduction); LBP-87-21, 25 NRC 958 (1987)

GENERAL PUBLIC UTILITIES NUCLEAR CORPORATION

CIVIL PENALTY; MEMORANDUM AND ORDER RULING ON DEPARTMENT OF LABOR MOTION TO QUASH SUBPOENA; Docket No. 50-320 (ASLBP No. 86-534-01-OL) (Civil Penalty); ALJ-87-5, 25 NRC 973 (1987)

OPERATING LICENSE AMENDMENT; MEMORANDUM AND ORDER (Granting Licensee's Motion for Termination of Proceedings); Docket Nos. 50-289-OLA-1, 50-289-OLA-2 (Steam Generator Plugging Criteria); LBP-87-6, 25 NRC 114 (1987)

REQUEST FOR ACTION; DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206; Docket Nos. 50-289, 50-320; DD-87-3, 25 NRC 245 (1987)

SPECIAL PROCEEDING; INITIAL DECISION; Docket No. 50-289-CH (ASLBP No. 85-514-02-OT); ALJ-87-3, 25 NRC 345 (1987)

GEORGIA POWER COMPANY, et al.

OPERATING LICENSE; MEMORANDUM AND ORDER; Docket Nos. 50-424-OL, 50-425-OL; ALAB-859, 25 NRC 23 (1987)

HURLEY MEDICAL CENTER

CIVIL PENALTY; INITIAL DECISION; Docket Nos. 30-01993, 70-1396 (License Nos. 21-00338-02, SNM-1393) (EA 85-85); ALJ-87-2, 25 NRC 219 (1987)

INQUIRY INTO THREE MILE ISLAND UNIT 2 LEAK RATE DATA FALSIFICATION

SPECIAL PROCEEDING; RECOMMENDED DECISION; Docket No. LRP (ASLBP No. 86-519-02-SP); LBP-87-15, 25 NRC 671 (1987)

KERR-McGEE CHEMICAL CORPORATION

SHOW CAUSE; MEMORANDUM AND ORDER; Docket No. 40-2061-SC; ALAB-867, 25 NRC 900 (1987)

LONG ISLAND LIGHTING COMPANY

OPERATING LICENSE; MEMORANDUM AND ORDER; Docket No. 50-322-OL; CLI-87-4, 25 NRC 882 (1987)

OPERATING LICENSE; MEMORANDUM AND ORDER; Docket No. 50-322-OL-3 (Emergency Planning); CLI-87-5, 25 NRC 884 (1987)

OPERATING LICENSE; MEMORANDUM AND ORDER; Docket No. 50-322-OL-5 (EP Exercise); ALAB-861, 25 NRC 129 (1987)

MICHAEL F. DIMUN, M.D.

SHOW CAUSE; MEMORANDUM AND ORDER (Dismissing Proceeding as Moot); Docket No. 30-19378-ML (ASLBP No. 87-548-01-SC); LBP-87-9, 25 NRC 175 (1987)

PACIFIC GAS AND ELECTRIC COMPANY

OPERATING LICENSE AMENDMENT; MEMORANDUM AND ORDER (Order Requiring the Filing of Documents on Diskettes Suitable for Electronic Storage and Retrieval); Docket Nos. 50-275-OLA, 50-323-OLA (ASLBP No. 86-523-03-LA); LBP-87-21A, 25 NRC 966 (1987)

PHILADELPHIA ELECTRIC COMPANY

OPERATING LICENSE; DECISION; Docket Nos. 50-352-OL, 50-353-OL; ALAB-857, 25 NRC 7 (1987); ALAB-863, 25 NRC 273 (1987)

PORTLAND GENERAL ELECTRIC COMPANY, et al.

REQUEST FOR ACTION; DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206; Docket No. 50-344; DD-87-4, 25 NRC 253 (1987)

PUBLIC CITIZEN

DENIAL OF PETITION FOR RULEMAKING; Docket No. PRM-50-41; DPRM-87-1, 25 NRC 49 (1987)

PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE, et al.

OPERATING LICENSE; MEMORANDUM AND ORDER; Docket Nos. 50-443-OL, 50-444-OL (Offsite Emergency Planning); ALAB-858, 25 NRC 17 (1987); ALAB-860, 25 NRC 63 (1987)

OPERATING LICENSE; DECISION; Docket Nos. 50-443-OL, 50-444-OL (Offsite Emergency Planning); ALAB-862, 25 NRC 144 (1987)

CASE NAME INDEX

OPERATING LICENSE; MEMORANDUM AND ORDER; Docket Nos. 50-443-OL, 50-444-OL (Offsite Emergency Planning); ALAB-864, 25 NRC 417 (1987)

OPERATING LICENSE; MEMORANDUM AND ORDER; Docket Nos. 50-443-OL-1, 50-444-OL-1 (Onsite Emergency Planning and Safety Issues); ALAB-865, 25 NRC 430 (1987); CLI-87-2, 25 NRC 267 (1987); CLI-87-3, 25 NRC 875 (1987)

OPERATING LICENSE; MEMORANDUM AND ORDER (Denying Mass.'s Motion of January 12, 1987); Docket Nos. 50-443-OL-1, 50-444-OL-1 (ASLBP No. 82-471-02-OL) (Onsite Emergency Planning and Safety Issues); LBP-87-3, 25 NRC 71 (1987)

OPERATING LICENSE; PARTIAL INITIAL DECISION; Docket Nos. 50-443-OL-1 50-444-OL-1 (ASLBP No. 82-471-02-OL) (Onsite Emergency Planning and Safety Issues); LBP-87-10, 25 NRC 177 (1987)

OPERATING LICENSE; MEMORANDUM AND ORDER (Ruling on Applicants' Petition with Respect to Emergency Planning Zone in Excess of 1 Mile); Docket Nos. 50-443-OL, 50-444-OL (ASLBP No. 82-471-02-OL) (Offsite Emergency Planning); LBP-87-12, 25 NRC 324 (1987)

RADIOLOGY ULTRASOUND NUCLEAR CONSULTANTS, P.A.

MATERIALS LICENSE AMENDMENT; DECISION; Docket No. 30-12688-MLA (ASLBP No. 87-542-01-MLA); LBP-87-4, 25 NRC 79 (1987)

SEQUOYAH FUELS CORPORATION

MATERIALS LICENSE AMENDMENT; DECISION (Authorization); Docket No. 40-8027-MLA (ASLBP No. 85-513-03-ML); LBP-87-8, 25 NRC 153 (1987)

REQUEST FOR ACTION; DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206; Docket No. 40-8027; DD-87-7, 25 NRC 402 (1987)

SOUTHERN CALIFORNIA EDISON COMPANY, et al.

REQUEST FOR ACTION; DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206; Docket Nos. 50-206, 50-361, 50-362; DD-87-1, 25 NRC 43 (1987)

TEXAS UTILITIES ELECTRIC COMPANY, et al.

CONSTRUCTION PERMIT AMWNDMENT; DECISION; Docket No. 50-445-CPA; ALAB-868, 25 NRC 912 (1987)

CONSTRUCTION PERMIT AMENDMENT; MEMORANDUM AND ORDER (Discovery Concerning Cresap Report); Docket No. 50-445-CPA (ASLBP No. 86-528-02-CPA); LBP-87-20, 25 NRC 953 (1987)

OPERATING LICENSE; MEMORANDUM (Adequacy of Record: Errors and Sampling); Docket Nos. 50-445-OL, 50-446-OL (ASLBP No. 79-430-06-OL); LBP-87-1, 25 NRC 29 (1987)

OPERATING LICENSE; MEMORANDUM AND ORDER (Discovery Sets 1987-6, -7); Docket Nos. 50-445-OL, 50-446-OL (ASLBP No. 79-430-06-OL); LBP-87-18, 25 NRC 945 (1987)

REQUEST FOR ACTION; DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206; Docket Nos. 50-445, 50-446; DD-87-10, 25 NRC 989 (1987)

TOLEDO EDISON COMPANY, et al.

MATERIALS LICENSE; DECISION ON THE DISPOSAL OF WASTE AT DAVIS-BESSE; Docket No. 50-346-ML (ASLBP No. 86-525-01-ML); LBP-87-11, 25 NRC 287 (1987)

US ECOLOGY, INC.

SHOW CAUSE; MEMORANDUM AND ORDER; Docket No. 27-39-SC; ALAB-866, 25 NRC 897 (1987)

SHOW CAUSE; MEMORANDUM AND ORDER (Ruling on Motions for Summary Disposition); Docket No. 27-39-SC (ASLBP No. 78-374-01-OT); LBP-87-5, 25 NRC 98 (1987)

VERMONT YANKEE NUCLEAR POWER CORPORATION

OPERATING LICENSE AMENDMENT; MEMORANDUM AND ORDER (Schedules for Further Filings and for Prehearing Conference); Docket No. 50-271-OLA (ASLBP No. 87-547-02-LA); LBP-87-7, 25 NRC 116 (1987)

OPERATING LICENSE AMENDMENT; PREHEARING CONFERENCE ORDER (Rulings on Standing, Contentions, Schedules); Docket No. 50-271-OLA (ASLBP No. 87-547-02-LA); LBP-87-17, 26 NRC 858 (1987)

CASE NAME INDEX

VIRGINIA POWER CO' PANY
REQUEST FOR ACTION; DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206; Docket Nos. 50-280, 50-281; DD-87-9, 25 NRC 981 (1987)

LEGAL CITATIONS INDEX
CASES

Addington v. Texas, 441 U.S. 410, 423-24 (1979)
standard-of-proof choices in civil proceedings; LBP-87-15, 25 NRC 689-90 (1987)
Alabama Power Co. (Joseph M. Farley Nuclear Plant, Units 1 and 2), ALAB-182, 7 AEC 210, 216-17 (1974)
scope of licensing board review of a contention's bases for adequacy; LBP-87-17, 25 NRC 843 (1987)
Allied Central Nuclear Services (Barnwell Nuclear Fuel Plant Separations Facility), ALAB-296, 2 NRC 671 (1975)
amendment of environmental assessment for land burial of low-level radioactive waste; LBP-87-11, 25 NRC 322 (1987)
American Federation of Labor v. Kahn, 472 F. Supp. 88, 91 & n.4 (D.D.C. 1979)
basis for amicus curiae participation at licensing board level; ALAB-862, 25 NRC 150 (1987)
American Nuclear Corp., CLI-86-23, 24 NRC 704, 707 (1986)
appeal board authority to entertain challenges to regulations; ALAB-865, 25 NRC 439 (1987)
Arizona Public Service Co. (Palo Verde Nuclear Generating Station, Units 2 and 3), ALAB-742, 18 NRC 380, 383-84 (1983)
appeals of interlocutory rulings via discretionary directed certification; ALAB-861, 25 NRC 134-35 (1987)
Armed Forces Radiobiology Research Institute (Cobalt-60 Storage Facility), ALAB-682, 16 NRC 150, 154 n.3 (1982)
official notice of documents attached to intervenor's proposed findings after close of the record; LBP-87-15, 25 NRC 688 (1987)
Atlantic Research Corp. (Alexandria, Virginia), ALAB-594, 11 NRC 841, 845-46 (1980)
board authority to interpret and apply decision of higher authorities; ALAB-867, 25 NRC 906 n.7 (1987)
Atlantic Research Corp. (Alexandria, Virginia), ALAB-594, 11 NRC 841, 848-49 (1980)
authority of presiding officer to independently determine the basis for a penalty; ALJ-87-2, 25 NRC 224 (1987)
Atlantic Research Corp. (Alexandria, Virginia), CLI-80-7, 11 NRC 413, 419, 421 (1980)
purpose of civil penalties; ALJ-87-2, 25 NRC 239 (1987)
Baltimore Gas and Electric Co. (Calvert Cliffs Nuclear Power Plant, Units 1 and 2), CLI-72-23, 5 AEC 5, 5-6 (1972)
fulfillment of basis requirement for admission of contention; ALAB-868, 25 NRC 930 (1987)
Baltimore Gas & Electric Co. v. Natural Resources Defense Council, Inc., 462 U.S. 87 (1983)
responsibility for allocation burden on ratepayers if nuclear plant is not allowed to operate; ALAB-865, 25 NRC 438 (1987)
Barker v. Wingo, 407 U.S. 514 (1972)
test for balancing government's need for a stay against a licensee's need for an undelayed proceeding; ALJ-87-4, 25 NRC 869 (1987)
Boatright v. Radiation Sterilizers, Inc., 592 F. Supp. 1314 (D. Colo. 1984)
applicability of Touhey regulation to testimony by Labor Department investigator in NRC civil penalty proceeding; ALJ-87-5, 25 NRC 976 (1987)
Boston Edison Co. (Pilgrim Nuclear Power Station), ALAB-816, 22 NRC 461, 466 (1985)
need for balancing of five factors when other parties waive the tardiness of the intervention petition; ALAB-862, 25 NRC 152 (1987)
Brooks v. AEC, 476 F.2d 924, 926-27 (D.C. Cir. 1973)

LEGAL CITATIONS INDEX
CASES

requirement for Commission to explain its actions; ALAB-868, 25 NRC 937 (1987)

Burns v. Wilson, 346 U.S. 137, 149 (1953)
test for determining whether fundamental fairness standard is applied; ALAB-864, 25 NRC 421 n.11 (1987)

Calvert Cliffs' Coordinating Committee v. AEC, 449 F.2d 1109, 1117 (1971)
interpretation of rulings on litigability of contentions based on unavailable documents; LBP-87-17, 25 NRC 856 (1987)

Campbell v. Eastland, 307 F.2d 478, 483, 487, 490 (5th Cir. 1962)
use of civil discovery process to obtain information on criminal investigation; ALJ-87-4, 25 NRC 872 (1987)

Carolina Power and Light Co. (Shearon Harris Nuclear Power Plant), ALAB-837, 23 NRC 525, 540-41 (1986)
fulfillment of basis requirement for admission of contention; ALAB-868, 25 NRC 930-31 (1987)

Carolina Power and Light Co. (Shearon Harris Nuclear Power Plant), ALAB-837, 23 NRC 525, 546-48 (1986)
appellate jurisdiction to direct certification of licensing board rulings; ALAB-860, 25 NRC 67 (1987)

Carolina Power and Light Co. (Shearon Harris Nuclear Power Plant), ALAB-852, 24 NRC 532, 545-46 (1986)
scope of issues litigable in construction permit extension proceeding; ALAB-868, 25 NRC 932 n.83 (1987)

Carolina Power and Light Co. (Shearon Harris Nuclear Power Plant), ALAB-856, 24 NRC 802, 805 (1986)
treatment of inadequately briefed issues on appeal; ALAB-868, 25 NRC 924 (1987)

Carolina Power and Light Co. (Shearon Harris Nuclear Power Plant), LBP-85-5, 21 NRC 410 (1985)
definition of prima facie; ALAB-860, 25 NRC 68 (1987)

Carolina Power and Light Co. (Shearon Harris Nuclear Power Plant), LBP-85-5, 21 NRC 410, 443 n.16 (1985)
definition of prima facie showing; LBP-87-12, 25 NRC 327 (1987)

Carolina Power and Light Co. (Shearon Harris Units 1, 2, 3, and 4), LBP-79-19, 10 NRC 37, 98-99 (1979)
licensing board authority to initiate future proceedings; LBP-87-19, 25 NRC 951 (1987)

Cincinnati Gas and Electric Co. (William H. Zimmer Nuclear Power Station), ALAB-595, 11 NRC 860, 865 (1980)
scope of appellate review of licensing board's admission of late-filed contention; ALAB-868, 25 NRC 921 (1987)

Cincinnati Gas and Electric Co. (William H. Zimmer Nuclear Power Station, Unit 1), ALAB-727, 17 NRC 760, 770 (1983)
need for formal approval of emergency plan prior to reasonable assurance finding; ALAB-863, 25 NRC 281 (1987)

Cincinnati Gas and Electric Co. (William H. Zimmer Nuclear Power Station, Unit 1), LBP-83-58, 18 NRC 640, 663 (1983)
showing necessary on other factors for admission of late-filed contention when good cause is not shown; LBP-87-3, 25 NRC 76 (1987)

Cleveland Electric Illuminating Co. (Perry Nuclear Power Plant, Units 1 and 2), ALAB-675, 15 NRC 1105, 1112-13 (1982)
effect on basic structure of a proceeding of where admission of a contention results from a licensing board ruling that conflicts with case law, policy or Commission regulations; ALAB-861, 25 NRC 135 (1987)

Cleveland Electric Illuminating Co. (Perry Nuclear Power Plant, Units 1 and 2), ALAB-675, 15 NRC 1105, 1113-14 (1982)
commitment of resources to a hearing that may turn out to be unnecessary as basis for interlocutory review; ALAB-858, 25 NRC 23 (1987)

Cleveland Electric Illuminating Co. (Perry Nuclear Power Plant, Units 1 and 2), ALAB-706, 16 NRC 1754 (1982)
appealability of rulings that simply admit another contention; ALAB-861, 25 NRC 135 (1987)

Cleveland Electric Illuminating Co. (Perry Nuclear Power Plant, Units 1 and 2), ALAB-820, 22 NRC 743, 746 (1985)
weight given to irreparable injury standard for grant of a stay; ALAB-865, 25 NRC 436 (1987)

Cleveland Electric Illuminating Co. (Perry Nuclear Power Plant, Units 1 and 2), ALAB-841, 24 NRC 64, 95, reconsideration denied, ALAB-844, 24 NRC 216 (1986)

LEGAL CITATIONS INDEX
CASES

finding of harmless error for licensing board's seriously abbreviated hearing schedule; ALAB-863, 25 NRC 278 (1987)

Cleveland Electric Illuminating Co. (Perry Nuclear Power Plant, Units 1 and 2), CLI-86-7, 23 NRC 233, 235 (1985)

licensing board authority to require licensee to perform a reanalysis to determine whether a record should be reopened; LBP-87-21, 25 NRC 963 (1987)

Commissioner v. Licavoli, 252 F.2d 268 (6th Cir. 1958)

use of civil discovery process to obtain information on criminal investigation; ALJ-87-4, 25 NRC 872 (1987)

Commonwealth Edison Co. (Braidwood Nuclear Power Station, Units 1 and 2), CLI-86-8, 23 NRC 241, 245 (1986)

weights given to five factors of 10 C.F.R. 2.714(a)(1); LBP-87-3, 25 NRC 75 (1987)

Commonwealth Edison Co. (Braidwood Nuclear Power Station, Units 1 and 2), CLI-86-8, 23 NRC 241, 246-47 (1986)

need for intervenors to identify prospective witnesses and testimony at contention admission stage; ALAB-868, 25 NRC 924 (1987)

Commonwealth Edison Co. (Byron Nuclear Power Station, Units 1 and 2), ALAB-735, 18 NRC 19 (1983)

evidentiary basis necessary to obtain a stay of discovery; ALJ-87-4, 25 NRC 867 (1987)

Commonwealth Edison Co. (Byron Nuclear Power Station, Units 1 and 2), ALAB-793, 20 NRC 1591, 1614-16 (1984)

appellate jurisdiction to direct certification of licensing board rulings; ALAB-860, 25 NRC 67 (1987)

Commonwealth Edison Co. (Zion Station, Units 1 and 2), ALAB-116, 6 AEC 258 (1973)

right of nonparty to appeal order granting discovery against it; ALAB-861, 25 NRC 133-34 (1987)

Commonwealth Edison Co. (Zion Station, Units 1 and 2), ALAB-220, 8 AEC 381, 389 (1974)

importance of counsel's participation where technical issues are involved; ALAB-868, 25 NRC 926 (1987)

Consolidated Edison Co. of New York (Indian Point, Unit 2), LBP-82-25, 15 NRC 715, 718-19 (1982)

responsibility for deciding who will represent an interested state; ALAB-862, 25 NRC 149 (1987)

Consumers Power Co. (Big Rock Point Plant), LBP-82-77, 16 NRC 1096 (1982)

burden on applicant to prove compliance with Commission emergency planning rules; LBP-87-13, 25 NRC 453 (1987)

Consumers Power Co. (Midland Plant, Units 1 and 2), ALAB-395, 5 NRC 772, 779 (1977)

definition of irreparable injury; ALAB-861, 25 NRC 138 (1987)

Consumers Power Co. (Midland Plant, Units 1 and 2), ALAB-468, 7 NRC 465, 468 (1978)

standard for discretionary interlocutory review; ALAB-864, 25 NRC 421 (1987)

Consumers Power Co. (Midland Plant, Units 1 and 2), CLI-74-5, 7 AEC 19, 32 n.27 (1974)

interpretation of clear and convincing standard of evidence; LBP-87-15, 25 NRC 691 (1987)

Consumers Power Co. (Midland Plant, Units 1 and 2), LBP-82-63, 16 NRC 571, 584-85 (1982)

consideration of generic issues in spent fuel pool expansion proceedings; LBP-87-17, 25 NRC 846 n.17 (1987)

Consumers Power Co. (Midland Plant, Units 1 and 2), LBP-82-118, 16 NRC 2034, 2037-39 (1982)

consideration of generic issues in spent fuel pool expansion proceedings; LBP-87-17, 25 NRC 846 n.17 (1987)

Cuomo v. NRC, 772 F.2d 972, 974 (D.C. Cir. 1985)

determinant of strength of showing that must be made on stay factors; ALAB-865, 25 NRC 435 (1987)

Cuomo v. NRC, 772 F.2d 972, 976 (D.C. Cir. 1985)

effect of ongoing litigation and political conflicts over full-power licensing on issuance of low-power license; CLI-87-2, 25 NRC 270 (1987)

Cuomo v. NRC, 772 F.2d 972, 976-78 (D.C. Cir. 1985)

consideration of likelihood of eventual full-power operation in determining motion for stay of low-power operation; ALAB-865, 25 NRC 436 n.13, 438, 446 (1987)

Dellinger v. Mitchell, 442 F.2d 782, 787 (D.C. Cir. 1971)

authority to limit stay in order to protect due-process rights of licensee; ALJ-87-4, 25 NRC 872 (1987)

Detroit Edison Co. (Enrico Fermi Atomic Power Plant, Unit 2), ALAB-707, 16 NRC 1760, 1763-64 (1982)

