

**NUCLEAR REGULATORY COMMISSION
ISSUANCES**

**OPINIONS AND DECISIONS OF THE
NUCLEAR REGULATORY COMMISSION
WITH SELECTED ORDERS**

July 1, 1997 – December 31, 1997

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PREFACE

This is the forty-sixth volume of issuances (1 - 319) of the Nuclear Regulatory Commission and its Atomic Safety and Licensing Boards, Administrative Law Judges, and Office Directors. It covers the period from July 1, 1997 to December 31, 1997.

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

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

On June 29, 1990, however, the Commission voted to abolish the Atomic Safety and Licensing Appeal Panel, and the Panel ceased to exist as of June 30, 1991. In the future, the Commission itself will review Licensing Board and other adjudicatory decisions, as a matter of discretion. *See* 56 Fed. 29 & 403 (1991).

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

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

Issuances are referred to as follows: Commission--CLI, Atomic Safety and Licensing Boards--LBP, Administrative Law Judges--ALJ, Directors' Decisions--DD, and Decisions on 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.

NUREG-0750

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD PANEL

Before Administrative Judges:

Peter B. Bloch, Presiding Officer
Charles N. Kelber, Special Assistant

In the Matter of

Docket No. 40-8681-MLA
(ASLBP No. 97-726-03-MLA)
(Re: License Amendment)
(Alternate Feed Material)

**INTERNATIONAL URANIUM (USA)
CORPORATION**
(White Mesa Uranium Mill)

July 23, 1997

Even after receiving detailed guidance from the Presiding Officer, Petitioners have not filed pleadings that demonstrate an injury in fact resulting from the proposed license amendment. They are, therefore, not entitled to a hearing.

ENVIRONMENT: ENVIRONMENTAL JUSTICE

A uranium mill requested a license amendment to receive a different kind of feedstock material without any increase in the amount of radioactive material processed or disposed of. An allegation by some native American neighbors that they have been discriminated against by the license amendment does not demonstrate any improper discrimination against them.

MEMORANDUM AND ORDER
(Denying a Hearing)

Memorandum

There is little reason to suspect, based on the pleadings, that the requested license amendment would result in any harm to health and safety or to the environment. There is, however, an important issue of communication because the information available to the public in this case does not indicate the composition of the "Cotter Concentrate" that is the nexus of the complaint of the Native American Petitioners. This problem may be solved, even though the petitions for a hearing are denied.

The Native American Petitioners have not accepted the clear invitation to establish the basis for granting standing to them. In this case, which involves an amendment to an operating license, it is incumbent on Petitioners to show how they are harmed by the amendment. Although I have provided guidance to them about how to do that, they have not responded adequately to the guidance. Consequently, the request for a hearing is denied. Petitioners may appeal this determination to the Commission.

In the absence of a hearing, the Staff of the NRC and International Uranium (USA) Corporation might consider providing information to assure the Petitioners and the public that mixed wastes are not being processed or stored at White Mesa.

I. PROCEDURAL HISTORY

This proceeding involves a challenge to a license amendment that was issued by the Staff of the Nuclear Regulatory Commission (Staff) on April 2, 1997.¹ The amendment permits the receipt and processing of alternate feed material (i.e., material other than natural ore) at Licensee's White Mesa Uranium Mill located near Blanding, Utah. See 10 C.F.R. Part 40, Appendix A, which sets forth several design criteria and requires that licensing decisions "take into account the risk to the public health and safety and the environment with due consideration to the economic costs involved . . ."; 40 C.F.R. Part 192, Subparts D and E. See also the following nonbinding Staff guidance: "Final Position and Guidance on the Use of Uranium Mill Feed Material Other Than Natural Ores," 60 Fed. Reg. 49,296 (Sept. 22, 1995).

¹ Letter from Joseph J. Holonich, Chief, Uranium Recovery Branch, Division of Waste Management, Office of Nuclear Material Safety and Safeguards, April 2, 1997, Attachment 4 to the Letter of the Native American Peoples Historical Foundation, April 25, 1997.

The following requests for a hearing or for participation in a hearing have been filed:

1. Native American People's Historic Foundation, April 16, 1997, Winston M. Mason, Head of Council.
2. Mr. Norman Begay, April 30, 1997. Mr. Begay writes on behalf of himself and his community.
3. Westwater Navajo Community, May 5, 1997, Lula J. Katso, Community Spokesperson.
4. U.S. Department of Energy, May 5, 1997, G. Leah Dever, Assistant Manager for Environmental Management.

