

NUREG-0750  
Vol. 22, No. 6  
Pages 875-982

# NUCLEAR REGULATORY COMMISSION ISSUANCES

December 1985



U.S. NUCLEAR REGULATORY COMMISSION

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NUREG-0750  
Vol. 22, No. 6  
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# NUCLEAR REGULATORY COMMISSION ISSUANCES

December 1985

This report includes the issuances received during the specified period from the Commission (CLI), the Atomic Safety and Licensing Appeal Boards (ALAB), the Atomic Safety and Licensing Boards (LBP), the Administrative Law Judge (ALJ), the Directors' Decisions (DD), and the Denials 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.

**U.S. NUCLEAR REGULATORY COMMISSION**

Prepared by the Division of Technical Information and Document Control,  
Office of Administration, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555  
(301/492-8925)

## COMMISSIONERS

Nunzio J. Palladino, Chairman  
Thomas M. Roberts  
James K. Asselstine  
Frederick M. Bernthal  
Lando W. Zech, Jr.

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Alan S. Rosenthal, Chairman, Atomic Safety and Licensing Appeal Panel  
B. Paul Cotter, Chairman, Atomic Safety and Licensing Board Panel

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Issuances**

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**COMMISSIONERS:**

**Nunzio J. Palladino, Chairman**  
**Thomas M. Roberts**  
**James K. Asselstine**  
**Frederick M. Bernthal**  
**Lando W. Zech, Jr.**

**In the Matter of**

**Docket No. STN 50-528**  
**(Application in Respect**  
**of a Sale and Leaseback**  
**Financing Transaction by**  
**Public Service Company**  
**of New Mexico)**

**ARIZONA PUBLIC SERVICE**  
**COMPANY, et al.**  
**(Paio Verde Nuclear Generating**  
**Station, Unit 1)**

**December 12, 1985**

In this matter the Commission has determined that in the totality of the circumstances, the proposed sale and leaseback financial transaction with the license amendment recommended by the Staff and subject to specified conditions is acceptable under the Atomic Energy Act and the Commission regulations.

**ATOMIC ENERGY ACT: OWNERSHIP OF FACILITIES**  
**(SALE AND LEASEBACK FINANCING)**

The lessor and anyone else who may acquire an interest under the sale and leaseback financing transaction are prohibited from exercising any control over the licensees.



**ATOMIC ENERGY ACT: OWNERSHIP OF FACILITIES  
(SALE AND LEASEBACK FINANCING)**

The limitations in 10 C.F.R. § 50.81, "Creditor Regulations," are applicable to the named lessor in the sale and leaseback financing transaction and any successor in interest to that lessor.

**ORDER**

On October 18, 1985, the Arizona Public Service Company filed with the NRC an Application in Respect of a Sale and Leaseback Financing Transaction by Public Service Company of New Mexico. The Commission has determined that in the totality of the circumstances presented to it, this proposed financial transaction with the license amendment recommended by the Staff and subject to the conditions specified in this Order is acceptable under the Atomic Energy Act and the Commission regulations. This conclusion is subject to the condition that the lessor and anyone else who may acquire an interest under the transaction which is the subject of this application are prohibited from exercising directly or indirectly any control over the licensees of the Palo Verde nuclear facility. For purposes of this condition, the limitations in 10 C.F.R. § 50.81, "Creditor Regulations," as now in effect and as they may be subsequently amended are fully applicable to the named lessor and any successor in interest to that lessor as long as the license for the Palo Verde nuclear facility remains in effect. Accordingly, this financial transaction shall have no effect on the license for the Palo Verde nuclear facility throughout the term of the license.

Subject to the foregoing, the Commission consents to the financial transaction as set forth in the application and authorizes the Director of the Office of Nuclear Reactor Regulation to amend the license as described in SECY-85-367 and this Order.

It is so ORDERED.

For the Commission

**SAMUEL J. CHILK**  
Secretary of the Commission

Dated at Washington, D.C.,  
this 12th day December 1985.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**COMMISSIONERS:**

**Nunzio J. Palladino, Chairman**  
**Thomas M. Roberts**  
**James K. Asselstine**  
**Frederick M. Bernthal**  
**Lando W. Zech, Jr.**

**In the Matter of**

**Docket No. LRP**

**INQUIRY INTO THREE MILE ISLAND  
UNIT 2 LEAK RATE DATA  
FALSIFICATION**

**December 18, 1985**

The Commission establishes the procedures to govern a legislative-format hearing (ordered in CLI-85-2), to develop sufficient information for the identification of persons involved in and the facts surrounding the reactor coolant system leak rate data falsifications at Three Mile Island Unit 2 prior to the March 28, 1979 accident. The Commission authorizes the appointment of a Presiding Board to rule on petitions to intervene, to conduct prehearing procedures and the hearing, and to issue a recommended decision. After issuance of the Presiding Board's findings, the NRC Staff is to recommend to the Commission what action, if any, should be taken against individuals found to have engaged in wrongdoing. The Commission will then address whether to initiate enforcement proceedings against individuals and whether employment restraints imposed on certain individuals in the Three Mile Island, Unit 1 restart proceeding should be lifted.

## ORDER AND NOTICE OF HEARING

In an Order issued February 25, 1985, CLI-85-2, 21 NRC 282, the Commission stated that it would institute a separate hearing apart from the Three Mile Island, Unit 1 restart proceeding to develop the facts surrounding the reactor coolant system ("RCS") leak rate data falsifications at Three Mile Island, Unit 2 (TMI-2) prior to the March 28, 1979 accident, in sufficient detail to determine the ultimate status of those likely involved, which includes those segregated from TMI-1 and those now working at other facilities. The Commission herein specifies the procedures to govern the separate hearing, which will be a legislative format hearing designed solely to gather information. This Order also identifies the steps to be taken, after the Presiding Board issues a recommended decision setting forth the facts, in order for the Commission to determine what action, if any, will be taken.

### A. Background

Harold Hartman, a control room operator at TMI-2 prior to the accident, alleged that RCS leak rate surveillance tests, which were used to assess whether primary system leakage surpassed limits contained in the facility's technical specifications, were at times purposely manipulated and records of unacceptable results were discarded at TMI-2 prior to the accident to cover up the fact that over an extended period of time the results of the tests exceeded technical specification 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 the operators at TMI-2 sometimes manipulated the RCS leak rate test results by inputting wrong data into the computer, adding hydrogen gas to the make-up tank during leak rate tests, adding water to the make-up tank during a leak rate test and not inputting the addition into a computer, and leaking water into the make-up tank while performing water transfer operations involving other tanks. Hartman specifically alleged that shift supervision was aware of such improper conduct. After a preliminary investigation into Hartman's allegations, the NRC in April of 1980 referred the matter to the Department of Justice for criminal investigation.

After a Grand Jury investigation and indictment of Metropolitan Edison Company, the TMI-2 licensee at the time of the accident, the Department of Justice began prosecution of the criminal charges against Metropolitan Edison Company.

On February 29, 1984, Metropolitan Edison Company entered into a plea agreement with the United States which ended the criminal prosecution. Metropolitan Edison pleaded guilty to one count of the indictment charging it with failure to establish, implement, and maintain an accurate and meaningful reactor coolant system water inventory balance procedure to demonstrate that unidentified leakage was within the allowable limits. The Company also pleaded no contest to six other counts of the indictment, including those which charged the Company with improper manipulation of TMI-2 leak rate tests to generate results that would fulfill the Company's license requirements. In urging the Court to accept the plea agreement, U.S. Attorney David Queen stated that the evidence developed in the Grand Jury inquiry did not indicate that any of the directors and officers of GPU Nuclear from its inception in 1982 (as successor to Metropolitan Edison) to the date of the indictment, or any of the directors of Metropolitan Edison "participated in, directed, condoned, or was aware of the acts or admissions that are the subject of the indictment."<sup>1</sup>

After the Court accepted the plea agreement, the Department of Justice on behalf of the Commission asked the Court to provide the NRC access to the record of the Grand Jury proceeding. The Court denied the request. *United States v. Metropolitan Edison Co.*, 594 F. Supp. 117 (M.D. Pa. 1984).

The Commission also asked its Office of Investigations ("OI") to examine whether Michael Ross, Manager of Operations at TMI-1, had participated in, directed or condoned leak rate falsifications at TMI-2. Prior to the accident Ross was licensed at both TMI-1 and TMI-2. OI interviewed Ross and many others under oath regarding Ross' involvement at Unit 2, reviewed pertinent records and concluded that Ross' role at TMI-2 was minimal, that during the period falsifications took place he was present at TMI-2 only the minimum time necessary to maintain his TMI-2 license, and that he was not involved in the falsifications.

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<sup>1</sup> The individuals thereby cleared by the U.S. Attorney are William G. Kuhns, Herman M. Dieckamp, Robert C. Arnold, James S. Bartman, Shepard Bartnoff, Frederick D. Hafer, Richard Heward, Henry D. Hukill, Edwin E. Kintner, James R. Leva, Bernard H. Cherry, Philip R. Clark, Verner H. Condon, Walter M. Crietz, Robert Pasulo, Ivan R. Finrock, William L. Gifford, Robert L. Long, Frank Mangano, Ernest M. Schleicher, Floyd J. Smith, William A. Verrochi, Raymond Werts, and Richard F. Wilson.

## **B. Purpose and Scope of Hearing**

1. The purpose of this hearing is to develop the facts surrounding the leak rate falsifications that occurred at TMI-2 from February 2, 1978 (the date TMI-2 received its operating license) until March 28, 1979, in sufficient detail to determine the involvement of any individual who may now work, or in the future work, at a nuclear facility licensed by the Commission.

2. The specific issues which the Presiding Board is to address are limited to the following:

- (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?
- (e) The Commission has accepted the findings of the U.S. Attorney that the twenty-four individuals mentioned in note 1, *supra*, were not involved in the leak rate falsifications. It has also accepted the OI finding that Michael Ross similarly was not involved. Accordingly, the Commission has decided that these individuals are outside of the scope of the hearing.<sup>2</sup> Therefore, the Presiding Board shall not address any issue regarding any alleged knowledge or involvement of these individuals in the falsifications that occurred at the TMI-2 reactor from February 2, 1978, until March 28, 1979.
- (f) The Presiding Board is not to entertain issues other than those set forth in (a)-(d) above without the prior authorization of the Commission.

### C. Procedures

1. The Chief Administrative Judge, Atomic Safety and Licensing Board Panel, is 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.

2. Any person who has an interest which may be affected by this hearing may petition to intervene. Petitions to intervene shall include the name of the party, how the party's interest may be affected by the proceeding, and how the party expects to contribute to the development of an adequate record. Petitions are to be filed within 45 days of the date

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<sup>2</sup> If the Presiding Board believes that any of these individuals have pertinent information to provide on issues falling within the scope of the hearing, it may call them as witnesses at mutually convenient times or, if necessary, issue a subpoena requiring their attendance and testimony. The Board is not to make unreasonable demands on the time of these individuals or upon other persons playing key roles in the operation of any nuclear facility.

of this Order and Notice of Hearing. Petitions shall be granted if the Presiding Board determines that the petitioner has an interest that may be affected and petitioner will likely contribute to development of an adequate record.

3. The hearing will be held in the Washington, D.C. area, although the Presiding Board may hold portions of the hearing in other places consistent with the convenience of the parties or their representatives and the public interest.

4. The NRC Staff will not participate as a party. Instead, it will make available to the parties and to the Presiding Board, relevant documentary material within its possession as soon as practicable after issuance of this Order and Notice of Hearing. Disclosure of material is to be consistent with the Commission's Statement of Policy, "Investigations, Inspections, and Adjudicatory Proceedings," 49 Fed. Reg. 36,032 (Sept. 13, 1984). The NRC Staff will also provide whatever testimony or other assistance the Presiding Board requests to ensure that the hearing record is fully developed. All orders, petitions, submissions to the Presiding Board and other pertinent material shall be served on the NRC Staff.

5. This hearing will not be conducted under 10 C.F.R. Part 2, Subpart G, except that, in addition to the powers granted by this Order and Notice of Hearing, the Presiding Board shall have the powers specified in 10 C.F.R. §§ 2.718(a), (e), (f), (h), (i), (j) and (k). The hearing will be conducted using a legislative hearing format, as specified below.

- (a) Only relevant, material, and reliable oral and documentary evidence which is not repetitious should be admitted into evidence. Only the Presiding Board will be able to call witnesses or to question them. Witnesses will testify under oath.
- (b) No discovery will be conducted. Instead, it is the Commission's intent that the hearing itself serve as the fact-finding mechanism.
- (c) The Presiding Board may issue subpoenas if necessary to compel attendance of witnesses. The Presiding Board will make available to the parties lists of the individuals that it intends to call as witnesses. Parties will be invited by the Presiding Board to submit recommendations regarding whether additional individuals should be called to testify.
- (d) Before each witness testifies, the Presiding Board will invite the parties to submit questions in writing to the Presiding Board which they believe should be posed to the witness. The Presiding Board has the discretion to use the questions suggested by the parties.

- (e) After the hearing has been completed, the Presiding Board is to invite the parties to file proposed findings of fact and conclusions of law.
- (f) The Presiding Board is to issue a recommended decision which sets forth its findings on who participated in, had knowledge of and condoned, or by their dereliction or culpable neglect allowed the leak rate falsifications, and the facts surrounding any such involvement in sufficient detail to determine the involvement of any individual who may now work, or in the future work, at a nuclear facility. The Board's decision shall address each of the issues set out in Part B of this Order. The Presiding Board is not to make recommendations regarding whether any actions should be taken.
- (g) The Presiding Board's recommended decision will not be subject to review by an Atomic Safety and Licensing Appeal Board.
- (h) The Presiding Board is not to deviate from the procedures set forth above without prior authorization from the Commission. If the Presiding Board should determine that these procedures will not lead to the development of an adequate hearing record, and that other procedures, such as discovery or cross-examination, are necessary for the development of an adequate hearing record, the Presiding Board is to request authorization from the Commission to use more formal procedures. The Presiding Board in its request to the Commission is to specify in detail those issues which cannot be fully developed under the procedures in the Order and Notice of Hearing, what procedures it desires to use, and how use of those additional procedures will result in the development of the needed information.

On the basis of the Presiding Board's recommended decision and taking into account any other information which it believes is appropriate for Commission consideration, the NRC Staff shall make recommendations to the Commission regarding what action, if any, should be taken. The NRC Staff is to provide its recommendations to the Commission within 60 days after issuance of the Presiding Board's decision. Those recommendations are to include whether the Commission should remove the condition imposed in the TMI-1 restart proceeding barring certain individuals from certain positions at TMI-1.

After reviewing the Board's recommended decision and the NRC Staff's recommendations, the Commission will decide what further steps, if any, need to be taken with regard to involved individuals. This will include consideration of whether



to remove TMI-1 employment constraints and whether to initiate formal enforcement action or take any licensing action with regard to involved individuals. If as a result of its review the Commission institutes a formal enforcement proceeding<sup>3</sup> or takes any licensing action, the facts found by the Presiding Board and Commission in the hearing ordered here will not be binding in the subsequent enforcement or licensing proceeding.

It is so ORDERED.

Commissioners Asselstine and Bernthal disapproved this Order and provided separate views.

For the Commission<sup>4</sup>

SAMUEL J. CHILK  
Secretary of the Commission

Dated at Washington, D.C.,  
this 18th day of December 1985.

#### SEPARATE VIEWS OF COMMISSIONER ASSELSTINE

I cannot agree with the hearing procedures established by the Commission in this order.

First, the Commission should simply hold an adjudicatory hearing on this issue rather than setting up some sort of ersatz legislative proceeding. Since the Commission will not do that, however, they should at least have modified some of the more unreasonable provisions. At a minimum any party to the TMI-1 Restart proceeding who wishes to participate in this proceeding should be automatically admitted as a party without having to establish standing. Further, holding the "hearing" in the Washington, D.C. area seems to needlessly make participation in this proceeding more difficult than it should be.

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<sup>3</sup> Because the leak rate falsification events to be addressed in this Board hearing are more than 5 years old, the 5-year statute of limitations set forth in 28 U.S.C. § 2462 may bar the NRC from subsequently instituting an enforcement proceeding for involvement in the events that are the subject of this hearing. However, the information developed in the hearing may be used for other purposes, for example, in evaluating whether an individual's operator license should be renewed.

<sup>4</sup> Commissioner Bernthal was absent when this order was affirmed. He had previously disapproved the Order and had he been present he would have affirmed his prior vote.

Second, the Commission should not exclude consideration of the involvement of all upper-level GPUN management. I explained in more detail my reasons for believing that the scope of this hearing should not be limited in my dissenting views on CLI-85-2 so I will not repeat them here. Suffice it to say that in my view relying solely on the statement of the U.S. Attorney at a court hearing on a bargained plea agreement is not a valid justification for ignoring management responsibility for the leak rate falsifications.

#### **SEPARATE VIEWS OF COMMISSIONER BERNTHAL**

I dissented from the path the majority chose in respect to the number and scope of additional hearings in relation to the Commission's restart of TMI-1. I continue to believe that the overriding consideration in the denouement of the TMI-1 restart proceeding is public confidence — the need for the public to be provided, to the extent reasonably possible, with all the facts relevant to the TMI accident and its aftermath.

I consider this hearing as ordered by the Commission unlikely to prove adequate for that important purpose.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**COMMISSIONERS:**

**Nunzio J. Palladino, Chairman**  
**Thomas M. Roberts**  
**James K. Asselstine**  
**Frederick M. Bernthal**  
**Lando W. Zech, Jr.**

**In the Matter of**

**Docket Nos. 50-289-RA**  
**50-289-EW**  
**(Special Proceeding)**

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

**December 19, 1985**

The Commission establishes procedures for determining whether to lift a condition imposed in the TMI-1 restart proceeding on GPU Nuclear Corporation. The condition requires GPU Nuclear to notify the Commission before assigning Robert Arnold or Edward Wallace to certain positions. The Commission solicits views from the public and the NRC Staff regarding whether Messrs. Arnold or Wallace willfully, knowingly, or with a reckless disregard for the truth made a material false statement to the NRC. If the Commission determines that there is a reasonable basis for answering that question affirmatively, the Commission will consider initiating an adjudicatory hearing to resolve whether to retain the notification requirement. If the Commission reaches a contrary determination, the Commission intends to lift the notification requirement.

## ORDER

The NRC Staff in NUREG-0680, Supp. No. 5, "TMI Restart. An Evaluation of the Licensee's Management Integrity as It Affects Restart of Three Mile Island Unit 1, Docket 50-289" (July 1984), concluded that Metropolitan Edison Co., the former licensee at Three Mile Island, Unit 1 ("TMI-1"), may have knowingly provided false information in the December 5, 1979 response to the NRC's October 25, 1979 Notice of Violation ("NOV"). In response to motions to reopen the record of the restart proceeding on this issue, the Commission found the issue no longer significant to TMI-1 restart, because Robert Arnold and Edward Wallace — the two individuals primarily responsible for the response — were no longer associated with TMI-1 activities. The Commission required licensee "to notify the Commission before returning either of these individuals to responsible positions at TMI-1." *Metropolitan Edison Co. (Three Mile Island Nuclear Station, Unit 1)*, CLI-85-2, 21 NRC 282, 323 (1985).

Subsequent to issuance of that order, Arnold and Wallace requested "a separate hearing to determine whether the adverse implications about the undersigned's management integrity are factually substantiated." They maintained that the NRC's statements "have damaged [their] good name, reputation, and honor and [their] opportunity to work and to obtain professional advancement." While Arnold and Wallace are primarily concerned about the conclusions regarding the licensee's December 5, 1979 response to the NOV, they also requested that the hearing address "any other issues raised by the Commission or its agencies that the Commission judges to be a constraint on [their] utilization for activities regulated by the Commission."

The NRC Staff in NUREG-0680, Supp. No. 5, discussed the potential involvement of individuals, including Arnold and Wallace, in several matters that raised questions about the integrity of GPU Nuclear's Management. Wallace was not potentially involved in any issue other than the December 5, 1979 NOV response. Arnold, on the other hand, was potentially involved in four issues: TMI-2 leak rate falsification, the false certification of James Floyd, the discrimination against Richard Parks, and the response to the NOV. The Commission will discuss below whether or not it views any or all of these issues to constitute a constraint on the employment of Arnold or Wallace in activities regulated by the Commission.

The Commission is not aware of any information implicating Arnold in TMI-2 leak rate falsifications. In fact, the U.S. Attorney specifically

cleared Arnold, among others, in his statement at the TMI-2 leak rate falsification sentencing hearing. See CLI-85-2, *supra*, 21 NRC at 305. The Commission has instituted a separate hearing "to develop the facts surrounding the . . . falsifications . . . in sufficient detail to determine the involvement of any individual who may now work, or in the future work, at a nuclear facility licensed by the Commission." CLI-85-18, 22 NRC 877, 880 (1985). However, that hearing will not address those cleared by the U.S. Attorney, which includes Arnold, because "agency resources should [not] be used to duplicate the work of the Grand Jury where the result of that inquiry is known." CLI-85-2, 21 NRC at 306. Accordingly, the Commission finds that the TMI-2 leak rate falsification issue is not a constraint on Arnold's employment in activities regulated by the Commission.

With regard to the false certification of Floyd, the Commission has taken enforcement action in that matter, and Floyd has been criminally convicted. No enforcement action was taken, or is under consideration against Arnold. Further, in CLI-85-2, no finding was made directly implicating Arnold in wrongdoing, nor was any condition imposed affecting Arnold as a result of this matter. This issue therefore is not a constraint on Mr. Arnold's employment in activities regulated by the Commission. See 21 NRC at 320-21.

Concerning the discrimination against Parks, the Commission, in CLI-85-2 concluded that this issue did not meet the standards for reopening because Bechtel, the contractor, must bear primary responsibility, and because there was no showing of a widespread pattern of discrimination. The Commission also found that the removal of Mr. Arnold, "the major GPUN official involved," removed any overlap between TMI-2, where the discrimination occurred, and TMI-1. The Commission in that connection did not impose any constraints on Mr. Arnold's employment. The NRC has proposed imposing a civil penalty against the licensee because of its responsibility for the discrimination. In reviewing this civil penalty, the Commission again determined that no action against Mr. Arnold was warranted. Accordingly, this issue is not a constraint on Mr. Arnold's employment in activities regulated by the Commission.

Therefore, the only remaining issue which may be viewed as a constraint on Arnold's and Wallace's employment is the notification requirement in CLI-85-2 which grew out of the December 5, 1979 response to the NOV. The Commission has determined that the most appropriate method to resolve the issues relating to the NOV is to invite written submissions from interested persons, particularly the parties to

the TMI-1 restart proceeding.<sup>1</sup> The NRC Staff is to submit comments. Comments are to be submitted by January 24, 1986.

The Commission encourages commenters to address the following questions:

- (1) Does any part of the following statements in licensee's December 5, 1979 NOV response constitute a material false statement:

Metropolitan Edison believes that Emergency Procedure 2202-1.5, "Pressurizer System Failure", [sic] was not violated during the period from October 1978 through March 28, 1979 notwithstanding the temperatures of the discharge line from the pilot operated (electromatic) relief valve ("PORV"). Although this procedure was understood by the plant staff, it is not clearly written and does not reflect actual plant conditions. It will be changed. However, although Metropolitan Edison is concerned about the issue, there is no indication that this procedure or the history of the PORV discharge line temperatures delayed recognition that the PORV had stuck open during the course of the accident.

- (2) If there was a material false statement, what knowledge and involvement, if any, did Arnold and Wallace have in making that statement?
- (3) If Arnold or Wallace knew of or were involved in making a material false statement, does that knowledge or involvement indicate willful or reckless conduct by either of them?

The Commission is interested in the facts; mere argument or speculation about knowledge or involvement will not be adequate. If based on the information submitted by the commenters or otherwise available to it, the Commission determines that there is information which could form a reasonable basis for concluding that either Wallace or Arnold willfully, knowingly, or with a reckless disregard for the truth made a material false statement to the NRC, it will consider initiating an adjudicatory hearing to resolve whether to retain the notification requirement in CLI-85-2. If, on the other hand, the determination is to the contrary, the Commission intends to issue an order lifting the notification requirement imposed in CLI-85-2.

It is so ORDERED.

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<sup>1</sup> The Commission is handling the Arnold and Wallace request for the hearing outside of the TMI-1 restart proceeding because the outcome of their request can no longer have any bearing on whether TMI-1 should be permitted to operate. If Arnold and Wallace have engaged in wrongdoing, the remedy would be to retain or strengthen the condition in CLI-85-2, not to revoke or suspend GPU Nuclear's license to operate TMI-1.

Both Commissioners Asselstine and Bernthal approved the Order in part and disapproved it in part. Each provided separate views.

For the Commission<sup>2</sup>

SAMUEL J. CHILK  
Secretary of the Commission

Dated at Washington, D.C.,  
this 19th day of December 1985.

#### SEPARATE VIEWS OF COMMISSIONER ASSELSTINE

I agree in general with the Commission's order as it relates to the Arnold and Wallace hearing requests on the issue of their involvement in the response to the NRC's October 25, 1979 Notice of Violation. However, I do not agree with the Commission's conclusion, at least as it relates to Arnold, that there is no other issue which could be a constraint on the ability of the utility to use Arnold in activities regulated by the Commission. It appears to me that there are at least two other issues which could have a bearing on that question — the TMI leak rate issue and the discrimination against Parks. The Commission has never really come to grips with either of these issues, either as they relate to TMI-1 Restart or as they relate to Arnold.