LEGAL CITATIONS INDEX
CASES

scope of appellate review of licensing board's admission of late-filed contention; ALAB-868, 25 NRC 921 (1987)

Detroit Edison Co. (Greenwood Energy Center, Units 2 and 3), ALAB-476, 7 NRC 759, 763 n.8 (1978)
application of potential-for-delay test to late-filed contentions; ALAB-868, 25 NRC 927 (1987)

Duke Power Co. (Catawba Nuclear Station, Units 1 and 2), ALAB-355, 4 NRC 397, 411-12 (1976)
admissibility of hearsay evidence in NRC proceedings; ALAB-863, 25 NRC 279 (1987)

Duke Power Co. (Catawba Nuclear Station, Units 1 and 2), ALAB-355, 4 NRC 397, 413, reconsideration denied, ALAB-359, 4 NRC 619 (1976)
treatment of inadequately briefed issues on appeal; ALAB-868, 25 NRC 924 (1987)

Duke Power Co. (Catawba Nuclear Station, Units 1 and 2), ALAB-687, 16 NRC 460, 464-65 (1982), rev'd in part on other grounds, CLI-83-19, 17 NRC 1041 (1983)
appealability of rulings that simply admit another contention; ALAB-861, 25 NRC 135 (1987)

Duke Power Co. (Catawba Nuclear Station, Units 1 and 2), ALAB-687, 16 NRC 460, 466-67 (1982), rev'd in part on other grounds, CLI-83-19, 17 NRC 1041 (1983)
challenges to environmental assessments that have not yet been issued; LBP-87-17, 25 NRC 852-53 (1987)

Duke Power Co. (Catawba Nuclear Station, Units 1 and 2), ALAB-813, 22 NRC 59, 74 (1985)
standard for appellate review of scheduling decisions; ALAB-863, 25 NRC 277 (1987)

Duke Power Co. (Perkins Nuclear Station, Units 1, 2 and 3), ALAB-591, 11 NRC 741, 742 (1980); ALAB-597, 11 NRC 870, 873 (1980)
board authority to determine scope of its own jurisdiction; ALAB-867, 25 NRC 905 (1987)

Duke Power Co. (William B. McGuire Nuclear Station, Units 1 and 2), ALAB-143, 6 AEC 623, 625-26 (1973)
obligation of applicants to report all information and employee admissions relevant to plant quality; LBP-87-20, 25 NRC 957 (1987)

Duke Power Co. (William B. McGuire Nuclear Station, Units 1 and 2), ALAB-669, 15 NRC 453, 464 (1982)
appeal board authority to entertain challenges to regulations; ALAB-865, 25 NRC 439 (1987)

Fitzgerald v. Hampton, 467 F.2d 755, 764 (D.C. Cir. 1972)
test for determining whether fundamental fairness standard is applied; ALAB-864, 25 NRC 421 n.11 (1987)

Florida Power and Light Co. (St. Lucie Nuclear Power Plant, Unit 2), ALAB-335, 3 NRC 830, 842 n.26 (1976)
appealability of unchallenged testimony; ALAB-863, 25 NRC 281 (1987)

Florida Power and Light Co. (St. Lucie Nuclear Power Plant, Unit 2), ALAB-420, 6 NRC 8, 13 (1977), aff'd, CLI-78-12, 7 NRC 939, 946 (1978)
scope of appellate review of licensing board's admission of late-filed contention; ALAB-868, 25 NRC 921 (1987)

Florida Power and Light Co. (St. Lucie Nuclear Power Plant, Unit 2), LBP-87-2, 25 NRC 32 (1987)
standard for discretionary grant of intervention; LBP-87-7, 25 NRC 119 n.2 (1987)

Florida Power and Light Co. (Turkey Point Nuclear Generating Plant, Units 3 and 4), 4 AEC 9, 15-16 (1967)
licensing board authority to influence future proceedings; LBP-87-19, 25 NRC 951 (1987)

Florida Power and Light Co. (Turkey Point Nuclear Generating Plant, Units 3 and 4), 4 AEC 787, 787 n.2, 788 (1972)
purpose of basis requirement for admission of contentions; ALAB-868, 25 NRC 930 (1987)

Florida Power and Light Co. (Turkey Point Nuclear Generating Station, Units 3 and 4), LBP-79-21, 10 NRC 183, 191-92 (1979)
need for a hearing on a materials license amendment; DD-87-7, 25 NRC 407 n.5 (1987)

Frazier v. Phinney, 24 F.R.D. 406 (S.D. Tex. 1959)
use of civil discovery process to obtain information on criminal investigation; ALJ-87-4, 25 NRC 872 (1987)

Fuentes v. Shevin, 407 U.S. 67, 82 (1972)
test for determining whether fundamental fairness standard is applied; ALAB-864, 25 NRC 421 n.11 (1987)

General Public Utilities Nuclear Corp. (Three Mile Island Nuclear Station, Unit 2), CLI-83-24, 18 NRC 315, 318 (1983)

LEGAL CITATIONS INDEX
CASES

need for NRC to suspend civil proceedings because of criminal investigation into the same matter; ALJ-87-4, 25 NRC 868 (1987)
Goldberg v. Kelly, 397 U.S. 254 (1970)
assessment of fundamental fairness of a decision; ALAB-864, 25 NRC 421 (1987)
Goldberg v. Kelly, 397 U.S. 254, 271 (1970)
basis for presiding officer's decision in civil penalty proceeding; ALJ-87-2, 25 NRC 225 (1987)
GUARD v. NRC, 753 F.2d 1144, 1146 (D.C. Cir. 1985)
Commission interpretation of regulations; ALAB-868, 25 NRC 937 (1987)
Gulf States Utilities Co. (River Bend Station, Units 1 and 2), ALAB-317, 3 NRC 175, 176-80 (1976)
appeal rights of 2.715(c) participants; ALAB-861, 25 NRC 133 (1987)
Gulf States Utilities Co. (River Bend Station, Units 1 and 2), ALAB-444, 6 NRC 760 (1977)
consideration of generic issues in spent fuel pool expansion proceedings; LBP-87-17, 25 NRC 846 n.17 (1987)
Harrington v. DeVito, 656 F.2d 264, 269 (7th Cir. 1981), cert. denied, 455 U.S. 993 (1982)
standard for finding of abuse of licensing board discretion; ALAB-868, 25 NRC 922 (1987)
Hotel Employees-Hotel Ass'n Pension Fund v. Timperio, 662 F. Supp. 606 (D. Fla. 1985)
applicability of Touhey regulation to testimony by Labor Department investigator in NRC civil penalty proceeding; ALJ-87-5, 25 NRC 976 (1987)
Houston Lighting and Power Co. (Allens Creek Nuclear Generating Station, Unit 1), ALAB-535, 9 NRC 377, 393-97 (1979)
showing necessary to establish organizational standing; LBP-87-7, 25 NRC 118-19 (1987)
Houston Lighting and Power Co. (Allens Creek Nuclear Generating Station, Unit 1), ALAB-590, 11 NRC 542 (1982)
specificity required of contentions at pleading stage; ALAB-868, 25 NRC 936 n.103 (1987)
Houston Lighting and Power Co. (Allens Creek Nuclear Generating Station, Unit 1), ALAB-590, 11 NRC 542, 547-49 (1980)
fulfillment of basis requirement for admission of contention; ALAB-868, 25 NRC 930-31 (1987)
Houston Lighting and Power Co. (Allens Creek Nuclear Generating Station, Unit 1), ALAB-590, 11 NRC 542, 548 (1980)
scope of licensing board review of a contention's bases for adequacy; LBP-87-17, 25 NRC 843 (1987)
Houston Lighting and Power Co. (Allens Creek Nuclear Generating Station, Unit 1), ALAB-635, 13 NRC 309, 310 (1981)
standard for discretionary interlocutory review of licensing board rulings; ALAB-861, 25 NRC 134 (1987)
Houston Lighting and Power Co. (Allens Creek Nuclear Generating Station, Unit 1), ALAB-671, 15 NRC 508, 513 n.14 (1982)
demonstration of intervenor's ability to contribute to the record; ALAB-868, 25 NRC 926 (1987)
Houston Lighting and Power Co. (South Texas Project, Units 1 and 2), ALAB-549, 9 NRC 644, 646-47 (1979)
organizational standing through the interests of the organization's members; LBP-87-7, 25 NRC 118 (1987)
Houston Lighting and Power Co. (South Texas Project, Units 1 and 2), ALAB-549, 9 NRC 644, 649 (1979)
Commission policy on deciding issues on technicalities rather than merits; LBP-87-17, 25 NRC 860 (1987)
Houston Lighting and Power Co. (South Texas Project, Units 1 and 2), ALAB-637, 13 NRC 367, 370 (1981)
standard for discretionary interlocutory review of licensing board rulings; ALAB-861, 25 NRC 134 (1987)
Houston Lighting and Power Co. (South Texas Project, Units 1 and 2), ALAB-637, 13 NRC 367, 370-71 (1981)
showing necessary for directed certification of scheduling order; ALAB-858, 25 NRC 21 (1987)
standard for discretionary interlocutory review; ALAB-864, 25 NRC 421 (1987)
Indiana and Michigan Electric Co. (Donald C. Cook Nuclear Plant, Units 1 and 2), ALAB-129, 6 AEC 414 (1973)
basis for determining sufficiency of permit holder's reasons for delay of construction completion; ALAB-868, 25 NRC 935 (1987)
Kansas Gas and Electric Co. (Wolf Creek Nuclear Generating Station, Unit 1), ALAB-321, 3 NRC 293, 299-300 (1976), aff'd, CLI-77-1, 5 NRC 1 (1977)

LEGAL CITATIONS INDEX
CASES

board authority to determine scope of its own jurisdiction; ALAB-867, 25 NRC 905 (1987)

Kansas Gas and Electric Co. (Wolf Creek Generating Station, Unit 1), ALAB-462, 7 NRC 320, 338 (1978)
burden on party seeking to reopen a record; LBP-87-21, 25 NRC 962-63 (1987)

Kerr-McGee Chemical Corp. (West Chicago Rare Earths Facility), CLI-82-2, 15 NRC 232 (1982), aff'd, West Chicago v. NRC, 701 F.2d 632 (7th Cir. 1983)
use of informal procedures for materials licensing proceeding; LBP-87-11, 25 NRC 288 (1987)

Kerr-McGee Chemical Corp. (West Chicago Rare Earths Facility), LBP-85-38, 22 NRC 604, 610, 613-14 (1985)
discovery of nonwitness experts; LBP-87-18, 25 NRC 946 (1987); LBP-87-20, 25 NRC 954 (1987)

Landis v. North American Co., 299 U.S. 248, 254-55 (1936)
standard for stay of a civil proceeding; ALJ-87-4, 25 NRC 867-68 (1987)

Long Island Lighting Co. (Jamesport Nuclear Power Station, Units 1 and 2), ALAB-292, 2 NRC 631, 638 (1975)
protection of economic interests; DD-87-5, 25 NRC 265 (1987)
scope of interests protected under the Atomic Energy Act; DD-87-7, 25 NRC 407 n.7 (1987)

Long Island Lighting Co. (Shoreham Nuclear Power Station), ALAB-156, 6 AEC 831, 832-33 (1973)
incorporation of reference papers filed with licensing board deemed improper support for appellate brief; ALAB-868, 25 NRC 924 (1987)

Long Island Lighting Co. (Shoreham Nuclear Power Station), ALAB-810, 21 NRC 1616 (1985); CLI-83-17, 17 NRC 1032 (1983); CLI-84-9, 19 NRC 1323 (1984); CLI-85-1, 21 NRC 275 (1985); CLI-85-12, 21 NRC 1587 (1985)
criteria for stay of low-power operating license; ALAB-865, 25 NRC 435 (1987)

Long Island Lighting Co. (Shoreham Nuclear Power Station, Unit 1), ALAB-780, 20 NRC 378, 380-81 (1984)
right of nonparty to appeal order granting discovery against it; ALAB-861, 25 NRC 133 (1987)

Long Island Lighting Co. (Shoreham Nuclear Power Station, Unit 1), ALAB-787, 20 NRC 1097, 1100 (1984)
constraints on appeal board authority when a licensing board has a 2.758 petition before it; ALAB-860, 25 NRC 67 (1987)

Long Island Lighting Co. (Shoreham Nuclear Power Station, Unit 1), ALAB-788, 20 NRC 1102, 1150 (1984)
independence of quality assurance program from cost and schedule considerations; LBP-87-14, 25 NRC 469 (1987)

Long Island Lighting Co. (Shoreham Nuclear Power Station, Unit 1), ALAB-832, 23 NRC 135, 143, review pending, CLI-86-11, 23 NRC 577, 579 (1986)
scope of appellate review allegations of licensing board error; ALAB-857, 25 NRC 15 n.8 (1987)

Long Island Lighting Co. (Shoreham Nuclear Power Station, Unit 1), CLI-83-17, 17 NRC 1032, 1034 (1983)
effect of unresolvable emergency planning issues on issuance of low-power licensing; CLI-87-2, 25 NRC 270-71 (1987)

Long Island Lighting Co. (Shoreham Nuclear Power Station, Unit 1), CLI-86-13, 24 NRC 22 (1986)
definition of a utility-sponsored emergency plan; CLI-87-3, 25 NRC 878 (1987)

Long Island Lighting Co. (Shoreham Nuclear Power Station, Unit 1), CLI-86-13, 24 NRC 22, 32 (1986)
requirement for specific measures not explicitly mentioned in regulations; ALAB-868, 25 NRC 941 n.9 (1987)

Long Island Lighting Co. (Shoreham Nuclear Power Station, Unit 1), LBP-83-22, 17 NRC 608, 625, aff'd, CLI-83-13, 17 NRC 741 (1983)
definition of a utility-sponsored emergency plan; CLI-87-3, 25 NRC 878 (1987)

Long Island Lighting Co. (Shoreham Nuclear Power Station, Unit 1), LBP-85-12, 21 NRC 644, 653 (1985)
scope of individual coverage encompassed by emergency planning rules; LBP-87-13, 25 NRC 453 (1987)

Louisiana Power and Light Co. (Waterford Steam Electric Station, Unit 3), ALAB-732, 17 NRC 1076, 1106-07 (1983)
need for details of emergency plan implementing procedures to make reasonable assurance finding; ALAB-857, 25 NRC 11 (1987)

Louisiana Power and Light Co. (Waterford Steam Electric Station, Unit 3), CLI-86-1, 23 NRC 1, 5 (1986)
proposed test for contention admission in construction permit extension proceeding; ALAB-868, 25 NRC 941 (1987)

LEGAL CITATIONS INDEX
CASES

McSurely v. McClellan, 426 F.2d 664, 672 (D.C. Cir. 1970)
authority to limit stay in order to protect due-process rights of licensee; ALJ-87-4, 25 NRC 872 (1987)
Metropolitan Edison Co. (Three Mile Island Nuclear Station, Unit 1), ALAB-685, 16 NRC 449, 451-52 (1982)
constraints on appeal board authority when a licensing board has a 2.758 petition before it; ALAB-860, 25 NRC 67 (1987)
Metropolitan Edison Co. (Three Mile Island Nuclear Station, Unit 1), ALAB-697, 16 NRC 1265, 1269-72 (1982)
adequacy of emergency call-up procedures for off-duty correctional officers; ALAB-863, 25 NRC 284 (1987)
Metropolitan Edison Co. (Three Mile Island Nuclear Station, Unit 1), ALAB-699, 16 NRC 1324, 1327 (1982)
jurisdiction to impose license conditions; ALAB-859, 25 NRC 27 (1987)
Metropolitan Edison Co. (Three Mile Island Nuclear Station, Unit 1), ALAB-705, 16 NRC 1733, 1741 (1982)
board authority to interpret and apply decision of higher authorities; ALAB-867, 25 NRC 906 n.7 (1987)
Metropolitan Edison Co. (Three Mile Island Nuclear Station, Unit 1), ALAB-791, 20 NRC 1579, 1583 (1984)
effect on basic structure of a proceeding of where admission of a contention results from a licensing board ruling that is important or novel; ALAB-861, 25 NRC 135 (1987)
Metropolitan Edison Co. (Three Mile Island Nuclear Station, Unit 1), CLI-82-6, 15 NRC 407 (1982)
litigability of psychological stress in NRC proceedings; DD-87-5, 25 NRC 264 (1987)
Metropolitan Edison Co. (Three Mile Island Nuclear Station, Unit 1), CLI-82-31, 16 NRC 1236, 1238 (1982)
limits of presiding officer's jurisdiction in civil penalty proceeding; ALJ-87-2, 25 NRC 224-25 (1987)
Metropolitan Edison Co. (Three Mile Island Nuclear Station, Unit 1), CLI-83-25, 18 NRC 327, 333 (1983)
"civic duty" as basis for standing to intervene; LBP-87-2, 25 NRC 35 (1987)
standard for discretionary grant of intervention; LBP-87-7, 25 NRC 119 n.2 (1987)
Metropolitan Edison Co. (Three Mile Island Nuclear Station, Unit 1), CLI-84-17, 20 NRC 801, 804 (1984)
definition of irreparable injury; ALAB-861, 25 NRC 138 (1987)
most significant factor in determining stay requests; ALAB-865, 25 NRC 436 (1987)
Metropolitan Edison Co. (Three Mile Island Nuclear Station, Unit 1), LBP-82-56, 16 NRC 281 (1982)
type of proceeding that is most vulnerable to delay; ALJ-87-4, 25 NRC 871 (1987)
Metropolitan Edison Co. (Three Mile Island Nuclear Station, Unit 1), LBP-85-30, 22 NRC 332 (1985)
type of proceeding that is most vulnerable to delay; ALJ-87-4, 25 NRC 871 (1987)
Metropolitan Edison Co. v. People Against Nuclear Energy, 460 U.S. 766 (1983)
litigability of psychological stress in NRC proceedings; DD-87-5, 25 NRC 264 (1987)
Mississippi Power and Light Co. (Grand Gulf Nuclear Station, Units 1 and 2), ALAB-130, 6 AEC 423, 425-26 (1973)
fulfillment of basis requirement for admission of contention; ALAB-868, 25 NRC 930 (1987; LBP-87-17, 25 NRC 842-43 (1987)
Mississippi Power and Light Co. (Grand Gulf Nuclear Station, Units 1 and 2), ALAB-704, 16 NRC 1725 (1982)
showing necessary on other factors for admission of late-filed contention when good cause is not shown; LBP-87-3, 25 NRC 76 (1987)
Mississippi Power and Light Co. (Grand Gulf Nuclear Station, Units 1 and 2), ALAB-704, 16 NRC 1725, 1730 (1982)
identification of scope of an intervenor's ability to contribute to the record in justifying late admission of contention; ALAB-868, 25 NRC 925 (1987)
Northern Indiana Public Service Co. (Bailly Generating Station, Nuclear-1), CLI-78-7, 7 NRC 429, 434 (1978), aff'd sub nom. Porter County Chapter of the Izaac Walton League of America v. NRC, 606 F.2d 1363 (D.C. Cir. 1979)
need to reconsider issues when no new information is provided; DD-87-4, 25 NRC 258 (1987)
Northern States Power Co. (Prairie Island Nuclear Generating Plant, Units 1 and 2), LBP-77-51, 6 NRC 265, 267-74 (1977), modified on other grounds, ALAB-455, 7 NRC 41 (1978)
litigability of need for EIS on spent fuel pool expansion; LBP-87-17, 25 NRC 853 (1987)
Nuclear Advisors Inc., 2 AEC 196 (1962), 2 AEC 254 (1963)
possession of nuclear waste; LBP-87-5, 25 NRC 106 (1987)

LEGAL CITATIONS INDEX
CASES

Nuclear Fuel Services, Inc. (West Valley Reprocessing Plant), CLI-75-4, 1 NRC 273, 275 (1975)
purpose of five-factor test for late intervention; ALAB-868, 25 NRC 922 (1987)
Offshore Power Systems (Manufacturing License for Floating Nuclear Power Plants), ALAB-517, 9 NRC 8, 11 (1979)
standard for discretionary interlocutory review of licensing board rulings; ALAB-861, 25 NRC 135 (1987)
Offshore Power Systems (Manufacturing License for Floating Nuclear Power Plants), ALAB-689, 16 NRC 887, 890, aff'd on other grounds, CLI-82-37, 16 NRC 1691 (1982)
appeal board sua sponte authority to review decisions where no appeal has been taken; ALAB-859, 25 NRC 27 (1987)
Ohio Bell Telephone Co. v. Public Utilities Commission of Ohio, 301 U.S. 292, 305 (1937)
violation of due process in expedition of hearing schedule; ALAB-864, 25 NRC 421 (1987)
Pacific Gas and Electric Co. (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-653, 16 NRC 55, 72 (1981), attached to CLI-82-19, 16 NRC 53 (1982)
definition of prima facie; ALAB-860, 25 NRC 69 n.19 (1987); LBP-87-12, 25 NRC 328 (1987)
Pacific Gas and Electric Co. (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-775, 19 NRC 1361, 1366-67, aff'd sub nom. San Luis Obispo Mothers for Peace v. NRC, 751 F.2d 1287 (D.C. Cir. 1984), aff'd, 789 F.2d 26 (D.C. Cir. 1986)
proposed test for contention admission in construction permit extension proceeding; ALAB-868, 25 NRC 941 (1987)
supporting information necessary to reopen a record; LBP-87-21, 25 NRC 963 (1987)
Pacific Gas and Electric Co. (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-81-6, 13 NRC 443, 446 (1981)
use of 2.206 procedures to avoid an existing forum; DD-87-10, 25 NRC 992 (1987)
Pacific Gas and Electric Co. (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-86-12, 24 NRC 1, 4 (1986), rev'd in part on other grounds, San Luis Obispo Mothers for Peace v. NRC, 799 F.2d 1268 (9th Cir. 1986)
challenges to no significant hazards determination consideration in licensing proceedings; LBP-87-17, 25 NRC 844 (1987)
Pacific Gas and Electric Co. (Diablo Canyon Nuclear Power Plant, Units 1 and 2), LBP-86-21, 23 NRC 849, 852 (1986)
standard for judging admissibility of contentions where no particular rule governs the subject of the contentions; LBP-87-17, 25 NRC 849 (1987)
Pacific Gas and Electric Co. v. Federal Power Comm'n, 506 F.2d 33, 38-39 (D.C. Cir. 1974)
Commission views on and uses of policy statements; DPRM-87-1, 25 NRC 59 (1987)
Palmer v. Columbia Gas of Ohio, Inc., 479 F.2d 153, 165 (6th Cir. 1973)
test for determining whether fundamental fairness standard is applied; ALAB-864, 25 NRC 421 (1987)
Pennsylvania Power and Light Co. (Susquehanna Steam Electric Station, Units 1 and 2), ALAB-593, 11 NRC 761 (1980)
standard for discretionary interlocutory review of licensing board rulings; ALAB-861, 25 NRC 134 (1987)
Pennsylvania Power and Light Co. (Susquehanna Steam Electric Station, Units 1 and 2), ALAB-641, 13 NRC 550, 552 (1981)
effect on basic structure of a proceeding of where admission of a contention results from a licensing board ruling that conflicts with case law, policy or Commission regulations; ALAB-861, 25 NRC 135 (1987)
Pennsylvania Power and Light Co. (Susquehanna Steam Electric Station, Units 1 and 2), ALAB-693, 16 NRC 952, 956-57 (1982)
treatment of inadequately briefed issues on appeal; ALAB-868, 25 NRC 924 (1987)
Petition of Sunflower Coalition, CLI-81-13, 13 NRC 847, 849-51 (1981)
state agreement process; ALAB-867, 25 NRC 903 n.4 (1987)
Petition of Sunflower Coalition, CLI-82-34, 16 NRC 1502, 1504 (1982)
requirements for transfer of authority over byproduct material vs. source material; ALAB-867, 25 NRC 910 (1987)
Philadelphia Electric Co. (Limerick Generating Station, Unit 1), ALAB-833, 23 NRC 257, 261 (1986)
interlocutory appeals where allegations are premature; ALAB-860, 25 NRC 69 (1987)