The Staff filed its response on May 21, 1997 (Staff Response). Subsequently, I issued LBP-97-10, 45 NRC 429 (1997). That decision accepted the Staff Response, even though it was untimely. Pursuant to that decision, the following filings also have been received:

1. Native American Petitioners, by Norman Begay (White Mesa Utes), Lula Katso (Westwater Navajo Community), and Winston Mason (Native American Peoples Historical Foundation, Inc., Great Avikan House), June 6, 1997 (Supplemental Petition).
2. NRC Staff's Response to the Supplemental Requests for Hearing Filed by [Native American Petitioners] . . . July 10, 1997 (Staff Supplemental Response).
3. Response of International Uranium (USA) Corporation to Hearing Requests Regarding Amendment to Source Material License (IUSA Supplemental Response).

II. BASIS OF STAFF ACTION

A. The Technical Evaluation Report (TER)

The Staff approved the issuance of a license amendment for White Mesa Uranium Mill in a "Technical Evaluation Report for Request to Receive and Process Alternate Fuel Material, Docket No. 40-8681" (TER), sent to Energy Fuels Nuclear, Inc., by letter of April 2, 1997. See Attachment 4 to the Clarification of Petition for Standing of Great Avikan House, April 25, 1997.

In the TER, at 2, the Staff concluded that the feed material did not contain hazardous waste. The following language in the TER is, however, difficult to understand and appears to be lacking a full explanation of its legal and

factual basis, perhaps because the request for an amendment redacted or omitted information claimed to be proprietary²:

Under the alternate feed guidance, proposed feed material which contains a listed hazardous waste will not be approved by the NRC staff for processing at a licensed mill. Feed materials which exhibit only a characteristic of hazardous waste (i.e., ignitability, corrosivity, reactivity, or toxicity) would not be regulated as hazardous waste and could therefore be approved by the staff for recycling and extraction of source material. However, this does not apply to residues from water treatment. Therefore, NRC staff acceptance of such residues as feed material would depend on their not containing any hazardous or characteristic [sic] hazardous waste.

The uranium-bearing material's owner has determined that the material does not contain a listed hazardous waste. However, the material does exhibit two characteristics of hazardous waste: corrosivity (due to a pH in excess of 12.5) and toxicity due to selenium concentrations above the Toxicity Characteristic Leaching Procedure [TCLP] regulatory threshold. The material's owner has addressed these findings with the State Department of Environmental Protection (DEP) in the state in which the material is located. The State DEP, which has been granted final authorization from the U.S. Environmental Protection Agency for the State-administered Resource Conservation and Recovery Act (RCRA) program, concurred in the material owner's determination. Copies of the correspondence between the material owner and the State DEP were provided with the amendment application: the NRC staff has reviewed this correspondence and finds the uranium-bearing material, while exhibiting characteristics of hazardous waste, does not contain a listed hazardous waste.

The NRC Staff has determined also that the uranium-bearing material is not a residue from water treatment.

Therefore, the NRC staff considers the uranium-bearing material acceptable for recycling and extraction of source material.

[Emphasis added.]

Whether or not this waste is hazardous is not merely an academic concern. The Native American People state, at 2 of their Supplemental Petition (citing, in Attachment C, slides purportedly presented on April 2, 1997, by Colleen O'Laughlin, the Department of Energy's [DOE's] Project Manager for the Cotter Concentrate Project):

The amendment covers 790,000 pounds of "Cotter Concentrate," defined as "Mixed Waste Containing Radionuclides and Hazardous Constituents, comprising 'Eight-eight percent of NTS current Mixed Waste Inventory.'"

Lula Katso, spokesperson for the Westwater Navajo Community, wrote, at 1 and 2 of a letter of June 7, 1997, that:

² See Request to Amend Source Material License SUA-1358, White Mesa Mill Donket No. 40-8681, rev. March 5, 1997. This material is Attachment 2 to the Request for Standing faxed to the NRC on April 16, 1997, by the Native American People's Historical Foundation.

The leach fields might drain down into the canyon water and to the river.

The Supplemental Petition stated, in Attachment I, ¶19, without citing any authority:

It is [our] . . . understanding that the contents of the Cotter Concentrate include radionuclides and hazardous constituents, some of which are heavy metals, organic wastes and plutonium-244.