The Commission absolves the upper-level management of GPU from responsibility for the TMI leak rate falsifications based upon the statement of the U.S. Attorney who prosecuted the utility. Unfortunately, the Commission has no idea upon what information the U.S. Attorney based his conclusion. The Grand Jury information is secret and the Commission never conducted its own investigation of the Hartman allegations on TMI-2 leak rate. As I said in my separate views on the Commission's decision not to reopen the TMI hearing, the Commission should just hold a hearing on the issue and resolve any doubts about the involvement of individuals. See CLI-85-2, 21 NRC at 348. If they will not do that, they should treat the leak rate issue, at least for purposes of

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<sup>2</sup> Commissioner Asselstine was absent when this Order was affirmed. He had previously approved the Order in part and disapproved it in part. Had he been present he would have affirmed his prior vote.

the Arnold hearing request, exactly like they are treating the NOV; they should include the leak rate issue in the somewhat modified summary disposition proceeding established by the Commission's order.

The Commission should also include the Parks discrimination issue as a possible subject of the hearing. One of the bases for the Commission's decision not to reopen the TMI-1 restart proceeding on this issue was the fact that "Robert Arnold, the major GPUN official involved, is no longer associated with TMI-1 activities." 21 NRC at 329. Thus, the extent of Arnold's involvement has never been fully explored. The Commission should at least consider whatever information is available about his involvement and treat this issue like they are treating the NOV issue.

Rather than trying once again to skirt the leak rate and the Parks issues, the Commission should confront them, at least as they relate to Arnold. The Commission should give all interested parties an opportunity to present whatever facts are available on Arnold's involvement in all three of these matters. The Commission should then determine whether there is sufficient information to warrant holding a hearing.

#### **SEPARATE VIEWS OF COMMISSIONER BERNTHAL**

Messrs. Arnold and Wallace have requested a hearing to attempt to clear their names regarding any matter which the Commission believes may impact their ability to be employed at TMI-1. I agree with the order insofar as it provides the opportunity for anyone having knowledge of the involvement of either individual in a possible willful material false statement to come forward now. However, while I have no preconceptions about the issue, it is also true that Mr. Arnold's name has, in the past, been associated with the alleged harassment of Richard Parks. Further, it should be recalled that in my views regarding CLI-85-2, 21 NRC 282, 349-52 (1985), I called for further hearings regarding the Parks matter as a matter of sound policy. It appears to me only fair, given the request of Messrs. Arnold and Wallace, that in addition to the NOV response, Mr. Arnold be provided the opportunity once and for all, to confront evidence anyone might possess which could implicate him in harassment of Richard Parks. I would therefore have required interested members of the public (and NRC Staff) to present whatever evidence they might have which bears on either matter.



# Atomic Safety and Licensing Appeal Boards Issuances

ATOMIC SAFETY AND LICENSING APPEAL PANEL

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Dr. W. Reed Johnson  
Thomas S. Moore  
Christine N. Kohl  
Gary J. Edles  
Dr. Reginald L. Gotchy  
Howard A. Wilber

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING APPEAL BOARD**

**Administrative Judges:**

**Gary J. Edles, Chairman**  
**Dr. W. Reed Johnson**  
**Christine N. Kohl**

In the Matter of

Docket No. 50-289-SP  
(Management Phase)

**METROPOLITAN EDISON COMPANY,**  
*et al.*

(Three Mile Island Nuclear  
Station, Unit No. 1)

December 18, 1985

The Appeal Board affirms on sua sponte review the Licensing Board's final two partial initial decisions in this special proceeding that resolved in the licensee's favor issues affecting the central question of management competence and integrity.

**APPEAL BOARD: SUA SPONTE REVIEW**

In the absence of an appeal, an appeal board will review on its own initiative any final licensing board decision (and pertinent portions of the underlying record) concerning significant safety or environmental issues. *Sacramento Municipal Utility District (Rancho Seco Nuclear Generating Station)*, ALAB-655, 14 NRC 799, 803 (1981).

**APPEAL BOARD: SUA SPONTE REVIEW**

An appeal board's affirmance on sua sponte review of a licensing board's decision accords no stare decisis effect to any of the licensing

board's conclusions on purely legal matters. *Consumer's Power Co.* (Big Rock Point Plant), ALAB-795, 21 NRC 1, 2 (1985).

## DECISION

We have before us for sua sponte review the Licensing Board's final two partial initial decisions in this special proceeding.<sup>1</sup> They resolve in the licensee's favor issues affecting the central question of management competence and integrity — namely, the adequacy of licensed operator training, and the circumstances surrounding a May 1979 mailgram sent by Herman Dieckamp (President of the licensee's parent firm, General Public Utilities (GPU)) to Congressman Morris Udall.<sup>2</sup> Both decisions were issued in response to our remand in ALAB-772, where we found that further record development was necessary before we could make any final judgment regarding the licensee's overall management capability.<sup>3</sup>

In the absence of an appeal,<sup>4</sup> we review on our own initiative any final licensing board decision (and pertinent portions of the underlying record) concerning significant safety or environmental issues.<sup>5</sup> Our review of the Licensing Board's thorough, well written decisions here has disclosed no error necessitating corrective action, and therefore we affirm both.<sup>6</sup> Indeed, the Board more than fulfilled the terms of our remand, conducting hearings and issuing decisions more comprehensive

<sup>1</sup> See LBP-85-15, 21 NRC 1409 (1985); LBP-85-30, 22 NRC 332 (1985).

<sup>2</sup> In LBP-85-15, the Licensing Board imposed a condition requiring the licensee to implement a plan for formal on-the-job evaluation of operator performance. See 21 NRC at 1502, 1536-37. The licensee thereafter submitted such a plan, and the Board approved it. LBP-85-21, 21 NRC 1751 (1985).

<sup>3</sup> 19 NRC 1193, 1232-39, 1265-68, 1279-80 (1984). We also reopened the record and ordered the Licensing Board to conduct hearings with respect to allegations that leak rate data at Unit 1 had been falsified, *id.* at 1276-78, but the Commission reversed our decision on this score and decided that no hearing on that subject was warranted. CLI-85-2, 21 NRC 282, 306-14, *reconsideration denied*. CLI-85-7, 21 NRC 1104 (1985). Earlier, we had reopened the record and required the Licensing Board to hold hearings on the so-called "Hartman allegations" of falsification of leak rate data at Unit 2. ALAB-738, 18 NRC 177, 183-92 (1983). But after staying these proceedings the Commission some time later determined that the Hartman allegations "no longer raise[d] a significant safety issue" so as to warrant further hearings in this proceeding. CLI-85-2, 21 NRC at 304-05. Nevertheless, it decided to institute a separate proceeding to consider certain aspects of the Hartman allegations. *Id.* at 305-06. Thereafter, the Commission lifted the order directing that Unit 1 remain shut down and permitted resumption of operations. CLI-85-9, 21 NRC 1118, *aff'd*, *Three Mile Island Alert, Inc. v. NRC*, 771 F.2d 720 (3d Cir. 1985), *petition for cert. filed sub nom. Aamodt v. NRC*, 54 U.S.L.W. 3463 (U.S. Dec. 18, 1985) (No. 85-1095).

<sup>4</sup> Appeals from both Licensing Board decisions here were timely filed but thereafter withdrawn. See Appeal Board Order of October 21, 1985 (unpublished).

<sup>5</sup> *BCX* *Sacramento Municipal Utility District* (Rancho Seco Nuclear Generating Station), ALAB-655, 14 NRC 799, 803 (1981) *BCSX*.

<sup>6</sup> In accordance with our standard practice, no stare decisis effect, however, is to be accorded any of the Licensing Board's conclusions on purely legal issues. *BCX* *Consumer's Power Co.* (Big Rock Point Plant), ALAB-795, 21 NRC 1, 2 (1985) *BCSX*.

than we had anticipated. We nevertheless offer a few parting observations regarding the matter of licensed operator training, to which the Commission gave special emphasis in its 1979 order instituting this proceeding, and which we characterized as "[t]he most significant issue requiring further hearing."<sup>7</sup>

The initial record and Licensing Board decision on training were unquestionably substantial. The concern that prompted our remand, however, was that, following the revelation of cheating on licensee and NRC reactor operator examinations and the Board's reopening of the record to explore that matter, the Board failed to reevaluate adequately its original, favorable conclusions with regard to the licensee's training program. We found this to be particularly true insofar as concerned the testimony of the outside consultants who were members of the Operator Accelerated Retraining Program (OARP) Review Committee and upon whom the Board had heavily relied.<sup>8</sup> We therefore directed the Board to obtain the further views of these individuals in light of the disclosures of cheating and other incidents that reflected negatively upon licensee's training program.<sup>9</sup>

The Licensing Board described the OARP Review Committee as "a select committee made up of experts in the fields of educational psychology, engineering/human factors psychology, nuclear engineering education, nuclear power generation, and nuclear power plant operator training."<sup>10</sup> The Committee's reassessment of the TMI training program in response to ALAB-772 was carried out in two phases. Within a week of the issuance of our decision, the Committee met to take a quick look at the training program, primarily through documentation and briefings with the licensee's training staff. The Committee then prepared a Special Report of its observations — an 87-page document submitted to the Commission for consideration in connection with its then-pending restart deliberations.<sup>11</sup>

The second phase of the Committee's assessment, when the Committee members scrutinized the training program itself, took place during August-November 1984. They observed classes, interviewed operators

<sup>7</sup> CLI-79-8, 10 NRC 141, 144-45 (1979); ALAB-772, 19 NRC at 1279.

<sup>8</sup> ALAB-772, 19 NRC at 1233.

<sup>9</sup> *Id.* at 1234-37.

<sup>10</sup> LBP-85-15, 21 NRC at 1414 n.1. *See also* ALAB-772, 19 NRC at 1210-11.

<sup>11</sup> LBP-85-15, 21 NRC at 1509-12; Tr. 33,351. One of the documents the Committee reviewed at this time was the licensee's self-evaluation of the training program, which had been prepared for submission to the Institute for Nuclear Power Operations (INPO) as part of an accreditation process. *See* note 18, *infra*. One Committee member, Dr. Eric Gardner, considered this material to be a uniquely valuable description of the program. For, as he made clear under cross-examination, the licensee was likely to be candid in its program assessment, knowing that an INPO site visiting team was coming to make its own in-depth evaluation. Tr. 33,352. Dr. Gardner's reasoning is persuasive.

and instructors, and visited facilities both at TMI and in Lynchburg, Virginia, where they reviewed the simulator training program.<sup>12</sup>

The Committee filed testimony in the remand hearing, documenting its updated assessment of the TMI training program and including its earlier Special Report. The Committee also submitted rebuttal testimony, responding to the prefiled testimony of intervenor Union of Concerned Scientists and the NRC staff. The OARP Review Committee's overall evaluation is that the training program is effective and adequate to justify restart of Unit 1.<sup>13</sup>

It is not necessary for us to review here particular aspects of the Committee's testimony and findings. The Licensing Board has done this job exhaustively and well, discussing and disposing of criticisms of the Committee's work raised by the parties below.<sup>14</sup> We note only that, in accordance with ALAB-772, the Committee's assessment of the licensee's training program specifically takes the cheating incidents into account. Although it was unable to identify the root causes of the cheating, the Committee concluded that, in any event, the licensed operator training program as it now exists at TMI is effective.<sup>15</sup> Indeed, in its opinion, the GPU Nuclear Training and Education Department "now ranks among the top utility training programs in the United States."<sup>16</sup> Based on the Committee's testimony and that provided by the other witnesses (and subject to a now-satisfied condition<sup>17</sup>), the Licensing Board reasonably concluded that the training program at TMI is effective and adequate.<sup>18</sup>

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<sup>12</sup> LBP-85-15, 21 NRC at 1513-22. A TMI replica simulator is scheduled to be installed at the improved onsite training facility in late 1985. Already in operation there is a Basic Principles Training Simulator. *See id.* at 1430-33.

<sup>13</sup> Fol. Tr. 31,749 at 31; fol. Tr. 33,320 at 18.

<sup>14</sup> *See* LBP-85-15, 21 NRC at 1508-35.

<sup>15</sup> Fol. Tr. 31,749 at 31.

<sup>16</sup> *Id.*, Attachment I at 82.

<sup>17</sup> *See* note 2, *supra*.

<sup>18</sup> *See* LBP-85-15, 21 NRC at 1535-36. The Board also indicated that, at the time of the hearing, the licensee was seeking accreditation of its licensed operator training program from INPO. Although the Board disclaimed reliance on the INPO accreditation in reaching its decision, it took official notice that such accreditation was obtained on February 28, 1985. *Id.* at 1421, 1503-08. The Commission has generally endorsed the INPO-managed training accreditation program. *See* 50 Fed. Reg. 11,147 (1985).

Our earlier concerns having been allayed, the Licensing Board's decisions are *affirmed*.

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker  
Secretary to the  
Appeal Board

# Atomic Safety and Licensing Boards Issuances

## ATOMIC SAFETY AND LICENSING BOARD PANEL

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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

**James L. Kelley, Chairman**  
**Dr. James H. Carpenter**  
**Glenn O. Bright**

**In the Matter of**

**Docket No. 50-400-OL**  
**(ASLBP No. 82-472-03-OL)**

**CAROLINA POWER & LIGHT  
COMPANY and  
NORTH CAROLINA EASTERN  
MUNICIPAL POWER AGENCY  
(Shearon Harris Nuclear Power  
Plant)**

**December 11, 1985**

In this Partial Initial Decision, the Licensing Board decides several emergency planning and safety issues in the Applicants' favor. The Board also states its reasons for accepting and rejecting numerous contentions based upon the emergency planning exercise for the Shearon Harris facility.

**EMERGENCY PLANNING: EXERCISE CONTENTIONS**

Contentions based on an applicant's emergency planning exercise should be considered in light of the fact that they arise at the end of a lengthy public evaluation process and that the exercise has been evaluated by the Federal Emergency Management Agency. Thus, only contentions alleging fundamental flaws in planning should be admitted; those alleging minor or readily correctable problems should be rejected.



## TECHNICAL ISSUES DISCUSSED

Effectiveness of Sheltering  
Fire Protection  
Pipe Hanger Welding  
Steam Generator Tube Failure Analysis.

## APPEARANCES

**Thomas A. Baxter, John H. O'Neill, Jr., and Delissa A. Ridgway,** Washington, D.C., and **Richard E. Jones and Dale E. Hollar,** Raleigh, North Carolina, for the Applicants Carolina Power & Light Company and North Carolina Eastern Municipal Power Agency

**Wells Eddleman,** Durham, North Carolina, *pro se.*

**Stephen Rochlis** for the Federal Emergency Management Agency.

**Charles A. Barth and Janice E. Moore** for the Nuclear Regulatory Commission Staff.

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# PARTIAL INITIAL DECISION ON EMERGENCY PLANNING AND SAFETY CONTENTIONS

## I. INTRODUCTION

The factual and procedural background concerning this contested operating license case is set forth in our first partial initial decision on environmental issues. LBP-85-5, 21 NRC 410, 412-14 (1985). A second Partial Initial Decision addressed most of the safety contentions that were heard in the Fall of 1984. LBP-85-28, 22 NRC 232 (1985). This third Partial Initial Decision addresses the remaining safety contentions (except for the drug use contention currently before the Board) and the emergency planning contentions that were heard in June 1985. It resolves those contentions in favor of the Applicants and adversely to the Intervenors. The Decision also has the effect of making other dispositive Board rulings on emergency planning contentions — i.e., rulings granting summary disposition motions or rejecting proposed contentions — ripe for appellate review.

Hearings were held on the drug use contention and an emergency planning contention about siren effectiveness in November 1985. The Board anticipates that those contentions will be decided in early 1986.

## II. EMERGENCY PLANNING CONTENTIONS

### A. Protection Factors of Structures in the EPZ

#### 1. Introduction

1. Eddleman Contention 57-C-10, as originally admitted by the Board, stated in pertinent part that:

The State Plan provides no useful analyses or information on sheltering effectiveness . . . . The Plan does not comply with Evaluation Criterion J.10.m. of NUREG-0654, which calls for "expected local protection factors in residential units or other shelter for direct and inhalation exposure . . . ."

The Applicants performed a study of residential structures in the EPZ which formed the basis for their motion for summary disposition. We granted that motion in part, leaving for litigation "the adequacy of the Applicants' review of sheltering other than single family residential." Unpublished Memorandum and Order of April 24, 1985, at 6. Thus the remaining issue concerned the protection factors for "typical institutional

structures (schools, churches, etc.) commercial structures and industrial facilities in the plume EPZ." *Id.* at 6-7.

## **2. Witnesses**

2. Guy Martin, Jr., and Joseph F. Myers testified for the Applicants. Mr. Martin is Manager of the Radiological Assessment Department of Ebasco Services, Inc. He has a master's degree in nuclear engineering and has experience in performing analyses to determine the sheltering effectiveness of buildings. Direct Testimony of Guy Martin, Jr., on Eddleman Contention 57-C-10, ff. Tr. 7895 (hereinafter "Martin"), at 1-2. Mr. Myers is the Director of the Division of Emergency Management ("DEM") of the North Carolina Department of Crime Control and Public Safety. The basic responsibilities of DEM include fulfilling the State's role in emergency planning for natural and man-made disasters, in responding to and recovering from disasters, and in mitigating their effects. John C. Heard and Thomas I. Hawkins testified for FEMA and the NRC Staff. Both are employed by FEMA in the Natural and Technological Hazards Division, Technological Hazards Branch, Region IV, Atlanta, Georgia. As Branch Chief and Emergency Management Program Specialist, respectively, Messrs. Heard and Hawkins are responsible for providing assistance to State and local governments in the preparation of radiological emergency response plans. Mr. Eddleman did not call any witnesses on his behalf.

## **3. Sheltering Effectiveness — the Concepts Involved**

3. The Applicants' Proposed Findings 43-45 provide a helpful explanation of the concepts involved in sheltering effectiveness. We adopt those findings, as set forth below:

43. The sheltering effectiveness of a structure is measured in terms of its Protection Factor (PF). The PF is the ratio of the radiation dose outside the structure to the dose inside. It indicates the degree to which a structure would afford protection from a radiation release in comparison with no shelter at all. Martin at 4.

44. Evaluation Criterion J.10.m. of NUREG-0654 calls for a determination of protection for both direct and inhalation exposures. Direct exposure is that which results from radiation impinging directly on the human body and organs either from airborne or deposited nuclides. Airborne nuclides are the source of radiation in the air; direct exposure results when radiation (mainly in the form of gamma rays) is absorbed by the body. Deposited nuclides may be on the outside of the structure, such as on the roof or in the ground surrounding a building; radiation from these sources may penetrate a structure and the occupants inside. In contrast to direct radiation exposure, which results from radiation impinging directly upon the body and its

organs, inhalation exposure results from breathing radioactive material in the air. In the event of an airborne release of radioactive material, the inhalation exposure to a person inside a structure increases over time because air carrying radionuclides penetrates the building so that the concentration of radionuclides inside eventually approaches the outside concentration. How quickly this will occur depends upon the air exchange between the structure and the outside atmosphere. Martin at 4-5.

45. The sheltering effectiveness of a structure is a function of the mass of material between the source of radiation and the person inside. The PF of the building will be greater for a building that is constructed of dense materials in which there are a number of floors between the radiation source and the occupied area. Thus, the most important structural characteristics are the type of construction and exterior finish, number of stories, and presence or absence of a basement. A building of brick or concrete or similar construction generally has a higher PF than one of wood frame construction. A multi-story structure generally provides more protection than a one-story structure. If a basement is available, it will provide even better protection. Since the inhalation exposure PF is a function of the air exchange rate between the structure and the outside, data concerning the windows and other exterior openings are also relevant. Martin at 5.

#### **4. *The Applicants' Surveys***

4. Applicants' Proposed Findings 40-53 describe their surveys of the sheltering effectiveness of buildings in the plume EPZ. Except in the minor respects noted below in Mr. Eddleman's proposed findings, the Applicants' evidence in support of their proposed findings was not impeached. We adopt the Applicants' Proposed Findings 46-53, as follows:

46. The ERP has already been amended to reflect the results of Applicants' survey of residential units in the Harris plume EPZ. Information on the PFs of typical residential structures is included in the ERP. Martin at 8; Myers at 2; Applicants' Exh. 29.

47. DEM staff members, Mr. Martin and other Ebasco personnel worked together to gather the necessary information to determine the PFs of institutional, commercial and industrial structures in the Harris plume EPZ. Information was gathered from a variety of sources including the property tax records of the counties in the EPZ, information maintained by Carolina Power & Light Company district managers, discussions with various persons knowledgeable about the Harris EPZ (including members of local chambers of commerce, municipal clerks and postal employees), State listings of manufacturing facilities, State tax records, and State aerial photographic maps of the EPZ area. A road survey was also conducted to confirm the information obtained. Martin at 6-7; Myers at 2.

48. As a result of the survey, it has been determined that the predominant type of commercial/industrial structure in the EPZ is small retail establishments, such as service stations, fast food restaurants and convenience markets. However, a smaller number of major establishments has a greater capacity for sheltering the population. Fifty-one large commercial and industrial facilities were identified in the Harris

EPZ, and they can be divided into six categories: (1) shopping centers; (2) butler-type buildings; (3) steel frame, brick/concrete buildings; (4) multi-story homogeneous structures; (5) complex sites; and (6) downtown shopping districts. Martin at 7-8.

49. Institutional buildings in the Harris EPZ can be divided into three major categories: (1) schools; (2) churches; and (3) hospitals and nursing homes. There are also a number of other types of institutional structures in the EPZ. However, these structures were not separately analyzed because they either are of residential-type construction or are an integral part of another institutional structure. Information on the PFs of residential structures is already in the ERP. Martin at 8; Myers at 2.

50. Representative structures within each of the six categories of large commercial/industrial structures were selected for detailed analysis. They were selected so as to represent the range of construction type within each category. In addition, two schools were selected as representatives of the type of design and construction used by all school facilities. Each of these facilities was visited to obtain more detailed information regarding the construction material, wall, floor and roof thickness, among other characteristics. The information derived was transmitted to FEMA for input into FEMA's Shelter Analysis for Nuclear Defense (SAND) computer code which was used to calculate PFs for direct exposure to deposited nuclides. The identification of PF values for churches and small commercial structures was made by comparing their construction characteristics to those of typical residences for which protection factors were previously determined. Similarly, based upon an earlier survey of the hospitals, nursing homes, family care facilities and Homes for the Elderly (a senior citizen community), construction characteristics were identified and compared to those for other structures for which protection factors are known. Martin at 8-11.

51. On the basis of the information obtained, a range of protection factors for representative structures in each of the six categories of major commercial/industrial structures and for the two representative schools was derived. Martin at 11-12 and Attachments 6-8. Using a series of standard calculations, a range of protection factors for inhalation exposure was also derived for commercial and industrial structures and schools. Martin at 12 and Attachment 5.

52. For the typical smaller commercial establishments and churches in the EPZ, the range of PFs was determined by comparing their construction characteristics to those of typical residences in the EPZ. The range of PFs for direct exposure is comparable to that for residences in the EPZ. For inhalation exposure, the range of PFs for typical smaller commercial establishments is derived in the same manner as for other commercial and industrial structures. For a typical church, the range for PFs for inhalation exposure would be comparable to that for residences. Family care facilities in the EPZ are of residential construction and their range of PFs is the same as for typical residences. The relevant structural characteristics of the nursing homes are similar to those for the smaller commercial establishments. Thus, the nursing home PFs have a range comparable to that for typical small commercial structures. The hospitals have structural characteristics comparable to certain wings of schools that were visited and analyzed. Thus, the hospital PFs fall within the range of school PFs. Martin at 12-13 and Attachments 5, 8.

53. The Division of Emergency Management has accepted the results of the survey and the protection factor estimates for typical institutional, commercial and industrial structures in the Harris EPZ. The ERP will be amended to reflect the results of the survey and to include an analysis of the level of protection from radiation releases afforded by representative commercial, institutional and industrial structures in the Harris EPZ that could be used as shelter in the event of an accident at the Harris Plant. The information will be available to officials who will decide what protective action (that is, evacuation or sheltering of the population) to take in the event of an accident at the Harris Plant. Myers at 3; Tr. 7904, 8058 (Myers).