Philadelphia Electric Co. (Limerick Generating Station, Unit 1), ALAB-835, 23 NRC 267, 270 (1986)
scope of appeal board stay authority; ALAB-858, 25 NRC 20 n.7 (1987)
Philadelphia Electric Co. (Limerick Generating Station, Units 1 and 2), ALAB-789, 20 NRC 1443, 1447 (1984)
responsibility for allocation burden on ratepayers if nuclear plant is not allowed to operate; ALAB-865, 25 NRC 438 (1987)
Philadelphia Electric Co. (Limerick Generating Station, Units 1 and 2), ALAB-806, 21 NRC 1183, 1190 (1985)
latitude given on appeal to licensing board determination in denial of late-filed contentions; ALAB-865, 25 NRC 443 (1987)
test for admission of contention after first prehearing conference; ALAB-868, 25 NRC 922 (1987)
Philadelphia Electric Co. (Limerick Generating Station, Units 1 and 2), ALAB-819, 22 NRC 681, 693-95 (1985)
satisfaction of basis requirement for admission of a contention; LBP-87-17, 25 NRC 854 (1987)
Philadelphia Electric Co. (Limerick Generating Station, Units 1 and 2), ALAB-819, 22 NRC 681, 694 (1985)
proscription against merits judgments of contentions at admission stage; ALAB-868, 25 NRC 931 (1987)
Philadelphia Electric Co. (Limerick Generating Station, Units 1 and 2), ALAB-845, 24 NRC 220, 230 (1986)
standard for determining adequacy of a contention's basis; ALAB-868, 25 NRC 930 (1987)
Philadelphia Electric Co. (Limerick Generating Station, Units 1 and 2), ALAB-863, 25 NRC 273, 277 (1987)
standard for discretionary interlocutory review; ALAB-864, 25 NRC 421 (1987)
Philadelphia Electric Co. (Limerick Generating Station, Units 1 and 2), DD-85-11, 22 NRC 149, 154 (1985)
specificity required of 2.206 petitions; DD-87-5, 25 NRC 263 (1987); DD-87-7, 25 NRC 404 n.2 (1987); DD-87-8, 25 NRC 414-15 (1987)
Philadelphia Electric Co. (Peach Bottom Atomic Power Station, Units 2 and 3), ALAB-216, 8 AEC 13, 20-21 (1974)
licensing board discretion in determining adequacy of a contention's basis; ALAB-868, 25 NRC 930-31 (1987)
Portland General Electric Co. (Pebble Springs Nuclear Plant, Units 1 and 2), CLI-76-27, 4 NRC 610, 613-14 (1976)
showing necessary to establish organizational standing; LBP-87-7, 25 NRC 118 (1987)
Portland General Electric Co. (Pebble Springs Nuclear Plant, Units 1 and 2), CLI-76-27, 4 NRC 610, 614 (1976)
protection of economic interests; DD-87-5, 25 NRC 265 (1987); DD-87-7, 25 NRC 407 n.7 (1987)
Portland General Electric Co. (Pebble Springs Nuclear Plant, Units 1 and 2), CLI-76-27, 4 NRC 610, 614-17 (1976)
standard for discretionary intervention; LBP-87-2, 25 NRC 35 (1987); LBP-87-7, 25 NRC 119 n.2 (1987)
Portland General Electric Co. (Trojan Nuclear Plant), ALAB-531, 9 NRC 263, 264-68 (1979)
litigability of need for EIS on spent fuel pool expansion; LBP-87-17, 25 NRC 853 (1987)
Project Management Corp. (Clinch River Breeder Reactor Plant), ALAB-330, 3 NRC 613, 615, rev'd on other grounds, CLI-76-13, 4 NRC 67 (1976)
standard for grant of discretionary interlocutory review; ALAB-861, 25 NRC 135 (1987)
Public Service Co. of Indiana (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-316, 3 NRC 167, 170 (1976)
contention requirement for intervention; LBP-87-17, 25 NRC 842 (1987)
limits of presiding officer's jurisdiction in civil penalty proceeding; ALJ-87-2, 25 NRC 224 (1987)
Public Service Co. of Indiana (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-322, 3 NRC 328, 330 (1976)
organizational standing through the interests of the organization's members; LBP-87-7, 25 NRC 118 (1987)
Public Service Co. of Indiana (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-405, 5 NRC 1190, 1192 (1977)
standard for directed certification; ALAB-858, 25 NRC 21 (1987); ALAB-861, 25 NRC 134 (1987)
standard for discretionary interlocutory review; ALAB-864, 25 NRC 420 (1987)
Public Service Co. of Indiana (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-459, 7 NRC 179, 188 (1978)

LEGAL CITATIONS INDEX
CASES

standard for discretionary interlocutory review; ALAB-864, 25 NRC 421 (1987)

Public Service Co. of New Hampshire (Seabrook Station, Unit 2), CLI-84-6, 19 NRC 975 (1984)

responsibility for allocation of burden on ratepayers if nuclear plant is not allowed to operate; ALAB-865, 25 NRC 438 (1987)

Public Service Co. of New Hampshire (Seabrook Station, Unit 2), CLI-84-6, 19 NRC 975, 978 (1984)

contentions litigable in construction permit extension proceedings; ALAB-868, 25 NRC 940 n.7

difference in operative effects of generic rules in different types of proceedings; ALAB-868, 25 NRC 937 (1987)

Public Service Co. of New Hampshire (Seabrook Station, Units 1 and 2), ALAB-271, 1 NRC 478, 482-83 (1975)

standard for directed certification of scheduling orders; ALAB-858, 25 NRC 20 (1987); ALAB-860, 25 NRC 68 (1987); ALAB-864, 25 NRC 420 (1987)

Public Service Co. of New Hampshire (Seabrook Station, Units 1 and 2), ALAB-271, 1 NRC 478, 483 (1975)

Commission policy on interlocutory appeals of single issues; ALAB-861, 25 NRC 134 (1987)

Public Service Co. of New Hampshire (Seabrook Station, Units 1 and 2), ALAB-295, 2 NRC 668, 670 n.2 (1975)

standard for discretionary interlocutory review; ALAB-864, 25 NRC 421 (1987)

Public Service Co. of New Hampshire (Seabrook Station, Units 1 and 2), ALAB-338, 4 NRC 10, 12 (1976)

requests for modification of hearing schedules; ALAB-858, 25 NRC 22 (1987)

Public Service Co. of New Hampshire (Seabrook Station, Units 1 and 2), ALAB-422, 6 NRC 33, 41 (1977), aff'd, CLI-78-1, 7 NRC 1, aff'd, New England Coalition on Nuclear Pollution v. NRC, 582 F.2d 87 (1st Cir. 1978)

licensing board responsibility to detail the basis for its decision; ALAB-857, 25 NRC 14-15 (1987)

treatment of Staff failure to provide reasons for its determinations as violation of due process; ALAB-867, 25 NRC 910 n.12 (1987)

Public Service Co. of New Hampshire (Seabrook Station, Units 1 and 2), ALAB-838, 23 NRC 585, 592 (1986)

standard for grant of discretionary interlocutory review; ALAB-861, 25 NRC 135 (1987)

Public Service Co. of New Hampshire (Seabrook Station, Units 1 and 2), ALAB-853, 24 NRC 711, 715 (1986), rev'd on other grounds, CLI-87-2, 25 NRC 267 (1987)

proposed change in pleading criteria for contentions in construction permit extension proceedings; ALAB-868, 25 NRC 941 (1987)

Public Service Co. of New Hampshire (Seabrook Station, Units 1 and 2), LBP-87-12, 25 NRC 324, 333-34, 338 (1987)

information about accidents occurring during reactor shutdown; LBP-87-17, 25 NRC 850 (1987)

Public Service Co. of Oklahoma (Black Fox Station, Units 1 and 2), CLI-80-31, 12 NRC 264, 277 (1980)

official notice of documents attached to intervenor's proposed findings after close of the record; LBP-87-15, 25 NRC 688 (1987)

Public Service Electric and Gas Co. (Salem Nuclear Generating Station, Unit 1), ALAB-588, 11 NRC 533, 536 (1980)

standard for discretionary interlocutory review of licensing board rulings; ALAB-861, 25 NRC 134 (1987)

Public Service Electric and Gas Co. (Salem Nuclear Generating Station, Unit 1), ALAB-650, 14 NRC 43, 49-50 (1981), aff'd sub nom. Township of Lower Alloways Creek v. Public Service Electric and Gas Co., 687 F.2d 732 (3d Cir. 1982)

treatment of Staff failure to provide reasons for its determinations as violation of due process; ALAB-867, 25 NRC 910 n.12 (1987)

Puget Sound Power and Light Co. (Skagit Nuclear Power Project, Units 1 and 2), ALAB-572, 10 NRC 693, 694 (1979)

standard for discretionary interlocutory review of licensing board rulings; ALAB-861, 25 NRC 135 (1987)

Puget Sound Power and Light Co. (Skagit/Hanford Nuclear Power Project, Units 1 and 2), ALAB-712, 17 NRC 81 (1983)

appealability of licensing board rejection of a single contention; ALAB-861, 25 NRC 136 (1987)

Radiation Technology, Inc., ALAB-567, 10 NRC 533, 546, 547 (1979)

LEGAL CITATIONS INDEX
CASES

use of unlicensed, but trained, employee as head of nuclear pacemaker program; ALJ-87-2, 25 NRC 230 (1987)

Reich Geo-Physical, Inc., ALJ-85-1, 22 NRC 941 (1985)
authority of presiding officer to assign a penalty level more severe that that assigned by a Director; ALJ-87-2, 25 NRC 224 (1987)

Reich Geo-Physical, Inc., ALJ-85-1, 22 NRC 941, 951 (1985)
licensee authority to arbitrarily determine that its employee is qualified for an NRC-licensed position; ALJ-87-2, 25 NRC 230 (1987)

Renegotiation Board v. Bannercraft, 415 U.S. 1, 24 (1974)
definition of irreparable injury; ALAB-861, 25 NRC 138 (1987)

Reynolds Metal Co. v. Crowther, 572 F. Supp. 288 (D. Mass. 1982)
applicability of Touhey regulation to testimony by Labor Department investigator in NRC civil penalty proceeding; ALJ-87-5, 25 NRC 976 (1987)

Rochester Gas and Electric Corp. (Sterling Power Project, Nuclear Unit No. 1), ALAB-507, 8 NRC 551 (1978)
possession of nuclear waste; LBP-87-5, 25 NRC 106 (1987)

Sacramento Municipal Utility District (Rancho Seco Nuclear Generating Station), ALAB-746, 18 NRC 749 (1983)
appeal board authority to impose license conditions; ALAB-859, 25 NRC 27 (1987)

SEC v. Dresser Industries, Inc., 628 F.2d 1368 (D.C. Cir. 1980) (en banc), cert. denied, 449 U.S. 993 (1980)
need for NRC to suspend civil proceedings because of criminal investigation into the same matter; ALJ-87-4, 25 NRC 868 (1987)

Smith v. CRC Builders Co., 626 F. Supp. 12 (D. Colo. 1983)
applicability of Touhey regulation to testimony by Labor Department investigator in NRC civil penalty proceeding; ALJ-87-5, 25 NRC 976 (1987); ALJ-87-5, 25 NRC 000 (1987)

South Carolina Electric and Gas Co. (Virgil C. Summer Nuclear Station, Unit 1), ALAB-642, 13 NRC 881, 895 (1981)
weights given to five factors of 10 C.F.R. 2.714(a)(1); LBP-87-3, 25 NRC 75 (1987)

South Carolina Electric and Gas Co. (Virgil C. Summer Nuclear Station, Unit 1), ALAB-663, 14 NRC 1140, 1162 (1981)
standard for discretionary interlocutory review of licensing board rulings; ALAB-861, 25 NRC 134 (1987)

Southern California Edison Co. (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-212, 7 AEC 986, 991 (1974)
standard for discretionary interlocutory review; ALAB-864, 25 NRC 421 (1987)

Statement of Policy on Conduct of Licensing Proceedings, CLI-81-8, 13 NRC 452 (1981)
expedition of proceeding by requiring all filings on computer diskettes; LBP-87-21A, 25 NRC 967 (1987)

Statement of Policy on Conduct of Licensing Proceedings, CLI-81-8, 13 NRC 452, 453 (1981)
board options for alleviating its scheduling conflicts; ALAB-863, 25 NRC 286 (1987)
fundamental fairness standard to be followed by boards in expediting hearings; ALAB-864, 25 NRC 421 (1987)
licensing board authority to expedite proceedings; LBP-87-[illegible] NRC 76 (1987)

Statement of Policy on Conduct of Licensing Proceedings, CLI-81-8, 13 NRC 452, 457 (1981)
licensing board authority to refuse to rule on issues for which intervenors have filed not proposed findings of fact; LBP-87-13, 25 NRC 452 (1987)

Steadman v. SEC, 450 U.S. 91 (1981)
standard-of-proof choices in civil proceedings; LBP-87-15, 25 NRC 690 (1987)

Suffolk County and State of New York Motion to Rescind Reconstitution of Board (Shoreham Nuclear Power Station, Unit 1), LBP-86-37A, 24 NRC 726, 729 & n.2 (1986)
board options for alleviating its scheduling conflicts; ALAB-863, 25 NRC 286 (1987)

Tennessee Valley Authority (Hartsville Nuclear Plant, Units 1A, 2A, 1B, and 2B), ALAB-367, 5 NRC 92, 104 n.59 (1977)
incorporation of reference papers filed with licensing board deemed improper support for appellate brief; ALAB-868, 25 NRC 924 (1987)

LEGAL CITATIONS INDEX
CASES

Tennessee Valley Authority (Hartsville Nuclear Plant, Units 1A, 2A, 1B, and 2B), ALAB-463, 7 NRC 341, 356 (1978)
importance of counsel's participation where technical issues are involved; ALAB-868, 25 NRC 926 (1987)
Texas Utilities Electric Co. (Comanche Peak Steam Electric Station, Unit 1), CLI-86-4, 23 NRC 113, 121-22 (1986)
criteria for grant of a stay; ALAB-865, 25 NRC 435 (1987)
Toledo Edison Co. (Davis-Besse Nuclear Power Station, Units 1, 2, and 3), ALAB-385, 5 NRC 621, 628 (1977)
definition of irreparable injury; ALAB-861, 25 NRC 138 (1987)
economic effects as irreparable injury for purpose of obtaining a stay; ALAB-865, 25 NRC 438 (1987)
Transnuclear, Inc. (Ten Applications for Low-Enriched Uranium Exports to EURATOM Member Nations), CLI-77-24, 6 NRC 525, 531 (1977)
showing necessary to establish organizational standing; LBP-87-7, 25 NRC 118 (1987)
Union Electric Co. (Callaway Plant, Unit 1), ALAB-740, 18 NRC 343, 346 (1983)
quality of construction needed for operating license issuance; LBP-87-14, 25 NRC 466 (1987)
test for determining breakdowns in quality assurance; LBP-87-14, 25 NRC 553, 669 (1987)
Union Electric Co. (Callaway Plant, Unit 1), ALAB-740, 18 NRC 343, 349-50 (1983)
official notice of documents attached to intervenor's proposed findings after close of the record; LBP-87-15, 25 NRC 688 (1987)
Union of Concerned Scientists v. NRC, 735 F.2d 1437, 1444-48 (D.C. Cir. 1984)
scope of allowable litigation on adequacy of emergency exercises; ALAB-861, 25 NRC 142 (1987)
United States Department of Energy (Clinch River Breeder Reactor Plant), ALAB-721, 17 NRC 539, 543 (1983)
weight given to irreparable injury standard for grant of a stay; ALAB-865, 25 NRC 436 (1987)
United States ex rel. Touhey v. Ragen, 340 U.S. 462 (1951)
applicability to subpoena of Labor Department investigator; ALJ-87-5, 25 NRC 975 (1987)
United States v. Eight Thousand Eight Hundred and Fifty Dollars, 461 U.S. 555 (1983)
test for balancing government's need for a stay against a licensee's need for an undelayed proceeding; ALJ-87-4, 25 NRC 869 (1987)
United States v. Kordel, 397 U.S. 1 (1970)
need for government agency to choose between criminal prosecution and civil relief; ALJ-87-4, 25 NRC 868 (1987)
United States v. Munsingwear, Inc., 340 U.S. 36, 39-41 (1950)
vacation of order under appeal that is mooted by loss of agency jurisdiction; ALAB-866, 25 NRC 898 (1987)
US Ecology, Inc. (Sheffield, Illinois Low-Level Radioactive Waste Disposal Site), ALAB-866, 25 NRC 899 (1987)
loss of NRC regulatory authority because of agreement transferring authority to Illinois; ALAB-867, 25 NRC 905-06 (1987)
Virginia Electric and Power Co. (North Anna Power Station, Units 1 and 2), ALAB-491, 8 NRC 245, 248 (1978)
consideration of generic issues in spent fuel pool expansion proceedings; LBP-87 17, 25 NRC 846 n.17 (1987)
Virginia Electric and Power Co. (North Anna Power Station, Units 1 and 2), ALAB-522, 9 NRC 54, 56 (1979)
organizational standing on basis of member's residence within close proximity to a facility; LBP-87-7, 25 NRC 118 (1987)
Virginia Electric and Power Co. (North Anna Power Station, Units 1 and 2), ALAB-741, 18 NRC 371, 378 (1983)
effect of admission of single contention on basic structure of a proceeding; ALAB-861, 25 NRC 135 (1987)
Virginia Petroleum Jobbers Ass'n v. FPC, 259 F.2d 921, 925 (D.C. Cir. 1958)
criteria for grant of a stay; ALAB-865, 25 NRC 435 (1987)
definition of irreparable injury for purpose of obtaining interlocutory appeal; ALAB-861, 25 NRC 138 (1987)

LEGAL CITATIONS INDEX
CASES

economic effects as irreparable injury for purpose of obtaining a stay; ALAB-865, 25 NRC 438 (1987)

Washington Metropolitan Area Transit Comm'n v. Holiday Tours, Inc., 559 F.2d 841 (D.C. Cir. 1977)
criteria for grant of a stay; ALAB-865, 25 NRC 435 (1987)

Washington Metropolitan Area Transit Comm'n v. Holiday Tours, Inc., 559 F.2d 841, 843 n.3 (D.C. Cir. 1977)
definition of irreparable injury for purpose of obtaining interlocutory appeal; ALAB-861, 25 NRC 137 (1987)

Washington Public Power Supply System (WPPSS Nuclear Project No. 2), ALAB-722, 17 NRC 546, 551 (1983)
satisfaction of basis requirement for admission of contentions; ALAB-868, 25 NRC 933 (1987)

Washington Public Power Supply System (WPPSS Nuclear Project No. 2), DD-84-7, 19 NRC 899, 923 (1984)
standard for initiating a show-cause proceeding; DD-87-11, 25 NRC 995 (1987)

Washington Public Power Supply System (WPPSS Nuclear Project No. 3), ALAB-747, 18 NRC 1167, 1171 (1983)
burden on applicant in appeal of admission of late-filed contentions; ALAB-868, 25 NRC 922 (1987)

Washington Public Power Supply System (WPPSS Nuclear Project Nos. 1 & 2), CLI-82-29, 16 NRC 1221 (1982)
admissibility of contentions in construction permit extension proceedings; ALAB-868, 25 NRC 919 (1987)

Wisconsin Electric Power Co. (Point Beach Nuclear Plant, Unit 1), ALAB-719, 17 NRC 387, 391 (1983)
standard for discretionary interlocutory review; ALAB-864, 25 NRC 421 (1987)

Wisconsin Electric Power Co. (Point Beach Nuclear Plant, Unit 2), ALAB-137, 6 AEC 491, 504-05 (1973)
importance of counsel's participation where technical issues are involved; ALAB-868, 25 NRC 926 (1987)

Wisconsin Gas Co. v. FERC, 758 F.2d 669, 674 (D.C. Cir. 1985)
definition of irreparable injury for purpose of obtaining interlocutory appeal; ALAB-861, 25 NRC 138 (1987)