### **5. Intervenor's Proposed Findings**

5. Mr. Eddleman's Proposed Findings 1-11 and 16 find some isolated support in the record, but read in context they do not undercut the Applicants' case. The thesis underlying certain of these findings appears to be that the survey of structures must be more site-specific than the survey the Applicants' actually conducted. Thus, Proposed Finding 4 implies that the surveyors must look for cracks in particular buildings. Similarly, Proposed Finding 9 faults the survey because assumed air change rates "are not specific to typical wind speeds around the Harris site." These proposed findings misconceive the purpose of the requirement that sheltering effectiveness in the EPZ be assessed. The purpose is to allow planners to make informed, but relatively gross, judgments about sheltering in the EPZ as a whole, or large segments of the EPZ, wherever people happen to be at the time. Its purpose is *not* to assist decisionmakers in deciding whether to move people, e.g., from wood buildings to brick buildings, seeking to maximize sheltering protection. See Tr. 8151, 8156 (Heard). Thus, what the decisionmakers need is a manageable set of reasonable estimates, not a finely tuned and detailed mass of data. Similarly, we see no need to develop varying infiltration estimates based on "typical wind speeds around the Harris site" — at least in the absence of any evidence that high wind speeds are typical. Mr. Martin was justified in relying on published studies for estimates of infiltration rates, which were incorporated into his conclusions. Martin Testimony, Attachment 5, at 1; Tr. 8027. Furthermore, we can assume that planners faced with an evacuation/sheltering decision and a high prevailing wind could take that factor into account on an *ad hoc* basis, noting, for example, that while the high wind might increase infiltration rates in buildings, presumably it would also disperse the radioactive release more rapidly.

6. Mr. Eddleman's Proposed Finding 12 states that the Applicants' summaries of protection factors "collapse data to the point that the ranges given are not typical of the actual structures within the EPZ." It is true that these summaries are not designed to and do not necessarily

convey protection factor information about "typical" structures. They merely provide low- and high-range data on various categories of buildings. See Attachment 8 to Mr. Martin's testimony. But that is all that is necessary for emergency planning purposes. Indeed, as discussed in ¶ 9 below, it probably would have been sufficient to determine that the non-residential structures in the EPZ generally have higher protection factors than residences.

7. Mr. Eddleman's Proposed Finding 17 asserts that "there is no evidence that the PF's of structures in the EPZ do all fall in [the] ranges" listed in the Applicants' direct case. This proposed finding largely ignores the Applicants' uncontradicted case, including their fairly detailed description of how their survey was performed. See Applicants' Proposed Findings 47-50, which the Board has adopted. Furthermore, that there may be a few isolated buildings in the EPZ which fall outside the Applicants' ranges is both irrelevant and unlikely.

8. Mr. Eddleman's Finding 18 faults the survey for not making separate calculated measurements of protection factors for churches and small commercial structures. Uncontradicted testimony in the record confirms the common-sense expectation that protection factors for churches and small commercial structures are similar to residential structures. See Applicants' Proposed Finding 52, which the Board has adopted. We think the Applicants took a reasonable approach and that separate calculations for all such structures would have been a waste of time. Furthermore, calculations were made for inhalation exposures of small commercial establishments.

9. Eddleman Proposed Finding 19 notes a "low range of airborne direct exposure Protection Factors of about 1.2" in non-residential buildings, or less than that provided "in a single story brick house with no basement." Proposed Finding 20 points in the same direction. The apparent implication is that reliance on the brick house protection factors as a basis for a sheltering decision would not be conservative. While that may be true as an abstract proposition, it would not happen in this case. As shown by a comparison of Applicants' Exhibit 29 with Attachment 8 to Mr. Martin's testimony, single-story wood frame houses with no basement are the general category of structures in the EPZ with the lowest protection factors, substantially lower than virtually all commercial/industrial buildings and schools. Furthermore, the Applicants' motion for summary disposition establishes that most of the houses in the EPZ are of wood or similar construction, not brick or stone. It seems reasonable to assume, therefore, that the protection factors of wooden houses would be taken into account in a conservative decision whether to shelter. In any event, since the Board, in effect, required the Applicants to



expand their initial survey beyond residential houses to other structures, all of the relevant protection factors will be before the decisionmakers. The manner in which they would make that decision is beyond the scope of this contention.

10. Eddleman Proposed Findings 20-22 seek to raise questions about the value of the FEMA witnesses' testimony on this contention. The thrust of that brief testimony was that the use of residential protection factors as a basis for choice between available protective action options is "conservative since larger, institutional-type structures being normally more spacious and massive, offer a greater degree of protection." Testimony of Heard and Hawkins at 3. This broad generalization is supported by the Applicants' empirical data, particularly with respect to deposited nuclides. See Attachment 8 to Mr. Martin's testimony. However, we agree with Mr. Eddleman that FEMA's consideration of this contention was cursory and that FEMA did not materially contribute to the record. Whether, in these circumstances, the FEMA presentation should nevertheless be accorded substantial evidentiary weight (see 10 C.F.R. § 50.47(a)(2)) is ultimately not significant, because the Applicants presented a substantial case which Mr. Eddleman failed to rebut in any material respect. The Board is relying primarily on the Applicants' case in resolving this contention.

11. With the inclusion in the State Emergency Plan of information on the protection factors of representative institutional, commercial and industrial structures in the EPZ, the plan will meet Evaluation Criterion J.10.m of NUREG-0654 and the Applicants will have met their burden with respect to Eddleman Contention 57-C-10.

## **B. Eddleman Contentions Based on the Emergency Planning Exercise**

### ***1. Introduction and Standards***

On May 17-18, 1985, the preliminary emergency planning exercise required by 10 C.F.R. Part 50, Appendix E, § IV.F, was conducted for the Shearon Harris facility. Participants in the exercise included CP&L, the State of North Carolina, and the four counties in the plume EPZ — Wake, Chatham, Harnett and Lee Counties. Representatives of the FEMA and NRC staffs were present as observers. FEMA subsequently issued an "Exercise Report" and "Interim Findings" based on the exercises, which were transmitted to the NRC on August 7, 1985. The NRC Staff prepared a report (No. 50-400/85-20) focusing on onsite aspects of the exercise. Officials of the State of North Carolina prepared an "Evaluation Report" on the exercise, which was accompanied by an "Opera-

tions Journal" and copies of messages of the State Emergency Response Team.

On September 30, 1985, Mr. Eddleman served a set of twelve contentions based on the emergency planning exercise as reflected in the documents cited above. The text of these contentions is set forth in the attachment hereto. The Applicants and the NRC Staff subsequently filed pleadings in opposition to all twelve contentions. Mr. Eddleman then filed a reply to those oppositions.

On November 5, 1985, at the close of the evidentiary hearing on Eddleman Contention 57-C-3, the Board ruled on the twelve exercise contentions. We admitted two of these contentions (one as modified) and rejected the remaining ten. We stated that we would provide reasons for our rulings in this opinion. Tr. 9971-74. Those reasons follow.

The contentions before us are, of course, subject to the specificity and other rules applicable to all contentions. See *Philadelphia Electric Co.* (Peach Bottom Atomic Power Station, Units 2 and 3), ALAB-216, 8 AEC 13, 20-21 (1974). They are also subject to the limitations applicable to late-filed contentions. 10 C.F.R. § 2.714(a)(1). See *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), CLI-83-19, 17 NRC 1041 (1983). Beyond that, we think these contentions should be considered in light of the fact that they are arising at the end of a lengthy public evaluation process — a process designed to surface serious planning defects — and relatively close to expected operation of the facility. Furthermore, we should take into account that FEMA has made an overall determination that the exercise was satisfactory and that the cited deficiencies are correctable. As we next explain, these latter two considerations were largely decisive in our rulings.

Through an amendment to its emergency planning rules in 1982, the NRC sought to exclude emergency planning exercises altogether from consideration in operating license cases. That amendment was successfully challenged in the U.S. Court of Appeals for the District of Columbia Circuit. See *Union of Concerned Scientists v. NRC*, 735 F.2d 1437 (D.C. Cir. 1984). The Commission had argued before the court against undue limitations on its discretion to structure its proceedings in the interests of speed and efficiency. The court rejected the implication that its ruling was intended to have any such effect. Most significantly, it stated that:

The Commission argues throughout its brief 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. Today, we in no way restrict the Commission's authority to adopt this as a substantive licensing standard.

*Id.* at 1448 (emphasis added). The Board believes that the criteria implied by the underscored language should be applied to the pending contentions, namely, exercise contentions alleging a "fundamental flaw" (and satisfying other contention requirements) should be admitted; contentions alleging only minor or readily correctable problems should be rejected, even if they might have been admitted at an earlier stage.<sup>1</sup>

Apart from the "fundamental flaw" criterion, the NRC's emergency planning regulation, 10 C.F.R. § 50.47(a)(2) provides that: "In any NRC licensing proceeding, a FEMA finding will constitute a rebuttable presumption on questions of adequacy and implementation capability." In this case, the overall FEMA findings on the Shearon Harris exercise were that:

The State and local emergency plans are adequate and capable of being implemented, and the exercise demonstrated that offsite preparedness is adequate to provide reasonable assurance that appropriate measures can be taken to protect the health and safety of the public living in the vicinity of the Shearon Harris Nuclear Power Station in the event of a radiological emergency.

Memorandum from Richard Krimm, FEMA, to Edward Jordan, NRC, dated Aug. 7, 1985, at 2. In addition, FEMA made specific findings about several of the problems that were to form the bases of Mr. Eddleman's contentions. To be sure, the quoted regulation is not directly applicable at the contention stage: it comes into play when a contention goes to evidentiary hearing. Nevertheless, this regulation implies that a Board should give a FEMA finding of adequacy or correctability some deference at the contention stage. We have done so in this case.

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<sup>1</sup> In discussing the application of these criteria, the court stated that the NRC could "summarily dismiss any claim that did not raise genuine issues of material fact about the fundamental nature of emergency preparedness plans." 735 F.2d at 1448. As an abstract proposition, therefore, it might be argued that the "fundamental flaw" criterion should only come into play at the summary disposition stage, that it should not be applied to exclude a contention at the threshold. We find it significant, however, that the court did not draw this distinction and that it cited with approval *BPI v. AEC*, 502 F.2d 424 (D.C. Cir. 1974), which approved threshold exclusion of contentions. Furthermore the court went on to state that "the only central requirement is that there be an opportunity to dispute issues raised by the exercises under the relevant decisionmaking criteria." *Union of Concerned Scientists, supra*, 735 F.2d at 1449. We believe that such an opportunity has been afforded here, where the pleadings have made it apparent that the bulk of these contentions do not involve fundamental flaws.

We are mindful that the court spoke of "the Commission's authority" to adopt such substantive licensing standards and, to our knowledge, the Commission itself has not formally done so. Apparently, this is an issue of first impression. However, our delegated authority to decide this case includes the authority to decide novel legal questions, subject to Appeal Board and Commission review. *Cf. Duke Power Co. (Catawba Nuclear Station, Units 1 and 2)*, ALAB-825, 22 NRC 785, 790 (1985).

## 2. Applications of Standards

### *Admitted Contentions — 2 and 8*

These contentions were admitted because they could, if substantiated, involve a fundamental flaw in planning. Contention 2 alleges six areas of communications deficiencies. Effective communications among emergency personnel are crucial to plan implementation. In addition to unit capabilities, there must be effective interconnections and coordination among units. The number of problems cited here suggests that adequate coordination may be lacking. If, as the Applicants argue, Contention 2 merely "strings together a series of diverse, relatively minor communications problems," it should be amenable to summary disposition.

Contention 8 cites various implementation deficiencies in the Emergency Broadcast System. The effective functioning of that system is of crucial importance. The FEMA Exercise Report is critical of the system in various respects (at 12-13, 17-18). It includes no specific determination of adequacy, noting only that "activation of the EBS did improve as the emergency continued." *Id.* at 18. The FEMA findings refer to but do not discuss the EBS.

### *Contentions Reflecting Minor Problems — 3, 4, 6, 7, 9-11*

These seven contentions allege minor, ad hoc, correctable problems. Even if substantiated, they would not represent "fundamental flaws" and thus would not compromise substantial implementation of the emergency plans. Specifically:

*Contention 3.* This contention was taken out of context from the State Evaluation Report, at 3, which gave a generally favorable review of emergency medical operations. Whether viewed separately or together, these criticisms can hardly represent a "fundamental flaw" in planning, i.e., the plans could be carried out successfully even if equipment like splints were unavailable and measures against contamination were not perfectly executed. The NRC Staff Report, at 8, found onsite emergency medical activities to be satisfactory. In any event, any deficiencies of this sort are readily correctable.

*Contention 4.* This contention is also based on circumstances described in the State Evaluation Report, at 5. The FEMA Exercise Report is generally more favorable on decontamination activities. FEMA Exercise Report at 4-5. Moreover, as noted above, problems in decontamination are readily correctable through training.

*Contention 6.* This contention alleges various problems with "rumor control," relating principally to dissemination and coordination of infor-

mation among the media. These problems are discussed in some detail in the FEMA Report, and all appear to be minor and correctable. *Id.* at 11-13. FEMA found, correctly in our view, that these problems "are not significant enough to seriously hamper emergency response." Findings at 11.

*Contention 7.* The first part of this contention is redundant in light of Contention 11, which also concerns hard-copy data transmission. See Discussion of Contention 11, below. The second part of this contention concerns delays in tabulation of coordinates of traffic control points to facilitate dose projections at those points. While better coordination might be helpful, we view it as a refinement in planning, not an essential element. FEMA apparently agrees. See Exercise Report at 9; Findings at 15.

*Contention 9.* This contention alleges, out of its context from the State Evaluations, at 12, a "weak level of training" in the use of anticon-tamination clothing and respirators by radiation survey teams. The Evaluation also notes generally, however, that the teams had adequate knowledge of their responsibilities and performed in a professional manner. For its part, FEMA stated that "team members in general were adequately trained." Exercise Report at 15. Assuming some training deficiencies in these areas, they are minor and correctable.

*Contention 10.* This contention alleges several minor and readily correctable problems with respect to protection against radioactive iodine. See FEMA Exercise Report at 15, 29. FEMA found (at 13) that methods, systems and equipment for accident assessment and protection against radioactive iodine were adequate.

*Contention 11.* This contention alleges various problems in hard-copy transmission of information. As the Applicants point out, while such hard-copy messages "are useful for record-keeping and are more convenient than hand-written notes for maintaining logs, they are not integral to effective communication." Response at 11. The primary means of communication are by telephone and radio. Furthermore, such problems are correctable. According to one county official:

[T]he facsimile unit that we had was not nearly as effective as we would have liked it to have been. It worked great up until Thursday morning, and it's working great today. So, evidently, it just didn't want to work for that drill.

FEMA Public Meeting, Tr. 86.

### *Contentions Rejected on Other Grounds — 1, 5 and 12*

*Contention 1* alleges an "approximate 42 minutes delay" in plant authorities' notifying SERT of an uncontrolled release and a consequent lack of assurance of timely notification of emergencies. The allegation is based on an erroneous statement of such a delay in the State Evaluation Report, at 7. The Applicants' analysis of contemporaneous messages demonstrates that notification of the release was virtually immediate. In addition to their analysis we note that State EOC Message 207 states that the county sirens sounded at 12:44, also demonstrating that notification must have been received prior to that time. *Contention 1* thus mischaracterizes the very documents on which it rests; it must be rejected.

*Contention 5.* This contention lists a number of problems with the sirens. Installation of the sirens has not been completed and, as noted in the FEMA Findings, at 8, "the official FEMA testing of the alert and notification system has not yet been conducted." Accordingly, any contentions based on installed siren performance are premature. We note, however, that the problems cited in this contention, should they arise in further testing, appear to be straightforward and correctable.

*Contention 12.* This contention is similar to *Contention 1* in that it misstates the record upon which it rests. It alleges a lengthy delay in dispatching assistance to boaters on the Cape Fear River. State EOC Message 151 shows that assistance was dispatched in less than 1 hour. As the Applicants point out, such a response is acceptable for reaching remote areas of the EPZ. See NUREG-0654 at 3-16 — "best effort basis" acceptable. In any event, isolated instances of delay in such circumstances are to be expected.

### **3. The Lateness Factors**

Applicants and the Staff argue at length that, for various reasons, all of the exercise contentions should be rejected under the *Catawba* "five factors" balancing test. Having rejected ten of the twelve contentions on other grounds, it is only necessary for us to apply that test to the two contentions we are admitting. For the reasons briefly summarized below, they pass.

- (a) *Good cause.* We accept Mr. Eddleman's statement that he did not actually receive the FEMA Exercise Report and Findings — on which Contentions 2 (in part) and 8 were based — until the end of August.
- (b) *Other means and representation of interests by another party.* The Staff acknowledges that these factors favor admission. Staff Response at 9. Mr. Eddleman has been at odds with the

Staff and FEMA on virtually all emergency planning issues. The Applicants' suggestion that FEMA will represent Mr. Eddleman's interests (Applicants' Response at 36) is difficult to take seriously. See *Washington Public Power Supply System* (WPPSS Nuclear Project No. 3), ALAB-747, 18 NRC 1167, 1175 (1983).

- (c) *Contribution to the proceeding.* This factor tilts against Mr. Eddleman, but only slightly. He has failed to provide summaries of the proposed testimony of witnesses, which the Appeal Board has generally deemed a requirement. See *WPPSS, supra*, 18 NRC at 1177. On the other hand, since Mr. Eddleman expects to call the exercise evaluators, the substance of their expected testimony can be gleaned in part from the exercise reports and underlying papers.

The Applicants direct our attention to past Board criticisms of Mr. Eddleman's performance as bearing on his potential contribution here. In that connection, the Board's most recent such assessment provides a more balanced perspective. At the close of the hearing on the siren contention, we said:

The Board would just like to add that we thought that Mr. Eddleman's cross-examination was well prepared and professionally presented. We appreciate that. Thank you.

Tr. 9955.

- (d) *Delay.* Admission of these contentions may delay conclusion of this proceeding but not, we expect, by very much. We have established an accelerated discovery and summary disposition motion schedule which concludes on February 13, 1986. Tr. 10,206. We expect to decide any summary disposition motions by the end of February and we also expect to decide the siren and drug issues by that time. Therefore, if summary disposition is granted, there will be no resulting delay. Should hearings be necessary, hearings, findings and a Board decision could be accelerated to completion in the Spring of 1986. Since these issues would not affect fuel loading, they would not impact the Applicants' schedule for operations.

In light of the foregoing, the "five factors" balancing clearly favors admission of Eddleman Contentions EPX-2 and -8.

## C. Other Emergency Planning Contentions

### 1. "Role Strain" in Adult School Bus Drivers

The Joint Intervenors sponsored a contention (denominated EPJ-4(b)), subsequently narrowed by the Board, that focused on whether adult school bus drivers in a "role strain" situation occasioned by a nuclear emergency would subordinate their driving duties to family obligations. This contention was litigated in an evidentiary hearing, with the Applicants and FEMA presenting direct cases and Mr. Eddleman conducting cross-examination for the Joint Intervenors. The Board directed all parties to file proposed findings of fact (Tr. 8159-60) and the Applicants and FEMA did so. The Joint Intervenors, while filing proposed findings on the protection factor contention heard at the same time, elected not to file findings on the "role strain" contention. As a result, this contention is no longer contested. Since this Board's decisional authority is limited to contested issues,<sup>2</sup> the EPJ-4(b) "role strain" contention must be dismissed.

### 2. Contentions Resolved by Summary Disposition or Withdrawn

Apart from the exercise contentions, the Board admitted twenty-eight emergency planning contentions. Of these, three were later withdrawn, one was settled, three were heard on the merits, and the remaining twenty-one were resolved in the Applicants' favor by summary disposition. See Applicants' Proposed Findings of Fact 3-5 for a detailed description of these rulings. In the case of contested summary disposition motions, we issued a statement of "Reasons Supporting Summary Disposition of Emergency Planning Contentions" dated August 14, 1985. Many of the Applicants' summary disposition motions were uncontested. In those cases, we could have simply dismissed the contentions.<sup>3</sup> We nevertheless satisfied ourselves that the Applicants, supported by the Staff, had met their burden of proof and that the contentions did not raise a "serious safety matter" within the meaning of 10 C.F.R. § 2.760a.<sup>4</sup> However, we see no need to provide in addition detailed state-

<sup>2</sup> 10 C.F.R. § 2.760a. The Board may put an issue in controversy on its own motion only upon a determination that a "serious safety . . . matter exists." There is no basis for such a determination with respect to EPJ-4(b). On the contrary, we found the direct cases of the Applicants and FEMA persuasive.

<sup>3</sup> See note 2 above, and accompanying text.

<sup>4</sup> One of Mr. Eddleman's contentions on which summary disposition was granted, 57-C-7, concerned arrangements for medical treatment. Following the Board's summary disposition ruling, the U.S. Court of Appeals for the District of Columbia Circuit reversed a Commission ruling on which an earlier Board ruling narrowing Mr. Eddleman's original contention had been based in part. *GUARD v NRC*, 753 F.2d

(Continued)



ments of our reasoning in dismissing contentions which had been abandoned by their sponsors.

### III. SAFETY CONTENTIONS

#### A. Fire Protection

##### 1. Introduction

###### 1. Eddleman Contention 116 states:

The fire hazard analysis of section 9.5A (Appendix) in the FSAR does not address the availability of control and power to the safety equipment. In establishing fire resistance ratings of fire barriers with respect to fire in cable trays, Applicants have not established that qualification tests represent actual plant conditions or comparable conditions. Another vague statement is that fire barriers are used "where practical" without defining practical or stating the criteria to decide where a fire barrier is or is not practical (and what type of fire barrier should be used). FSAR 9.5.1.1.1. The "Analysis" of Appendix 9.5A does not demonstrate as 9.5.1.1.1 claims it will, the adequacy of other fire protection measures in all cases. Rather, it estimates the BTU of combustible material, smoke generation and removal rate from the area, gives usually a qualitative description of some measures to mitigate or reduce the fire effects, and assumes that the fire will be promptly detected (usually no analysis of location of detection instruments etc.) and the fire brigade will respond rapidly and put out the fire, or the automatic equipment will work. These assertions are made despite the time it takes to get people into the containment and to the fire (not well analyzed). Further, the "analysis" of what happens if the fire spreads is generally a rationalization that it can't spread much, not an analysis. *See e.g.* "Analysis of effects of postulated fires." The effect of a fire in a fire area or a fire zone with a combustible loading greater than 240,000 BTU/sq. ft. doesn't get dealt with in realistic terms. The plant fire fighting capability of simultaneous fire is inadequate, or at least unanalyzed.

This contention was admitted by the Board in its Memorandum and Order dated July 27, 1984 (unpublished). During the evidentiary hearing on this issue the Board dismissed the issue of simultaneous fires. *See* Tr. 4370, 4831-32.

2. Applicants presented the testimony of Margareta A. Serbanescu and David B. Waters. "Applicants' Testimony of Margareta A. Serbanescu in Response to Eddleman Contention 116 (Fire Protection)," ff. Tr. 4256 (hereinafter Serbanescu); "Applicants' Supplemental Testimony of Margareta A. Serbanescu in Response to Eddleman Contention

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1144 (D.C. Cir. 1985). A motion from Mr. Eddleman to reconsider his Contention 57-C-7 as originally drafted is pending before the Board. We have issued an order establishing a pleading schedule on Mr. Eddleman's motion. We expect to address and resolve this matter expeditiously.

116 (Fire Protection)," ff. Tr. 4256 (hereinafter Serbanescu II); "Applicants' Testimony of David B. Waters in Response to Eddleman Contention 116 (Fire Protection)," ff. Tr. 4250 (hereinafter Waters).

3. Ms. Serbanescu is a Principal Mechanical Engineer with Ebasco Services, Inc., and is the supervisor of the Ebasco Fire Protection Engineering Group. She was assigned as the Fire Protection Engineer for Harris in 1978, and is now in charge of the Fire Protection Group which is responsible for the Harris Fire Protection Program. Serbanescu, ff. Tr. 4256, at 1-3. Mr. Waters is employed by CP&L as the Principal Engineer-Operations, and is responsible for the administration of the Fire Protection Program at Harris. Waters, ff. Tr. 4250, at 2-3.

4. The Staff witnesses were Randall Eberly and Robert L. Ferguson. "NRC Staff Testimony of Randall Eberly and Robert Ferguson Concerning Eddleman Contention 116," ff. Tr. 4626 (hereinafter Eberly/Ferguson). The Staff also presented the testimony of Dennis J. Kubicki in the form of a Joint Affidavit with Mr. Eberly. "Joint Affidavit of Randall Eberly and Dennis J. Kubicki Concerning SER Open Item 8 (Acceptability of Fire Doors)." Mr. Kubicki was cross-examined on the contents of this Affidavit on December 17, 1984. Tr. 7415-31.

5. Mr. Eberly was employed as a Fire Protection Engineer in the Chemical Engineering Branch, Division of Engineering, Office of Nuclear Reactor Regulation. He was directly responsible for the review of the fire protection programs at the Shearon Harris facility. Eberly/Ferguson, ff. Tr. 4626, at 6. Mr. Ferguson is a Section Leader of the Fire Protection Section, Chemical Engineering Branch, Division of Engineering, Office of Nuclear Reactor Regulation. He is responsible for supervising the Staff's review of the fire protection programs at nuclear power generating stations. *Id.* at 3. Mr. Kubicki is a Fire Protection Engineer in the Chemical Engineering Branch of the Division of Engineering, Office of Nuclear Reactor Regulation, and is responsible for performing safety reviews and evaluations of the fire protection programs of nuclear power plants. Staff Exh. 8, Attach. 1.

6. Intervenor Eddleman presented no testimony on this contention.

7. The basic purpose of a fire protection program in a nuclear power facility is that, in the event of a fire, the capability of shutting down the reactor in a safe manner, maintaining it in a safe shutdown condition and limiting any release of radioactive material to the environment is assured. Eberly/Ferguson, ff. Tr. 4626, at 6-7.