Wong Yang Sun v. McGrath, 339 U.S. 33, 46 (1950)
authority of presiding officer to save Director from failed theory of his case by substituting another theory; ALJ-87-2, 25 NRC 225 (1987)

Yip v. Pagano, 606 F. Supp. 1566, 1567-69 (D.N.J. 1985)
basis for amicus curiae participation at licensing board level; ALAB-862, 25 NRC 150 (1987)

LEGAL CITATIONS INDEX
REGULATIONS

1 C.F.R. 305.71-3, 305.76-5
Commission views on and uses of policy statements; DPRM-87-1, 25 NRC 59 (1987)
10 C.F.R. 2.104(c)(4)
litigability of financial qualifications of potential new co-licensees; LBP-87-19, 25 NRC 951 (1987)
10 C.F.R. 2.202
false statements relating solely to scope of representation of applicants as grounds for construction permit modification; DD-87-10, 25 NRC 991 (1987)
10 C.F.R. 2.205
violations of NRC requirements for medical diagnostic and therapeutic uses of nuclear materials; ALJ-87-2, 25 NRC 222, 224 (1987)
10 C.F.R. 2.205(f)
scope of actions that can be taken by presiding officer in civil penalty proceeding; ALJ-87-2, 25 NRC 224 (1987)
10 C.F.R. 2.206
denial of petition alleging inadequacies in computer program for containment integrated leak rate test practices; DD-87-2, 25 NRC 122 (1987)
denial of petition alleging QA deficiencies, lack of management character and competence, and improper documentation and performance of construction procedures; DD-87-6, 25 NRC 389 (1987)
denial of petition of minority owner that NRC order licensee to assume co-applicant's ownership interest; DD-87-10, 25 NRC 990 (1987)
denial of petition questioning management integrity on basis of polygraph results; DD-87-11, 25 NRC 995 (1987)
denial of petition questioning safety of ammonium nitrate fertilizer program and adequacy of security at Sequoyah facility; DD-87-7, 25 NRC 403 (1987)
denial of petition raising seismic design concerns; DD-87-4, 25 NRC 254 (1987)
denial of petition to extend plume EPZ; DD-87-1, 25 NRC 44-47 (1987)
denial of request for license suspension because of alleged contamination; DD-87-5, 25 NRC 261 (1987)
denial of request for suspension of work at TMI because of quality assurance deficiencies; DD-87-3, 25 NRC 245 (1987)
forum for treating issues outside the scope of materials license amendment proceeding; LBP-87-8, 25 NRC 157 (1987)
purpose of petitions under; ALAB-868, 25 NRC 935 (1987)
specificity required of petitions under; DD-87-7, 25 NRC 404 n.2, 408 n.8 (1987); DD-87-8, 25 NRC 414 (1987)
10 C.F.R. 2.700
applicability of, to construction permit proceedings; ALAB-868, 25 NRC 937 (1987)
10 C.F.R. 2.704(d)
board options for alleviating its scheduling conflicts; ALAB-863, 25 NRC 286 (1987)
10 C.F.R. 2.708
need for parties to submit all filings in hard-copy as well as computer diskette form; LBP-87-21A, 25 NRC 967, 970 (1987)

LEGAL CITATIONS INDEX
REGULATIONS

10 C.F.R. 2.713
authority to entertain challenges to the sufficiency of applicant's representation; DD-87-10, 25 NRC 992 (1987)
10 C.F.R. 2.713(b)
effect of lay representation in NRC proceedings on evidentiary presentations and cross-examination; ALAB-868, 25 NRC 927 (1987)
10 C.F.R. 2.714
admissibility of late-filed contention on financial qualifications of potential new co-licensees; LBP-87-19, 25 NRC 950 (1987)
admission standards for contentions addressing adequacy of emergency exercises; ALAB-861, 25 NRC 141 (1987)
appeal board latitude when determining adequacy of licensing board's balancing of five factors; ALAB-865, 25 NRC 443 (1987)
contentions litigable in construction permit extension proceedings; ALAB-868, 25 NRC 936, 940 n.6 (1987)
10 C.F.R. 2.714(a)
admission standards for challenges to documents that have not yet been issued; LBP-87-17, 25 NRC 853, 855, 857 (1987)
criteria applied in determining admissibility of late-filed contentions; ALAB-865, 25 NRC 441 (1987)
standard for intervention in proceedings involving hybrid procedures; LBP-87-7, 25 NRC 118 (1987)
standing to intervene in operating license amendment proceeding; LBP-87-2, 25 NRC 34-35 (1987)
10 C.F.R. 2.714(a)(1)
distinction between late-filed intervention petition and late-filed contention; ALAB-868, 25 NRC 925 n.48 (1987)
five factors to be addressed by late intervenor; ALAB-862, 25 NRC 152 (1987)
five-factor test for admission of late-filed contention; LBP-87-3, 25 NRC 74-76 (1987)
need to apply five-factor balancing test for late-filed contention even when contention's admission has been stipulated to by other parties; LBP-87-14, 25 NRC 464 (1987)
purpose of five-factor test for late intervention; ALAB-868, 25 NRC 922 (1987)
10 C.F.R. 2.714(a)(1)(i)-(v)
weighis given to; LBP-87-3, 25 NRC 75 (1987)
10 C.F.R. 2.714(a)(1)(iii)
demonstration of intervenor's ability to contribute to the record; ALAB-868, 25 NRC 926 (1987)
10 C.F.R. 2.714(a)(1)
test for admission of contention after first prehearing conference; ALAB-868, 25 NRC 921 (1987)
10 C.F.R. 2.714(a)(2)
need for contentions to accompany timely intervention petition; ALAB-868, 25 NRC 925 n.48 (1987)
10 C.F.R. 2.714(a)(3)
amendment of organization's petition to intervene to establish standing on one of its members; LBP-87-7, 25 NRC 119 (1987)
distinction between late-filed intervention petition and late-filed contention; ALAB-868, 25 NRC 925 n.48 (1987)
test for admission of contention after first prehearing conference; ALAB-868, 25 NRC 921 (1987)
10 C.F.R. 2.714(b)
basis requirement for contention admission in construction permit extension proceedings; ALAB-868, 25 NRC 936 n.103, 937 n.106, 939 (1987)
basis with specificity requirement for admission of contentions; ALAB-868, 25 NRC 930 (1987); LBP-87-17, 25 NRC 842 (1987)
challenge to board admission of contention on grounds that it lacked sufficient basis; ALAB-868, 25 NRC 919 (1987)
contention requirement for intervention in proceedings involving hybrid procedures; LBP-87-7, 25 NRC 118 (1987)

contention requirement for intervention; ALAB-868, 25 NRC 916 (1987); LBP-87-17, 25 NRC 842 (1987)
evidentiary burden imposed by basis requirement for admission of contention; ALAB-868, 25 NRC 934 (1987)
prehearing rejection of contentions that comply with basis requirement; ALAB-868, 25 NRC 930 (1987)
proposed test for admission of contentions in construction permit extension proceeding; ALAB-868, 25 NRC 941 (1987)
purpose of basis requirement for contentions; ALAB-868, 25 NRC 933 (1987)
timely filing of contentions in supplement to intervention petition; ALAB-868, 25 NRC 925 n.48 (1987)
10 C.F.R. 2.714a
appeal of admission of late-filed contentions; ALAB-868, 25 NRC 916 (1987)
applicability to directed certification of licensing board scheduling ruling; ALAB-860, 25 NRC 68 n.12 (1987)
exception to proscription against interlocutory appeals of licensing board orders; ALAB-861, 25 NRC 134-35 (1987)
10 C.F.R. 2.714a(b)
appealability of licensing board rejection of a single contention; ALAB-861, 25 NRC 136 (1987)
10 C.F.R. 2.714a(c)
appealability of licensing board acceptance of contentions; ALAB-861, 25 NRC 136 (1987)
interlocutory appeals of intervention orders; ALAB-868, 25 NRC 917 (1987)
10 C.F.R. 2.715(a)
participational rights of persons making limited appearance statements; ALAB-862, 25 NRC 148 (1987)
submission of public statements for informal materials license proceeding; LBP-87-4, 25 NRC 82 (1987)
10 C.F.R. 2.715(b)
contention requirement for intervention by public official; ALAB-862, 25 NRC 149 (1987)
10 C.F.R. 2.715(c)
appeal rights of state or governmental entities participating under; ALAB-861, 25 NRC 133 (1987)
right of U.S. senator to participate in a proceeding under provisions of; ALAB-862, 25 NRC 146, 148-49 (1987)
10 C.F.R. 2.715(d)
amicus participation by public official at licensing board level; ALAB-862, 25 NRC 150 (1987)
time limit for filing amicus briefs; ALAB-862, 25 NRC 151 (1987)
10 C.F.R. 2.718
board authority to required all filings to be provided on computer diskettes; LBP-87-21A, 25 NRC 967 (1987)
10 C.F.R. 2.718(a), (e), (f), (h)-(k)
board powers and hearing format for leak rate data falsification hearing; LBP-87-15, 25 NRC 684 (1987)
10 C.F.R. 2.718(e), (m)
authority to entertain challenges to the sufficiency of applicant's representation; DD-87-10, 25 NRC 991 (1987)
10 C.F.R. 2.718(i)
appeals of interlocutory rulings via discretionary directed certification; ALAB-861, 25 NRC 134 (1987)
standard for directed certification of scheduling orders; ALAB-858, 25 NRC 20 (1987); ALAB-860, 25 NRC 68 (1987); ALAB-864, 25 NRC 420 (1987)
treatment of FEMA petition for leave to appeal licensing board acceptance of contentions; ALAB-861, 25 NRC 140 (1987)
10 C.F.R. 2.720
disposition of discovery requests filed prior to designation of administrative law judge; ALJ-87-1, 25 NRC 40 (1987)
10 C.F.R. 2.720(a)
showing necessary for issuance of subpoena; ALAB-863, 25 NRC 279 (1987)

LEGAL CITATIONS INDEX
REGULATIONS

10 C.F.R. 2.720(f)
board authority to refuse to issue a subpoena; ALAB-863, 25 NRC 2799(1987)
10 C.F.R. 2.721(d)
licensing board alternatives to expediting a proceeding; ALAB-863, 25 NRC 285-86 (1987)
10 C.F.R. 2.730(f)
appealability of licensing board interlocutory orders; ALAB-858, 25 NRC 20 (1987); ALAB-861, 25 NRC 134 (1987); ALAB-864, 25 NRC 420 (1987)
10 C.F.R. 2.732
burden of proof in civil penalty proceedings; ALJ-87-2, 25 NRC 224 (1987)
10 C.F.R. 2.734
criteria applied in determining admissibility of late-filed contentions; ALAB-865, 25 NRC 441 (1987)
criteria for reopening a record; ALAB-857, 25 NRC 13 (1987); CLI-87-5, 25 NRC 885 (1987); LBP-87-3, 25 NRC 76 (1987)
supporting information necessary to reopen a record; LBP-87-21, 25 NRC 962 (1987)
10 C.F.R. 2.734(a)(1)
standard for discretionary grant of motion to reopen a record; LBP-87-3, 25 NRC 76-77 (1987)
10 C.F.R. 2.740
unreasonable amount of time for intervenors to invoke discovery procedures; ALAB-864, 25 NRC 425 (1987)
10 C.F.R. 2.740(b)
discovery of nonwitness experts; LBP-87-18, 25 NRC 946 (1987); LBP-87-20, 25 NRC 954 (1987)
10 C.F.R. 2.743(b)
minimum time between filing and service of prepared testimony and hearing; ALAB-864, 25 NRC 428 (1987)
10 C.F.R. 2.743(c)
proposed test for admission of contentions in construction permit extension proceeding; ALAB-868, 25 NRC 941 (1987)
10 C.F.R. 2.743(i)
official notice of documents attached to intervenor's proposed findings after close of the record; LBP-87-15, 25 NRC 688 (1987)
10 C.F.R. 2.744
disposition of discovery requests filed prior to designation of administrative law judge; ALJ-87-1, 25 NRC 40 (1987)
10 C.F.R. 2.749
prehearing rejection of contentions that satisfy basis requirement; ALAB-868, 25 NRC 930 (1987)
10 C.F.R. 2.752(c)
deadline for filing objection to rejection of contentions; ALAB-864, 25 NRC 425 n.27 (1987)
10 C.F.R. 2.754(b)
licensing board authority to refuse to rule on issues for which intervenors have filed not proposed findings of fact; LBP-87-13, 25 NRC 452 (1987)
10 C.F.R. 2.758
definition of prima facie; ALAB-860, 25 NRC 68 (1987)
petition for waiver of 10 C.F.R. 50.47(c)(2); LBP-87-12, 25 NRC 325-27 (1987)
request for reduction in size of plume EPZ to 1 mile; ALAB-858, 25 NRC 19 (1987)
showing necessary for waiver of or exemption from regulations; ALAB-860, 25 NRC 65, 66 (1987)
10 C.F.R. 2.758(a)
appeal board authority to entertain challenges to regulations; ALAB-865, 25 NRC 439 (1987)
10 C.F.R. 2.758(b)
request for exemption from requirement to plan for 10-mile EPZ; ALAB-864, 25 NRC 423 (1987)
showing necessary for waiver of regulations; LBP-87-12, 25 NRC 325-26 (1987)
10 C.F.R. 2.758(c)
showing necessary for waiver of emergency planning regulations; ALAB-864, 25 NRC 425 (1987)

LEGAL CITATIONS INDEX
REGULATIONS

10 C.F.R. 2.758(d)
Commission authority to direct further proceedings that it deems appropriate; ALAB-860, 25 NRC 70 (1987)
10 C.F.R. 2.760a
licensing board authority to raise issue of conformance of spent fuel facility with GDC 5; LBP-87-2, 25 NRC 36 (1987)
10 C.F.R. 2.764(b)
NRR Director's authority to issue low-power operating license; ALAB-859, 25 NRC 27 (1987)
10 C.F.R. 2.764(f)
basis for Commission determination of immediate effectiveness of licensing board decision authorizing full-power operation; CLI-87-1, 25 NRC 2 (1987)
10 C.F.R. 2.764(f)(1)(i)
NRR Director's authority to issue low-power operating license; ALAB-859, 25 NRC 27 (1987)
10 C.F.R. 2.764(g)
effect of Commission determination to authorize facility operation on petition for appellate review of other partial initial decision; CLI-87-1, 25 NRC 4 n.3 (1987)
10 C.F.R. 2.785
appeal board authority to perform Commission functions; ALAB-860, 25 NRC 67 (1987)
10 C.F.R. 2.785(b)(1)
standard for directed certification of scheduling orders; ALAB-858, 25 NRC 20 (1987); ALAB-860, 25 NRC 68 (1987)
10 C.F.R. 2.786
effect of Commission determination to authorize facility operation on petition for appellate review of other partial initial decision; CLI-87-1, 25 NRC 4 n.3 (1987)
10 C.F.R. 2.788
applicability of stay requests to scheduling orders; ALAB-858, 25 NRC 20 (1987)
forum for seeking stay of decision denying rescindment of suspension order; ALJ-87-1, 25 NRC 41 n.* (1987)
10 C.F.R. 2.788(b)
page limit on appellate briefs; ALAB-865, 25 NRC 444 (1987)
10 C.F.R. 2.788(e)
criteria for grant of a stay; ALAB-865, 25 NRC 435 (1987)
definition of irreparable injury; ALAB-861, 25 NRC 138 (1987)
10 C.F.R. 2.1111
period for discovery following admission of contentions under hybrid hearing procedures; LBP-87-17, 25 NRC 861 (1987)
10 C.F.R. 2.1113 and 2.1115
basis for board determination of which issues shall go to hearing; LBP-87-17, 25 NRC 862 (1987)
10 C.F.R. Part 2, Appendix A, III(b)
participational rights of persons making limited appearance statements; ALAB-862, 25 NRC 148 (1987)
10 C.F.R. Part 2, Appendix C
appropriateness of assessed civil penalty; ALJ-87-2, 25 NRC 223 (1987)
characterization of procedural control violations relative to reactor building polar crane; DD-87-3, 25 NRC 250 (1987)
classification of violations; DD-87-9, 25 NRC 985 (1987)
issuance of notice of violation for licensee's failure to provide adequate instructions for corrective maintenance; DD-87-9, 25 NRC 984 (1987)
10 C.F.R. Part 20
occupational doses from land burial of low-level radioactive waste; LBP-87-11, 25 NRC 289, 299 (1987)
radionuclide concentrations in raffinate; DD-87-7, 25 NRC 404-05 (1987)
10 C.F.R. 20.1(c)
limits on radiation exposure at uranium hexafluoride conversion facility; LBP-87-8, 25 NRC 163 (1987)

LEGAL CITATIONS INDEX
REGULATIONS

10 C.F.R. 20.105(a)
limits on radiation exposure at uranium hexafluoride conversion facility; LBP-87-8, 25 NRC 163 (1987)
10 C.F.R. 20.201(b)
failure of licensee to maintain records of surveys for technetium-99 contamination; ALJ-87-2, 25 NRC 236 (1987)
10 C.F.R. 20.202(a)(1)
exemption from requirement for hospital nurses to wear radiation badges during brachytherapy; ALJ-87-2, 25 NRC 228 (1987)
10 C.F.R. 20.301-20.304
manner and conditions of radioactive waste disposal; LBP-87-5, 25 NRC 102, 104-06 (1987)
10 C.F.R. 20.302(a)
authority for land burial of low-level radioactive waste; LBP-87-11, 25 NRC 288, 290-91 (1987)
10 C.F.R. 20.302(b)
ownership of radioactive waste burial sites; LBP-87-5, 25 NRC 102 (1987)
10 C.F.R. 20.401(b)
failure of licensee to maintain records of surveys for technetium-99 contamination; ALJ-87-2, 25 NRC 236 (1987)
10 C.F.R. Part 20, Appendix B, Table 2
uranium concentrations in ammonium nitrate fertilizer produced from raffinate; DD-87-7, 25 NRC 406 (1987)
10 C.F.R. Part 21
allegations of deficiencies in reporting seismic design violations; DD-87-4, 25 NRC 254 (1987)
10 C.F.R. 21.1
adequacy of licensee reporting of design deficiencies; DD-87-4, 25 NRC 258 (1987)
10 C.F.R. 30.4(r)
classification of strontium-90 plaque applicator; LBP-87-4, 25 NRC 86 (1987)
10 C.F.R. 30.33
licensability of strontium-90 for use in plaque applicator; LBP-87-4, 25 NRC 84, 94, 96 (1987)
10 C.F.R. 30.36
conditions on termination of licenses for fuel production facilities; DD-87-5, 25 NRC 264 (1987)
10 C.F.R. 30.41(c), 40.51(c), 70.42(c)
possession of nuclear waste; LBP-87-5, 25 NRC 106 (1987)
10 C.F.R. 33.14(f)(2)
failure of licensee to inventory calibration or reference sources on a quarterly basis; ALJ-87-2, 25 NRC 235 (1987)
10 C.F.R. 35.12, 35.13, 35.14
applicability to therapeutic use of strontium-90 applicator; LBP-87-4, 25 NRC 83, 94, 96 (1987)
10 C.F.R. 35.14(b)(5)(i)
failure of licensee to perform semiannual leak tests on Group VI sources; ALJ-87-2, 25 NRC 234-35 (1987)
10 C.F.R. 35.100
applicability to therapeutic use of strontium-90 applicator; LBP-87-4, 25 NRC 81, 83-84 (1987)
10 C.F.R. 35.100(f)(7), 35.400(e)
scheduled uses of strontium-90; LBP-87-4, 25 NRC 81, 84 (1987)
10 C.F.R. 40.4(h)
definition of source material; ALAB-867, 25 NRC 904 (1987)
10 C.F.R. 40.4(h)(1)
classification of contamination containing thorium as source material; ALAB-867, 25 NRC 908 n.10 (1987)
10 C.F.R. Part 50
adequacy of Braidwood quality assurance/quality control; LBP-87-14, 25 NRC 538 (1987)

LEGAL CITATIONS INDEX
REGULATIONS

10 C.F.R. 50.7
authority, organizational freedom, and independence of Braidwood quality assurance program; LBP-87-14, 25 NRC 539 (1987)
discrimination against employee for reporting safety concerns to management; ALJ-87-5, 25 NRC 974 (1987)
harassment and intimidation of quality assurance inspectors as a violation of; LBP-87-14, 25 NRC 668 (1987)
recommendation for civil penalty for termination of quality assurance inspector; LBP-87-14, 25 NRC 669 (1987)
seriousness of quality assurance deficiencies at Braidwood; LBP-87-14, 25 NRC 467, 468 (1987)
termination of quality assurance inspector as a violation of; LBP-87-14, 25 NRC 668 (1987)
10 C.F.R. 50.7(a)
good cause for termination of quality assurance inspector LBP-87-14, 25 NRC 479 (1987)
10 C.F.R. 50.7(e)(2)
recommendation for civil penalty for grid-systems welding inspections; LBP-87-14, 25 NRC 538 (1987)
recommendation for civil penalty for harassment of quality assurance inspectors; LBP-87-14, 25 NRC 553, 560 (1987)
10 C.F.R. 50.12
standard for grant of waiver from emergency planning regulations, LBP 87-12, 25 NRC 327 (1987)
10 C.F.R. 50.13
scope of issues litigable in construction permit extension proceeding; ALAB-868, 25 NRC 931 (1987)
10 C.F.R. 50.33(g)
need for submission of state emergency plan prior to issuance of low-power license; ALAB-865, 25 NRC 434, 439-40 (1987)
need for utility applicants to file a radiological emergency response plan for entire plume exposure pathway emergency planning zone before any license may be issued; CLI-87-3, 25 NRC 877 (1987)
proposed change in pleading criteria for contentions in construction permit extension proceedings; ALAB-868, 25 NRC 941 (1987)
submittal of offsite emergency plans as a licensing requirement independent of ultimate required findings on plans; CLI-87-2, 25 NRC 269-70 (1987)
10 C.F.R. 50.46(b)
adequacy of Westinghouse plants in light of additions and corrections to ECCS evaluation models; LBP-87-21, 25 NRC 959 n.1 (1987)
10 C.F.R. 50.47
adequacy of Braidwood offsite emergency response plan; LBP-87-13, 25 NRC 458 (1987)
proposed amendment of; ALAB-864, 25 NRC 426 (1987)
sources of guidance for complying with emergency planning rules; LBP-87-13, 25 NRC 453 (1987)
10 C.F.R. 50.47(a)(1)
adequacy of emergency exercise results to demonstrate reasonable assurance finding; ALAB-861, 25 NRC 132 (1987)
finding necessary for issuance of full-power license; ALAB-863, 25 NRC 276 n.2 (1987)
significance of characterizing emergency plan deficiencies as permanent or interim; ALAB-857, 25 NRC 12 (1987)
10 C.F.R. 50.47(a)(2)
basis for NRC finding of adequacy of offsite emergency plans; DD-87-9, 25 NRC 986 (1987)
rebuttable presumption attaching to FEMA findings; ALAB-864, 25 NRC 427 (1987)
right of interested parties to rebut FEMA findings on adequacy and implementation capability of emergency plans; ALAB-861, 25 NRC 139 n.38 (1987)
10 C.F.R. 50.47(b)
basis for reasonable assurance finding; ALAB-863, 25 NRC 276 n.2 (1987)
10 C.F.R. 50.47(b)(4)
adequacy of emergency classification and action level scheme; LBP-87-10, 25 NRC 183, 190-91, 193 (1987)