8. The NRC regulations and regulatory guidance for nuclear plant fire protection programs are set forth in 10 C.F.R. Part 50, Appendix A, General Design Criterion 3; 10 C.F.R. § 50.48; Regulatory Guide 1.70,

Rev. 3; NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants," July 1981 (SRP), § 9.5-1.<sup>5</sup>

9. Implementation of the NRC rules is carried out by using a defense-in-depth philosophy. In the case of Harris, the plan encompasses plant system and facility design, fire prevention, fire detection, annunciation, confinement, fire suppression, administrative controls, fire brigade organization, inspection and maintenance, training, quality control and testing. Applicants' Exh. 6 at 9.5.1-1.

### **2. Control and Power Availability to Safety Equipment**

10. The first subpart of Contention 116 alleges that the availability of control and power to safety equipment is not addressed in the Fire Hazards Analysis (FSAR Appendix 9.5A). Both Applicants and Staff testified that it is true that this is not addressed in Appendix 9.5A; rather, it is discussed in detail in FSAR §§ 9.5.1.2.1 and 8.3, and in the Applicants' Safe Shutdown Analysis. As the Staff indicated, the entire fire hazards analysis for Harris is made up of the FSAR, Appendix 9.5A and the Safe Shutdown Analysis. The availability of power and control cables to safety equipment is therefore addressed in Applicants' fire protection program. Serbanescu, ff. Tr. 4256, at 6; Eberly, Tr. 4653-54. Intervenor did not identify any specific deficiencies in the FSAR and SSA analyses.

### **3. Qualification of Cable Tray Fire Barriers**

11. The second subsection of Contention 116 expresses concern that qualification of cable tray fire barriers does not correspond to actual conditions which might be encountered during a fire at the plant. Fire barriers are an integral part of the fire protection program. The plant is divided into a number of fire areas, each of which is enclosed by a 3-hour fire-resistant enclosure or its equivalent. Additionally, as set forth in the SSA at Table 9.5B-3, certain cable trays within a fire area are protected with 3-hour- or 1-hour-rated enclosures. Where a cable tray penetrates a fire area barrier, penetration fire stop seals are used. These have a minimum fire-resistance rating equal to that of the fire area barrier. Serbanescu, ff. Tr. 4256, at 8.

12. There are a number of standard testing procedures which have been developed. Applicants' witnesses testified that the ratings of their

<sup>5</sup> The Harris plant is not required to comply with 10 C.F.R. Part 50, Appendix R, as the plant was not operating prior to January 1, 1979. However, Applicants' have committed to meet the requirements therein. O'Neill, Tr. 4598-99.

fire barriers are based on standard fire tests performed in accordance with the following: ASTM E-119; NFPA 251; Nuclear Material Limited, "Property Loss Prevention Standards for Nuclear Generating Stations," Appendix A-14; Underwriters Laboratories 263, "Fire Tests of Building Construction and Materials"; and American Nuclear Insurers Bulletin No. 5, "Standard Fire Endurance Test Method to Qualify a Protective Envelope for Class IE Electrical Circuits." Serbanescu, ff. Tr. 4256, at 7-8.

13. In determining the qualification conditions for fire barriers, an exposure fire is used which is based on a standard, empirically derived time-temperature curve. This time-temperature curve represents a worst-case exposure fire, not an average. *Id.* at 10, 11; Serbanescu, Tr. 4526; Ferguson, Tr. 4656-58, 4666-68. Therefore a fire barrier tested under the standard time-temperature conditions will resist a fire from the maximum calculated combustible loading in any fire area in the SHNPP power block. Serbanescu, ff. Tr. 4256, at 11.

14. For each barrier, tests will be performed by an independent laboratory on a "generic" assembly of that fire barrier, and installation of that barrier will be done in accordance with the recommendations of the testing laboratory to ensure that the actual barrier has the same configuration as the test assembly. *Id.* at 12.

15. The Board finds that the qualification methods to be used by the Applicants represent equivalent or more rigorous tests of cable tray fire barriers than would be experienced under actual plant conditions.

#### **4. Location of Fire Barriers**

16. In the third subpart of Eddleman 116 the complaint is made that FSAR § 9.5.1.1.1 is vague in that the term "where practical" is used in describing barrier placement but is not defined; neither are the criteria used to decide whether the location or type of barrier is or is not practical. A detailed description of the use of fire barriers is not contained in 9.5.1.1.1; a detailed treatment is presented in 9.5.1.2.2 and in Appendix 9.5A (Applicants' Exh. 6). Specific barrier locations and qualifications are contained in FSAR Appendix 9.5A and Applicants' SSA. Serbanescu, ff. Tr. 4256, at 13; Eberly/Ferguson, ff. Tr. 4626, at 11.

17. Applicants used the guidance of the Standard Review Plan, §§ C.5 and C.7, to determine the location of the Harris fire barriers. Under these guidelines, if it is not feasible to locate a fire barrier in compliance with SRP § 9.5.1, an applicant may use an approved alternative. The Staff cited as an example that if it is not feasible to erect a barrier between redundant safe shutdown components in the control room,

an alternative safe shutdown capability would be provided in another area. Deviations can also be requested for other features such as a combination of partial walls and automatic suppression systems. Eberly/Ferguson, ff. Tr. 4626, at 12.

18. Where the Staff's guidelines recommend a barrier, Applicants have attempted to install one. Where construction or equipment problems have rendered the placing of a barrier impossible, the Applicants have found an acceptable alternative. The Staff witness considers this statement to be, indirectly, its definition of "where practical." Eberly, Tr. 4670.

19. In view of the preceding discussion, the Board finds no merit in this part of Eddleman 116.

20. A number of doors used in the Harris facility have not been specifically fire-tested. These are special-purpose doors, bullet-resistant doors, and air- and watertight doors. Serbanescu II, ff. Tr. 4256, answer 7. A great deal of cross-examination was conducted on these doors which was objected to by both Applicants and Staff as being beyond the scope of the contention. The Board allowed the cross-examination to continue, and now feels that the fire resistance of these doors, while not specifically called out in the contention, has at least a peripheral bearing on the contention insofar as they are part of the barrier system.

21. Applicants' witness testified that the doors, while not undergoing standard fire-resistance testing, were so constructed that they otherwise met the requirements for a standard 3-hour, A-label-type fire door, and the vendors were requested to provide the appropriate certification. The witness further stated that many of these doors are located toward the outside of the building, and thus even if they failed, it would not contribute to the fire spreading. Serbanescu, Tr. 4417-18, 4440-41.

22. Staff witness testified that Applicants had taken a common approach when using specialty doors. These special-purpose doors are normally very heavy, bullet-resistant and missile-proof, and therefore would have a degree of built-in fire protection. Eberly, Tr. 4804-05.

23. Staff's witness further testified that the special-purpose doors are too large to fit into a standard test furnace, and too heavy for the furnace supports to bear. In the Staff's opinion, even if a special furnace were to be built for testing purposes the results would not be standard and there would be nothing to compare them with. Eberly, Tr. 4811-12.

24. The Staff has completed its review of the adequacy of the Harris fire doors. Staff Exh. 8. Except for the specialty doors Applicants have committed to provide tested fire doors. The special-purpose doors were found to be constructed of steel plates many times thicker than those used in approved fire doors, and to have multiple-point steel locking

pins which should prevent uneven expansion of the door and its frame, and thus prevent warping of the door in the event of a fire. Additionally, the combustible loadings on either side of the specialty doors are insufficient to create a fire which would endanger the strength of the doors. The Staff therefore found that there was sufficient reason to justify a deviation from fire protection guidelines. Staff Exh. 8.

25. In view of the uncontroverted facts presented, *supra*, the Board finds that Applicants have adequately defined the location of the fire barriers at the Harris plant and, further, that there is reasonable assurance that the untested special-purpose doors in the plant will be adequate to prevent the spreading of a fire.

### **5. Fire Protection Analysis**

26. The fourth allegation in Eddleman Contention 116 takes issue with the analyses of the fire protection system in Appendix 9.5A of the Applicants' FSAR in certain specific aspects. We consider these aspects, namely the BTU content of combustible material, smoke generation and removal rate, measures to mitigate fire effects, fire detection capability, fire brigade effectiveness, and fire spreading, *seriatim*.

27. The Harris plant is divided into a number of fire areas which are established through consideration of a number of factors. One of these factors is the possible combustible loading, which is determined by the amount and BTU content of the materials within the area. Serbanescu, ff. Tr. 4256, at 16. Both normal and transient combustible materials are included, the transient materials being controlled administratively through written procedures. Heat values, or BTU contents, have been determined by use of those contained in the *Fire Protection Handbook* (14th Ed. 1976) prepared by the National Fire Protection Association (NFPA). The analysis itself is conservative, as it assumes complete combustion of all combustible materials in the area, takes no credit for lack of continuity of combustibles and does not assume that any automatic or manual suppression systems will limit combustion. Serbanescu, ff. Tr. 4256, at 17-20. The Board finds that the heat values, or BTU contents, used by the Applicants are acceptable and that the heat loadings which result from the analysis are reasonable and adequate.

28. The Standard Review Plan lays down no criteria for treatment of smoke generation and ejection. The Staff review relies on industry standards. The Harris philosophy follows a containment plan wherein the area is more or less sealed off to remove a continuing source of available oxygen. Eberly, Tr. 4677-83. To implement this plan the ventilation

ducts are equipped with dampers which close automatically when a fusible link is melted, and ventilation fans leading to that area are automatically stopped. Serbanescu II, ff. Tr. 4256, at 5-6. There is then a greatly lessened smoke removal capability. However, if it is determined that the fire must be fought manually, the ventilation system can be put back in operation from the control room or by the plant operator. Additionally, the fire brigade has smoke ejector equipment and self-contained breathing units which will allow them to manually fight the fire. *Id.* at 6. The Board finds that Applicants' approach to this problem in fire fighting is both reasonable and adequate.

29. The principal means of mitigating or reducing the effects of fires at the Harris plant is the use of sprinkler systems. The most common is the wet-pipe system, where the supply pipe is water-full and actuation of the system is achieved by nozzles controlled by fusible links. Other systems, used where inadvertent actuation of the sprinklers might damage equipment, are of the preaction, or dry-pipe type, where a valve which is temperature-controlled must open to fill the sprinkler pipe. Some of these systems then actuate as in the wet-pipe system; where a minimum amount of water is desired other systems have a temperature-controlled valve that cycles open and closed as the temperature rises and falls. Still another system, used to mitigate fires which spread rapidly or produce high temperature quickly, acts much like the preaction system but has open spray nozzles, allowing immediate discharge of water when activated by fire detectors. Serbanescu, ff. Tr. 4256, at 23-26. The Harris systems will conform with NFPA Codes, as committed to by the Applicants. Eberly/Ferguson, ff. Tr. 4626, at 16. The Board finds that these systems, designed and constructed in accordance with the applicable NFPA Codes, are an adequate means to mitigate the effects of potential fires.

30. The types of fire detectors used at the Harris plant are selected on the basis of the kinds of fires which would be expected in any particular fire area. The primary detectors are ionization smoke detectors, which respond to the first traces of fire in the form of visible or invisible combustion products; these are general-purpose instruments and provide early warning for timely fire brigade response. Thermal detectors, which are used to actuate water suppression systems, have a set point at 30°F above ambient temperature. Ultraviolet flame detectors are used in the diesel generator building and fuel oil pump areas inasmuch as a fuel oil fire can develop quickly and with little smoke. Serbanescu, ff. Tr. 4256, at 22-23. Applicants have committed to following the NFPA Codes in the design of these detection systems. Eberly/Ferguson, ff. Tr. 4626, at 16. The Board finds that these systems are adequate to provide timely warning to personnel and actuation of the fire suppression systems.

31. The fire brigade at the Harris facility will consist of a minimum of five people on each shift who have been trained as described in FSAR § 13.2. In addition, there will be at least one fire protection technical aide available for advice and assistance. If the need arises, additional plant personnel are available. Waters, ff. Tr. 4250, at 9-10, Attach. B; Tr. 4600-02. Applicants' witness Waters testified in some detail as to the staffing, training, equipment, drills, and other relevant items concerning the fire brigade. Waters, ff. Tr. 4250, at 5-11; Tr. 4306, 4308, 4311-12, 4318-19, 4330-31, 4601-02. After reviewing Mr. Waters' testimony and the ensuing cross-examination by Mr. Eddleman, the Board finds that the estimate of 5 to 15 minutes for fire brigade response in the power block is reasonable. We also note that the Staff evaluation of the fire protection program assumes that the fire brigade arrival time is 30 minutes, an estimate the Board considers conservative.

32. Mr. Eddleman contends that Applicants' analysis of the effects of fire spreading from one fire area to another is inadequate. Applicants maintain that this is an inherent part of their analysis, as each fire area's combustible loading has been calculated, and, if the fire should spread from one fire area to another, that combustible loading would describe the effects of such spreading. Serbanescu, Tr. 4521-24. It is the Staff's view that if the Staff's guidelines are followed there will be no spreading of the fire. That is, if the proper fire barriers are provided and detection and extinguishing equipment is provided, an adequate level of protection against fire spreading is attained. The Board agrees with both Staff and Applicants; if the proper barriers and mitigation sources are provided, the fire will not spread, but if it should spread, Applicants' would know what the effect would be. We find that the Applicants' and Staff's analyses are adequate.

#### **6. Combustible Loadings Greater Than 240,000 BTU/Ft<sup>2</sup>**

33. The NFPA has determined, through tests, that the reference time-temperature curve is followed by a fire in a fire area with a combustible loading of 240,000 BTU per square foot (BTU/ft<sup>2</sup>). Serbanescu, ff. Tr. 4256, at 11. Special attention must therefore be given to fire areas in the Harris power block which have combustible loadings above this figure. Eddleman Contention 116 alleges that the effects of fires in these areas are not treated in a realistic fashion.

34. There are four fire areas in the Harris power block that have combustible loadings above 240,000 BTU/ft<sup>2</sup>. These are the two diesel fuel day tank rooms and the two diesel fuel storage tanks. *Id.* at 28; Eberly/Ferguson, ff. Tr. 4626, at 20-21; *see also* Serbanescu II, ff. Tr. 4256,



at 5. The storage tanks are underground, constructed of reinforced concrete with a steel liner and are Seismic Category I design. The only access to the tanks is through a reinforced concrete hatch. The tank vent is equipped with a flame arrestor, and yard hydrants for fire fighting are located adjacent to the area. The tanks are also located at a distance of over 175 feet from the principal plant structures. Serbanescu, ff. Tr. 4256, at 30; Eberly/Ferguson, ff. Tr. 4626, at 20-21. The Board agrees with Applicants that these tanks do not present a threat to safety-related systems.

35. The 3000-gallon capacity diesel fuel day tanks are isolated from other fire areas by 3-hour-rated reinforced concrete walls. The tanks themselves are Safety Class 3, Seismic Category I components which are designed to remain functional after a safe shutdown earthquake. Inasmuch as the combustible load was calculated on the basis of the burning of 3000 gallons of diesel fuel, the only way this could happen would be if the tank ruptured, thereby making all of the fuel available. Serbanescu, ff. Tr. 4256, at 29. The fuel would be confined to the day tank room, as the entrance to the room is located at a level which is 110% of the level the spilled fuel could attain. Serbanescu, Tr. 4530-31.

36. From the testimony, the scenario would be: (1) fuel tank ruptures, fuel is released; (2) ignition of the fuel is assumed to occur; (3) the automatic multicycle sprinkler system would actuate; (4) dampers in the ventilation ducts would close, limiting the available air supply; (5) the fire brigade would arrive, manually actuating the sprinkler system if the automatic system had malfunctioned; and (6) fire brigade would combat fire according to the proper procedures for this event. Serbanescu, ff. Tr. 4256, at 29.

37. The Board finds that the testimony presented does portray a "realistic" description of the event, albeit a very conservative one. We further find that all the fire protection measures taken in combination provide adequate assurance that the fire would not endanger safety-related components.

#### ***7. Intervenor's Proposed Findings***

38. Mr. Eddleman submitted proposed findings on fire protection. "Wells Eddleman's Proposed Findings on Contention 41 (Pipe Hangers QA/QC), 116 (Fire Protection) and 9 (Environmental Qualification of Electrical Equipment)" on January 8, 1985, at 8-15. The Board has reviewed these proposed findings and finds them to be unsupported by the record and to provide little assistance in arriving at our findings in

this matter. We therefore reject them. We briefly discuss our evaluations below.

39. Proposed Findings 11-15 concern the special-purpose doors which are at various locations in the plant. Due to their sizes, they have not undergone standardized testing for fire resistance. The Staff has, however, granted exceptions for these doors for reasons which are contained in the record. The Board agrees that the exceptions are reasonable and well-founded. See Board Findings 20-24, at pp. 920-21.

40. Mr. Eddleman's Proposed Findings 16-21 consist of various allegations about material being omitted from the FSAR, in an apparent effort to impeach the FSAR's credibility. The Board finds that the material in question was placed in the record at the hearing, and thus any earlier omissions do not alter any conclusions the Board has reached.

41. Eddleman Proposed Finding 22 attacks the fire brigade training as being inadequate, but the only conclusion drawn is that there must be a well-trained fire brigade capability before the plant is operated. The Board was presented a great deal of testimony on this subject and is confident that there will be such capability in place prior to operation. See Board Finding 31 at p. 923.

42. Eddleman Proposed Finding 23 takes issue with the fact that the seals between fire areas are not yet in place, and suggests that proper installation must be verified by the NRC walkdown inspection. Although verification of proper installation of these seals could take place during the NRC walkdown inspection, they will be subject to the Applicants' QA program inspections, like any other piece of hardware in the plant. Mr. Eddleman does not point to any specific deficiencies in these seals or their proposed installation. We therefore reject this proposed finding.

43. Proposed Findings 24 and 25 argue that a fire in the diesel day tanks would be very serious, especially if the automatic suppression system did not work or if a door were left open. There is nothing in the record to show that this accident scenario should be considered. Adequate testimony was presented to support the Board's decision on the diesel fuel tanks. See Board Findings 35-37 at p. 924.

44. Mr. Eddleman's Proposed Finding 26 questions the quality assurance aspects of the fire suppression systems. This is beyond the scope of this contentio and is therefore rejected.

45. Proposed Findings 27 and 28 express concern that the Staff will not properly perform certain inspections and reviews. There is no basis in the record for this concern.

46. Proposed Finding 29, Parts A-H, presents a lengthy list of various items, many of which have been discussed above. We find them to

be of little help to the Board in its deliberations. The fire protection contention is quite broad. This creates opportunities for an opposing party to present pieces of the record out of context in proposed findings, as is attempted here.

## **8. Conclusions**

47. The Shearon Harris fire protection program is based on a defense-in-depth concept wherein no single aspect of the program is depended upon to protect against fire. The elements of the program are designed to (1) prevent fires, (2) detect any fire condition, (3) suppress fires, (4) confine fires, and (5) separate redundant safety-related equipment so that control of the plant can be maintained in case a fire occurs. Applicants have demonstrated that the various elements of the program meet at least minimum requirements. The Staff concurs. In view of the record before us the Board finds that Applicants have met their burden with respect to Eddleman Contention 116.

### **B. Pipe Hanger Welds**

#### **1. Introduction**

1. Eddleman Contention 41 states: "Applicants' QA/QC program fails to assure that safety-related equipment is properly inspected (e.g., the 'OK' tagging of defective pipe hanger welds at SHNPP)." This contention was admitted by the Board on September 22, 1982. However, the Board ruled that the entire QA/QC program would not be the subject of litigation. Rather, the contention would be limited to Mr. Eddleman's only specified concern "that there exist defective hanger welds that have been improperly inspected and approved." LBP-82-119A, 16 NRC 2069, 2097 (1982).

2. The Applicants' direct testimony was sponsored by James E. Nevill, Principal Engineer-Civil, Harris Plant Engineering Section; Alexander A. Fuller, Principal Engineer-Mechanical (Hanger Engineering), Harris Plant Construction Section; David R. Timberlake, Senior Engineer-Metallurgy/Welding, Harris Plant Engineering Section; and Kumar V. Hate, Principal QA/QC Engineer, QA/QC Harris Plant Section. Nevill *et al.*, ff. Tr. 6663.

3. The Staff's direct evidence was sponsored by Paul R. Bemis, Acting Division Director, Division of Reactor Safety; Jerome J. Blake, Chief, Materials and Processing Section; and George A. Hallstrom, Reactor Inspector, all from the Atlanta Regional Office of the NRC. Bemis *et al.*, ff. Tr. 7217.

4. At the request of Mr. Eddleman and with the concurrence of the Board, the following appeared for cross-examination by Mr. Eddleman: Kenneth A. Douglas, QA specialist; William H. Pere, QA/QC specialist; and Gene G. Tingen, a pipe hanger welding inspector until February 1982 (all being employees of Applicants); and Mr. George F. Maxwell, the NRC senior resident operations inspector.

5. Mr. Eddleman sponsored no direct evidence to support his contention. Instead he relied upon extensive cross-examination of the witnesses and upon numerous documents (Exhibits 20 through 59) accepted into evidence.

## **2. The Applicants' and Staff's Direct Cases**

6. Applicants' testimony is a general narration of the problems relating to pipe hanger welding and the corrective and preventive actions that have been instituted. Installation of pipe hangers began in early 1979. In September 1980 during a routine inspection, the NRC Resident Inspector identified several Bergen-Patterson pipe hanger drawings with unclear and incorrect weld symbols, as well as several cases in which the field weld was different from the drawing without the discrepancy having been identified by QC. Consequently, a site investigation was conducted by CP&L, with the result that full reinspection was deemed necessary. A report on the deficiencies and reinspection program was submitted to the NRC Staff in May 1981 and the NRC closed out this item in September 1981. Nevill *et al.*, ff. Tr. 6663, at 14-16.

7. In 1982, some different problems were identified. The Applicants' Receipt Inspection Program discovered deficient shop welds made by Bergen-Patterson. It was discovered that Applicants' inspectors and craftsmen were using an improper technique in the measurement of skewed tee welds. Several remedial actions were taken. Another reinspection program was carried out. Several remedial actions were taken. The Ebasco Vendor QA program at the Bergen-Patterson facility was upgraded to include both in-process and 100% final weld inspections. Applicants also instituted a 100% receipt inspection of shop welds on pipe hangers. *Id.* at 18-20. Additional training was provided to craft and QC welding inspection personnel which utilized the 1981 edition of AWS D-1.1. That document clearly outlined the proper techniques for measurement of skewed tee fillet welds. Timberlake, Tr. 6947.

8. Despite the efforts undertaken by Applicants, deficiencies related to pipe hanger erection continued to be identified. A stop work order was issued in July 1983 as the result of a QA surveillance; this stop work order required that final inspections of pipe hangers by both CI and QC

be discontinued.<sup>6</sup> During this time, site management reviewed the problems that were identified by that surveillance, by subsequent hanger and welding engineering surveillances, past NRC inspection reports and previous nonconformances. The need to have a system that would stand up to constant scrutiny was recognized. In December 1983 a completely restructured pipe hanger program was implemented. Nevill *et al.*, ff. Tr. 6663, at 23.

9. The enhanced program for pipe hangers includes new and revised procedures intended to clarify the installation and inspection requirements; further, the enhanced program provides for engineering/technical support to the craft before and during the installation process in order to resolve potential problems prior to turning the hangers over for final inspection. The major improvements of the enhanced program as they relate to pipe hanger welding are summarized below.

10. First, pipe hanger work packages are reviewed by a work package group prior to issuance to the field. At this time, the hanger design drawing is "weld mapped," i.e., each joint to be welded is given a specific identifying number, thereby precluding the possibility that a joint would not be identified or would be confused with another joint during the inspection process. This weld mapping process has been retrofitted to previously inspected hangers as well as in-process hangers. *Id.* at 23; see also Fuller, Tr. 6915; Douglas, Tr. 7189.

11. Generic engineering documents are, for the most part, no longer used as solutions to common problems. Instead, field modifications are written for each hanger detailing necessary changes due to these problems. This has greatly reduced the potential for misinterpretation and subsequent misapplication of construction requirements. Nevill *et al.*, ff. Tr. 6663, at 24; Fuller, Tr. 6792; Douglas, Tr. 7189.

12. Additional engineering and technical resources have been provided to support the craft. A field hanger engineering support unit has been developed whose purpose is to support the craft during hanger installation. Welding engineering personnel examine hanger welds (both shop and field) prior to submitting the hanger package to QC for final weld inspection. Finally, in addition to the QC final review, a hanger engineering final review group has been formed to review seismic hanger packages prior to final turnover to the permanent QA records vault. Hanger package documentation is thus verified as being complete and accurate. Nevill *et al.*, ff. Tr. 6663, at 24-25; Hate, Tr. 7038; Blake, Tr. 7358-59.

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<sup>6</sup> Although final inspections/approvals were not undertaken until the new program was in place, QC welding inspections continued. Tr. 7327 (Bemis).

13. Although not formally a part of the enhanced program, in 1983 the visual weld acceptance criteria were also revised; by providing well-defined criteria for inspecting weld attributes, the potential for conflicting judgments based upon personal interpretation has been lessened. Douglas, Tr. 7159-60; Maxwell, Bemis, Tr. 7324-27. The revised acceptance criteria have been reviewed and accepted by the Staff. Bemis *et al.*, ff. Tr. 7217, at 14-16; Hallstrom, Tr. 7334-36.

14. Applicants' actions and resulting program appear to have been reasonably effective. For example, in the second quarter of 1984, approximately 93% of the work presented by the craft to QC for weld inspection was found to be acceptable. QA surveillance of QC final acceptance of hangers during the period January through October 1984 revealed 98.8% acceptance rate for attributes inspected by welding QC. Hate, Tr. 6670-71, 7041-42.

### **3. Intervenor's Proposed Findings**

15. Mr. Eddleman's proposed findings are largely a recitation of the Applicants' problems with the pipe hanger welding program, as are many of the Board's findings, *supra*. Applicants state in their reply that these are "problems which Applicants readily concede have occurred." However, Mr. Eddleman gives little attention to the numerous remedial actions that CP&L has taken.

16. The Board finds that Mr. Eddleman did not focus on the basic issue; namely, whether or not a "significant safety issue" exists with respect to pipe supports. In the context of this operating license proceeding, the issue is whether uncorrected errors endanger safe plant operation or whether there has been a breakdown of the quality assurance program sufficient to raise legitimate doubt as to the plant's capability of being operated safely. See *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-756, 18 NRC 1340, 1344 (1983); see also *Union Electric Co.* (Callaway Plant, Unit 1), ALAB-740, 18 NRC 343, 346 (1983).

17. We take the view that Mr. Eddleman was faced with an uncommon situation between the time this contention was admitted in September 1982 and tried in November 1984. By the Applicants' own testimony and the fact -- testified to by Staff -- that Applicants shut down their weld inspection program from July to December 1983 (Bemis *et al.*, ff. Tr. 7217, at 11), deficiencies clearly requiring remedial action existed at the time the contention was admitted. However, by the Fall of 1984, CP&L had reviewed the program, identified several deficiencies, and instituted an "enhanced" program, that has now been demonstrated to be

effective. See Finding 14 at p. 929. Lengthy and detailed cross-examination by Mr. Eddleman failed to uncover any significant safety issues in the revised program.

18. In Proposed Findings 4 and 5, Mr. Eddleman would have us find that Staff witnesses did not agree on "what the root cause of the problem was." As the Staff witnesses responded to questions about the root cause in sequence, different aspects of problems with the weld acceptance criteria were described. However, these views are not inconsistent, but rather complement each other. Tr. 7321-26. The Board finds that there have been a variety of problems in the pipe support welding program as reflected in the variety of corrective actions that have been taken by CP&L. It seems probable that there was not a solitary root cause.

19. In Proposed Finding 10, Mr. Eddleman concludes that CP&L has not been keeping its commitments to quality assurance at the Harris plant. We do not reach such a broad conclusion. The record documents from Mr. Eddleman's exhibits and cross-examination that numerous nonconformances requiring additional work were identified. As required by 10 C.F.R. Part 50, Appendix B, § I, the primary function of quality assurance is to verify — by checking, auditing, and inspection — that activities affecting safety-related functions have been correctly performed. Reporting of nonconformances is a demonstration of proper program execution, while at the same time revealing that corrective actions are needed.

20. We note that whenever the need to improve some activity is found necessary for regulatory compliance, *ipso facto* the activity must have not been in compliance previously. The various problems that CP&L and the NRC found in the pipe support welding activities caused extensive rework and reinspections to be carried out. One might wish, in retrospect, that the problems had been discovered sooner than they were, but the essential issue for this Board is whether adequate corrective actions have been taken.

#### **4. Conclusions**

21. The Board finds CP&L and its contractors had a variety of problems in carrying out the pipe support welding activities. This contention may have had merit when it was initially raised but remedial actions have averted a possible breakdown in quality construction. No uncorrected errors that would affect safe plant operation were identified in this proceeding.

## C. Steam Generator Tube Failure Analyses

### 1. Introduction

Joint Intervenors' Contention VII was originally admitted by Board Memorandum and Order of September 22, 1982 (LBP-82-119A, *supra*). It stated as follows:

Applicants have failed to demonstrate that the steam generators to be used in the Harris Plant are adequately designed and can be operated in a manner consistent with the public health and safety and ALARA exposure to maintenance personnel in light of (1) vibration problems which have developed in Westinghouse Model D-4 steam generators; (2) tube corrosion and cracking in other Westinghouse steam generators with Inconel-600 tubes and/or carbon steel support plates and AVT water chemistry; (3) present detection capability for loose metal or other foreign objects; and (4) existing tube failure analyses.

16 NRC at 2077.

Applicants submitted a Motion for Partial Summary Disposition on May 16, 1984, in which they asked for dismissal of parts 1, 2 and 3 of the contention. Staff responded in support of Applicants' motion on June 5, 1984. Joint Intervenors answered on June 14, 1984, informing the Board that although they disagreed with the premises advanced by Applicants and Staff, that time and resource constraints did not allow them to respond adequately to the merits of the motions.

The Board has reviewed the arguments and accompanying affidavits submitted by the Applicants and Staff and has reached the following conclusions:

1. Sufficient experimental data, analyses and testing have been performed to provide assurance that vibration in the Shearon Harris steam generators will not be a major problem;
2. The use of all-volatile treatment (AVT) water chemistry is state-of-the-art and provides reasonable assurance of obviating many of the corrosion, cracking and denting problems experienced in earlier systems; and
3. The "loose-parts" detection system for foreign objects in the steam generators has been tested and found to be capable of detection of any such objects which might affect the integrity of the steam generators.

In accordance with the foregoing uncontroverted findings the Board confirms its prior grant of Applicants' motion for summary disposition of J.I. VII(1), (2) and (3).



## 2. Joint Intervenors' Contention VII(4)

1. A portion of this contention was settled by stipulation of the parties which was approved by the Board in a Memorandum and Order dated July 27, 1984. The remaining issue at bar is the question whether the Applicants were required to consider multiple tube failure in their tube rupture analysis.

2. Applicants' witness was Michael J. Hitchler, the Manager of Plant Risk Analysis with the Nuclear Safety Department of Westinghouse Electric Corp., the steam generator vendor. Staff's witnesses were Ledyard B. Marsh, a Section Leader in the Reactor Systems Branch, Division of Systems Integration, NRR, and Herbert F. Conrad, a Senior Materials Engineer in the Materials Engineering Branch, NRR. Joint Intervenors presented no testimony on this contention.

3. Using the conditions set forth in the "Standard Review Plan," NUREG-0800, Rev. 3, the Harris FSAR presents an analysis of a single double-ended break in a steam generator tube. Testimony of Michael J. Hitchler, ff. Tr. 4012, at 4. Results of the analysis show that the resulting release of radioactivity would be well within the limits of 10 C.F.R. Part 100. Staff Testimony of Ledyard B. Marsh and Herbert F. Conrad (Marsh/Conrad), ff. Tr. 4176, at 2. Intervenors did not question the analysis, but contend that analysis of a multiple-tube break should be included.

4. Applicants argue that the frequency of multiple-tube failures would be exceedingly small, and thus would present no significant risk to the public. Hitchler, Tr. 4014. The Staff agrees, and further argues that the conservatisms embodied in the single-tube analysis assure that the analytical results will be bounding. Marsh/Conrad, ff. Tr. 4176, at 3.

5. Applicants' witness testified that a data base of over 4 million tube-years of operating Westinghouse steam generators using Inconel tubes has been accumulated. During this time only five tube ruptures have occurred. Hitchler, ff. Tr. 4012, at 5. Using a conservative number of 3.6 million tube-years to allow for 10% tube plugging, it would be predicted that a tube rupture at the Harris plant could occur with a frequency of  $1.6 \times 10^{-6}$ /tube-year, or about one tube rupture every 45 years. *Id.* at 6. This is a very conservative number, as the causes of the five failures — stress corrosion cracking, denting, and loose foreign objects in the system — have been either eliminated or mitigated by design and operational changes and sophisticated testing, as the Board determined in its summary disposition rulings, *supra. Id.* at 7-10. If these changes are factored into the analysis, single-tube failure would be predicted to occur about  $0.6 \times 10^{-6}$ /tube-year, or about once in 120 years. *Id.* at 10.

6. Westinghouse has developed an analytical method which can be used to determine the probability of multiple-tube ruptures. This was necessary inasmuch as there is no historical data; no multiple-tube failure has ever occurred. The method, termed the "pressure pulse" model, relates the pressure differential across the tubes to the probability of tube failure. *Id.*, Attach. A. Using this model, the single-tube rupture is calculated to have a probability of  $7.5 \times 10^{-3}$ /year, which compares well with the  $8.2 \times 10^{-3}$ /year obtained using historical data. *Id.* at 11. Multiple-tube failure predicted by this model shows a frequency of  $7 \times 10^{-3}$ /year, or once in about 14,000 plant-years. *Id.* at 12. The Joint Intervenors did not question the analytical method or the conclusions reached.

### 3. Intervenors' Proposed Findings

7. Intervenors submitted a number of arguments opposing the Applicants' findings. The Board has had great difficulty in determining a nexus between these proposed findings and the necessity of performing a multiple-tube rupture analysis in the FSAR. Nevertheless, we discuss them *seriatim*.

8. Intervenors' first and second proposed findings consist of a calculation not previously aired at the hearing or in any communications between Intervenors, the Board and the other parties. Intervenors include only U.S. plants in the calculation, rather than all Westinghouse plants worldwide using Inconel tubing, thus applying four of the five failures which have occurred to a reduced tube-year count. While this may be a legitimate statistical compilation for some uses,<sup>7</sup> no grounds were laid for the four tube failures in the U.S. reactors and one tube failure in the foreign ones to be considered anything other than fortuitous. In any event, the results of the Intervenors' calculation show a probability of  $1.8 \times 10^{-6}$  compared to the result derived from using total plants data —  $1.6 \times 10^{-6}$  — a difference which the Board considers insignificant and not to indicate a trend in tube failures to either higher or lower values.

9. Intervenors' third finding is somewhat difficult to follow. However, the bottom line appears to be that, by Intervenors' calculations, two single-tube failures can be expected over the life of the plant, and therefore the possibility of multiple-tube failure is not zero. Even accepting Intervenors' calculations, the probability of two single-tube failures over

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<sup>7</sup> The Board notes that using only the statistics compiled by the four plants which have experienced tube failure would perhaps be valid under some circumstances, but that in the present case such use would be a *reductio ad absurdum*.

the life of the plant occurring at the same time, absent a common-mode initiation, is too remote to consider. Intervenors state that common-mode failure "cannot be excluded" but they do not elaborate. We find no merit in this finding.

10. Intervenors' fourth finding states that (1) there is no analysis of multiple tube failure in the FSAR, (2) Applicants' witness has never done one, and (3) the Staff did no statistical analysis for the Harris plant. These statements are all true, but have no discernible bearing on whether multiple-tube failure analysis should be required.

11. The fifth finding states that Applicants' witness has not reviewed Harris QA procedures, as the witness testified. Hitchler, Tr. 4136. However, Intervenors neglect to include the continuation of the witness' remarks, wherein he says:

What I have reviewed [is] where the recommendations have been made and what the plant has agreed to in terms of check list and keeping track of parts that go into and out of the steam generators. Also, [there is] the fact that this plant is using loose parts monitors such that when you start up the plant you will be able to hear these things and take corrective actions. So I have not specifically gone through every item in their QA procedure, but I know what the generic recommendations are at this point and those are being adhered to.

The Board finds that Mr. Hitchler's review of the actions to be taken at the plant are entirely adequate for the purposes of his calculations.

12. The sixth and seventh findings concern tube leakage before breaking and the technical specifications limit on detected leakage. Intervenors state that leaks before breaks cannot be depended upon and that the high technical specifications for tube leakage at Harris make it more difficult to detect leakage before rupture. These may be debatable points, but they shed no light upon the issue considered here — the need for multiple-tube failure analysis. The finding is therefore rejected.

13. Findings 8, 9 and 10 are somewhat difficult to evaluate, because they depend largely on isolated statements taken out of context. In any event, the Board finds nothing here which would support a need for rigorous analysis of multiple-tube failure in the FSAR.

#### **4. Conclusions**

14. The Board has evaluated the record before us and finds that there is no need for multiple-tube failure to be considered in the FSAR. It has been established that single-tube failures are rare and that multiple-tube failures are even more unlikely. We conclude that the testing, design modification, water chemistry procedures, loose parts monitoring and inspection and maintenance procedures which have

been or will be implemented should make tube failure even more unlikely than it has been historically. The Board therefore finds that analysis of potential single-tube failure is adequate.

#### IV. CONCLUSIONS OF LAW

The emergency planning and safety matters in controversy in this proceeding are limited to those raised by the Intervenors. 10 C.F.R. § 2.760a. As reflected in the foregoing findings of fact, those matters (with the few exceptions noted herein to be addressed later) now have been resolved in favor of the Staff and the Applicants and against the Intervenors. Based on those findings of fact, the Board concludes that as to the contested emergency planning and safety matters addressed herein, there is a reasonable assurance that, if an operating license is subsequently granted for the Harris facility, the activities authorized thereby can be conducted without endangering the health or safety of the public and that such activities will be conducted in compliance with applicable NRC regulations.

#### V. APPEALS

This Partial Initial Decision is effective immediately and will constitute the final decision of the Commission 45 days after the date hereof, unless a party appeals or obtains a stay pursuant to 10 C.F.R. § 2.788. Pursuant to 10 C.F.R. §§ 2.760(a) and 2.762, an appeal from this Partial Initial Decision or from any prior Board Order granting a motion for summary disposition, in whole or in part, of an emergency planning contention or excluding a proposed emergency planning contention from litigation may be taken by filing a notice of appeal with the Atomic Safety and Licensing Appeal Board within 10 days after service of this Decision. A brief in support of an appeal must be filed within 30 days after the filing of the notice of appeal (40 days if the appellant is the NRC Staff). Within 30 days after the period for filing and service of the briefs of all parties has expired (40 days if the appellant is the NRC

Staff), any other party may file a brief in support of or in opposition to an appeal.<sup>8</sup>

FOR THE ATOMIC SAFETY AND  
LICENSING BOARD

James L. Kelley, Chairman  
ADMINISTRATIVE JUDGE

Dr. James H. Carpenter, Member  
ADMINISTRATIVE JUDGE

Glenn O. Bright, Member (by JLK)  
ADMINISTRATIVE JUDGE

Bethesda, Maryland  
December 11, 1985

**ATTACHMENT TO LBP-85-49  
30 September 1985**

**CONTENTIONS BASED ON EMERGENCY PLANNING  
EXERCISE**

After the emergency planning exercise for the Shearon Harris plant in May 1985, I sought the evaluations and other documents related to these exercises. However, the State evaluations were not in my hands until after 1 September 1985, the main cause being delay by the State in releasing same. Likewise I received FOIA documents from FEMA only at the end of August 1985. FEMA has still not fully responded to the FOIA requests for Harris, nor has the State to my knowledge made its original message logs available.

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<sup>8</sup> The Applicants' unopposed motion August 1, 1985, concerning transcript corrections is granted and the evidentiary record shall be deemed amended to incorporate said changes.

Nevertheless, the available information makes it possible to frame the following contentions. In general the same "5 factors" discussion under 10 C.F.R. 2.714 applies to each, and thus a general "5 factors" section and any specific additions re these contentions will come after all the contentions.

### **Contentions**

EPX-1. Timely notification of radiation releases is not assured, e.g. in light of the approximate 42 minutes delay in notifying SERT of an uncontrolled radiation release during the exercise (State EOC evaluation by NC State Govt Evaluator). Without timely notice to emergency response personnel, the emergency management agencies cannot adequately protect the public from radiation releases.

EPX-2. Communications deficiencies revealed in the exercise could have severe bad effects in a real emergency, including lack of effective communications and radiation monitoring results, lack of contact with field and ground units, etc. For example, the emergency inter-system mutual aid frequency was so overloaded the state's communications evaluator stated it was "proved that there could be absolutely no communications with ground units on this frequency due to constant misuse." Other examples: The Highway Patrol evaluator found "communication inadequacies; equipment . . . is not yet capable of adequately handling the impact of so many units responding to an emergency of this type"; Harnett County had "insufficient telephones"; "[E]xtra radio traffic overloaded personnel on duty" in Chatham County; "excessive delays" in Emergency Medical Services Office receiving messages from SERT (State Emergency Response Team); communications from the mobile radiation lab had to be relayed to base station at times, which "always introduces the possibility of delayed and/or incorrect information" according to the State Radiation Protection Section evaluator.

EPX-3. CP&L emergency medical personnel do not have adequate equipment available (e.g. splints) to treat fractures, and have not demonstrated the ability to maintain a high level of patient care while preventing contamination of themselves and the environment. (Ref: State of NC's on-site evaluation of Emergency Medical Operations).

EPX-4. Lee County's decontamination training and practice are not adequate. For example, evaluation revealed that the group of decontaminators indicated "they had not been trained and were unsure what to do. They appeared to have no knowledge in the use of the instruments, no consideration was given to collecting water and attempting to control contamination. None of the personnel (knew) . . . 'when is decontamination complete' " (Lee County evaluation). This problem must be reme-

died by training and retesting to assure people evacuating in this area can be decontaminated and that Lee County's volunteers and other personnel are assuredly able to carry out first-class decontamination work.

EPX-5. Emergency siren activation is inadequate and there is no reliable means assuring that Wake County emergency response personnel will know when the sirens have been activated. Ref: Wake County evaluation by State of NC "some method should be devised to determine if emergency warning sirens have been activated"; State EOC messages 53, 122, 160, 166, 176, 182, 205; numerous areas had sirens not sounding, sounding of sirens was delayed about 40 minutes and there appeared to be initial confusion over confirmation.

EPX-6. Management and coordination of rumor control were inadequate (FEMA exercise report, e.g. at 13, see discussion at 11-13) especially in that there was no announcement of the early Harris Lake evacuation (necessary to avoid panic, FEMA, p. 12); likewise the General Emergency was not publicly announced for almost an hour after it was declared (FEMA, p. 12). With the General Emergency declared but unannounced, public knowledge (e.g. from emergency personnel and radio-frequency scanners and listeners) could also spread panic. (FEMA report received 8/30/85).

EPX-7. Radiation dose assessments were not promptly communicated to State Emergency Response personnel, data files were delayed up to half an hour, and coordinates of Traffic Control Points (TCPs) were not tabulated to allow faster calculation of doses giving allowable "stay times" at those TCPs. (FEMA, pp. 8-9). All such deficiencies need to be remedied to protect the health and safety of the public, which depends on accurate and timely radiation dose assessment.

EPX-8. Emergency Broadcast System use was incomplete and ineffectively managed (FEMA, 2.3.1. (2), page 13; see p. 12 discussion). Inadequacies include procedures for activation and use of the EBS (before the State assumes control); inadequate coverage of the emergency area and emergency response area, incomplete messages and instructions to the public. (Ref.: FEMA report received 8/30/85 Board Notification 85-078). Numerous problems with EBS activation mentioned on pp. 17-18 of the same report also need to be identified and rectified. All these problems must be resolved to ensure timely and effective notice to the public about nuclear/radiation emergencies so that the public can be protected in such emergencies.

EPZ-9. Radiation survey teams have a weak level of training in the use of anticontamination clothing and/or respirators (State Radiation Protection Section evaluation). This needs to be remedied to protect the health and safety of these teams and to ensure that they will be able to do their work in a timely manner.

EPX-10. Protection of emergency personnel and the public from radioactive iodine is not assured because (1) low volume air samplers are deficient in calibration and flow rate information, as detailed in the NC Radiation Protection Section evaluation, and (2) there are deficiencies in the distribution of, and notification of when emergency personnel are to use, potassium iodide (KI): See, e.g., Wake County workers being notified late (after possible contamination) (Wake Co. evaluation by State of NC/Meck. Co. evaluator).

EPX-11. There are numerous deficiencies in hard-copy transmission of information (see, e.g., State EOC messages 13, 14, 15, 16, 25, 34, 35, 40, 41, 57, 67, 71, 127) which must be remedied to assure timely and accurate emergency information is available to protect public health and safety.

EPX-12. Emergency assistance needs to be upgraded to assure evacuation of people fishing, boating, camping, etc. near the Cape Fear River in Zone ('H') — see State EOC message 162, a high priority third request to get assistance.

#### **Five Factors (generic)**

(i) There is good cause for not filing these "on time" (5-1982) since the exercise hadn't been done then, the right to litigate based on emergency planning exercises had not been clearly established, and the information was not in my hands to provide the basis of these contentions. State and Federal agencies controlled the timing of the release of this information. I have filed within 30 days of having it.

(ii) and (iv) There are no other means or other parties that will protect or represent my interests in these matters.

(iii) I can call as witnesses the evaluators and other knowledgeable persons (e.g. exercise participants); I am able to conduct discovery and cross and direct examination and have more time available now to deal with contentions; also my health is better than it was during the safety hearing period. Without a record, of course, there is no sound record.

(v) Admitting these contentions would broaden the issues, but that is inherent in emergency plan exercise contentions since they cannot be framed until after the exercise. Since the scheduling of the exercise and the release of the information about evaluations of the exercise were outside my control (the information was timely sought, e.g. one FOIA request near the time of the exercise to FEMA, other requests to the State of NC within a reasonable time of the exercise), this delay should not be charged to me as an intervenor.



There is sufficient time to have discovery until late December, and still hold a hearing (if necessary) in February on these issues, before fuel load (even if Applicants don't delay it again — they can deny delays and then delay, as experience shows), and fuel load and low-power testing could go forward without the emergency plan being approved.

Thus, the delay and broadening of the issues are inherent in preserving the public's right to litigate based on the emergency planning exercise, and there is time to carry out a hearing.

Specific factors: the time information was available for each contention's basis is the time the information was in my hands for each such contention, this being 8/30 for the FEMA evaluation and after 1 September for the State evaluations and messages.

For the above reasons, the contentions given above should be admitted.

Wells Eddleman

30 September 1985

**Administrative  
Law Judge**

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ADMINISTRATIVE LAW JUDGE**

Ivan W. Smith

in the Matter of

Docket No. 30-14821  
(ASLBP No. 85-508-01-OT)  
(License No. 25-18304-01  
EA-84-78)

**REICH GEO-PHYSICAL, INC.**  
1019 Arlington Drive  
Billings, Montana

December 11, 1985

In this Initial Decision, the Administrative Law Judge sustains a civil penalty of \$1600.00 imposed against the petitioner by the Director of Investigation and Enforcement for possession, use, storage and transportation of radioactive material in ways not authorized by petitioner's license.

**ENFORCEMENT POLICY: 10 C.F.R. PART 2, APPENDIX C**

The Commission's General Statement of Policy and Procedure for NRC Enforcement Actions is, by its express terms, imposed upon the Staff and the Commission's presiding officers. As a matter of fair notice to licensees, the Commission's presiding officers must apply the Enforcement Policy in civil penalty actions.

**ENFORCEMENT POLICY: 10 C.F.R. PART 2, APPENDIX C**

The conduct of licensed activities by a technically unqualified person is *per se* a Severity Level III violation under the Commission's Enforcement Policy.

**ENFORCEMENT POLICY: 10 C.F.R. PART 2, APPENDIX C;  
AUTHORITY OF ADMINISTRATIVE LAW JUDGE**

Under the Commission's enforcement policy, the authority of an administrative law judge is limited to imposing, mitigating or remitting the civil penalty imposed by the Director, Office of Inspection and Enforcement.

**ENFORCEMENT POLICY: 10 C.F.R. PART 2, APPENDIX C;  
AGGREGATION OF VIOLATIONS**

The Commission's policy statement is silent as to the effect of aggregation of violations. While many violations flowing from the same mistake may be aggregated into a single violation of the same severity level, the violations in this case are cumulative, demonstrating the absence of mistake and a pervasive pattern of disregard for license requirements, and justifying aggregation to a serious Severity Level II.

**CIVIL PENALTIES**

Civil penalties will normally be assessed for any willful violation of the Commission requirements regardless of severity level. Even for Severity Level IV violations, civil penalties may be imposed for violations that are similar to previous violations for which effective correction was not taken.

**CIVIL PENALTIES: MITIGATION**

While adverse publicity resulting from an enforcement action may deter violations of the Commission's regulations to some extent, it is not a reliable or necessarily effective means of assuring continued compliance with those regulations, and in this case was entitled to no mitigating weight.

**APPEARANCES**

On behalf of Reich Geo-Physical, Inc.: **Mr. Keith A. Reich**, President

On behalf of the Director, Office of Inspection and Enforcement: **Lillian M. Cuoco, Esq.**, and **Stephen G. Burns, Esq.**

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## INITIAL DECISION

### Findings of Fact and Conclusions of Law

#### I. INTRODUCTION AND LICENSING HISTORY

On October 31, 1984, the Director of the Office of Inspection and Enforcement issued his order imposing a \$1600 civil penalty on Reich Geo-Physical, Inc., the Licensee, charging it with the possession, use, storage and transportation of radioactive material in ways not authorized by its

license. The Licensee requested a hearing. This Decision is about that hearing.