LEGAL CITATIONS INDEX
REGULATIONS

10 C.F.R. 50.47(b)(5)
adequacy of procedures for notification of off-duty prison correctional officers; ALAB-863, 25 NRC 276 n.2 (1987)
conditioning of low-power license upon compliance with; LBP-87-3, 25 NRC 73, 77 (1987)
10 C.F.R. 50.47(b)(7)
adequacy of public information booklet for emergency planning; LBP-87-13, 25 NRC 454 (1987)
10 C.F.R. 50.47(b)(10)
content of emergency plans where special provisions are made to satisfy planning standards; ALAB-857, 25 NRC 13 (1987)
significance of characterizing emergency plan deficiencies as permanent or interim; ALAB-857, 25 NRC 12 (1987)
size and configuration of plume EPZ; ALAB-858, 25 NRC 20 n.4 (1987)
10 C.F.R. 50.47(c)
alternatives to compliance with planning standards of; LBP-87-12, 25 NRC 328-29 (1987)
request for reduction in size of plume EPZ to 1 mile; ALAB-858, 25 NRC 19 (1987)
10 C.F.R. 50.47(c)(2)
petition for reduction in size of plume EPZ; LBP-87-12, 25 NRC 327 (1987)
request for exemption from requirement to plan for 10-mile EPZ; ALAB-864, 25 NRC 423 (1987)
size and configuration of plume EPZ; ALAB-858, 25 NRC 20 n.4 (1987)
10 C.F.R. 50.47(d)
issuance of low-power license prior to resolution of emergency planning issues; ALAB-865, 25 NRC 439 (1987)
need for findings on adequacy of emergency plans for low-power operation; CLI-87-2, 25 NRC 269-70 (1987)
10 C.F.R. 50.49
postaccident qualification time duration of electrical equipment important to safety; LBP-87-10, 25 NRC 188-89, 205-06, 209 (1987)
10 C.F.R. 50.49(d)
records required on environmental qualification of electrical equipment important to safety; LBP-87-10, 25 NRC 207 (1987)
10 C.F.R. 50.49(f)(2)
adequacy of environmental qualification by testing of similar items; LBP-87-10, 25 NRC 210 (1987)
10 C.F.R. 50.49(j)
need to maintain records of environmental qualification of electrical equipment important to safety; LBP-87-10, 25 NRC 206 (1987)
10 C.F.R. 50.54(f)
Commission action when it suspects that a licensee is not adequately implementing its programs; DPRM-87-1, 25 NRC 60 (1987)
10 C.F.R. 50.54(q)
need for license condition where special provisions are made to satisfy emergency planning standards; ALAB-857, 25 NRC 13 (1987)
upgrading of emergency plan at Surry facility; DD-87-9, 25 NRC 986 (1987)
10 C.F.R. 50.55(b)
grounds for extension of construction completion date; ALAB-868, 25 NRC 917, 931-32, 935 (1987)
10 C.F.R. 50.57
burden on applicant for operating license; LBP-87-14, 25 NRC 468 (1987)
10 C.F.R. 50.57(a)
finding necessary for operating license issuance; LBP-87-14, 25 NRC 466 (1987)
10 C.F.R. 50.57(a)(1)
adequacy of Shearon Harris construction; DD-87-6, 25 NRC 391 (1987)
need for fully operational safety parameter display system for low-power operation; ALAB-865, 25 NRC 444 (1987)

LEGAL CITATIONS INDEX
REGULATIONS

10 C.F.R. 50.57(a)(3)
Commission authority to bar licensee employee from supervisory responsibilities; ALJ-87-3, 25 NRC 382 (1987)
10 C.F.R. 50.57(c)
issuance of low-power license prior to resolution of emergency planning issues; ALAB-865, 25 NRC 439 (1987)
purpose of low-power testing; ALAB-865, 25 NRC 446 (1987)
10 C.F.R. 50.58(b)(6)
challenges to no significant hazards determination consideration in licensing proceedings; LBP-87-17, 25 NRC 844 (1987)
10 C.F.R. 50.91
discussion of "no significant hazards consideration determination"; LBP-87-17, 25 NRC 844 (1987)
litigability of adequacy of "no significant hazards consideration" determination; LBP-87-17, 25 NRC 860 (1987)
need for Staff to make "no significant hazards" finding for sharing of spent fuel facilities; LBP-87-2, 25 NRC 36 (1987)
10 C.F.R. 50.92(c)
factors taken into account in Staff "no significant hazards consideration" finding on sharing of spent fuel facilities; LBP-87-2, 25 NRC 35, 36 (1987)
10 C.F.R. Part 50, Appendix A
allegations of seismic design deficiencies in control building, turbine building and diesel generator enclosures; DD-87-4, 25 NRC 254 (1987)
NEPA vs. AEA aspects of risk; LBP-87-17, 25 NRC 845 (1987)
10 C.F.R. Part 50, Appendix A, GDC 5
applicability to shared spent fuel facilities; LBP-87-2, 25 NRC 35 (1987)
10 C.F.R. Part 50, Appendix B
applicability to Braidwood Construction Assessment Program; LBP-87-14, 25 NRC 496 (1987)
measure of effectiveness of quality assurance inspectors at Braidwood; LBP-87-14, 25 NRC 659 (1987)
obligations of applicants regarding testimony by nonwitness experts; LBP-87-20, 25 NRC 955 (1987)
purpose of quality assurance program; LBP-87-14, 25 NRC 466 (1987)
10 C.F.R. Part 50, Appendix B, Introduction
burden on applicant for operating license; LBP-87-14, 25 NRC 468 (1987)
independence of quality assurance program from cost and schedule considerations; LBP-87-14, 25 NRC 469 (1987)
10 C.F.R. Part 50, Appendix B, Criterion I
authority, organizational freedom, and independence of Braidwood quality assurance program; LBP-87-14, 25 NRC 539, 552, 667 (1987)
harassment and intimidation of quality assurance inspectors; LBP-87-14, 25 NRC 467 (1987)
quality control onsite management reporting to construction superintendent as a violation of; LBP-87-14, 25 NRC 666 (1987)
right of applicant to delegate responsibility for establishing and executing QA program; LBP-87-14, 25 NRC 468 (1987)
10 C.F.R. Part 50, Appendix B, Criterion III
postaccident qualification time duration of electrical equipment important to safety; LBP-87-10, 25 NRC 188-89, 205-06, 209 (1987)
10 C.F.R. Part 50, Appendix B, Criterion VI
control of documents at Shearon Harris; DD-87-6, 25 NRC 398 (1987)
10 C.F.R. Part 50, Appendix B, Criteria XI, and XVII
postaccident qualification time duration of electrical equipment important to safety; LBP-87-10, 25 NRC 188-89, 205-06, 209 (1987)
10 C.F.R. Part 50, Appendix B, Criterion XVII
failure to record weld discrepancies under grid-system welding inspection; LBP-87-14, 25 NRC 555, 651 (1987)

LEGAL CITATIONS INDEX
REGULATIONS

10 C.F.R. Part 50, Appendix B, Criterion XVIII
need for documentation in writing of inspection procedures and instructions; LBP-87-14, 25 NRC 666 (1987)
10 C.F.R. Part 50, Appendix E
adequacy of Braidwood offsite emergency response plan; LBP-87-13, 25 NRC 458 (1987)
sources of guidance for complying with emergency planning rules; LBP-87-13, 25 NRC 453 (1987)
10 C.F.R. Part 50, Appendix E, IV
content of emergency plans where special provision are made to satisfy planning standards; ALAB-857, 25 NRC 13 (1987)
emergency exercise requirements; ALAB-861, 25 NRC 141 (1987)
10 C.F.R. Part 50, Appendix E, IV.B
adequacy of emergency classification and action level scheme; LBP-87-10, 25 NRC 183, 191, 193 (1987)
10 C.F.R. Part 50, Appendix E, IV.C
time at which emergency personnel are mobilized; ALAB-863, 25 NRC 283 (1987)
10 C.F.R. Part 50, Appendix J
adequacy of computer program for containment integrated leak rate testing; DD-87-2, 25 NRC 122, 126 (1987)
10 C.F.R. Part 50, Appendix K, II.1.b
definition of a significant change in an ECCS evaluation model; LBP-87-21, 25 NRC 963 (1987)
10 C.F.R. Part 51
need to consider nonradioactive, chemical impacts of land burial of low-level radioactive waste sludge; LBP-87-11, 25 NRC 295, 299 (1987)
10 C.F.R. 51.20
need for EIS on spent fuel pool expansion; LBP-87-17, 25 NRC 852 (1987)
10 C.F.R. 51.21
need for environmental assessment for supercompaction of radioactive wastes; DD-87-8, 25 NRC 412 (1987)
10 C.F.R. 51.22(c)
litigability of need for EIS on spent fuel pool expansion; LBP-87-17, 25 NRC 853 (1987)
10 C.F.R. 51.22(c)(9)
litigability of challenges to "no significant hazards consideration" determinations; LBP-87-17, 25 NRC 861 (1987)
litigability of reduction in safety margin caused by increased cooling needed for expanded spent fuel pool; LBP-87-17, 25 NRC 851 (1987)
need for environmental assessment for actions that involve no significant hazards consideration; LBP-87-17, 25 NRC 851 n.41, 860 (1987)
10 C.F.R. 51.22(c)(14)(xii)
need for environmental assessment for receipt and storage of radioactive waste; DD-87-8, 25 NRC 412 (1987)
10 C.F.R. 51.23
scope of matters to be considered in spent fuel pool expansion proceeding; LBP-87-17, 25 NRC 852 (1987)
10 C.F.R. 51.28
need for Indian Nation participation in scoping process for environmental assessment of uranium hexafluoride conversion facility; LBP-87-8, 25 NRC 168 (1987)
10 C.F.R. 51.30
need for EIS on uranium hexafluoride conversion facility; LBP-87-8, 25 NRC 168 (1987)
10 C.F.R. 51.30(a)(1)(ii) and (iii)
need for discussion of alternatives in an environmental assessment; LBP-87-17, 25 NRC 858 (1987)
10 C.F.R. 51.41
information to be submitted with application for spent fuel pool expansion; LBP-87-17, 25 NRC 858 (1987)

LEGAL CITATIONS INDEX
REGULATIONS

10 C.F.R. 51.45
need for an environmental report to accompany a spent fuel pool expansion application; LBP-87-17, 25 NRC 858 (1987)
10 C.F.R. 51.45(b)(3)
need for evaluation of alternatives to spent fuel pool expansion; LBP-87-17, 25 NRC 858 (1987)
10 C.F.R. 51.50
need for an environmental report to accompany a spent fuel pool expansion application; LBP-87-17, 25 NRC 858 (1987)
10 C.F.R. 51.53
need for an environmental report to accompany a spent fuel pool expansion application; LBP-87-17, 25 NRC 858 (1987)
need for evaluation of alternatives to spent fuel pool expansion; LBP-87-17, 25 NRC 858 (1987)
10 C.F.R. 51.54, 51.60, 51.61, 51.62, 51.68
need for an environmental report to accompany a spent fuel pool expansion application; LBP-87-17, 25 NRC 858 (1987)
10 C.F.R. 51.71
need for evaluation of alternatives to spent fuel pool expansion; LBP-87-17, 25 NRC 858 (1987)
10 C.F.R. 51.91(a)
need for evaluation of alternatives to spent fuel pool expansion; LBP-87-17, 25 NRC 858 (1987)
10 C.F.R. 51.103(b)
amendment of environmental assessment for land burial of low-level radioactive waste; LBP-87-11, 25 NRC 322 (1987)
10 C.F.R. 51.104(a)
litigability of need for EIS on spent fuel pool expansion; LBP-87-17, 25 NRC 853 (1987)
10 C.F.R. 51.104(b)
litigability of adequacy of "no significant hazards consideration" determination; LBP-87-17, 25 NRC 860-61 (1987)
litigability of need for EIS on spent fuel pool expansion; LBP-87-17, 25 NRC 853 (1987)
litigability of reduction in safety margin caused by increased cooling needed for expanded spent fuel pool; LBP-87-17, 25 NRC 851 (1987)
10 C.F.R. Part 55
proposed revision to, and regulatory guides related to; DPRM-87-1, 25 NRC 55, 60, 61 (1987)
10 C.F.R. Part 61
conditions for withdrawal of license for radioactive waste burial site; LBP-87-5, 25 NRC 103 (1987)
exemption of some low-level wastes from the requirements of; LBP-87-11, 25 NRC 291 (1987)
10 C.F.R. 61.1(a)
applicability of Part 61 to licenses already in effect; LBP-87-5, 25 NRC 103 (1987)
10 C.F.R. 61.16(b)(1)
applicability of critical mass limitation to buried waste; LBP-87-5, 25 NRC 106 (1987)
10 C.F.R. 70
need for plant decontamination after termination of fuel production operations; DD-87-5, 25 NRC 264 (1987)
10 C.F.R. 70.38
conditions on termination of licenses for fuel production facilities; DD-87-5, 25 NRC 264 (1987)
10 C.F.R. 71.5
improper shipping procedures for nuclear pacemakers; ALJ-87-2, 25 NRC 236 (1987)
10 C.F.R. Part 73
applicability of plant security regulations to Sequoyah Fuels facility; DD-87-7, 25 NRC 408 (1987)
10 C.F.R. 73.1(b)
need for physical protection of uranium hexafluoride conversion facility; DD-87-7, 25 NRC 409 (1987)
10 C.F.R. Part 100, Appendix A
allegations of seismic design deficiencies in control building, turbine building and diesel generator enclosures; DD-87-4, 25 NRC 254 (1987)

LEGAL CITATIONS INDEX
REGULATIONS

10 C.F.R. Part 100, Appendix A, III(c), (d)
definition of Trojan facility's safe shutdown and operating basis earthquakes; DD-87-4, 25 NRC 256 nn.3 & 4 (1987)
10 C.F.R. Part 110
procedures appropriate for hearing on import license applications; CLI-87-6, 25 NRC 893 (1987)
10 C.F.R. 110.84(a)(1) and (2)
hearing rights on uranium import license applications; CLI-87-6, 25 NRC 893 (1987)
10 C.F.R. 110.84(c)(2)
grant of late intervention request to add three parties to a petition; CLI-87-6, 25 NRC 893 (1987)
10 C.F.R. 110.85
procedures for hearing on impon license applications; CLI-87-6, 25 NRC 894 (1987)
10 C.F.R. Part 150
NRC authority to transfer regulatory responsibilities over buried nuclear waste to states; LBP-87-5, 25 NRC 104 n.3 (1987)
10 C.F.R. 150.11(b)
possession of buried radioactive waste; LBP-87-5, 25 NRC 104, 106, 108, 110 (1987)
29 C.F.R. 2.20-2.25
control of disclosures from Department of Labor official files; ALJ-87-5, 25 NRC 975 (1987)
40 C.F.R. Part 141
radium-226 concentration in raffinate to be used for ammonium nitrate fertilizer; DD-87-7, 25 NRC 405 (1987)
40 C.F.R. Part 190
dose commitments from human consumption of food products grown using treated raffinate; DD-87-7, 25 NRC 405 (1987)
40 C.F.R. Part 261, Subpart D
hazard posed by sludge containing low-level radioactive waste; LBP-87-11, 25 NRC 317 (1987)
40 C.F.R. Part 261, Appendix II
chemical testing requirements for land disposal of low-level radioactive waste; LBP-87-11, 25 NRC 317 (1987)
40 C.F.R. 261.21, 261.22, and 261.23
characteristics of sludge containing low-level radioactive wastes; LBP-87-11, 25 NRC 317 (1987)
40 C.F.R. 261.24
toxicity limits for land burial of radioactive waste; LBP-87-11, 25 NRC 317 (1987)
44 C.F.R. Part 350
basis for approval of emergency plans; DD-87-9, 25 NRC 987 (1987)
49 C.F.R. Parts 170-189
improper shipping procedures for nuclear pacemakers; ALJ-87-2, 25 NRC 236 (1987)
49 C.F.R. 173.475(i)
improper shipping procedures for nuclear pacemakers; ALJ-87-2, 25 NRC 236 (1987)

LEGAL CITATIONS INDEX
STATUTES

Administrative Procedure Act, 5 U.S.C. 551
  hearing rights of licensee employee who has been barred by NRC from supervisory responsibilities; ALJ-87-3, 25 NRC 383 (1987)
Administrative Procedure Act, 5 U.S.C. 552(A)(1)(D) and (A)(2)(B))
  Commission views on and uses of policy statements; DPRM-87-1, 25 NRC 59 (1987)
Administrative Procedure Act, 5 U.S.C. 556(d)
  burden on NRC Staff in civil penalty proceeding; ALJ-87-2, 25 NRC 224 (1987)
Anti-Apartheid Act, 309(a)
  responsibility for interpreting scope of and implementing; CLI-87-6, 25 NRC 894 (1987)
Atomic Energy Act, 11e(2), 42 U.S.C. 2014e(2)
  definition of Kress Creek contamination as byproduct material; ALAB-867, 25 NRC 904, 906-11 (1987)
Atomic Energy Act, 11z, 42 U.S.C. 2014z
  definition of thorium as source material; ALAB-867, 25 NRC 904, 907 (1987)
Atomic Energy Act, 103
  Commission authority to condition licenses for removal of licensee employees from nuclear-related responsibilities; ALJ-87-3, 25 NRC 382 n.12, 383 (1987)
Atomic Energy Act, 161(b), 42 U.S.C. 2201(b)
  scope of Commission authority; ALJ-87-3, 25 NRC 382 (1987)
Atomic Energy Act, 170
  protection of economic interests; DD-87-5, 25 NRC 265 (1987); DD-87-7, 25 NRC 407 n.7 (1987)
Atomic Energy Act, 170, 42 U.S.C. 2210 (1982)
  scope of issues litigable in construction permit extension proceeding; ALAB-868, 25 NRC 931 (1987)
Atomic Energy Act, 185, 42 U.S.C. 2235
  grounds for extension of construction completion date; ALAB-868, 25 NRC 917, 931-32, 975 (1987)
Atomic Energy Act, 186
  Commission authority to require removal of licensee employees from nuclear-related responsibilities; ALJ-87-3, 25 NRC 382 n.12 (1987)
  statements relating solely to scope of representation of applicants as material false statements; DD-87-10, 25 NRC 991 (1987)
Atomic Energy Act, 189(a)
  hearing rights on issuance of low-power license prior to resolution of offsite emergency planning issues; ALAB-865, 25 NRC 439 (1987)
Atomic Energy Act, 192
  emergency preparedness requirements for low-power operation; CLI-87-2, 25 NRC 260 [illegible] (1987)
Atomic Energy Act, 234, 42 U.S.C. 2282
  violations of NRC requirements for medical diagnostic and therapeutic uses of nuclear materials; ALJ-87-2, 25 NRC 222 (1987)
Atomic Energy Act, 42 U.S.C. 2014 (1984)
  classification of waste products; LBP-87-5, 25 NRC 101 (1987)
Atomic Energy Act, 274b, 42 U.S.C. 2021(b)
  jurisdiction over appeal following transfer of Commission authority under Agreement State Program; ALAB-867, 25 NRC 902, 907 (1987)

LEGAL CITATIONS INDEX
STATUTES

Atomic Energy Act, 274b(4), 42 U.S.C. 2021(b)(4)
NRC authority to transfer regulatory responsibilities over buried nuclear waste to states; LBP-87-5, 25 NRC 104 n.3 (1987)
Atomic Energy Act, 274e, 42 U.S.C. 2021(e)
publication requirements for proposed state agreements; ALAB-867, 25 NRC 906 n.8 (1987)
Atomic Energy Act, 274l, 42 U.S.C. 2021(l)
responsibility for deciding who will represent an interested state; ALAB-862, 25 NRC 148 (1987)
Atomic Energy Act, 274o 42 U.S.C. 2021o
requirements for transfer of authority over byproduct material vs. source material; ALAB-867, 25 NRC 910-11 (1987)
Endangered Species Act, 16 U.S.C. 1536(a)(3)
threat posed by land burial of low-level radioactive waste; LBP-87-11, 25 NRC 317 (1987)
Energy Reorganization Act, 210, 42 U.S.C. 5851
discrimination against employee for reporting safety concerns to management; ALJ-87-5, 25 NRC 974 (1987); DD-87-6, 25 NRC 392 (1987)
Ill. Ann. Stat. S.H.A. ch. 111.5, 230.6 (Smith Hurd 1980)
interpretation of the term "possess" as in nuclear waste; LBP-87-5, 25 NRC 105 (1987)
National Environmental Policy Act, 102(2)(C), 42 U.S.C. 4332(2)(C)
evaluation of alternatives when an EIS is required; LBP-87-17, 25 NRC 858 (1987)
need for preparation of EIS or consideration of alternatives to land burial of low-level radioactive wastes; LBP-87-11, 25 NRC 299, 322 (1987)
National Environmental Policy Act, 102(2)(E), 42 U.S.C. 4332(2)(E)
evaluation of alternatives when an EIS is not required; LBP-87-17, 25 NRC 858 (1987)
need for preparation of EIS or consideration of alternatives to land burial of low-level radioactive wastes; LBP-87-11, 25 NRC 299, 322 (1987)
Nuclear Waste Policy Act, 306, 42 U.S.C 10,226, 19 Stat. 2201 at 2262-63, Pub. L. No. 97-425
scope of coverage to fitness for duty of nuclear power plant personnel; DPRM-87-1, 25 NRC 50-62 (1987)
Ohio Admin. Code 3745-27-01(AA)
definition of "water table"; LBP-87-11, 25 NRC 310 (1987)
Ohio Admin. Code 3745-27-01(F)
definition of "floodway"; LBP-87-11, 25 NRC 301 n.6 (1987)
Ohio Admin. Code 3745-54-18(B)
land burial of low-level radioactive wastes in a 100-year flood plain; LBP-87-11, 25 NRC 304 n.8 (1987)
Safe Drinking Water Act Amendments of 1986, 302
applicability to materials license amendment proceeding involving uranium hexafluoride conversion facility; LBP-87-8, 25 NRC 168 (1987)

LEGAL CITATIONS INDEX
OTHERS

Black's Law Dictionary 1237 (5th ed. 1979)
definition of "show"; ALAB-868, 25 NRC 940 n.6 (1987)
S. G. ..stone, Sourcebook on Atomic Energy 16, 17 (3d ed. 1967)
definition of rare earths; ALAB-867, 25 NRC 907 n.9 (1987)
Fed. R. Civ. P. 8
purpose of basis requirement for contention admission; ALAB-868, 25 NRC 933 (1987)
4A Moore's Federal Practice §34.04 (2d ed. 1984)
discovery in civil proceedings vs. criminal proceedings; ALJ-87-4, 25 NRC 866 (1987)
Webster's Third New International Dictionary (Unabridged, 1976)
definition of "forthrightness" in testimony; ALJ-87-3, 25 NRC 370 (1987)
Webster's Ninth New Collegiate Dictionary 1091 (1984)
definition of "show"; ALAB-868, 25 NRC 938 (1987)

SUBJECT INDEX

ACCIDENTS
behavior of secondary containment during; LBP-87-12, 25 NRC 324 (1987)
beyond-design-basis, need for plant-specific reviews of; LBP-87-17, 25 NRC 838 (1987)
content of public information booklet in explaining dangers of; LBP-87-13, 25 NRC 449 (1987)
during shutdown; LBP-87-12, 25 NRC 324 (1987)
pipe break, at Surry plant; DD-87-9, 25 NRC 981 (1987)
potential for, at uranium hexafluoride conversion facility; LBP-87-8, 25 NRC 153 (1987)
uranium hexafluoride cylinder rupture; LBP-87-8, 25 NRC 153 (1987)
See also Chernobyl Accident
ACCIDENTS, LOSS OF COOLANT
Event V, modeling of; LBP [illegible] NRC 324 (1987)
interfacing systems (bypassing containment); LBP-87-12, 25 NRC 324 (1987)
AEROSOLS
fission product, behavior of; LBP-87-12, 25 NRC 324 (1987)
AFFIDAVITS
submission of factual information to boards in; ALAB-857, 25 NRC 7 (1987)
AGREEMENT STATE RADIATION CONTROL PROGRAMS
effect of transfer of Commission authority on jurisdiction over appeal in show-cause proceeding; ALAB-867, 25 NRC 900 (1987)
AGREEMENT, LETTERS OF
for American Red Cross participation in emergency response, need for; CLI-87-5, 25 NRC 884 (1987)
ALTERNATIVES
consideration of, for spent fuel pool expansion; LBP-87-17, 25 NRC 838 (1987)
AMENDMENT
See Operating License Amendment
AMERICAN RED CROSS
need for letters of agreement for its participation in emergency response; CLI-87-5, 25 NRC 884 (1987)
AMICUS CURIAE
appeal rights of; ALAB-862, 25 NRC 144 (1987)
participation by U.S. senator as; ALAB-862, 25 NRC 144 (1987)
right to file briefs and memoranda in ongoing licensing proceedings; ALAB-862, 25 NRC 144 (1987)
AMMONIUM NITRATE FERTILIZER
from barium-treated neutralized solvent extraction raffinate, safety of; DD-87-7, 25 NRC 402 (1987)
ANCHOR BOLTS
in Shearon Harris reactor auxiliary building, adequacy of installation; DD-87-6, 25 NRC 387 (1987)
APPEAL BOARDS
authority to entertain challenges to regulations; ALAB-865, 25 NRC 430 (1987)
authority to impose a license condition that operates as a sanction against an individual; ALJ-87-3, 25 NRC 385 (1987)
authority to impose license conditions; ALAB-859, 25 NRC 23 (1987)
directed certification authority; ALAB-860, 25 NRC 63 (1987)
limits on authority of; ALAB-860, 25 NRC 63 (1987)
role while licensing board has § 2.758 petition before it; ALAB-860, 25 NRC 63 (1987)

SUBJECT INDEX

stay authority, scope of; ALAB-858, 25 NRC 17 (1987)
sua sponte review authority where no appeal has been taken; ALAB-859, 25 NRC 23 (1987)
APPEALS
by entities participating under 2.715(c); ALAB-861, 25 NRC 129 (1987)
nonparty right to; ALAB-861, 25 NRC 129 (1987)
of denials of late-filed contentions; ALAB-865, 25 NRC 430 (1987)
of Staff denial of materials license application; LBP-87-4, 25 NRC 79 (1987)
right of amicus curiae to; ALAB-862, 25 NRC 144 (1987)
APPEALS, INTERLOCUTORY
Commission policy on; ALAB-861, 25 NRC 129 (1987)
commitment of resources to hearing that may later turn out to be unnecessary as basis for; ALAB-858, 25 NRC 17 (1987)
exception to prohibition against; ALAB-861, 25 NRC 129 (1987)
of scheduling orders; ALAB-858, 25 NRC 17 (1987); ALAB-860, 25 NRC 63 (1987)
See also Review, Interlocutory
APPLICANTS
burden of proof on; ALAB-857, 25 NRC 7 (1987)
ATOMIC ENERGY ACT
cooperation with states; ALAB-867, 25 NRC 900 (1987)
hearing rights on materials license amendment; DD-87-7, 25 NRC 402 (1987)
litigability of psychological stress issues under; DD-87-5, 25 NRC 260 (1987)
protection of economic interests under; DD-87-5, 25 NRC 260 (1987)
scope of interests protected under; DD-87-7, 25 NRC 402 (1987)
BASEPLATES
concressive 1411 epoxy grout use under; DD-87-6, 25 NRC 387 (1987)
BRACHYTHERAPY
personnel monitoring requirements during; ALJ-87-2, 25 NRC 219 (1987)
BRIEFS, APPELLATE
proper support for; ALAB-868, 25 NRC 912 (1987)
BURDEN OF PROOF
in civil penalty proceedings; ALJ-87-2, 25 NRC 219 (1987)
on applicants; ALAB-857, 25 NRC 7 (1987)
on stay movants; ALAB-865, 25 NRC 430 (1987)
BYPRODUCT MATERIAL
requirements for transfer of authority over; ALAB-867, 25 NRC 900 (1987)
CABLE INSULATION
polymers, degradation from low-level radiation; ALAB-859, 25 NRC 23 (1987)
CALIBRATION
of equipment, records of; LBP-87-14, 25 NRC 461 (1987)
sources, penalty for failure to inventory; ALJ-87-2, 25 NRC 219 (1987)
CANCER RISK
from land burial of low-level radioactive waste; LBP-87-11, 25 NRC 287 (1987)
CARBON-14
releases from incinerator, health effects of; LBP-87-16, 25 NRC 830 (1987)
CERTIFICATION
See Directed Certification
CHARACTER AND COMPETENCE
of Shearon Harris licensee, in light of alleged employee discrimination; DD-87-6, 25 NRC 387 (1987)
of uranium hexafluoride conversion facility licensees; LBP-87-8, 25 NRC 153 (1987)
CHEATING
on operator examinations, penalty for; ALJ-87-3, 25 NRC 385 (1987)
CHERNOBYL ACCIDENT
effect on emergency planning for U.S. commercial nuclear power plants; DD-87-1, 25 NRC 43 (1987)

SUBJECT INDEX

CIVIL PENALTIES
  burden of proof on charged violations; ALJ-87-2, 25 NRC 219 (1987)
  for violations of NRC requirements for possession and use of nuclear materials in diagnostic and therapeutic medicine; ALJ-87-2, 25 NRC 219 (1987)
CIVIL PENALTY PROCEEDINGS
  fair notice and constitutional due process; ALJ-87-2, 25 NRC 219 (1987)
  responsibilities of presiding officer in; ALJ-87-2, 25 NRC 219 (1987)
COMPUTER STORAGE AND RETRIEVAL
  of filings pertaining to record for decision; LBP-87-21A, 25 NRC 966 (1987)
CONDITIONS
  See License Conditions
CONSTRUCTION
  error rate acceptability; LBP-87-1, 25 NRC 29 (1987)
CONSTRUCTION PERMIT EXTENSION PROCEEDING
  intervention in; ALAB-868, 25 NRC 912 (1987)
CONTAINMENT
  integrated leak rate test, adequacy of computer programs for; DD-87-2, 25 NRC 121 (1987)
  integrity and loads at Seabrook; LBP-87-12, 25 NRC 324 (1987)
  isolation failure; LBP-87-12, 25 NRC 324 (1987)
  secondary, behavior during an accident; LBP-87-12, 25 NRC 324 (1987)
CONTAMINATION
  See Radiological Contamination
CONTENTIONS
  admission of, where ruling is novel, important, or conflicts with case law; ALAB 861, 25 NRC 129 (1987)
  basis and specificity requirements for admission of; LBP-87-17, 25 NRC 838 (1987)
  determination of the adequacy of the basis of; ALAB-868, 25 NRC 912 (1987)
  evidentiary support required for admission of; ALAB-868, 25 NRC 912 (1987)
  fulfillment of basis requirement for admission of; ALAB-868, 25 NRC 912 (1987)
  purpose of basis requirement for admission of; ALAB-868, 25 NRC 912 (1987)
  scope of appellate review of dismissal of; ALAB-868, 25 NRC 912 (1987)
  scope of licensing board's assessment to determine admissibility of; ALAB-868, 25 NRC 912 (1987); LBP-87-17, 25 NRC 838 (1987)
  with adequate bases, rejection of; ALAB-868, 25 NRC 912 (1987)
CONTENTIONS, LATE-FILED
  five factors to be addressed for admission of; LBP-87-3, 25 NRC 71 (1987)
  improper disparity between AEA and NEPA issues in admission of; LBP-87-17, 25 NRC 838 (1987)
  latitude given on appeal to licensing board determination in denial of; ALAB-865, 25 NRC 430 (1987)
  need to apply five-factor test for admission when contention's admission has been stipulated to by other parties; LBP-87-14, 25 NRC 461 (1987)
  on financial qualifications of potential co-licensees, admissibility of; LBP-87-19, 25 NRC 950 (1987)
  potential for delay of proceeding by; ALAB-868, 25 NRC 912 (1987)
  showing necessary for admission of; ALAB-868, 25 NRC 912 (1987)
  summary disposition at admission stage; LBP-87-3, 25 NRC 71 (1987)
CORE MELT
  high-pressure, modeling of; LBP-87-12, 25 NRC 324 (1987)
CORROSION
  of piping at Surry plant; DD-87-9, 25 NRC 981 (1987)
DECONTAMINATION
  need for, when fuel production license is terminated; DD-87-5, 25 NRC 260 (1987)
DEFICIENCIES
  emergency planning, characterization of; ALAB-857, 25 NRC 7 (1987)
  quality assurance, at Shearon Harris, allegations of; DD-87-6, 25 NRC 387 (1987)

SUBJECT INDEX

DEFINITIONS
of "cooperation" with NRC investigators; ALJ-87-3, 25 NRC 385 (1987)
of "forthrightness" in testimony; ALJ-87-3, 25 NRC 385 (1987)
prima facie showing; LBP-87-12, 25 NRC 324 (1987)
DEPARTURE FROM NUCLEATE BOILING
adequacy of analysis of; LBP-87-21, 25 NRC 958 (1987)
DIRECTED CERTIFICATION
of licensing board scheduling order, standard for; ALAB-858, 25 NRC 17 (1987); ALAB-864, 25 NRC 417 (1987)
standard for grant of; ALAB-861, 25 NRC 129 (1987)
DISCLOSURE
of matters under investigation by Office of Investigations, basis for stay of; ALJ-87-4, 25 NRC 865 (1987)
DISCOVERY
board authority to limit time for; ALAB-864, 25 NRC 417 (1987)
board responsibility to preserve record of rulings; ALAB-863, 25 NRC 273 (1987)
in criminal proceedings vs. civil proceedings; ALJ-87-4, 25 NRC 865 (1987)
of executive department records; ALJ-87-5, 25 NRC 973 (1987)
of nontestifying witnesses; LBP-87-20, 25 NRC 957 (1987)
requests for, prior to designation of administrative law judge; ALJ-87-1, 25 NRC 39 (1987)
DISCRIMINATION
employee, allegations of, at Shearon Harris; DD-87-6, 25 NRC 387 (1987)
DOCUMENT CONTROL
adequacy of, at Shearon Harris; DD-87-6, 25 NRC 387 (1987)
DOSE
occupational from land burial of low-level radioactive waste; LBP-87-11, 25 NRC 287 (1987)
DOSE RATE EFFECTS
on XLPO polymers in cable insulation; ALAB-859, 25 NRC 23 (1987)
DUE PROCESS
effect of conduct of simultaneous proceedings on; ALAB-858, 25 NRC 17 (1987)
fundamental fairness standard; ALAB-864, 25 NRC 417 (1987)
requirements for civil penalty proceedings; ALJ-87-2, 25 NRC 219 (1987)
violation by Staff failure to provide reasons for its determination; ALAB-867, 25 NRC 900 (1987)
ECONOMIC INTERESTS
protection afforded by AEA; DD-87-5, 25 NRC 260 (1987); DD-87-7, 25 NRC 402 (1987)
EFFECTIVENESS
of Licensing Board decision to authorize issuance of operating license, standard for delay of; CLI-87-1, 25 NRC 1 (1987)
See also Immediate Effectiveness Review
ELECTRICAL EQUIPMENT
postaccident environmental qualification time duration; LBP-87-10, 25 NRC 177 (1987)
safety-related, adequacy of Shearon Harris quality assurance program for; DD-87-6, 25 NRC 387 (1987)
EMERGENCY BROADCAST SYSTEM
withdrawal of radio station as; CLI-87-5, 25 NRC 884 (1987)
EMERGENCY BROADCASTS
followups to siren notification; LBP-87-13, 25 NRC 449 (1987)
EMERGENCY CLASSIFICATION
and action level scheme, adequacy of for Seabrook; LBP-87-10, 25 NRC 177 (1987)
EMERGENCY CORE COOLING SYSTEMS
evaluation models, corrections and additions to; LBP-87-21, 25 NRC 958 (1987)
EMERGENCY EXERCISES
scope of "full participation," for reasonable assurance findings; ALAB-861, 25 NRC 129 (1987)

SUBJECT INDEX

EMERGENCY NOTIFICATION
adequacy of automatic telephone system for; LBP-87-8, 25 NRC 153 (1987)
content of public information booklet on emergency planning; LBP-87-13, 25 NRC 449 (1987)
of off-duty prison correctional officers; ALAB-863, 25 NRC 273 (1987)
withdrawal of radio station as emergency broadcast system; CLI-87-5, 25 NRC 884 (1987)
EMERGENCY PLANNING
adequacy of, for Surry plant; DD-87-9, 25 NRC 981 (1987)
characterization of deficiencies as permanent or interim; ALAB-857, 25 NRC 7 (1987)
criteria for reopening a record on; CLI-87-5, 25 NRC 884 (1987)
distribution of public information booklet; LBP-87-13, 25 NRC 449 (1987)
for visually impaired and reading-handicapped adults; LBP-87-13, 25 NRC 449 (1987)
need for, to increase low-power operations from 5% to 25% of rated capacity; CLI-87-4, 25 NRC 882 (1987)
rebuttable presumption of FEMA finding on; ALAB-864, 25 NRC 417 (1987)
scope of individual coverage encompassed by; LBP-87-13, 25 NRC 449 (1987)
EMERGENCY PLANNING ZONES
extension of, beyond 10 miles; DD-87-1, 25 NRC 43 (1987)
plume, reduction in size of; ALAB-858, 25 NRC 17 (1987); LBP-87-12, 25 NRC 324 (1987)
EMERGENCY PLANS
approval for changes in; ALAB-857, 25 NRC 7 (1987)
burden on applicant to prove compliance with Commission rules; LBP-87-13, 25 NRC 449 (1987)
changes in content during hearing process with prior approval of FEMA; ALAB-863, 25 NRC 273 (1987)
inclusion of implementing procedures in; ALAB-857, 25 NRC 7 (1987)
inclusion of special provisions for complying with 10 C.F.R. 50.47(b) and Part 50, Appendix E; ALAB-857, 25 NRC 7 (1987)
need for formal approval of, prior to reasonable assurance finding; ALAB-863, 25 NRC 273 (1987)
offsite, need for, for low-power operations beyond fuel loading and precriticality testing; CLI-87-3, 25 NRC 875 (1987)
utility plan as a substitute for lack of state participation; CLI-87-3, 25 NRC 875 (1987)
utility plan, scope of; CLI-87-2, 25 NRC 267 (1987)
EMERGENCY PREPAREDNESS
requirements for low-power operation; CLI-87-2, 25 NRC 267 (1987)
EMERGENCY RESPONSE
need for letters of agreement for Red Cross participation in; CLI-87-5, 25 NRC 884 (1987)
EMERGENCY RESPONSE PLANNING
in connection with supercompactor use; DD-87-8, 25 NRC 410 (1987)
notification and mobilization of off-duty prison correctional officers; ALAB-863, 25 NRC 273 (1987)
EMERGENCY SERVICE WATER
intake structure adequacy at Shearon Harris; DD-87-6, 25 NRC 387 (1987)
shear plate design approval; DD-87-6, 25 NRC 387 (1987)
ENDANGERED SPECIES
threat posed by land burial of low-level radioactive waste near Navarre Marsh; LBP-87-11, 25 NRC 287 (1987)
ENFORCEMENT ACTIONS
at TMI-2; DD-87-3, 25 NRC 245 (1987)
for violation of training requirements, NRC discretion to select; DPRM-87-1, 25 NRC 49 (1987)
ENVIRONMENTAL ASSESSMENT
litigability of adequacy of; LBP-87-17, 25 NRC 838 (1987)
litigability of need for; LBP-87-17, 25 NRC 838 (1987)
of supercompaction of radioactive wastes; DD-87-8, 25 NRC 410 (1987)
ENVIRONMENTAL IMPACT STATEMENT
need for, for land disposal of low-level radioactive waste; LBP-87-11, 25 NRC 287 (1987)

need for, for spent fuel pool expansion; LBP-87-17, 25 NRC 838 (1987)
need for, for uranium hexafluoride conversion facility; LBP-87-8, 25 NRC 153 (1987)
ENVIRONMENTAL ISSUES
need to consider cumulative impacts of uranium hexafluoride conversion facility; LBP-87-8, 25 NRC 153 (1987)
ENVIRONMENTAL QUALIFICATION
postaccident time duration for electrical equipment; LBP-87-10, 25 NRC 177 (1987)
ENVIRONMENTAL REPORT
admissibility of contention questioning adequacy of, when report is not required for spent fuel pool expansion; LBP-87-17, 25 NRC 838 (1987)
EQUIPMENT, SAFETY-RELATED
potential for malfunction during an emergency; LBP-87-12, 25 NRC 324 (1987)
ERROR, HARMLESS
from expedited hearing schedule; ALAB-863, 25 NRC 273 (1987)
EVACUATION
use of applicant's employees as bus drivers during; ALAB-857, 25 NRC 7 (1987)
FAULT-TREE ANALYSIS
applicability to reinspection by sampling; LBP-87-1, 25 NRC 29 (1987)
FEDERAL EMERGENCY MANAGEMENT AGENCY
findings on emergency planning, rebuttable presumption of; ALAB-864, 25 NRC 417 (1987)
responsibilities of; DD-87-1, 25 NRC 43 (1987)
right of, to appeal licensing board order admitting contentions challenging adequacy of emergency exercises; ALAB-861, 25 NRC 129 (1987)
FINANCIAL QUALIFICATIONS
of potential new co-licensees, litigability of; LBP-87-19, 25 NRC 950 (1987)
FINDINGS OF FACT
proposed, outcome of party's failure to file; LBP-87-13, 25 NRC 449 (1987)
FIRE PREVENTION
adequacy of, at uranium hexafluoride conversion facility; LBP-87-8, 25 NRC 153 (1987)
FIRE PROTECTION SYSTEMS
adequacy for supercompactor; DD-87-8, 25 NRC 410 (1987)
FLOODS
threat to land burial site for low-level radioactive wastes; LBP-87-11, 25 NRC 287 (1987)
GENERIC ISSUES
licensing board consideration of; LBP-87-17, 25 NRC 838 (1987)
GROUND WATER
environmental impacts of supercompaction of radioactive wastes on; DD-87-8, 25 NRC 410 (1987)
GROUT
concressive 1411 epoxy, under baseplates; DD-87-6, 25 NRC 387 (1987)
HARASSMENT
of quality control inspectors; LBP-87-14, 25 NRC 461 (1987)
HEALTH EFFECTS
of H-3, C-14, and I-125 releases from incinerator; LBP-87-16, 25 NRC 830 (1987)
HEARING RIGHTS
on materials license amendment; DD-87-7, 25 NRC 402 (1987)
HEARINGS
discretionary, on uranium import license applications; CLI-87-5, 25 NRC 891 (1987)
harmless error from expedition of; ALAB-863, 25 NRC 273 (1987)
involving hybrid procedures, intervention in; LBP-87-7, 25 NRC 116 (1987)
HEARSAY EVIDENCE
admissibility in NRC proceedings; ALAB-863, 25 NRC 273 (1987)
HYDROGEN BURNS
de-inerting, potential for, following an accident; LBP-87-12, 25 NRC 324 (1987)