Reich Geo-Physical, Inc., is a small firm whose business office is at 1019 Arlington Drive, Billings, Montana. The president, owner, and principal employee of the firm is Mr. Keith A. Reich. Reich Geo-Physical does energy exploration in the States of Montana, North Dakota, Utah, and Wyoming. It has used cesium-137 and americium-241 sources to perform well- and coal-mine logging operations.

Cesium-137 and americium-241 are radioactive byproduct materials within the meaning of § 11e of the Atomic Energy Act of 1954. Section 81 of the Act, as pertinent here, prohibits the transfer and possession of byproduct materials except as authorized under specific or general licenses issued by the Commission or unless exempted by the Commission. The Commission has provided for the domestic licensing of byproduct materials in 10 C.F.R. Parts 30 and 31.

Part 30 exempts some concentrations of some isotopes from the licensing requirement. Neither cesium-137 in the concentration relevant to this proceeding, nor americium-241 appears on the schedules of exempt isotopes. See 10 C.F.R. §§ 30.70, 30.71. Part 31 grants general licenses for the possession and use of some byproduct materials. Neither radioactive source used by Reich Geo-Physical is covered by a general license.<sup>1</sup>

Section 274b of the Act authorizes the Commission to enter into an agreement with any State to transfer the authority to regulate activities involving byproduct materials within a State to the respective State. Part 150 of Title 10 sets out the framework for the regulation of radioactive material, including byproduct material, by those States with which the Commission has entered into agreements — the "Agreement States." When an Agreement State has licensed activities pursuant to an agreement, the licensed person may, under a general license, conduct the same activity in a non-Agreement State for no more than 180 days in a calendar year, provided that an NRC-241<sup>2</sup> form is filed with the Commission at least 3 days beforehand. 10 C.F.R. § 150.20. North Dakota is an Agreement State. Montana, Wyoming, and Utah are non-Agreement States.

On August 8, 1978, Reich Geo-Physical applied to the Nuclear Regulatory Commission for a byproduct material license for cesium-137

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<sup>1</sup> Americium-241 in the form of calibration or reference sources is covered by a general license. However, Reich Geo-Physical uses americium-241 in a manner and in concentrations not covered by the general license. See 10 C.F.R. § 31.8.

<sup>2</sup> The NRC-241 form is entitled "Report of Proposed Activities in Non-Agreement States." It is a coincidence that the form number is the same as the americium-241 isotope number.

in the form of one sealed source of 125 millicuries to be used for well logging. Mr. Reich listed himself as the owner of the firm, the sole user of the source, and as the Radiation Protection Officer. The application contained several commitments explaining the testing, survey metering, storage, operating procedures and other aspects of possessing the cesium-137 source. Mr. Reich amended the application by letter dated January 30, 1979. Staff Exh. 3, Attach. 2.

The NRC issued License No. 25-18304-01 to Reich Geo-Physical on March 1, 1979, in much the form applied for. The license contained several conditions including one (condition 17) which incorporated the commitments made in the application. The license authorized the use of the cesium source at temporary job sites in Montana and Wyoming. Staff Exh. 3, Attach. 1.

NRC Region IV inspected Reich Geo-Physical on April 14, 1981, apparently at Billings, Montana, and discovered a 15.5-millicurie americium-241 sealed source in Mr. Reich's possession in addition to the licensed, cesium-137 source. The disposition of that inspection is a matter in contention in this proceeding, but it is not disputed that Mr. Reich possessed the americium source and that he possessed a valid North Dakota license for americium, but no NRC authorization for it. As a consequence of the 1981 inspection, Mr. Reich agreed to apply for an amendment to his NRC license to cover the americium-241 source and to store that source until he received his amended license or until he filed an NRC-241 notification. *Id.*, Attach. 6.

On June 12, 1981, Reich Geo-Physical filed the NRC-241 notification. Mr. Reich certified that he intended to use two americium-241 sealed sources of 15.5 millicuries each at his business address in Billings, Montana, for 180 days beginning June 20 and ending December 20, 1981. Staff Exh. 3, Attach. 7. Reich Geo-Physical does no well logging at its business address. All of its exploration activities are conducted at sites in the field. Reich Geo-Physical's NRC materials license was never amended, nor were any additional NRC-241 forms ever submitted during the period relevant to this proceeding. I understand, however, that at the time of the hearing, Reich Geo-Physical was in compliance with NRC licensing regulations.

## II. BACKGROUND OF THE PROCEEDING

On June 20, 1984, Mr. Charles H. Hooker, an inspector from NRC's Region IV, conducted an inspection of Reich Geo-Physical at the firm's Billings, Montana office. As a result of the inspection, the Region IV Administrator, on August 22, 1984, issued a Notice of Violation and

Proposed Imposition of Civil Penalty in the amount of \$1600.00. On September 8, 1984, the Licensee opposed the proposed civil penalty. On October 31, 1984, the Director of the Office of Inspection and Enforcement issued an Order Imposing Civil Monetary Penalty in the amount of \$1600.00. 49 Fed. Reg. 44,253 (Nov. 5, 1984). The Licensee requested a hearing on the Director's order and, accordingly, the Commission ordered, on March 8, 1985, that this matter be heard by an Administrative Law Judge.

The hearing was held in Billings, Montana, on July 24, 1985. As part of its direct case, the NRC Staff offered into evidence the relevant documentary exhibits.<sup>3</sup>

Mr. Hooker testified concerning his inspection. Mr. Edwin D. Flack, a Senior Enforcement Specialist in the Office of Inspection and Enforcement, testified about the safety significance of the alleged violations and the application of the Commission's Enforcement Policy (10 C.F.R. Part 2, Appendix C) to the case.

Mr. Reich also testified. He offered into evidence a copy of a letter dated May 13, 1985, from the State of North Dakota favorable to Reich Geo-Physical, concerning an inspection of the company's activities under his North Dakota Agreement State License. Reich Exh. 1. The NRC Staff offered two exhibits in rebuttal: a June 28, 1982 letter (Staff Exh. 4) and an October 5, 1984 letter (Staff Exh. 5), both from the State of North Dakota to Reich Geo-Physical concerning violations under the same Agreement State license.

<sup>3</sup> Staff Exhibits 1 and 2 consist of pages from the Licensee's utilization logs. Staff Exhibit 3 is an affidavit of Barbara J. Kay of Region IV as custodian of records. Attached to Staff Exhibit 3 are true copies of 11 documents from the Reich Geo-Physical file:

- Attachment 1: NRC License No. 25-18304-01 issued March 1, 1979.
- Attachment 2: License Application of Reich Geo-Physical, Inc., dated August 8, 1978.
- Attachment 3: Letter from Reich Geo-Physical, Inc., to Joseph M. Brown, Jr., License Management Branch, Division of Fuel Cycle and Material Safety, Office of Nuclear Material Safety and Safeguards, NRC, dated January 30, 1979.
- Attachment 4: Letter and Notice of Violation issued to Reich Geo-Physical, Inc., dated May 18, 1981.
- Attachment 5: Letter from Karl V. Seyfrit, NRC Region IV Director to Reich Geo-Physical, Inc., dated May 21, 1981.
- Attachment 6: Letter from Keith A. Reich, Reich Geo-Physical, Inc., to D.B. Spitzberg, NRC Region IV, dated August 11, 1981 (executed August 19, 1981).
- Attachment 7: Form NRC-241, "Report of Proposed Activities in Non-Agreement States" submitted to NRC Region IV by Reich Geo-Physical, Inc., dated June 12, 1981.
- Attachment 8: Letter from Glen D. Brown, Chief, Technical Inspection Branch, NRC Region IV, to Reich Geo-Physical, Inc., dated June 25, 1981.
- Attachment 9: Letter, Notice of Violation and Proposed Imposition of Civil Penalty, issued to Reich Geo-Physical, Inc., dated August 22, 1984.
- Attachment 10: Response of Reich Geo-Physical, Inc., to Notice of Violation and Proposed Imposition of Civil Penalty, dated September 1, 1984.
- Attachment 11: Letter, Order Imposing Civil Monetary Penalty and Appendix issued to Reich Geo-Physical, Inc., dated October 31, 1984.



This civil penalty proceeding is brought pursuant to 10 C.F.R. § 2.205. My authority is limited to imposing, mitigating or remitting the civil penalty imposed by the Director's Order of October 31, 1984, 10 C.F.R. § 2.205(f). The NRC Staff, as the proponent of the Director's order, bears the burden of proof. 10 C.F.R. § 2.732.

### III. THE CASE AGAINST REICH GEO-PHYSICAL

The Notice of Violation alleges six violations of the license conditions charging (1) unauthorized use and possession of americium-241; (2) use by unauthorized persons; (3) failure to timely calibrate survey meters; (4) unauthorized storage of cesium-137; (5) failure to timely test americium sources for leaks; and (6) improper transportation of radioactive materials. Staff Exh. 3, Attach. 9. In brief, two of the alleged violations would, according to the Staff, be Severity Level III items under the Enforcement Policy. The remaining four alleged violations would be Severity Level IV items. Flack, ff. Tr. 144, at 7. However, the Region IV Administrator and the Director regard the alleged violations collectively to represent a careless disregard by Reich Geo-Physical for compliance with NRC regulations and, for that reason, categorized them in the aggregate as a Severity Level II "problem." Staff Exh. 3, Attach. 9, face page.

For his part, Mr. Reich does not dispute the underlying facts of each of the allegations although he believes that the NRC Staff sometimes exaggerated the number of instances of violation. He disputes the Staff's assessment of the significance of the alleged violations and, most of all, denies that he has carelessly disregarded NRC regulations. He opposes the aggregation of the alleged violations into a Severity Level II consideration.

In the findings and conclusions below, I have first considered each of the Staff's allegations to determine whether the Staff has carried its burden on each. Then I considered whether it is appropriate to aggregate any violations that I find into a more severe, aggregated violation. In the order below, I impose the civil penalty in the full amount imposed by the Director of the Office of Inspection and Enforcement, \$1600.

#### A. Violation No. 1

Violation No. 1, as alleged in the Notice of Violation, charges that:

License Conditions 6, 7, 8, and 9 authorize only the possession of one 125-millicurie cesium 137 sealed source for use in well-logging.

Contrary to this limitation, the licensee also possessed two sealed sources of americium-241. Specifically, one source of 15.5 millicuries and one source of 25 millicuries had been possessed and used by the licensee during the period April 14, 1981 to June 20, 1984.

(This is a repeat violation.)

Staff Exh. 3, Attach. 9, at 3.

As noted above, Reich Geo-Physical's NRC license authorized only the possession and use of one cesium-137 sealed source. *Id.*, Attach. 1, at 1. However, two sealed radioactive sources of americium-241, one containing 15.5 millicuries, and one containing 25 millicuries of material, were observed by Mr. Hooker inside the Licensee's logging vehicles during the inspection. Hooker, ff. Tr. 75, at 10. Reich Geo-Physical's utilization logs show that the americium sources were used by the Licensee to conduct well-logging activities in Montana, Wyoming and Utah in 1981, Montana and Wyoming in 1982, and Montana in 1983. See generally Staff Exhs. 1 and 2.

Beginning with 1981, the Licensee's utilization logs indicate that the 25-millicurie americium-241 source was used in Utah that year a total of 29 days. It was used in Montana 10 days and in Wyoming on 12 days.

Also in 1981, Reich Geo-Physical used its 15.5-millicurie americium-241 source in Wyoming on 36 days, and on 1 day in Montana that year. Staff Exh. 1.

All of the uses of the americium sources cited above occurred after May 1981 when Mr. Reich had agreed to store his 15.5-millicurie source until he received his amended NRC license, or until he filed his NRC-241 form. Staff Exh. 3, Attach. 5. I can identify no uses of americium-241 during 1981 which occurred after the expiration of the December 20, 1981 date for the termination of the NRC-241 notification.

Reich Geo-Physical also used the 15.5-millicurie americium-241 source in Montana or Wyoming on 35 days in 1982 and on 1 day in 1983. Staff Exhs. 1 and 2. None of the Montana uses was at the headquarters in Billings.

The year 1981 presents a special subissue. The Staff charges that *any* field use of the americium-241 sources in non-Agreement States was unauthorized because the NRC-241 notification specified only that the sources would be used at Arlington Drive in Billings, Montana. *E.g.*, Tr. 86-87 (Hooker). Mr. Reich, however, states that his understanding of the purposes of the NRC-241 notification was to extend his North Dakota americium license to all places authorized by his NRC license, and that anybody who knows anything about well logging must know

that it cannot be done at the office. *E.g.*, Tr. 87-89 (Reich). Mr. Reich's point is rational. True, the NRC-241 form, by its express terms, requires specific notification of locations where activities will be conducted and the dates of that activity. Yet, it is not an unknown phenomenon that government forms do not always conform to individual situations.

Moreover, the Staff did not explain how it was hindered in its pattern of monitoring the *use* of Reich Geo-Physical's americium in non-Agreement States in 1981 because of any shortcoming in Mr. Reich's NRC-241 notification. The NRC does not learn in advance where (except by State) and when the cesium byproduct source is used by Reich Geo-Physical in field-site well-logging operations under the NRC license, and it is not apparent how specific site information under an NRC-241 notification would have been useful.<sup>4</sup>

I find that Mr. Reich's belief that his NRC-241 notification authorized the use of americium-241 sources in the same manner and locations that his NRC license authorized the use of cesium-137 was inaccurate but not unreasonable. Such use was in violation of NRC regulations but it did not indicate an intentional disregard for the regulations.<sup>5</sup>

This finding does not carry the day for Reich Geo-Physical, however. As noted, Reich Geo-Physical used the americium-241 sources frequently in Utah in 1981, while the NRC byproduct license authorized activity only in Montana and Wyoming. Staff Exh. 3, Attach. 1. Mr. Reich had no defense for that aspect of the charge. Nor is there any color of authority for Reich Geo-Physical's use of americium-241 in the non-Agreement States in 1982 and 1983. Further, until the inspection in June 1984, Reich Geo-Physical unlawfully stored the americium-241 sources in its two logging trucks at the Arlington Drive address in Billings whenever those sources were not being used in the field.

Mr. Reich acknowledges these facts but contends that he is not solely at fault. He states that, pursuant to his agreement with Region IV in 1981 (*id.*, Attach. 5), he twice orally requested application forms from the NRC to amend his materials license but received no response. *E.g.*, *id.*, Attach. 10. Neither Mr. Reich nor the NRC can produce any record of his request, but it doesn't matter. That explanation, even if proved, would not attenuate in any way the seriousness of the violation.

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<sup>4</sup> I agree, however, that the Staff could have been misled into believing that the sources were being stored at Billings rather than being used in the field, but there is no basis to believe that Reich Geo-Physical intended to convey that impression.

<sup>5</sup> The NRC-241 notification listed two americium-241 sources of 15.5 millicuries each. The Staff, however, has not charged Reich Geo-Physical with a separate count of using a 25-millicurie americium-241 source. I assume that this is because the Staff does not credit Reich Geo-Physical with the right to use either 15.5-millicurie or 25-millicurie americium source by virtue of the NRC-241 notification.

Mr. Reich argues also that the Region IV inspector, Mr. Hooker, conducted a hasty and careless inspection in 1984 as is evidenced by some errors made by Mr. Hooker when he copied from Reich Geo-Physical's utilization logs (Staff Exhs. 1 and 2). The errors made by Mr. Hooker in copying from the logs were trivial. Hooker, ff. Tr. 75, at 14. Also, in copying from the logs, he overlooked some of the unauthorized uses of the americium sources. Tr. 79 (Hooker). Mr. Reich has not pointed to any material instance where the Staff's inspection has produced unreliable evidence.

Mr. Reich does not dispute that Violation No. 1 is a repeat violation. It was the discovery of the americium-241 source by Region IV during the inspection of April 14, 1981, that led to the filing of the NRC-241 notification. Staff Exh. 3, Attach. 4 (Notice of Violation).

Mr. Flack, the Senior Specialist, Office of Inspection and Enforcement, who assessed the significance of the June 1984 inspection findings, testified that Violation No. 1 was a Severity Level III violation because it fits example C.2 of Supplement VI of the Enforcement Policy. Flack, ff. Tr. 144, at 7. That example states: "Possession or use of unauthorized equipment or materials in the conduct of licensed activities which disregards safety."<sup>6</sup> 10 C.F.R. Part 2, Appendix C, Supp. VI.C.2.

Mr. Flack is correct. For almost 4 years, Reich Geo-Physical possessed and used the byproduct material americium-241 in violation of statute and regulations in Utah, Montana or Wyoming without the knowledge of the NRC and thereby foreclosed the opportunity for State or Federal inspection.

Remaining to be considered is whether the severity assigned to Violation No. 1 should be reduced because roughly half of the days of unlawful use of americium-241 have been found to be unintentional under the NRC-241 notification. The severity of Violation No. 1 should not be reduced on that account. The remaining days of use and the uncounted times the americium-241 sources were possessed at Billings without licensed authority are more than enough to establish Violation No. 1. Moreover, Violation No. 1, without regard to the other five allegations, establishes a willful and careless disregard of the NRC regulations by Reich Geo-Physical.

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<sup>6</sup> Literally it could be argued that the use of americium-241 was not "in the conduct of licensed activities" in that the NRC licensed Reich Geo-Physical to use only cesium-137. Reich Geo-Physical has not raised this point, however, and it would be to no avail to do so. Section 234 of the Atomic Energy Act subjects any person, licensed or not, to civil penalties for the violation of § 81 and other sections of the Act. 42 U.S.C. § 2282.

## B. Violation No. 2

Violation No. 2, as described in the Notice of Violation, charges that:

License Condition 12 states that licensed materials shall be used by, or under the supervision and in the physical presence of, a specific individual named in the license.

Contrary to this requirement, during the period of August 17, 1981 to August 14, 1982 licensed material had been used by, or had been under the supervision of, individuals who were not named on the license.

Staff Exh. 3, Attach. 9, at 3.

The Licensee's utilization logs confirm the inspector's report with respect to the dates radioactive material was used. According to the logs, Mr. J. Jarocki used the 15.5-millicurie americium-241 source for 44 days in Wyoming between August 5 and November 4, 1981. Mr. Jarocki also used the same source on September 26, 1981, in Montana. Staff Exh. 1. Mr. Terry Dowling used the 25-millicurie americium-241 source for 7 days in Wyoming between August 10 and August 16, 1982. Staff Exh. 2. Mr. Hooker testified that Mr. Reich said during the inspection that he was not physically present when Messrs. Dowling and Jarocki used the americium sources. Hooker, ff. Tr. 75, at 15. Mr. Reich offered no evidence concerning this violation.

However, in the Response to the Notice of Violation, Mr. Reich admitted the unsupervised use by unauthorized persons. His defense is that the employees were properly trained; that the sources, when enclosed in the logging tool, are inherently safe; and that the employees were instructed not to remove the source from the tool. Staff Exh. 3, Attach. 10, at 1.

The difficulty with this defense is that it cuts the NRC out of the regulatory process in favor of Mr. Reich's own self-serving judgment as to the adequacy of his employees' training. In his application for the NRC materials license, Mr. Reich listed extensive training and on-the-job experience in the practice of radiation protection. *Id.*, Attach. 2, Items 8 and 9. Obviously, Mr. Reich must have known that this representation would be material to the issuance of any NRC byproduct material license. The NRC Staff knew nothing about the training of Messrs. Dowling and Jarocki — neither do I. Even if it had been adequate, the NRC had a right and duty to be assured of that fact before those individuals were permitted to use the sources.

I find that Reich Geo-Physical violated Condition 12 of its NRC license when Mr. Jarocki and Mr. Dowling, not named on the license, used radioactive material without the physical presence and supervision

of Keith A. Reich, the authorized user named on the license. The conduct of licensed activities "by a technically unqualified person" is *per se* a Severity Level III violation under the Enforcement Policy 10 C.F.R. Part 2, Appendix C, Supp. VI.C.4. This violation, standing alone, demonstrates a willful and careless disregard for NRC regulations.

### C. Violation No. 3

Violation No. 3, as described in the Notice of Violation, charges that:

License Condition 17 requires, in part, that the licensee shall possess and use licensed material described in the license in accordance with statements, representations, and procedures contained in the license application dated August 8, 1978. Item 11 of the license application states that calibration of the survey meters will be performed at 6-month intervals.

Contrary to this requirement, one survey meter had not been calibrated during the period July 27, 1982 to April 10, 1984, and a second survey meter had not been calibrated during the period April 14, 1981 to April 10, 1984.

(This is a repeat violation.)

Staff Exh. 3, Attach. 9, at 4.

The NRC inspector, Mr. Hooker, testified that, from his review of the Licensee's calibration records during the inspection, survey meter serial no. 11898 had been calibrated only once during the 3-year period prior to his inspection (April 14, 1981, through June 20, 1984) — on April 10, 1984. Survey meter serial no. 8075 was calibrated only twice during the same period — on July 27, 1982, and on April 10, 1984. Hooker, ff. Tr. 75, at 15.

The Licensee's initial position on this violation, stated in its Response to the Notice of Violation, was to admit that survey meters were not calibrated at 6-month intervals. The Licensee attributed this failure, in part, to an effort to "cut cost." Staff Exh. 3, Attach. 10, at 1. At the hearing, Mr. Reich asserted that the license required survey meter calibration every 6 months only when the meters were in use. Tr. 229, 274-35 (Reich).

The Staff acknowledged that, where a survey meter had not been used, and was not required for some other purpose, such as storage surveys, literal compliance with the license condition would not be required. The Staff noted, however, that should radioactive material be put into use, the survey meter used in connection with that material is required to be calibrated within 6 months prior to the date of renewed use. Tr. 235-36 (Hooker).

In any event, it is evident that the survey meters were regularly placed in service between April 14, 1981, and April 10, 1984, but were not calibrated as required. Mr. Reich admitted that there were occasions when survey meters were used with byproduct material more than 6 months following the last calibration. Tr. 237 (Reich). The utilization logs, which list the serial numbers of the survey meters used in connection with radioactive sources, indicate that survey meter serial no. 11898 was used with the 25-millicurie source in Montana, Wyoming and Utah in July, August, September, October and November 1981, and with the 15.5-millicurie source in Wyoming and Montana in May, June and July 1982, and in November 1983 in Montana. Staff Exhs. 1 and 2. As noted, survey meter serial no. 11898 was not calibrated until April 10, 1984.

Survey meter serial no. 8075 was used with the 15.5-millicurie americium-241 source between August 5 and September 23, 1981; on September 26, 1981; and between September 30 and November 4, 1981. Staff Exh. 1. However, this meter was not calibrated until July 27, 1982. This same survey meter was used with the 15.5-millicurie source on November 18, 1983, well over a year following the last calibration. Staff Exh. 2. This meter was not calibrated again until April 10, 1984.

The Licensee offered no evidence which would indicate that either survey meter had been calibrated during 1981. In fact, a Notice of Violation issued to the Licensee on May 18, 1981, charged the Licensee with last calibrating its survey meters in February 1978 and March 1980. See Staff Exh. 3, Attach. 4, at 3. Even assuming the meters had been calibrated in 1981,<sup>7</sup> I find that the Licensee failed to have survey meters calibrated as required by the NRC license.

In responding to the Notice of Violation, Mr. Reich asserted that, "there was not any change in survey measurements performed with meters that were over the six-month calibration date, versus the meters within the six months." *Id.*, Attach. 10, at 2, 2nd page. The idea here, I assume, is that, if an uncalibrated meter matches a calibrated meter, one may infer that the uncalibrated meter is accurate. This point was not raised in the hearing, but I have considered it nevertheless. In that there was an extensive period (according to the unrefuted evidence) when neither meter had been calibrated within 6 months, and in that there is no evidence of a third, calibrated meter, the response does not help

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<sup>7</sup> The Licensee's response to the 1981 Notice of Violation, dated August 11, 1981, stated that: "Calibration of Ludlum Survey Meters will be conducted by ICN Pharmaceuticals." Staff Exh. 3, Attach. 6. There is no evidence, however, that the Licensee actually carried out its promise to have the meters calibrated.

Reich Geo-Physical.<sup>8</sup> Accordingly, I find that the Staff has carried its burden on Violation No. 3. It is, as alleged, a repeat violation. This violation standing alone demonstrates a careless disregard for NRC regulations.

#### **D. Violation No. 4**

Violation No. 4, as described in the Notice of Violation, charges that:

License Condition 10 restricts the storage of licensed material to the licensee's address at 1019 Arlington Drive, Billings, Montana.

Contrary to this requirement, on June 20, 1984, a 125 millicurie cesium 137 sealed source was being stored at a location in Billings, Montana, not authorized on the license.

Staff Exh. 3, Attach. 9, at 4.

There is no factual dispute. Mr. Hooker testified that on the date of the inspection, the NRC-licensed cesium-137 source was not at the Licensee's address. Mr. Hooker was informed by Mr. Reich that the source was in storage in an underground bunker at the Airport Industrial Park in Billings, Montana. Hooker, ff. Tr. 75, at 12.

The Licensee admitted at the hearing that the cesium-137 source was not stored at the location specified by its NRC license on the date of the inspection. Staff Exh. 3, Attach. 10, at 2; Tr. 238 (Reich).

I find that the Licensee violated Condition 10 of its NRC license by storing its 125-millicurie cesium-137 source at a location other than 1019 Arlington Drive, Billings, Montana.