SUBJECT INDEX

IMMEDIATE EFFECTIVENESS REVIEW
effect on petitions for review of merits of appeal board's decision; CLI-87-1, 25 NRC 1 (1987)
IMPORT LICENSES
for uranium, discretionary hearing on applications for; CLI-87-6, 25 NRC 891 (1987)
INCINERATION
of radioactive wastes containing H-3, C-14, and I-125; LBP-87-16, 25 NRC 830 (1987)
INSPECTION
of piping handling condensate and feedwater, need for inspection of, at Surry plant; DD-87-9, 25 NRC 981 (1987)
INSPECTION AND ENFORCEMENT DIRECTOR
burden on, in civil penalty proceedings; ALJ-87-2, 25 NRC 219 (1987)
INSPECTION FEES
revocation of license for nonpayment of; LBP-87-9, 25 NRC 175 (1987)
INSULATION
See Cable Insulation
INTERESTED STATE
participation by U.S. senator as; ALAB-862, 25 NRC 144 (1987)
INTERROGATORIES
extent of a party's search of the record to determine how it used a certain term, in response to; LBP-87-18, 25 NRC 945 (1987)
See also Discovery
INTERVENTION
by a state; ALAB-862, 25 NRC 144 (1987)
contention requirement for; LBP-87-17, 25 NRC 838 (1987)
discretionary, standards for; LBP-87-2, 25 NRC 32 (1987); LBP-87-7, 25 NRC 116 (1987)
in construction permit extension proceeding; ALAB-868, 25 NRC 912 (1987)
petitions, content of; LBP-87-2, 25 NRC 32 (1987)
residency requirements for; LBP-87-2, 25 NRC 32 (1987)
rules for hearings involving hybrid procedures; LBP-87-7, 25 NRC 116 (1987)
INVESTIGATIONS
definition of "cooperation" in; ALJ-87-3, 25 NRC 385 (1987)
IODINE
behavior, during an accident; LBP-87-12, 25 NRC 324 (1987)
IODINE-125
releases from incinerator, health effects of; LBP-87-16, 25 NRC 830 (1987)
IRREPARABLE INJURY
for purpose of interlocutory appeal, concept; ALAB-861, 25 NRC 129 (1987)
importance and standard for establishing, for grant of stay request; ALAB-865, 25 NRC 430 (1987)
ISOTOPE COMMITTEES
penalty for failure to meet quarterly; ALJ-87-2, 25 NRC 219 (1987)
JURISDICTION
appellate, to direct certification of licensing board rulings; ALAB-860, 25 NRC 63 (1987)
authority for determining; ALAB-867, 25 NRC 900 (1987)
licensing board, to initiate future proceedings; LBP-87-19, 25 NRC 950 (1987)
mootness of order under appeal through loss of; ALAB-866, 25 NRC 897 (1987)
need for board to await appellate confirmation when it finds in its own favor on; ALAB-867, 25 NRC 900 (1987)
over NRC Staff appeal in show-cause proceeding, effect of transfer of regulatory authority to state; ALAB-867, 25 NRC 900 (1987)
to consider late-filed contentions following termination of licensing amendment proceeding; LBP-87-17, 25 NRC 838 (1987)
LEAK RATE DATA
falsification at TMI-2; LBP-87-15, 25 NRC 671 (1987)

SUBJECT INDEX

LEAK RATE TESTING
adequacy of computer programs for; DD-87-2, 25 NRC 121 (1987)
LICENSE
definition of; LBP-87-5, 25 NRC 98 (1987)
LICENSE CONDITIONS
barring licensee employee from supervisory responsibilities in training of nonlicensed personnel; ALJ-87-3, 25 NRC 385 (1987)
for uranium hexafluoride conversion facility; LBP-87-8, 25 NRC 153 (1987)
jurisdiction for imposing; ALAB-859, 25 NRC 23 (1987)
LICENSEES
of uranium hexafluoride conversion facility, character and competence; LBP-87-8, 25 NRC 153 (1987)
responsibilities for buried nuclear waste; LBP-87-5, 25 NRC 98 (1987)
See also Applicants
LICENSING
scope of information required for; LBP-87-2, 25 NRC 32 (1987)
LICENSING BOARDS
authority to entertain challenges to the sufficiency of representation of applicants in licensing proceedings; DD-87-10, 25 NRC 989 (1987)
authority to impose license condition when it no longer has jurisdiction over the issue; ALAB-859, 25 NRC 23 (1987)
authority to refuse to issue a subpoena; ALAB-863, 25 NRC 273 (1987)
authority to require licensee to perform a reanalysis to determine whether a record should be reopened; LBP-87-21, 25 NRC 958 (1987)
consideration of generic issues by; LBP-87-17, 25 NRC 838 (1987)
demonstration of abuse of discretion by; ALAB-868, 25 NRC 912 (1987)
jurisdiction to consider late-filed contentions following termination of licensing amendment proceeding; LBP-87-17, 25 NRC 838 (1987)
jurisdiction to initiate future proceedings; LBP-87-19, 25 NRC 950 (1987)
responsibility to detail basis of decision; ALAB-857, 25 NRC 7 (1987)
responsibility to expedite proceedings; LBP-87-3, 25 NRC 71 (1987)
responsibility to preserve record of discovery rulings; ALAB-863, 25 NRC 273 (1987)
LICENSING PROCEEDINGS
expedition of; LBP-87-3, 25 NRC 71 (1987)
expedition of, through filings on computer-readable diskettes; LBP-87-21A, 25 NRC 966 (1987)
simultaneous, effect on due process; ALAB-858, 25 NRC 17 (1987)
LIMITED APPEARANCE STATEMENTS
participational rights of parties making; ALAB-862, 25 NRC 144 (1987)
MANAGEMENT OVERSIGHT
license condition for uranium hexafluoride conversion facility; LBP-87-8, 25 NRC 153 (1987)
MATERIAL FALSE STATEMENTS
statements relating solely to scope of representation of applicants as; DD-87-10, 25 NRC 989 (1987)
MATERIALS LICENSE AMENDMENT
hearing rights on; DD-87-7, 25 NRC 402 (1987)
to allow conversion of uranium hexafluoride to uranium tetrafluoride; LBP-87-8, 25 NRC 153 (1987)
MATERIALS LICENSES
applicability of Part 35 to therapeutic use of strontium-90 applicator; LBP-87-4, 25 NRC 79 (1987)
denial of appeal from Staff determination to deny application; LBP-87-4, 25 NRC 79 (1987)
licensee responsibilities for buried nuclear waste; LBP-87-5, 25 NRC 98 (1987)
MONITORING
environmental, of H-3, C-14, and I-125 releases from incinerator; LBP-87-16, 25 NRC 830 (1987)
MOOTNESS
of order under appeal through loss of jurisdiction; ALAB-866, 25 NRC 897 (1987)

SUBJECT INDEX

NO SIGNIFICANT HAZARDS DETERMINATION
need for, in absence of hearing on operating license amendment; LBP-87-2, 25 NRC 32 (1987)
NOTICE OF HEARING
adequacy of; LBP-87-8, 25 NRC 153 (1987)
NOTIFICATION
See Emergency Notification
NRC STAFF
failure to provide reasons for a determination, effect of; ALAB-867, 25 NRC 900 (1987)
responsibility for issuing low-power license; ALAB-859, 25 NRC 23 (1987)
NUCLEAR PACEMAKER PROGRAMS
penalty for deficiencies in; ALJ-87-2, 25 NRC 219 (1987)
NUCLEAR REACTOR REGULATION DIRECTOR
basis for issuing low-power operating license; ALAB-859, 25 NRC 23 (1987)
NUCLEAR REGULATORY COMMISSION
authority to direct utility owners to buy out the ownership interest of a co-owner; DD-87-10, 25 NRC 989 (1987)
discretion to select enforcement action for violations involving nuclear power plant personnel training; DPRM-87-1, 25 NRC 49 (1987)
flexibility to issue regulatory guidance in form of a policy statement; DPRM-87-1, 25 NRC 49 (1987)
NUCLEAR WASTE POLICY ACT
fitness of nuclear power plant personnel for duty, requirements under; DPRM-87-1, 25 NRC 49 (1987)
OPERATING BASIS EARTHQUAKE
for Trojan facility; DD-87-4, 25 NRC 253 (1987)
OPERATING LICENSE AMENDMENT PROCEEDINGS
termination of; LBP-87-6, 25 NRC 114 (1987)
OPERATING LICENSE AMENDMENTS
litigability of omissions in safety evaluation report for; LBP-87-17, 25 NRC 838 (1987)
need for Staff "no serious hazards consideration" finding in absence of hearing on; LBP-87-2, 25 NRC 32 (1987)
no significant hazards consideration determination for; LBP-87-17, 25 NRC 838 (1987)
OPERATING LICENSES
denials, quality assurance failures that are grounds for; LBP-87-14, 25 NRC 461 (1987)
full-power, basis for delaying authorization for; CLI-87-1, 25 NRC 1 (1987)
OPERATING LICENSES, LOW-POWER
emergency preparedness requirements for; CLI-87-2, 25 NRC 267 (1987)
purpose of; ALAB-865, 25 NRC 430 (1987)
Staff responsibility for issuing; ALAB-859, 25 NRC 23 (1987)
OPERATIONS, LOW-POWER
at 25% of rated power while emergency planning issues remain unresolved, denial of request for; CLI-87-4, 25 NRC 882 (1987)
beyond fuel loading and precriticality testing, need for offsite emergency plan for; CLI-87-3, 25 NRC 875 (1987)
PERSONNEL
monitoring requirements during brachytherapy; ALJ-87-2, 25 NRC 219 (1987)
nuclear power plant, training and fitness for duty, requirements for; DPRM-87-1, 25 NRC 49 (1987)
staffing and qualifications at uranium hexafluoride conversion facility, adequacy of; LBP-87-8, 25 NRC 153 (1987)
PIPE RUPTURE
at Surry plant; DD-87-9, 25 NRC 981 (1987)
POLICY STATEMENTS
Commission views on and uses of; DPRM-87-1, 25 NRC 49 (1987)
regulatory or statutory force of; DPRM-87-1, 25 NRC 49 (1987)
on severe reactor accidents; LBP-87-17, 25 NRC 838 (1987)

POLYGRAPH EXAMINATIONS
interpretation of results of; DD-87-11, 25 NRC 994 (1987)
POLYMERS
XLPO, in cable insulation, degradation from low-level radiation; ALAB-859, 25 NRC 23 (1987)
PRESIDING OFFICERS
authority to entertain oral presentations in informal hearing; LBP-87-4, 25 NRC 79 (1987)
responsibilities in civil penalty proceedings; ALJ-87-2, 25 NRC 219 (1987)
PRIVILEGE
attorney work product, applicability to management report prepared by applicants for rate-making proceeding; LBP-87-20, 25 NRC 957 (1987)
attorney work product, application to nonrecord filing; LBP-87-18, 25 NRC 945 (1987)
PROOF
clear and convincing standard vs. preponderance of the evidence standard; LBP-87-15, 25 NRC 671 (1987)
See also Burden of Proof
PROPERTY VALUES
litigability of effects of operations on; DD-87-5, 25 NRC 260 (1987)
See also Economic Interests
PSYCHOLOGICAL STRESS
litigability of, in NRC proceedings; DD-87-5, 25 NRC 260 (1987)
QUALIFICATIONS
of supervisor of nonlicensed operator training; ALJ-87-3, 25 NRC 385 (1987)
QUALITY ASSURANCE
failures that are grounds for operating license denial; LBP-87-14, 25 NRC 461 (1987)
of recovery program at TMI-2; DD-87-3, 25 NRC 245 (1987)
reinspection program, adequacy of; LBP-87-1, 25 NRC 29 (1987)
Shearon Harris, adequacy of; DD-87-6, 25 NRC 387 (1987)
QUALITY ASSURANCE INSPECTION
of cable pulling; LBP-87-14, 25 NRC 461 (1987)
QUALITY ASSURANCE INSPECTORS
good cause for termination of; LBP-87-14, 25 NRC 461 (1987)
harassment and intimidation of; LBP-87-14, 25 NRC 461 (1987)
RADIATION BADGES
penalty for failure to wear; ALJ-87-2, 25 NRC 219 (1987)
RADIATION SURVEYS
penalty for failure to perform; ALJ-87-2, 25 NRC 219 (1987)
RADIATION, LOW-LEVEL
effect on XLPO polymers in cable insulation; ALAB-859, 25 NRC 23 (1987)
RADIOACTIVE MATERIAL SOURCES
Group VI, penalty for failure to inventory and leak-test; ALJ-87-2, 25 NRC 219 (1987)
RADIOACTIVE PLUME
scope of information to be contained in public information booklet; LBP-87-13, 25 NRC 449 (1987)
RADIOACTIVE WASTE
buried, ownership of; LBP-87-5, 25 NRC 98 (1987)
incineration, health effects of H-3, C-14, and I-125 releases from; LBP-87-16, 25 NRC 830 (1987)
low-level, mixed with water treatment plant waste, land burial; LBP-87-11, 25 NRC 287 (1987)
supercompaction of; DD-87-6, 25 NRC 410 (1987)
RADIOACTIVE WASTE STORAGE
long-term, high-level, consideration of, in spent fuel pool expansion proceeding; LBP-87-17, 25 NRC 838 (1987)
RADIOACTIVITY
in soil, limits on; DD-87-5, 25 NRC 260 (1987)

SUBJECT INDEX

RADIOGRAPHY DEVICES
suspension of license to install, service, maintain, and dismantle; ALJ-87-4, 25 NRC 865 (1987)
RADIOLOGICAL CONTAMINATION
potential for, from dust in uranium hexafluoride conversion facility; LBP-87-8, 25 NRC 153 (1987)
RAFFINATE
barium-treated neutralized solvent extraction, use as ammonium nitrate fertilizer; DD-87-7, 25 NRC 402 (1987)
RARE EARTHS
requirements for transfer of authority over; ALAB-867, 25 NRC 900 (1987)
REACTOR AUXILIARY BUILDING
Shearon Harris, adequacy of anchor bolt installation; DD-87-6, 25 NRC 387 (1987)
REACTOR OPERATORS
reliability at Seabrook during an accident; LBP-87-12, 25 NRC 324 (1987)
RECONSIDERATION
use of 2.206 petition for; DD-87-6, 25 NRC 387 (1987)
RECORD
hearing, electronically searchable; LBP-87-21A, 25 NRC 966 (1987)
See Reopening a Record
REGULATIONS
challenges to, before appeal boards; ALAB-865, 25 NRC 430 (1987)
emergency planning, effect of Chernobyl accident on; DD-87-1, 25 NRC 43 (1987)
waiver, for change in size of plume EPZ; LBP-87-12, 25 NRC 324 (1987)
See also Rules of Practice
REGULATORY GUIDES
related to 10 C.F.R. Part 55; DPRM-87-1, 25 NRC 49 (1987)
REINSPECTION PROGRAM
Braidwood, adequacy of; LBP-87-14, 25 NRC 461 (1987)
REOPENING A RECORD
criteria for; ALAB-857, 25 NRC 7 (1987)
on emergency planning issues, request granted for; CLI-87-5, 25 NRC 884 (1987)
showing necessary for; ALAB-865, 25 NRC 430 (1987)
supporting information necessary for; LBP-87-21, 25 NRC 958 (1987)
REPRESENTATION
of applicants, challenges to sufficiency of; DD-87-10, 25 NRC 989 (1987)
REVIEW
See also Immediate Effectiveness Review
REVIEW, APPELLATE
of dismissal of contentions, scope of; ALAB-868, 25 NRC 912 (1987)
of licensing board's balancing of five factors for admission of late-filed contentions; ALAB-868, 25 NRC 912 (1987)
of scheduling decisions, standard for; ALAB-863, 25 NRC 273 (1987)
of unchallenged testimony; ALAB-863, 25 NRC 273 (1987)
scope of; ALAB-857, 25 NRC 7 (1987)
See also Appeals
REVIEW, INTERLOCUTORY
applicability of 10 C.F.R. 2.788 to, where review of scheduling order is requested; ALAB-858, 25 NRC 17 (1987)
discretionary, of scheduling ruling, standard for; ALAB-864, 25 NRC 417 (1987)
discretionary, standard for; ALAB-860, 25 NRC 63 (1987)
See also Appeals, Interlocutory
REVIEW, SUA SPONTE
where no appeal has been taken; ALAB-859, 25 NRC 23 (1987)

SUBJECT INDEX

REVOCATION OF LICENSE
for nonpayment of inspection fee; LBP-87-9, 25 NRC 175 (1987)
RISK ASSESSMENT
consequence modeling for Seabrook; LBP-87-12, 25 NRC 324 (1987)
RULES OF PRACTICE
appeal board directed certification authority; ALAB-860, 25 NRC 63 (1987)
appeal board role while licensing board has § 2.758 petition before it; ALAB-860, 25 NRC 63 (1987)
appeal rights of amicus curiae; ALAB-862, 25 NRC 144 (1987)
appeal rights of entities participating under 2.715(c); ALAB-861, 25 NRC 129 (1987)
appellate review of licensing board's balancing of five factors for admission of late-filed contentions; ALAB-868, 25 NRC 912 (1987)
applicability of 10 C.F.R. 2.788 to requests for interlocutory review of scheduling orders; ALAB-858, 25 NRC 17 (1987)
applicability of GDC 5 to sharing of spent fuel facilities; LBP-87-2, 25 NRC 32 (1987)
applicant's burden of proof; ALAB-857, 25 NRC 7 (1987)
basis and specificity requirements for admission of contentions; LBP-87-17, 25 NRC 838 (1987)
basis for denying applicant's appeal from Staff determination to deny materials license application; LBP-87-4, 25 NRC 79 (1987)
board authority to determine its own jurisdiction; ALAB-867, 25 NRC 900 (1987)
burden of proof on stay movant; ALAB-865, 25 NRC 430 (1987)
challenges to regulations before appeal boards; ALAB-865, 25 NRC 430 (1987)
Commission policy on interlocutory appeals; ALAB-861, 25 NRC 129 (1987)
Commission treatment of 2.206 petitions when it has already begun considering whether to issue an operating license; DD-87-6, 25 NRC 387 (1987)
commitment of resources to hearing that may later turn out to be unnecessary as basis for interlocutory appeal; ALAB-858, 25 NRC 17 (1987)
content of intervention petitions; LBP-87-2, 25 NRC 32 (1987)
contention requirement for intervention; LBP-87-17, 25 NRC 838 (1987)
criteria for reopening a record; ALAB-857, 25 NRC 7 (1987); LBP-87-3, 25 NRC 71 (1987)
criteria for stay of agency action; ALAB-865, 25 NRC 430 (1987)
determination of the adequacy of a contention's basis; ALAB-868, 25 NRC 912 (1987)
directed certification, standard for; ALAB-861, 25 NRC 129 (1987)
discovery of executive department records; ALJ-87-5, 25 NRC 973 (1987)
discovery of nontestifying witnesses; LBP-87-18, 25 NRC 945 (1987); LBP-87-20, 25 NRC 957 (1987)
discovery rulings, board responsibility to preserve record of; ALAB-863, 25 NRC 273 (1987)
discretion of presiding officer to entertain oral presentations; LBP-87-4, 25 NRC 79 (1987)
discretionary interlocutory review, standard for; ALAB-864, 25 NRC 417 (1987)
discretionary intervention standard; LBP-87-2, 25 NRC 32 (1987); LBP-87-7, 25 NRC 116 (1987)
effect on basic structure of a proceeding of admission of contention resulting from licensing board ruling that is novel, important, or conflicts with case law; ALAB-861, 25 NRC 129 (1987)
evidentiary support required for admission of contentions; ALAB-868, 25 NRC 912 (1987)
exception to proscription against interlocutory appeals; ALAB-861, 25 NRC 129 (1987)
extent of a party's search of the record to respond to interrogatories about how it used a certain term; LBP-87-19, 25 NRC 945 (1987)
five factors to be addressed for admission of late-filed contentions; LBP-87-3, 25 NRC 71 (1987)
form for providing factual information to boards; ALAB-857, 25 NRC 7 (1987)
fulfillment of basis requirement for admission of contentions; ALAB-868, 25 NRC 912 (1987)
fundamental fairness standard of due process; ALAB-864, 25 NRC 417 (1987)
harmless error from expedited hearing schedule; ALAB-863, 25 NRC 273 (1987)
hearsay evidence, admissibility in NRC proceedings; ALAB-863, 25 NRC 273 (1987)
interlocutory appeals of scheduling orders; ALAB-858, 25 NRC 17 (1987)
interpretation of potential for delay in applying five-factor test for admission of late-filed contentions; ALAB-868, 25 NRC 912 (1987)

intervention by a state; ALAB-862, 25 NRC 144 (1987)
intervention rules for hearings involving hybrid procedures; LBP-87-7, 25 NRC 116 (1987)
irreparable injury standard for grant of stay; ALAB-861, 25 NRC 129 (1987); ALAB-865, 25 NRC 430 (1987)
latitude given on appeal to licensing board determination in denial of late-filed contention; ALAB-865, 25 NRC 430 (1987)
licensing board authority to refuse to issue subpoena; ALAB-863, 25 NRC 273 (1987)
licensing board authority to require licensee to perform a reanalysis to determine whether a record should be reopened; LBP-87-21, 25 NRC 958 (1987)
limited appearance statements, participational rights of parties making; ALAB-862, 25 NRC 144 (1987)
limits on appeal board authority; ALAB-860, 25 NRC 63 (1987)
mootness of order under appeal by loss of jurisdiction; ALAB-866, 25 NRC 897 (1987)
motions for modification of hearing schedule; ALAB-858, 25 NRC 17 (1987)
need for board to await appellate confirmation when it finds in favor of its own jurisdiction; ALAB-867, 25 NRC 900 (1987)
need for Staff "no serious hazards consideration" finding in absence of hearing on operating license amendment; LBP-87-2, 25 NRC 32 (1987)
organizational standing on basis of residency of member; LBP-87-7, 25 NRC 116 (1987)
outcome of party's failure to file proposed findings; LBP-87-13, 25 NRC 449 (1987)
proper support for appellate briefs; ALAB-868, 25 NRC 912 (1987)
purpose of basis requirement for admission of contentions; ALAB-868, 25 NRC 912 (1987)
purpose of five-factor balancing test for admission of late-filed contentions; ALAB-868, 25 NRC 912 (1987)
reconsideration of issues under 2.206 procedures; DD-87-6, 25 NRC 387 (1987)
rejection of contentions with adequate bases; ALAB-868, 25 NRC 912 (1987)
residence requirements for establishing interest in a proceeding; LBP-87-2, 25 NRC 32 (1987)
right of nonparty to appeal; ALAB-861, 25 NRC 129 (1987)
scope of a licensing board's review of a contention to determine its admissibility; LBP-87-17, 25 NRC 838 (1987)
scope of appellate review of dismissal of contentions; ALAB-857, 25 NRC 7 (1987); ALAB-868, 25 NRC 912 (1987)
scope of licensing board's assessment of a contention to determine its admissibility; ALAB-868, 25 NRC 912 (1987)
showing necessary for admission of late-filed contentions; ALAB-868, 25 NRC 912 (1987)
specificity required of 2.206 petitions; DD-87-5, 25 NRC 260 (1987); DD-87-8, 25 NRC 410 (1987)
specificity required to initiate show-cause proceedings; DD-87-7, 25 NRC 402 (1987)
standard for discretionary interlocutory review of licensing board scheduling order; ALAB-860, 25 NRC 63 (1987)
standard for reopening a record; ALAB-865, 25 NRC 430 (1987)
standing to intervene on basis of civic duty; LBP-87-2, 25 NRC 32 (1987)
subpoenas, showing necessary for issuance of; ALAB-863, 25 NRC 273 (1987)
supporting information for motions to reopen; LBP-87-21, 25 NRC 958 (1987)
test for admission of late-filed contentions; ALAB-868, 25 NRC 912 (1987)