However, I also find that Violation No. 4 is of little safety consequence. The airport bunker is a secure shelter — better than the logging trucks approved by the Staff. It had been a National Guard fallout shelter. Tr. 111 (Reich). The NRC Staff does not believe the storage violation is important. Tr. 145, 183 (Flack).

Although the matter has little safety significance, it does have some regulatory significance. It is a minor example of Mr. Reich cutting the NRC out of the process when, in his judgment, the NRC requirement is not important. It is an intentional violation but it does not rise to the level of a willful and careless disregard for regulatory requirements. I

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<sup>8</sup> I have also considered whether two meters, beyond the calibration date, but in agreement with each other (if such were the case) provided any assurance of accuracy. Agreement between the meters would indicate that the meters were probably functioning properly but would not provide sufficient assurance of their accuracy.



have given it a relatively small value in assessing the overall seriousness of the aggregated charge against the Licensee.

#### **E. Violation No. 5**

Violation No. 5, as described in the Notice of Violation, charges that:

License Condition 13.A(1) requires, in part, that each sealed source containing licensed material shall be tested for leakage and/or contamination at intervals not to exceed 6 months.

Contrary to this requirement, two sealed sources containing 15.5 millicuries and 25 millicuries of americium-241, respectively, were not tested within six month periods from November 20, 1981 to April 30, 1984.

Staff Exh. 3, Attach. 9, at 4.

Mr. Hooker testified that, from his review of the Licensee's records during the inspection, leak tests were conducted on the americium-241 sources on January 20 and November 20, 1981, January 12, 1983, and April 30, 1984. Mr. Hooker also testified that, since the americium-241 sources possessed by the Licensee were taken in and out of storage during the period April 15, 1981, through June 20, 1984, leak tests should have been conducted prior to any renewed use of the sources, unless a leak-rate test had been conducted no more than 6 months prior to the date of renewed use. Hooker, ff. Tr. 75, at 16-17. Under license Condition 13.A(2), periodic leak tests need not be conducted for sealed sources that are stored and not being used. However, such sources must be tested for leakage prior to any use or transfer to another person unless a leak test was conducted within 6 months prior to the date of use or transfer. Staff Exh. 3, Attach. 1, at 2.

The Licensee admitted in its Response that it failed to conduct a leak test for the 15.5-millicurie source in 1983 when required, but asserted that, since the 25-millicurie source was not in use after November 18, 1982, leak testing was not required after that date. *Id.*, Attach. 10, at 2.

The utilization logs, when compared with the dates on which leak tests were conducted, substantiate the violation. The 15.5-millicurie source was placed into service on May 10, 1982. Staff Exh. 1. The most recent leak test had been conducted on that source on November 20, 1981, a date slightly less than 6 months prior to May 10, 1982. Then it was used continuously until December 13, 1982, more than a year since the November 1981 leak testing. Staff Exhs. 1 and 2. The 15.5-millicurie source was then leak-tested on January 12, 1983, placed back into service on March 5, 1983, and used in August and November 1983 — the

latter 2 months being beyond the 6-month period. Apparently the 15.5-millicurie source was then stored and not placed into service again until after it was leak-tested in April 1984. Staff Exhs. 1 and 2; Hooker, ff. Tr. 75, at 16.

The 25-millicurie source was leak-tested with the other source on November 20, 1981, then placed into service on August 4, 1982. It was used regularly that year until November 18 — almost a year from the most recent leak testing. It was then taken out of service. Hooker, ff. Tr. 75, at 16-17; Staff Exhs. 1 and 2.

In his cross-examination of Mr. Flack, Mr. Reich attempted to minimize the importance of failing to have the americium-241 sources leak-tested. Unfortunately for Mr. Reich, Mr. Flack is an expert radiation health-physicist by virtue of his education, training, and his extensive NRC experience as a Senior Health Physicist. Flack, ff. Tr. 144, Attach. 1 (Professional Qualifications).

First, Mr. Reich postulated that the sources of 15.5 and 25 millicuries of americium-241 do not have a high level of radioactivity compared to cesium-137 which he is licensed to use. His point, apparently, is that if he practiced traditional time/distance/shielding principles on americium-241 in the manner that he uses in handling cesium-137, he would necessarily be conservative because of the lower activity of the americium sources.

Mr. Flack acknowledged that, because of its greater radioactivity, a 125-millicurie source of cesium-137, a gamma emitter, would present a greater external hazard than the 25-millicurie source of americium-241. However, americium-241, an alpha emitter, has a very long half-life; leaking is difficult to detect; and, if ingested, it could create a long-term health problem. Tr. 172-78, 199-200 (Flack). It is necessary to perform the wipe-type leak testing because leakage of americium is very hard to detect without sophisticated equipment. Tr. 186 (Flack).

Mr. Reich suggested that it is unlikely that the sealed sources of americium would leak. But he offered no evidence to that effect. Tr. 178 (Reich). In any event, the license condition requiring leak testing also recognizes the fact that the source is sealed and enclosed in a tool.

Finally, Mr. Reich's argument that the survey meters would detect serious leaking is not very persuasive in view of the fact that the evidence established that the meters themselves were out of the calibration dates and that wipe testing is important even if the meters were freshly calibrated.

I find that Reich Geo-Physical intentionally violated License Condition 13.A(1) as charged in the Notice of Violation by failing to conduct

leak tests of sealed sources containing radioactive material at the required intervals.

#### F. Violation No. 6

Violation No. 6 as described in the Notice of Violation charges that:

10 C.F.R. § 71.5(a) requires, in part, that no licensee shall transport any licensed material outside the confines of his plant or other place of use, or deliver any licensed material to a carrier for transport unless the licensee complies with applicable requirements of the regulations appropriate to the mode of transport of the Department of Transportation in 49 C.F.R. Parts 170-189.<sup>9</sup>

- a. 49 C.F.R. § 172.403 requires that each package of radioactive material, unless excepted from labeling by § 173.391 or § 173.392, be labeled, as appropriate, with a RADIOACTIVE WHITE-I, a RADIOACTIVE YELLOW-II, or a RADIOACTIVE YELLOW-III label.

Contrary to the above, on June 20, 1984, the containers used to transport radioactive well-logging sources were not labeled with an appropriate RADIOACTIVE WHITE-I, a RADIOACTIVE YELLOW-II, or a RADIOACTIVE YELLOW-III label.

- b. 49 C.F.R. § 178.305-3 [sic — should be 178.350-3] requires that each package used to transport Type A quantities of radioactive material have the markings "USA DOT 7A type A."

Contrary to the above, on June 20, 1984, sealed sources containing millicurie quantities of americium-241 were being transported in packages that were not marked as "USA DOT 7A Type A" containers.

Mr. Hooker testified that on the day he conducted the inspection, he did not observe any distinctive Department of Transportation (DOT) markings or labels on either of the Licensee's americium-241 source containers. He also testified that in view of the amounts of americium the Licensee possessed, he would expect to see a "Radioactive White-I" label on the containers, and the markings "USA DOT 7A Type A" and "Radioactive Material" on the source containers. Mr. Hooker was informed by the Licensee that, when transported to temporary job sites, the source containers looked exactly as Mr. Hooker observed them on the day of the inspection. Hooker, ff. Tr. 75, at 11; Tr. 96-97 (Hooker).

There was, however, a sign or tag on the logging tool, which is also a satisfactory transport and storage container, identifying the package as

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<sup>9</sup> Condition 16 of NRC License No. 25-18304-01 also required the Licensee to transport licensed material in accordance with the provisions of 10 C.F.R. Part 71, Staff Exh. 3, Attach. 1, at 3; Tr. 137 (Hooker).

"Radioactive material storage." The sign was very visible. Tr. 93-95 (Hooker).

Mr. Reich admits that a "Radioactive White" label was not on display and explained that the sign would have wrapped around the source because of the small diameter of the tool. Tr. 242-43 (Reich). He testified however that a Radioactive Yellow-II sign was in fact present. Mr. Hooker was uncertain about this. He could not recall. Tr. 243-44 (Reich, Hooker). As a whole, the testimony, and Mr. Reich's Response to the Notice of Violation (Staff Exh. 3, Attach. 10, ¶ 6) are ambiguous. Whatever was on display in the logging truck had been placed there by the manufacturer of the source, and Mr. Reich, quite logically in my view, believed that the manufacturer had affixed the appropriate warning.

It is significant that Violation No. 6a charges Licensee with a failure to have a Radioactive White-I, a Radioactive Yellow-II, *or* a Radioactive Yellow-III label. Therefore I cannot accept Mr. Hooker's testimony that the label was required to be Radioactive White-I. The preponderance of the evidence — Mr. Reich's testimony — was that there was a Radioactive Yellow-II label, and Mr. Hooker could not dispute Mr. Reich's account. Therefore I find that the NRC Staff has failed in its burden of proof on Violation No. 6a. By no account was there a legend "USA DOT 7A Type A" on the transport container. Therefore I find that the Staff has prevailed on Violation 6b.

However, the NRC Staff placed "very little significance" on the failure to have the appropriate Department of Transportation labels on the sources in assessing the civil penalty. Tr. 145 (Flack). It does not seem to be a serious matter in that the radioactive nature of the package was clearly marked. It was an unintentional violation and I do not consider it to be material to the aggregated charge of willful and careless disregard of regulatory requirements. Of greater concern to me is the fact that, even as late as the hearing, Mr. Reich did not have a clear understanding as to the Department of Transportation and NRC requirements for posting transport and storage labels on his materials. Tr. 238-47.

#### **IV. WHETHER THE VIOLATIONS SHOULD BE CLASSIFIED AS A SEVERITY LEVEL II PROBLEM**

##### **A. Enforcement Policy**

Section 234 of the Act provides for civil penalties of up to \$100,000 for each day of a continuing violation. If it were left solely to my own sense of justice in this case, I would, without further analysis, have no

difficulty in arriving at the conclusion that the pattern of violations by Licensee calls for a civil penalty of at least \$1600. However, the Commission's General Statement of Policy and Procedures for NRC Enforcement Actions (10 C.F.R. Part 2, Appendix C) imposes the Policy upon the Staff and presiding officers. Moreover, in that my authority is limited to imposing, mitigating, or remitting the civil penalty previously imposed by the Director, Office of Inspection and Enforcement (10 C.F.R. § 2.205(f)), I am bound to either affirm, in whole or in part, or to reject the rationale employed by the Director in arriving at the amount of the civil penalty. As a matter of fair notice to this and to other licensees, the Enforcement Policy must be applied.

The Enforcement Policy categorizes violations in terms of five levels of severity that are representative of their relative importance and safety significance within each of eight activity areas. One of the activity areas, Fuel Cycles and Material Operations (Supplement VI), covers the violations I have found above. Another area, Transportation (Supplement V), would be relevant except that I have determined that the transportation violation should not be counted in considering an increased severity level.

As noted, within each activity area, there are five severity levels:

Severity Level I and II violations are of very significant regulatory concern. In general, violations that are included in these severity categories involve actual or high potential impact on the public. Severity Level III violations are cause for significant concern. Severity Level IV violations are less serious but are of more than minor concern; *i.e.*, if left uncorrected, they could lead to a more serious concern. Severity Level V violations are of minor safety or environmental concern.

10 C.F.R. Part 2, Appendix C, § III.

The Staff aggregated the violations into a single Severity Level II problem to focus on the underlying common cause of the violations. The severity level was selected by the Staff in view of the particular significance of two of the violations and, in the Staff's view, Licensee's careless disregard for regulatory requirements. Flack, ff. Tr. 144, at 10-11; Tr. 146-47 (Flack); Staff Exh. 3, Attach. 9. As noted, a Severity Level II matter is of very significant regulatory concern. In the absence of mitigating circumstances, Severity Level II matters result in the imposition of a civil penalty. 10 C.F.R. Part 2, Appendix C, §§ III and V.B.

## **B. Whether the Violations Should Be Considered as a Single Problem**

The Enforcement Policy provides that:

In some cases, violations may be evaluated in the aggregate and a single severity level assigned for a group of violations.

10 C.F.R. Part 2, Appendix C, § III. According to the Staff, the violations are attributable to a common cause — the Licensee's failure to exert sufficient control over licensed activities to ensure compliance with regulatory requirements. Staff Exh. 3, Attach. 9, at 1; Flack, ff. Tr. 144, at 10; Staff Proposed Finding 54. I agree with the Staff that Violation Nos. 1 through 5 (but not No. 6) have a common cause and accept the Director's somewhat euphemistic description of that cause.

The Policy Statement on aggregating violations into a single severity level is silent as to the effect aggregation should have. Aggregation does not necessarily increase the overall seriousness of a charge. In most instances that I have noticed over the years, aggregation simply better defines a problem and any needed correction. It usually has the effect of actually reducing the quantitative seriousness of an unacceptable activity. For example, many violations at a Severity Level IV flowing from a single mistake in an administrative manual might be aggregated into a single violation at the same severity level.

In this case, however, aggregation creates a new violation of a somewhat different nature. The five violations are cumulative. Moreover, together they demonstrate the absence of mistake and better demonstrate a continuing and pervasive pattern of disregard for law and regulations governing many aspects of Reich Geo-Physical's NRC materials license.

## **C. Whether the Violations Are of Very Significant Regulatory Concern**

I must now determine which of four severity levels described in the Enforcement Policy is appropriate for application in this case.<sup>10</sup> The Staff urges me to consider both the safety significance of the individual violations and the Licensee's attitude towards compliance.

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<sup>10</sup> Contrary to the Staff Proposed Finding 55, I may not consider assigning a Severity Level I to the problem area because that would exceed the position taken by the Director in imposing the penalty and the position taken by Mr. Flack at the hearing.

### *Safety Significance*

I have already discussed Mr. Flack's testimony about the long-term health effects of internally absorbed americium in the context of Licensee's failure to have its americium source leak-tested on schedule. § III.D, *supra*. The potential risk to Licensee's employees and to the public in this case is not an abstraction. The americium violations are not simply parallel incidents; they are compounded, each upon the other. I have found under Violation No. 1 that the americium was possessed and used without even a hint of any license. It was, in effect, a bootleg operation during the relevant years in the Non-Agreement States. The NRC Staff was denied any opportunity to inspect Licensee's use of americium in the non-Agreement States — a matter in itself of important regulatory concern even if the use and possession of americium had otherwise been proper.

But the unlawful use and possession was compounded by the fact that Reich Geo-Physical denied its employees and the public the benefit of the redundant safety requirements of the license. The meters were not calibrated on schedule (Violation No. 3), the sources were not leak-tested on schedule (Violation No. 5), and finally, the untested, un-metered sources were, perhaps, turned over to unauthorized users (Violation No. 2).<sup>11</sup>

As to the cesium-137 violation (No. 4), I found that changing the storage to the bunker at the airport did not present a safety event because the storage place was satisfactory. The change in storage location without a license amendment is a matter of regulatory concern, however, because the NRC could not be assured that the new storage site was adequate.

Mr. Reich urges that the absence of any radiological incident attendant to the use and possession of these sources be considered in assessing the safety significance of the americium violations. The general description of Severity Levels I and II refers to the high *potential* impact on the public. 10 C.F.R. Part 2, Appendix C, § III. I have also examined each of the eight activity areas (Supplements I through VIII) for examples of Severity Level II violations, particularly the activity area covering material operations (Supplement VI). In each activity area the *potential* for a safety event is listed as an example as well as an *actual* safety event. In

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<sup>11</sup> Since the testimony does not reveal exactly when Mr. Reich was present during the use by unauthorized users, the record does not establish with certainty that an unauthorized user, not in the presence of Mr. Reich, used a source not leak-tested on schedule at the same time he used a survey meter not calibrated on schedule. On the other hand, there is no evidence of any controls that would have prevented the coincidence of all of these circumstances.

fact, in most of the activities areas, a *potential* safety event is included in the Security Level I examples. Therefore the fact that there were no safety-significant events as a consequence of Reich Geo-Physical's violations does not control the assignment of the severity level. I have, however, considered the Reich Geo-Physical safety record below when I consider mitigation.

### ***Licensee's Attitude***

A secur. factor used by the Director in assessing a Severity Level II problem in this case was the perception of the Licensee's attitude about compliance with regulatory requirements. Staff Exh. 3, Attach. 9, at 1-2; Flack, ff. Tr. 144, at 10-11. The Enforcement Policy allows for an increase on that basis:

The severity level of a violation may be increased if the circumstances surrounding the matter involve careless disregard of requirements, deception or other indications of willfulness. The term "willfulness" as used here embraces a spectrum of violations ranging from deliberate intent to violate or falsify to and including careless disregard for requirements. Willfulness does not include acts which do not rise to the level of careless disregard, e.g., inadvertent clerical errors in a document submitted to the NRC. In determining the specific severity level of a violation involving willfulness, consideration will be given to such factors as the position of the person involved in the violation (e.g., first-line supervisor or senior manager), the significance of any underlying violation, the intent of the violator (i.e., negligence not amounting to careless disregard, careless disregard, or deliberateness), and the economic advantage, if any, gained as a result of the violation. The relative weight given to each of these factors in arriving at the appropriate severity level will be dependent on the circumstances of the violation.

### 10 C.F.R. Part 2, Appendix C, § III.

I have found that Licensee's possession and use of the americium-241 sources from June 20 to December 20, 1981, in Wyoming and Montana under the authority of the NRC-241 notification did not indicate a willful or careless disregard for the regulations — or even an intentional violation. Licensee was exonerated of the Violation No. 6a charge in that the evidence established that, contrary to the charge, his sources had a "Radioactive Yellow-II" label. Reich Geo-Physical's failure to have a "USA DOT 7A Type A" label as found under Violation No. 6b was not intentional. Every other violation set out in the Notice of Violation has been intentional. However, changing the storage location of the cesium-137 source without a license amendment, although intentional, did not rise to the level of a willful and careless disregard for the regulations.



Violation No. 1 and Violation No. 2, each standing alone, constitute a willful and careless disregard of the Commission's regulations. The combined circumstance of Violation No. 3 (survey meter calibration) and Violation No. 5 (source leak-testing) are each intentional violations and, in combination, they constitute a willful and careless disregard for the Commission's regulations. Necessarily, then, the aggregated violations constitute a single problem of willful and careless disregard of the regulations.

Moreover, the willful and careless disregard of the regulations has been by Mr. Reich, the President, owner, principal employee, and Radiation Protection Officer of the licensed firm. His purpose in violating the regulations could have been for no other reason than economic advantage — either in the form of saving money, or the equivalent, saving time and effort. The circumstances of this case fit every aspect of the Policy criteria for willful and careless disregard and for increasing the severity level of violations on that account.

Accordingly, I conclude that the violations as discussed in the decision involve matters of safety significance, meet the Enforcement Policy criteria for willful and careless disregard of the regulations, and, for those reasons, the aggregated single problem constitutes a very significant regulatory concern. I assign a Severity Level II to the aggregated violation.

## V. WHETHER A CIVIL PENALTY OF \$1600.00 IS APPROPRIATE

### A. Amount of Penalty

Under the Enforcement Policy, civil penalties are generally imposed, absent mitigating circumstances, for Severity Level II violations. 10 C.F.R. Part 2, Appendix C, §§ III and V.B. Moreover, civil penalties will normally be assessed for any willful violation of any Commission requirement regardless of severity level. Even for Severity Level IV violations, civil penalties may be imposed for violations that are similar to previous violations for which effective correction was not taken. *Id.* § V.B.

Tables 1A and 1B of the Enforcement Policy provide guidance in determining the appropriate amount of a civil penalty. These tables identify the base civil penalty values for different severity levels, activity areas and classes of licenses. Reich Geo-Physical, Inc., falls in the category of "other material licensees" under Table 1A. Since there is a Type A quantity or less involved in this case, the base penalty would be

\$1000 under Table 1A. Because the violations are at a Severity Level II, the penalty would be 80% of the base, or \$800.00, in accordance with Table 1B. *Id.*

The Director of the Office of Inspection and Enforcement escalated the base civil penalty against Reich Geo-Physical by 100%, resulting in a penalty of \$1600.00, in view of the Licensee's poor enforcement history and length of time over which the violations occurred. Staff Exh. 3, Attachs. 9 and 11; Flack, ff. Tr. 144, at 12.

The Enforcement Policy provides that a base penalty can be decreased or increased by as much as 100% for prior good or poor performance in the general area of concern. 10 C.F.R. Part 2, Appendix C, § V.B.3. Where there has been a prior notice of a similar event such as here where the Licensee had prior knowledge of a problem as a result of the 1981 inspection, the penalty may be increased by adding as much as 50% of the base. *Id.* § V.B.4. But the Staff has elected not to apply the "prior notice" escalating factor and I am bound to do no more than the Staff. The Staff may also increase the penalty by adding as much as 50% of the base for multiple occurrences. The Staff may also consider the duration of the violation. A greater civil penalty may be imposed if a violation continues for more than 1 day. *Id.* § V.B.5. In an example pertinent to this case, the Enforcement Policy provides:

If a licensee is aware of the existence of a condition which results in an ongoing violation and fails to initiate corrective action, each day the condition existed may be considered as a separate violation and, as such, subject to a separate additional civil penalty.

*Id.* § V.B.5(1).

With respect to past performance, inasmuch as the Licensee continued to use unauthorized americium sources and failed to calibrate its survey meters following the 1981 NRC inspection, it is obvious that the previous corrective action was not implemented.

As to duration, the continued possession and use of unauthorized americium sources could constitute a continuing violation such that a daily assessment of civil penalties could have been made. The Licensee was certainly made aware in 1981 that failure to obtain NRC authorization for the americium sources would violate NRC requirements, yet it failed to initiate corrective action. The Licensee used radioactive material on numerous occasions without NRC approval. On several occasions, the Licensee also failed to calibrate its survey meters and failed to leak-

test its americium sources.<sup>12</sup> The Staff, in its discretion, increased the base penalty, rather than imposing separate penalties for each day.

In sum, the Enforcement Policy would have permitted the Staff to increase the amount of the penalty under several theories. It could have considered a violation of long duration as separate daily violations. It could have considered each of the types of violation as separate violations. While this approach would have resulted in lower base penalties, the total amount would have been higher. Flack, ff. Tr. 144, at 19, 20. The Staff declined to apply the full 100% and 50% additive formula for prior bad performance *and* multiple occurrences. The Staff was well within its discretion when it settled on a modest 100% increase over the base penalty.

### **B. Mitigation**

The Enforcement Policy permits mitigation of a civil penalty under several circumstances. 10 C.F.R. Part 2, Appendix C, § B. The theme of the Policy mitigation criteria is that consideration may be given to the need, or lack thereof, of a penalty to accomplish the Policy objectives. *Id.* For example, prompt identification and reporting to NRC by a licensee of a violation, the promptness and extent of any corrective actions, and past good performance may be considered in mitigating the amount of a penalty. I am not limited to the examples of mitigating circumstances set out in the Policy. I may consider any factor indicating that the penalty is not a needed enforcement method.

Mr. Reich alludes to corrective action by Reich Geo-Physical taken since the NRC inspection in June 1984. *See* Reich Exh. 1. The Staff responds to this argument with the observation that under the Enforcement Policy corrective action is *always* required. Staff Proposed Finding 85. Reich Geo-Physical's corrective actions have not been timely and do not convince me that a civil penalty is not an appropriate method of assuring continued compliance. In effect, the Policy looks with careful scrutiny at corrective actions taken while the arm of the law lies firmly on the violator's shoulder.

By taking corrective action, albeit untimely, Reich Geo-Physical has done nothing more than avoid a possible revocation of its license. The Staff concluded that revocation might have been appropriate. That option was considered. Flack, ff. Tr. 144, at 20.

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<sup>12</sup> The Staff could have argued, but did not, that each day of using the survey meters beyond the required calibration date and each day of using the americium sources beyond the required date for leak-testing were separate violations.

Mr. Reich also argues that there has been no safety event, and that, in view of the nature of the sealed sources, none was likely. The Staff has accepted Mr. Reich's representation that there has been no safety event. To Mr. Reich's credit, his utilization logs apparently have been complete and accurate, even when they record information adverse to him. However, the same evidence, particularly evidence of the failure to calibrate meters on time, to leak-test the sources on time, and the employment of unauthorized users, casts some doubt on whether or not there has been a safety event. But I accept the Staff position that there has been none. What has not been established is whether the absence of any safety event is a product of careful management, or whether it is a matter of luck. There is evidence both ways and I will count it as a neutral factor, i.e., no mitigation.

As to the supposedly inherent safety of the sealed sources, that fact has already been reflected in the relatively low amount of the base civil penalty in the Policy.

I have considered, but rejected, Mr. Reich's argument that adverse publicity following the Notice of Violation is in itself a sufficient deterrent and penalty. First, his claim that he lost revenue and must reestablish himself in business was not explored at the hearing. Mr. Reich offered any defense concerning the economic impact on his business brought about by the imposition of a civil penalty. It is possible that adverse publicity, which incidentally was not established on the record, would deter Reich Geo-Physical and others from violating the Commission's regulatory requirements. However, adverse publicity is not a reliable or necessarily effective means of assuring continued compliance with the regulations. I afford no mitigating weight to any adverse publicity Reich Geo-Physical may have received about this affair.

After considering the entire record, I find no basis upon which the civil penalty, properly imposed by the Director of Inspection and Enforcement, may be mitigated or remitted. Considering the pattern of willful violations and the repetition of them, a civil penalty is an appropriate method to reinforce the principle that the licensee may not decide on its own with which of the Commission regulations it will comply.

## VI. ORDER

IT IS HEREBY ORDERED that the Licensee pay a civil penalty in the amount of One Thousand Six 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.<sup>13</sup>

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 of this Initial Decision. 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. Further briefing schedules shall be in accordance with Atomic Safety and Licensing Appeal Board direction.

Ivan W. Smith  
ADMINISTRATIVE LAW JUDGE

Bethesda, Maryland  
December 11, 1985\*

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<sup>13</sup> I will lose jurisdiction over this proceeding upon the filing of a Notice of Appeal and, at the same time, I will lose authority to change the due date for payment of the civil penalty. As a matter of information, however, I advise Licensee that, upon the filing of a timely Notice of Appeal, the due date for the payment of the civil penalty will be suspended until further order of the Atomic Safety and Licensing Appeal Board or the Commission.

\* An unofficial advance copy of this Decision was sent to the parties on December 4, 1985.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ADMINISTRATIVE LAW JUDGE**

**Ivan W. Smith**

**In the Matter of**

**Docket No. 30-14821  
(ASLBP No. 85-508-01-OT)  
(License No. 25-18304-01  
EA-84-78)**

**REICH GEO-PHYSICAL, INC.  
1019 Arlington Drive  
Billings, Montana**

**December 20, 1985**

In this Supplement to Initial Decision, the Administrative Law Judge authorizes payment of a civil penalty in installments pursuant to arrangements reached between the Licensee and the Director, Office of Inspection and Enforcement.

**SUPPLEMENT TO INITIAL DECISION**

On December 17, 1985, Mr. Keith A. Reich, President of Licensee corporation, orally requested reconsideration of the Initial Decision of December 11, 1985. In a telephone conference with Mr. Reich and Counsel for the Director, Office of Inspection and Enforcement, Mr. Reich explained that he had read the Initial Decision and that he accepts the result. He does not intend to appeal. He stated, however, that, unless he has relief in the terms of paying the civil penalty, the ability of his business to survive will be weakened. He pointed out that his well-logging business usually stops in December and begins again in May of each year and that his income is reduced accordingly. This cycle is corroborated by the utilization records in evidence. Staff Exhs. 1 and 2.

Also, according to Mr. Reich, the market for his services has been soft. In sum, Mr. Reich sought leave to pay the civil penalty in installments.

Upon inquiry, Mr. Reich acknowledged that he recognizes that, simply by filing an appeal from the Initial Decision, at virtually no cost to him, he could defer payment of the penalty and, perhaps, find relief in that fashion. But, as he explained, to file an appeal, when, in fact, he accepts the decision, would not be forthright. He prefers to seek relief in an ethical manner.

Counsel for the Director conferred with her clients and with Mr. Reich. She reported the following agreement:

Mr. Reich will sign a promissory note in accordance with Department of Justice and General Accounting Office regulations covering the standards for Federal claims collection. 4 C.F.R. § 101.1, *et seq.* In particular, interest will accrue beginning the date of the Initial Decision, December 11, 1985, at the U.S. Treasury tax and loan account rate. The first installment will be due on May 11, 1986, and subsequent installments will be due the 11th of each month thereafter, for 8 months, until paid.

### ORDER

The arrangement is fair to the government, accomplishes the purpose of the civil penalty, and is consistent with the Commission's Enforcement Policy.<sup>1</sup> Therefore, the Order of December 11, 1985, is modified to approve the installment-payment agreement between Licensee and the Director, Office of Inspection and Enforcement. It is so Ordered.

Ivan W. Smith  
ADMINISTRATIVE LAW JUDGE

Bethesda, Maryland  
December 20, 1985

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<sup>1</sup> 10 C.F.R. Part 2, Appendix C. The ability of a licensee to pay a penalty is an appropriate consideration. Putting a licensee out of business should be the result of orders directed toward that end rather than a civil penalty. *Id.* § V.B. Although the Licensee elected not to defend the enforcement action on the basis of its ability to pay, it seems clear that this small business needs the relief sought. Collection by installments based on the debtor's ability to pay is also consistent with Federal collection standards. 4 C.F.R. § 102.11.

**Directors'  
Decisions  
Under  
10 CFR 2.206**



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**OFFICE OF NUCLEAR REACTOR REGULATION**

**Harold R. Denton, Director**

**In the Matter of**

**Docket Nos. 30-289  
50-206  
50-305  
50-213  
(10 C.F.R. § 2.206)**

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

**SOUTHERN CALIFORNIA EDISON  
COMPANY  
(San Onofre Nuclear Generating  
Station, Unit 1)**

**WISCONSIN PUBLIC SERVICE  
CORPORATION  
(Kewaunee Nuclear Power Plant)**

**CONNECTICUT YANKEE ATOMIC  
POWER COMPANY  
(Haddam Neck Plant)**

**December 23, 1985**

The Director of the Office of Nuclear Reactor Regulation declines to take action based upon alleged equipment qualification deficiencies at specific plants identified in the "Union of Concerned Scientists' Comments on Proposed Rule" submitted on May 23, 1984. The Director

concluded that the overall state of equipment qualification of the facilities is adequate to assure protection of the public health and safety.

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

### **INTRODUCTION**

On November 19, 1984, the Nuclear Regulatory Commission (NRC) promulgated its final rule on environmental qualification of electric equipment (49 Fed. Reg. 45,571). The rule requires licensees of operating power plants to meet the schedule for environmental qualification set out in the rule, specifically, 10 C.F.R. § 50.49(g). In adopting the final rule, the Commission directed the Director of the Office of Nuclear Reactor Regulation to consider pursuant to 10 C.F.R. § 2.206 four comments filed in response to the Notice of Proposed Rulemaking issued on March 7, 1984 (49 Fed. Reg. 8445). Each of the four comments alleged equipment qualification deficiencies at specific plants. The Commission's action had the effect of requiring the Director of the Office of Nuclear Reactor Regulation to issue a formal decision pursuant to § 2.206 considering the plant-specific comments filed in the rulemaking proceeding noted above. The comments filed by the Union of Concerned Scientists (hereinafter referred to as Petitioner) dated May 23, 1984, were among those identified by the Commission for consideration. Those comments alleged equipment qualification deficiencies at four plants: Three Mile Island Nuclear Station, Unit 1; Kewaunee Nuclear Power Plant; San Onofre Nuclear Generating Station, Unit 1; and the Haddam Neck Plant (hereinafter referred to as the facilities). On January 4, 1985, I advised the Petitioner by letter that I would issue a formal decision regarding the Petitioner's comments concerning these facilities in the reasonably near future. My decision in this matter has been formulated after extensive Staff review and is as follows.

### **DISCUSSION**

Petitioner's comments relate to alleged inadequacies in a number of equipment qualification items including certain items identified by the Franklin Research Center (FRC) and set out in its Technical Evaluation

Reports (TERs) for the facilities.<sup>1</sup> It is important to recognize that the FRC studies to which the Petitioner refers were initiated by the Nuclear Regulatory Commission itself to assist in assessing the adequacy of the Licensees' electrical equipment qualification programs at the facilities. The TERs provided by FRC have been available to the NRC Staff since the fourth quarter of 1982 and have been specifically addressed by both the Licensees and the NRC Staff.<sup>2</sup>

On February 8, 1979, the NRC Office of Inspection and Enforcement issued IE Bulletin 79-01, "Environmental Qualification of Class IE Equipment." The Bulletin, together with IE Circular 78-08 (issued on May 31, 1978), requested affected licensees to perform reviews to assess the adequacy of their environmental qualification programs. The NRC Staff's review in this area for TMI Unit 1, Kewaunee, and San Onofre Unit 1 was discussed in the final Safety Evaluation for each plant (Attachments 1 through 3). The final program review for Haddam Neck has not been completed.

Following submittal by the Licensees of additional information from September 1981 to June 1982, the NRC Staff asked FRC to evaluate that information in order to (1) identify all cases where the Licensees' response did not resolve the significant qualification issues, (2) evaluate the Licensees' qualification documentation in accordance with established criteria to determine which equipment had adequate documentation and which did not, and (3) evaluate the Licensees' qualification documentation for safety-related electrical equipment located in harsh environments consistent with TMI "Lessons Learned" implementation. TERs dated June 7, 1982, for Haddam Neck, June 28, 1982, for San Onofre Unit 1, November 5, 1982, for TMI-1, and January 14, 1983, for Kewaunee, were prepared by FRC to document its evaluation. It is these documents to which the Petitioner makes reference. A Safety Evaluation (SE) was subsequently prepared by the NRC Staff and issued to each of the Licensees between November 1982 and January 1983 with

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<sup>1</sup> The licensees of the facilities are GPU Nuclear Corporation for Three Mile Island Unit 1, Wisconsin Public Service Corporation for Kewaunee, Southern California Edison Company for San Onofre Unit 1 and Connecticut Yankee Atomic Power Company for Haddam Neck (hereinafter referred to as Licensees).

<sup>2</sup> The background associated with the NRC Staff's review of three of the Licensees' equipment qualification programs is provided in Attachments 1 through 3 (not published): Safety Evaluation, Office of Nuclear Reactor Regulation, Equipment Qualification Branch, Three Mile Island Nuclear Station, Unit 1, Docket No. 50-289 (hereinafter referred to as the Three Mile Island SE); Safety Evaluation, Office of Nuclear Reactor Regulation, Equipment Qualification Branch, Kewaunee Nuclear Power Plant, Docket No. 50-305 (hereinafter referred to as the Kewaunee SE); Safety Evaluation, Office of Nuclear Reactor Regulation, Equipment Qualification Branch, San Onofre Nuclear Generating Station, Unit 1, Docket No. 50-206 (hereinafter referred to as the San Onofre SE). A final SE for Haddam Neck is not yet available.

the FRC TER as an attachment.<sup>3</sup> These TERs identified a number of electrical equipment environmental qualification deficiencies and the SE concurred with the bases and findings of the TER. Based on these findings, the Staff requested the Licensees to provide their plans for qualification or replacement of certain items and justifications for continued operation in the near term.

The Staff reviewed the FRC TERs and the Licensees' justifications for continued operation and concluded that continued operation until completion of the Licensees' environmental qualification program would not present undue risk to the public health and safety. Furthermore, the Staff continued to review the Licensees' environmental qualification programs. If any additional qualification deficiencies were identified during the course of that review, the Licensees would be required to reverify the justification for continued operation.

Meetings were held with the Licensees from December 1983 to April 1984 in order to discuss the Licensees' proposed method of resolving the environmental qualification deficiencies identified in the SEs and FRC TERs. During these meetings with the Licensees, proposed resolutions for each of the deficiencies were discussed and the NRC Staff found the Licensees' approach for resolving them acceptable. The approaches described by the Licensees for addressing and resolving the identified deficiencies included replacing equipment, performing additional analyses, utilizing additional qualification documentation beyond that reviewed by FRC, obtaining additional qualification documentation, or determining that some equipment was outside the scope of 10 C.F.R. § 50.49 and therefore not required to be environmentally qualified. The discussions also included the Licensees' general methodology for compliance with § 50.49 and justification for continued operation with those equipment items for which environmental qualification was not yet complete.

Subsequent to the 1983 and 1984 meetings, the Licensees provided further information for resolution of the identified deficiencies. With the exception of Haddam Neck, the NRC Staff completed its evaluation of the acceptability of the Licensees' electrical equipment environmental qualification program, including the type of documentation the Licensees indicated they had retained. The Staff's findings for TMI Unit 1, Kewaunee, and San Onofre Unit 1 are provided in Attachments 1 through 3, respectively.

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<sup>3</sup> Three Mile Island Unit 1 SE dated December 10, 1982; Kewaunee SE dated February 21, 1983; San Onofre Unit 1 SE dated November 30, 1982; Haddam Neck SE dated December 6, 1982.

The final Safety Evaluation for Haddam Neck is presently in preparation and will be issued in the near future. An interim SE for Haddam Neck was issued on December 6, 1982. Subsequently, a scheduler extension for equipment qualification was issued on March 28, 1985. By letter dated September 30, 1985, the Licensee requested an extension until January 4, 1986, to complete the remaining plant modifications. By letter dated November 14, 1985, the Commission granted the requested extension. The final SE has been delayed because of an issue concerning approximately 20 equipment items with about 120 discrete components located outside containment that have not been included in the environmental qualification program for Haddam Neck. The Staff is evaluating the Licensee's position on this issue, and will verify that the Licensee's program is adequate to ensure the continued protection of the health and safety of the public. The final SE will include the resolution of this issue along with the conclusion of the Staff with regard to the Licensee's equipment qualification program.

The Staff has initiated a 2-year implementation inspection program to monitor the status of equipment qualification programs at operating reactors. The inspections are designed to verify that licensees' files contain appropriate analyses and other necessary documentation to support the licensees' conclusions that their equipment is properly qualified. Additionally, the inspections will verify that the programs for surveillance and maintenance of environmentally qualified equipment conform to the licensees' prior assertions and are adequate to assure that the equipment is maintained in the as-analyzed or as-tested condition. The methods used for tracking periodic replacement of equipment will also be verified. As with any program of such complex and extensive proportions, discrepancies are expected to be identified. NRC regional personnel who are conducting the inspections will follow up to ensure that appropriate corrective action is taken where deficiencies are identified.

TMI Unit 1 and San Onofre Unit 1 are among those plants that have undergone inspections. The Staff is satisfied that discrepancies identified during these inspections have been adequately addressed by the Licensees, and the overall implementation of the equipment qualification program has been found acceptable for these facilities. The inspection program will continue until the implementation of environmental qualification programs at all operating reactors has been found acceptable.

Petitioner's comments raised several specific concerns with respect to the state of equipment qualification at the facilities. These specific comments are addressed below.

## **A. Three Mile Island Unit 1**

### ***1. Limitorque Valve Operators***

With regard to the Limitorque valve operators, the Staff's initial evaluation of the qualification status of this and all other equipment was based primarily on summary-type information supplied by the Licensee in response to IE Bulletin 79-01. More detailed qualification information was subsequently reviewed for the Staff by FRC. FRC prepared a TER that identified equipment qualification deficiencies for this equipment, based on the information submitted to them for review. The Staff met with the Licensee on October 5, 1983, and again on March 8, 1984, to discuss the Licensee's proposed resolutions of the TER-identified deficiencies.

Subsequent to the meetings cited above, the Staff performed several audits of the Licensee's TMI Unit 1 equipment qualification files, including audits on August 6, 1984, and January 29 and 30, 1985. The sample of equipment audited included Limitorque valve operators. Based on the audit results, the Staff concluded that the Licensee had the documentation necessary to demonstrate that TMI Unit 1 Limitorque valve operators, modified to correct qualification deficiencies discovered for some of the operators during field walkdowns (hardware visual inspections), are environmentally qualified. Further, the Staff then reviewed some of the operators to assure that the Licensee had corrected the deficiencies discovered during the field walkdowns.

Based on the review of TMI Unit 1 Limitorque Valve operators described above, the Staff is satisfied that there is adequate assurance regarding environmental qualification, and thus there is no need to address each individual point raised by the Petitioner regarding these items of equipment.

In summary, the Staff did not rely solely on the Licensee's assertions in meetings, or on the information submitted by the Licensee in its February 10, 1984 letter, where the reference to Limitorque generic report B-0058 was contained. Rather, the Staff independently verified that the Licensee has documented evidence that Limitorque valve operators are environmentally qualified.

### ***2. Emergency Feedwater System***

The Petitioner raises several questions about the qualification of the emergency feedwater system (EFW) at TMI Unit 1. The Petitioner's questions concerning EFW are fully addressed in a September 25, 1984

Director's Decision Under 10 C.F.R. § 2.206 responding to an earlier petition filed by the Union of Concerned Scientists alleging deficiencies in the TMI Unit 1 EFW system.<sup>4</sup>

The SE accompanying the September 25, 1984 Director's Decision provides the history of the review and detailed audits conducted concerning the TMI Unit 1 EFW. In particular, page 37 of the SE states:

Based on the results of our audits, the staff finds that all electrical equipment requiring qualification, both EFW system equipment and equipment associated with the proper functioning of the EFW system, has been demonstrated to be environmentally qualified in accordance with the requirements of 10 C.F.R. 50.49.

### **3. Justification for Continued Operation (JCO)**

The Petitioner challenges the justification for continued operation, or lack thereof, for potential deficiencies regarding TMI Unit 1 equipment qualification. This issue is now moot. In the case of TMI Unit 1, the plant remained in a shutdown condition for the entire time of the Staff's environmental qualification equipment review. The Licensee has now completed its program implementation thereby obviating the need for JCOs. The Licensee has documented qualification or replacement of equipment where environmental qualification was in question by letters dated June 28 and August 30, 1985.

### **B. San Onofre Unit 1**

The Petitioner raised two concerns regarding the justifications for continued operation (JCOs) at the San Onofre Unit 1 facility and an additional concern regarding the Licensee's schedule to correct qualification deficiencies.

1. The Petitioner alleged that the Licensee, by letter dated January 18, 1984, refused to submit JCOs to the NRC for 52 component types consisting of 100 separate pieces of equipment. The Staff's review of the docket found no such letter dated January 18, 1984. However, the Staff did find a letter dated January 18, 1983, in which the Licensee did not refuse to submit JCOs but stated that, except for two items, all previously provided JCOs were still applicable. For the two remaining items, the Licensee provided JCOs in the January 18, 1983, submittal. After several meetings and further discussions with the NRC Staff, the Licensee provided new JCOs for all nonqualified equipment items in a submittal

<sup>4</sup> GPU Nuclear Corp. (Three Mile Island Nuclear Station, Unit 1, DD-84-22, 20 NRC 1033 (1984).

dated November 3, 1984. The Staff notes that San Onofre Unit 1 was shut down for a seismic upgrading on February 27, 1982, and did not resume power operation until November 27, 1984. Thus, the facility did not operate until the new JCOs had been provided to the NRC. These JCOs were reviewed by the Staff and found acceptable for the reasons stated in the Staff's March 11, 1985 SE (Attachment 2).

2. The Petitioner also alleged that the Licensee's JCOs were inadequate for the following items which were found to have qualification deficiencies in the FRC TER:

<b>TER Item No.</b>	<b>Equipment Description</b>
53, 54, 55, 56, 59	electrical cable
1, 3, 4, 6, 7, 8	15 Limitorque valve actuators
10, 11, 13, 14, 15, 16, 17	19 solenoid valves
18, 20, 21, 22, 23	12 flow transmitters
28, 29	6 level transmitters
31, 32, 33, 34	13 pressure transmitters
43, 44, 45	unspecified no. of electrical penetrations
47	2 long-term recirculation pumps
49	2 safety injection pumps, and
50	1 motor-driven auxiliary feedwater pump

Subsequent to the Petitioner's comments, the Staff confirmed that its March 11, 1985 SE (Attachment 2), did evaluate new JCOs provided by the Licensee's November 3, 1984 submittal for all of the above items cited by the Petitioner. These JCOs were found acceptable by the Staff for the reasons stated in the March 11, 1985 SE.

3. The Petitioner also alleged that the Licensee "has no immediate plans to correct the qualification deficiencies found by FRC and NRC." This statement was based on the Licensee's February 27, 1984 letter which requested that modifications required for environmental qualification of electrical equipment be removed from the Integrated Living Schedule of Backfits for San Onofre Unit 1 until a request for schedular exemption had been submitted to and approved by the NRC.

The NRC Staff notes that, in accordance with 10 C.F.R. § 50.49(g), the Licensee did submit requests for extension of equipment qualification deadlines on July 30 and December 21, 1984, and March 15, 1985,



for a total of seventy-nine different pieces of equipment. The NRC Staff reviewed these requests and determined that there was good cause for the extensions based upon procurement lead time, test complications, and installation problems. Thus, the extension requests were found to be consistent with existing regulations in § 50.49(g) and were approved by the NRC in letters dated November 26, 1984, and February 15 and March 27, 1985. The extensions require the Licensee to have the electrical equipment qualified by November 30, 1985.

### **C. Kewaunee Nuclear Power Plant**

#### ***1. Qualification Documentation***

The Petitioner comments that the Licensee's submittal of March 16, 1984, demonstrates poor qualification documentation. This submittal was forwarded by the Licensee to document proposed methods of resolution for environmental qualification deficiencies discussed at a meeting with the Licensee held on January 20, 1984. During this meeting, the Staff discussed deficiencies in the Licensee's program. Among the deficiencies identified was documentation. All open items identified in the SE dated February 2, 1983, were also discussed and the resolution of these items has been found acceptable. The Licensee utilized additional qualification documentation beyond that reviewed by FRC. The content of the additional documentation was discussed at the meeting. The Staff concluded in its September 11, 1984 SE that the Licensee's equipment qualification program is now considered acceptable.

#### ***2. Justification for Continued Operation***

The Petitioner alleges that the Licensee refused to submit JCOs for twenty-five Limitorque valve operators. The Petitioner cited the Licensee's April 22, 1983 letter as the document containing the alleged "refusal." However, that letter stated, "Limitorque operators identified in our submittals are qualified equipment (NRC Category 1.A) and no justification for continued operation is required." The Licensee stated it had documentation in its equipment qualification files to support this statement. Therefore, the Staff found that JCOs were not needed and hence there was no "refusal."

#### D. Haddam Neck

##### *Justifications for Continued Operation*

1. The Petitioner comments that the JCO for the resistance temperature elements does not satisfy the Commission's criteria and attempts to excuse the lack of documented environmental qualification for the temperature elements.

The Staff met with the Licensee on April 10, 1984, to discuss the resolution of the TER deficiencies. During that meeting, the Licensee informed the Staff that the temperature elements, cited by the Petitioner as having a deficient JCO, will be replaced with qualified elements by March 31, 1985, in accordance with an extension granted by the NRC Staff. By letter dated February 28, 1985, the Licensee requested an extension until November 30, 1985, to complete the replacement of the temperature elements. This extension was granted by the Staff on March 28, 1985. The Staff has reviewed and accepted the JCO for these elements submitted by the Licensee in letters dated October 19 and November 30, 1984, and October 25, 1985.

The basis for the Staff's acceptance of the JCO for these elements included the fact that backup instrumentation, specifically, in-core exit thermocouples and the subcooled margin monitor, was available. The Licensee has stated that the in-core exit thermocouples consist of inorganic material and are not exposed to accident conditions more severe than normal operating conditions. As such, they will be operational during a design basis accident. All associated electrical equipment (e.g., cabling, cabinets) outside the reactor vessel and potentially exposed to a harsh environment is qualified pursuant to 10 C.F.R. § 50.49. The existing subcooled margin monitor is likewise qualified.

2. The Petitioner also comments that the Licensee has not provided either a JCO which satisfied the Commission's criteria or demonstrated environmental qualification for the in-core exit thermocouples.

In a submittal dated October 19, 1984, the Licensee stated that presently installed in-core thermocouples were not in the scope of § 50.49, and thus no JCO was required. The Staff agrees with this interpretation of § 50.49. In any event, the in-core thermocouples are scheduled to be upgraded to meet the criteria of Regulatory Guide 1.97, with an expanded range (200-1600°F) capability as part of the effort to improve emergency response capability.<sup>5</sup> The schedule for this effort is controlled

<sup>5</sup> Regulatory Guide 1.97, "Instrumentation for Light Water Cooled Nuclear Plants to Assess Plant and Environs Conditions During and Following an Accident."

by the Licensee's commitments to implement Supplement 1 to NUREG-0737, and is the subject of a Confirmatory Order dated June 12, 1984, 49 Fed. Reg. 26,653 (June 26, 1984).

### CONCLUSION

In summary, the NRC Staff has reviewed each of the items relied upon by the Petitioner. The FRC TERs and NRC's letters to the Licensees, which were identified by the Petitioner, do indicate various environmental qualification deficiencies. Those deficiencies were identified by the FRC and the NRC Staff in reviewing the information available at that time. Thus, the Petitioner has not raised any environmental qualification issues of which the Staff was unaware.

Since the TERs were issued, the Licensees have provided considerable additional information regarding the identified electrical equipment deficiencies and have proposed a resolution to each of them that has been found acceptable by the Staff. The three attached final SEs document the Staff's reviews which conclude that these Licensees have electrical equipment qualification programs which comply with the requirements of § 50.49, that the proposed resolutions for each of the environmental qualification deficiencies identified in the FRC TERs are acceptable, and that continued operation until implementation of the Licensees' environmental qualifications programs are complete as scheduled will not result in undue risk to the public health and safety. With respect to Connecticut Yankee, the Staff is in the process of completing the review of its environmental qualification program, and will ensure that appropriate corrective actions are taken to resolve any remaining discrepancies.

The Staff will be continuing to monitor the Licensees' progress in developing and implementing their environmental qualification programs. Consequently, I conclude that the overall state of equipment qualification of the facilities is adequate to assure protection of the public health and safety. Accordingly, I decline to take any additional action in this matter.

As provided by 10 C.F.R. § 2.206(c), a copy of this Decision will be filed with the Secretary for the Commission's review.

Harold R. Denton, Director  
Office of Nuclear Reactor  
Regulation

Attachments: Safety Evaluations

Dated at Bethesda, Maryland,  
this 23rd day of December 1985.

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