SABOTAGE
relevance off reduction in size of plume EPZ to; LBP-87-12, 25 NRC 324 (1987)

SAFE SHUTDOWN EARTHQUAKE
for Trojan facility; DD-87-4, 25 NRC 253 (1987)

SAFETY EVALUATION REPORT
for operating license amendment, litigability of omissions from; LBP-87-17, 25 NRC 838 (1987)

SAFETY PARAMETER DISPLAY SYSTEM
compliance with NUREG-0730 and requirements for full-power operation; LBP-87-10, 25 NRC 177 (1987)
purpose of, and need for, for low-power operation; ALAB-865, 25 NRC 430 (1987)

SUBJECT INDEX

SAFETY-RELATED MATERIALS
substitutions for, at Shearon Harris; DD-87-6, 25 NRC 387 (1987)
SALP REPORTS
current TMI; DD-87-3, 25 NRC 245 (1987)
purpose of; DD-87-9, 25 NRC 981 (1987)
SAMPLING
reinspection by; LBP-87-1, 25 NRC 29 (1987)
SCHEDULING ORDER
appeals of; ALAB-858, 25 NRC 17 (1987); ALAB-860, 25 NRC 63 (1987; ALAB-863, 25 NRC 273 (1987)
motions for modification of; ALAB-858, 25 NRC 17 (1987)
directed certification of; ALAB-864, 25 NRC 417 (1987)
fundamental fairness test for; ALAB-864, 25 NRC 417 (1987)
SECURITY
adequacy at Sequoyah Fuels facility; DD-87-7, 25 NRC 402 (1987)
SEISMIC DESIGN
of Trojan control building, turbine building, and diesel generator enclosures, adequacy of; DD-87-4, 25 NRC 253 (1987)
of uranium hexafluoride conversion facility, adequacy of; LBP-87-8, 25 NRC 153 (1987)
SEISMIC ISSUES
need for review of, for reduction in plume EPZ size; LBP-87-12, 25 NRC 324 (1987)
SHIPMENT OF RADIOACTIVE MATERIALS
nuclear pacemakers, violations of regulations for; ALJ-87-2, 25 NRC 219 (1987)
SHOW-CAUSE PROCEEDINGS
grounds for expediting; ALJ-87-1, 25 NRC 39 (1987)
specificity required of petitions for institution of; DD-87-8, 25 NRC 410 (1987); DD-87-7, 25 NRC 402 (1987)
standard for initiating; DD-87-11, 25 NRC 994 (1987)
termination on payment of fees owed by licensee; LBP-87-9, 25 NRC 175 (1987)
SHUTDOWN
accidents during; LBP-87-12, 25 NRC 324 (1987)
SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION
for operating license amendments, challenges to; LBP-87-17, 25 NRC 838 (1987)
SIREN NOTIFICATION
emergency broadcast followups to; LBP-87-13, 25 NRC 449 (1987)
See also Emergency Notification
SITE STABILIZATION
of nuclear waste burial site, licensee responsibilities; LBP-87-5, 25 NRC 98 (1987)
SOURCE MATERIAL
requirements for transfer of authority over; ALAB-867, 25 NRC 900 (1987)
SOURCE TERMS
WASH-1400 methodology, adequacy of use of, for Seabrook; LBP-87-12, 25 NRC 324 (1987)
SPENT FUEL FACILITIES
sharing of; LBP-87-2, 25 NRC 32 (1987)
SPENT FUEL POOL EXPANSION
need for EIS for; LBP-87-17, 25 NRC 838 (1987)
SPENT FUEL POOL EXPANSION PROCEEDINGS
intervention rules; LBP-87-7, 25 NRC 116 (1987)
STANDING
civic duty as basis for; LBP-87-2, 25 NRC 32 (1987)
organizational, on basis of member's residency; LBP-87-7, 25 NRC 116 (1987)
STAY
factors considered in grant of; ALAB-865, 25 NRC 430 (1987)

of civil proceeding until completion of criminal investigation; ALJ-87-4, 25 NRC 865 (1987)
scope of appeal board authority; ALAB-858, 25 NRC 17 (1987)
weight given to probability of success on the merits in determining requests for; ALAB-865, 25 NRC 430 (1987)
STEAM GENERATOR
tube rupture potential at Seabrook; LBP-87-12, 25 NRC 324 (1987)
STRONTIUM-90 PLAQUE APPLICATOR
regulatory standards applicable to therapeutic use of; LBP-87-4, 25 NRC 79 (1987)
SUBPOENA
motion to quash, licensing board overruling of; ALJ-87-5, 25 NRC 973 (1987)
showing necessary for; ALAB-863, 25 NRC 273 (1987)
SUMMARY DISPOSITION
of late-filed contentions at admission stage; LBP-87-3, 25 NRC 71 (1987)
SUPERCOMPACTION
of radioactive wastes, regulatory requirements for; DD-87-8, 25 NRC 410 (1987)
TECHNETIUM-99m
contaminated waste, failure to maintain survey records of; ALJ-87-2, 25 NRC 219 (1987)
TECHNICAL SPECIFICATIONS
relevant to leak rate testing at TMI-2; LBP-87-15, 25 NRC 671 (1987)
TELETHERAPY DEVICES
suspension of license to install, service, maintain, and dismantle; ALJ-87-4, 25 NRC 865 (1987)
TERMINATION OF PROCEEDING
for operating license amendment; LBP-87-6, 25 NRC 114 (1987)
where jurisdiction retained over a single issue does not affect disposition of single remaining contention; LBP-87-21, 25 NRC 958 (1987)
TERRORISM
relevance off reduction in size of plume EPZ to; LBP-87-12, 25 NRC 324 (1987)
TESTIMONY
definition of forthrightness in; ALJ-87-3, 25 NRC 385 (1987)
TESTING
leak rate, difficulties in performing, at TMI-2; LBP-87-15, 25 NRC 671 (1987)
THREE MILE ISLAND
recovery program, concerns about deficiencies in; DD 87-3, 25 NRC 245 (1987)
Unit 2 organizational structure during 1978-79; LBP-87-15, 25 NRC 671 (1987)
TRAINING
and fitness for duty of nuclear power plant personnel, requirements for; DPRM-87-1, 25 NRC 49 (1987)
Commission discretion to select enforcement action for violations involving; DPRM-87-1, 25 NRC 49 (1987)
for uranium hexafluoride conversion facility employees, adequacy of; LBP-87-8, 25 NRC 153 (1987)
of supercompactor operators, adequacy of; DD-87-8, 25 NRC 410 (1987)
of unlicensed personnel, condition barring licensee employee from supervisory responsibilities for; ALJ-87-3, 25 NRC 385 (1987)
TRITIUM
releases from incinerator, health effects of; LBP-87-16, 25 NRC 830 (1987)
U.S. SENATOR
status for participation in NRC proceedings; ALAB-862, 25 NRC 144 (1987)
URANIUM
South-African origin, hearing rights on import license applications; CLI-87-6, 25 NRC 891 (1987)
URANIUM HEXAFLUORIDE
conversion to uranium tetrafluoride; LBP-87-8, 25 NRC 153 (1987)
VIOLATIONS
aggregation of, escalation of severity level for; ALJ-87-2, 25 NRC 219 (1987)

severity level IV, for licensee's failure to provide adequate instructions for corrective maintenance; DD-87-9, 25 NRC 981 (1987)
of training requirements, NRC discretion to select enforcement action for; DPRM-87-1, 25 NRC 49 (1987)
WAIVER
of regulations governing size of plume EPZ; LBP-87-12, 25 NRC 324 (1987)
WASTE DISPOSAL
deep-well disposal of raffinate; LBP-87-8, 25 NRC 153 (1987)
land burial of radioactive waste treatment sludge; LBP-87-11, 25 NRC 287 (1987)
licensee responsibilities; LBP-87-5, 25 NRC 98 (1987)
See also Radioactive Waste
WELD ROD
heat number traceability to material receipt requests and to certification of filler material; LBP-87-14, 25 NRC 461 (1987)
WELDING
A-36 steel to A-446 sheet steel; LBP-87-14, 25 NRC 461 (1987)
grid-area inspection of; LBP-87-14, 25 NRC 461 (1987)
stainless steel, position qualification; LBP-87-14, 25 NRC 461 (1987)
WITNESSES
nontestifying, discovery of; LBP-87-18, 25 NRC 945 (1987); LBP-87-20, 25 NRC 957 (1987)
XENON-133
penalty for use in unauthorized room; ALJ-87-2, 25 NRC 219 (1987)

FACILITY INDEX

BRAIDWOOD NUCLEAR POWER STATION, Units 1 and 2; Docket Nos. 50-456-OL, 50-457-OL
OPERATING LICENSE; May 13, 1987; PARTIAL INTIAL DECISION ON EMERGENCY PLANNING ISSUES; LBP-87-13, 25 NRC 449 (1987)
OPERATING LICENSE; May 19, 1987; CONCLUDING PARTIAL INITIAL DECISION; LBP-87-14, 25 NRC 461 (1987)
OPERATING LICENSE; June 10, 1987; MEMORANDUM AND ORDER DENYING INTERVENORS' MOTION TO ADMIT LATE-FILED CONTENTIONS ON FINANCIAL QUALIFICATIONS; LBP-87-19, 25 NRC 950 (1987)
BYRON NUCLEAR POWER STATION, Unit 1; Docket No. 50-373
REQUEST FOR ACTION; February 10, 1987; DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206; DD-87-2, 25 NRC 121 (1987)
COMANCHE PEAK STEAM ELECTRIC STATION, Unit 1; Docket No. 50-445-CPA
CONSTRUCTION PERMIT AMENDMENT; June 22, 1987; MEMORANDUM AND ORDER (Discovery Concerning Cresap Report; LBP-87-20, 25 NRC 953 (1987)
CONSTRUCTION PERMIT AMENDMENT; June 30, 1987; DECISION; ALAB-868, 25 NRC 912 (1987)
COMANCHE PEAK STEAM ELECTRIC STATION, Units 1 and 2; Docket Nos. 50-445, 50-446
OPERATING LICENSE; January 7, 1987; MEMORANDUM; LBP-87-1, 25 NRC 29 (1987)
OPERATING LICENSE; June 1, 1987; MEMORANDUM AND ORDER (Discovery Sets 1987-6, -7; LBP-87-18, 25 NRC 945 (1987)
REQUEST FOR ACTION; June 25, 1987; DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206; DD-87-10, 25 NRC 989 (1987)
DAVIS-BESSE NUCLEAR POWER STATION, Unit 1; Docket No. 50-346-ML
MATERIALS LICENSE; April 15, 1987; DECISION ON THE DISPOSAL OF WASTE AT DAVIS-BESSE; LBP-87-11, 25 NRC 287 (1987)
DIABLO CANYON NUCLEAR POWER PLANT, Units 1 and 2; Docket Nos. 50-275-OLA, 50-323-OLA
OPERATING LICENSE AMENDMENT; May 22, 1987; MEMORANDUM AND ORDER (Order Requiring the Filing of Documents on Diskettes Suitable for Electronic Storage and Retrieval; LBP-87-21A, 25 NRC 966 (1987)
GORE, OKLAHOMA FACILITY; Docket No. 40-8027
REQUEST FOR ACTION; April 21, 1987; DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206; DD-87-7, 25 NRC 402 (1987)
HURLEY MEDICAL CENTER; Docket Nos. 30-01993, 70-1396
CIVIL PENALTY; March 3, 1987; INTIAL DECISION; AJ-87-2, 25 NRC 219 (1987)
KRESS CREEK DECONTAMINATION; Docket No. 40-2061-SC
SHOW CAUSE; June 23, 1987; MEMORANDUM AND ORDER; ALAB-867, 25 NRC 900 (1987)
LASALLE COUNTY STATION, Unit 1; Docket No. STN 50-454
REQUEST FOR ACTION; February 10, 1987; DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206; DD-87-2, 25 NRC 121 (1987)
LIMERICK GENERATING STATION, Units 1 and 2; Docket Nos. 50-352-OL, 50-353-OL
OPERATING LICENSE; January 2, 1987; DECISION; ALAB-857, 25 NRC 7 (1987)
OPERATING LICENSE; April 17, 1987; DECISION; ALAB-863, 25 NRC 273 (1987)

FACILITY INDEX

MIDWEST FACILITY; Docket No. 30-18618
REQUEST FOR ACTION; April 30, 1987; DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206; DD-87-8, 25 NRC 410 (1987)
PALO VERDE NUCLEAR GENERATING STATION, Units 1, 2, and 3; Docket Nos. 50-528, 50-529, 50-530
REQUEST FOR ACTION; June 22, 1987; DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206; DD-87-11, 25 NRC 994 (1987)
PARKS TOWNSHIP, PENNSYLVANIA VOLUME REDUCTION FACILITY; Docket No. 70-364
MATERIALS LICENSE AMENDMENT; May 18, 1987; SUPPLEMENTAL DECISION (On Remanded Issue; LBP-87-16, 25 NRC 830 (1987)
REQUEST FOR ACTION; March 13, 1987; DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206; DD-87-5, 25 NRC 260 (1987)
SAN ONOFRE NUCLEAR GENERATING STATION, Units 1, 2, and 3; Docket Nos. 50-206, 50-361, 50-362
REQUEST FOR ACTION; January 29, 1987; DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206; DD-87-1, 25 NRC 43 (1987)
SEABROOK STATION, Units 1 and 2; Docket Nos. 50-443-OL, 50-444-OL
OPERATING LICENSE; January 15, 1987; MEMORANDUM AND ORDER; ALAB-858, 25 NRC 17 (1987)
OPERATING LICENSE; February 26, 1987; MEMORANDUM AND ORDER; ALAB-860, 25 NRC 63 (1987)
OPERATING LICENSE; March 30, 1987; DECISION; ALAB-862, 25 NRC 144 (1987)
OPERATING LICENSE; April 22, 1987; MEMORANDUM AND ORDER (Ruling on Applicants' Petition with Respect to Emergency Planning Zone in Excess of 1 Mile; LBP-87-12, 25 NRC 324 (1987)
OPERATING LICENSE; May 1, 1987; MEMORANDUM AND ORDER; ALAB-864, 25 NRC 417 (1987)
SEABROOK STATION, Units 1 and 2; Docket Nos. 50-443-OL-1 50-444-OL-1
OPERATING LICENSE; February 6, 1987; MEMORANDUM AND ORDER; LBP-87-3, 25 NRC 71 (1987)
OPERATING LICENSE; March 25, 1987; PARTIAL INITIAL DECISION; LBP-87-10, 25 NRC 177 (1987)
OPERATING LICENSE; April 9, 1987; MEMORANDUM AND ORDER; CLI-87-2, 25 NRC 267 (1987)
OPERATING LICENSE; May 8, 1987; MEMORANDUM AND ORDER; ALAB-865, 25 NRC 430 (1987)
OPERATING LICENSE; June 11, 1987; MEMORANDUM AND ORDER; CLI-87-3, 25 NRC 875 (1987)
SEQUOYAH UF6 TO UF4 FACILITY; Docket No. 40-8027-MLA (ASLBP No. 85-513-03-ML)
MATERIALS LICENSE AMENDMENT; March 4, 1987; DECISION; LBP-87-8, 25 NRC 153 (1987)
SHEARON HARRIS NUCLEAR POWER PLANT; Docket No. 50-400
OPERATING LICENSE; January 9, 1987; ORDER; CLI-87-1, 25 NRC 1 (1987)
REQUEST FOR ACTION; April 2, 1987; DIRECTOR'S DECISION UNDER 10 C.F.R. 2.206; DD-87-6, 25 NRC 387 (1987)
SHEFFIELD, ILLINOIS LOW-LEVEL RADIOACTIVE WASTE DISPOSAL SITE; Docket No. 27-39-SC
SHOW CAUSE; February 20, 1987; MEMORANDUM AND ORDER; LBP-87-5, 25 NRC 98 (1987)
SHOW CAUSE; June 16, 1987; MEMORANDUM AND ORDER; ALAB-866, 25 NRC 897 (1987)
SHOREHAM NUCLEAR POWER STATION, Unit 1; Docket No. 50-322-OL
OPERATING LICENSE; June 11, 1987; MEMORANDUM AND ORDER; CLI-87-4, 25 NRC 882 (1987)

FACILITY INDEX

SHOREHAM NUCLEAR POWER STATION, Unit 1; Docket No. 50-322-OL-3 (Emergency Planning)
OPERATING LICENSE; June 11, 1987; MEMORANDUM AND ORDER; CLI-87-5, 25 NRC 884 (1987)

SHOREHAM NUCLEAR POWER STATION, Unit 1; Docket No. 50-322-OL-5 (EP Exercise)
OPERATING LICENSE; March 2, 1987; MEMORANDUM AND ORDER; ALAB-861, 25 NRC 129 (1987)

ST. LUCIE NUCLEAR POWER PLANT, Unit No. 2; Docket No. 50-389-OLA (ASLBP No. 87-544-01-LA) (Spent Fuel Transfer Amendment)
OPERATING LICENSE AMENDMENT; January 16, 1987; MEMORANDUM AND ORDER; LBP-87-2, 25 NRC 32 (1987)

SURRY NUCLEAR POWER STATION, Units 1 and 2; Docket Nos. 50-280, 50-281
REQUEST FOR ACTION; June 5, 1987; DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206; DD-87-9, 25 NRC 981 (1987)

THREE MILE ISLAND NUCLEAR STATION, Unit 1; Docket No. 50-289-CH
SPECIAL PROCEEDING; April 2, 1987; INITIAL DECISION; ALJ-87-3, 25 NRC 345 (1987)

THREE MILE ISLAND NUCLEAR STATION, Unit 1; Docket Nos. 50-289-OLA-1, 50-289-OLA-2 (Steam Generator Plugging Criteria)
OPERATING LICENSE AMENDMENT; February 27, 1987; MEMORANDUM AND ORDER; LBP-87-6, 25 NRC 114 (1987)

THREE MILE ISLAND NUCLEAR STATION, Unit 2; Docket No. 50-320
CIVIL PENALTY; June 22, 1987; MEMORANDUM AND ORDER RULING ON DEPARTMENT OF LABOR MOTION TO QUASH SUBPOENA; ALJ-87-5, 25 NRC 973 (1987)

THREE MILE ISLAND NUCLEAR STATION, Units 1 and 2; Docket Nos. 50-289, 50-320
REQUEST FOR ACTION; March 6, 1987; DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206; DD-87-3, 25 NRC 245 (1987)

TROJAN NUCLEAR PLANT; Docket No. 50-344
REQUEST FOR ACTION; March 5, 1987; DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206; DD-87-4, 25 NRC 253 (1987)

TURKEY POINT NUCLEAR GENERATING PLANT, Units 3 and 4; Docket Nos. 50-250-OLA-1, 50-251-OLA-1 (ASLBP No. 84-496-03-LA) (Vessel Flux Reduction)
OPERATING LICENSE AMENDMENT; June 23, 1987; MEMORANDUM AND ORDER (Terminating Proceeding; LBP-87-21, 25 NRC 958 (1987)

VERMONT YANKEE NUCLEAR POWER STATION, Docket No. 50-271-OLA
OPERATING LICENSE AMENDMENT; February 27, 1987; MEMORANDUM AND ORDER; LBP-87-7, 25 NRC 116 (1987)
OPERATING LICENSE AMENDMENT; May 26, 1987; PREHEARING CONFERENCE ORDER (Rulings on Standing, Contentions, Schedules; LBP-87-17, 26 NRC 838 (1987)

VOGTLE ELECTRIC GENERATING PLANT, Units 1 and 2; Docket Nos. 50-424-OL, 50-425-OL
OPERATING LICENSE; January 21, 1987; MEMORANDUM AND ORDER; ALAB-859, 25 NRC 23 (1987)

ZION STATION, Unit 1; Docket No. 50-295
REQUEST FOR ACTION; February 10, 1987; DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206; DD-87-2, 25 NRC 121 (1987)

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FRAMES 201 TO 300

TAPE NO. 1109 / 1289