The filings indicate that there may be credible reasons for a finding of the nonhazardous nature of the Cotter Concentrate. As previously mentioned, the NRC treated much of the data about the Cotter Concentrate as proprietary, however, and kept it confidential. Therefore, the information is not publicly available. Some public statements, including one made by the NRC before the Utah Radiation Control Board, May 9, 1997 (Supplemental Petition, Appendix H, at 2, ¶9), are equivocal as to whether the Cotter Concentrate is hazardous corrosively and toxicologically. The NRC has said, relying primarily on a health physicist, whose expertise may be limited to radiation safety:

Prior to submitting the request for the license amendment, Energy Fuels conducted an analysis of the issue and concluded the Cotter Concentrate *does not present any unique or extraordinary safety issues*. The NRC agreed that the material can be processed without posing additional risk or impacts to the environment, Energy Fuels³ employees or the public's health and safety. The safety of the processing was confirmed independently by a health physicist. He reviewed the potential health and environmental impacts that may be associated with the processing of the Cotter Concentrate. The physicist found that the data demonstrated conclusively that the material has no potential to increase any radiation risk to the general public or the environment. The company is taking all of the radiation safety precautions to protect their employees, the public and the environment.

[Emphasis added.]

B. Conclusion

After reading the Staff's materials, I conclude that it is impossible for me to ascertain the basis for the Staff determination that this material is not hazardous. The basis is not found either in the TER or in any other material filed with me. In particular, I do not know the composition of this material, how hazardous it is, or how a determination was made that the material "is not a residue from water treatment." Since I cannot make these determinations, I understand the concerns of the Native American Petitioners, whose fears cannot at this time be properly addressed by available facts.

³ White Mesa Mill was acquired from Energy Fuels Nuclear, Inc., by IUSA.

Determining whether this material is hazardous is crucial to the consideration of the health and safety aspects of the concerns of the Native American Petitioners. Hence, the Staff and IUSA may choose voluntarily to supply the legal and factual basis for this determination to the Petitioners and the public.

III. CONCERNS: INJURY IN FACT

A. The Law of the Case

Above, I have just stated a concern about public information about the Cotter Concentrate. Nevertheless, the Native American Petitioners have not complied with NRC requirements for a hearing, including:

- They have not stated whom they represent.
- They have not stated in a sworn statement where any of the represented individuals reside or how far they reside from the alleged threat from the Cotter Concentrate.
- They have not provided a plausible scenario concerning how they may suffer health or safety consequences from the Cotter Concentrate.⁴

An earlier decision in this case, LBP-97-10, 45 NRC at 431 states that "One way or another, a petitioner must show the specific injury that is feared and how that injury might occur." It also states, at 431, that:

To show standing, an individual or an organization must show how they may be harmed ("injury in fact") by the amendment.⁵ It is typical in our proceedings that an individual would submit an affidavit concerning where they live and how far that is from the proposed activity. An organization typically would file an affidavit showing that its interests as an organization will be injured or that a particular person or group of people, whom it is authorized to represent, live in particular addresses, stating how far they live from the proposed activity.

B. State of the Record

It is a puzzle that the straightforward requirements of the law have been largely ignored even after effort has been expended to make the requirements understandable.⁶ What Petitioners' filings lack even now is:

⁴ Alleged future events, such as bringing wastes from "Fernald and other DOE sites," are not relevant to this license request. Our attention is limited to the alleged evils of this license amendment and this day.

⁵ "The requirement of 'injury in fact' must not be taken literally. It is fulfilled by demonstrating that there is reason to believe an accident may occur. *Curators of the University of Missouri*, LBP-90-18, 31 NRC 559, 566 (1990). Note that this Subpart L case interprets "injury in fact" in light of the extent to which facts may be available to a petitioner."

⁶ The Staff Supplemental Response, at 3-12, is a scholarly approach to the subject of standing as previously interpreted in this case.

1. The specific address of a person on whom the group relies in proving that it is placed at risk by the proposed license amendment.
2. The names of the people who are members or are otherwise represented by the group and how they have authorized representation. A precise description of the geographical areas in which these members or represented people reside or live.
3. At least some superficial information about the paths that surface water or streams take in the area and the reason to believe that represented individuals are at risk despite the precautions and monitoring undertaken under the license to which this amendment is requested.
4. The distance that pollution would have to travel to cause physical injury to represented individuals. This could be measured along water or atmospheric pathways.
5. Specifications of reasons to believe in the inadequacy of the precautions taken by IUSA to prevent water and air pollution.

It is my conclusion, after reviewing the last section of the TER, that this amendment makes very little substantive change in milling or tailing-disposal operations, making it difficult for Petitioners to show "injury in fact." The Staff found, at 3-4 of the TER, that:

[T]he processing of this material will not result in (1) a significant change or increase in the types or amounts of effluents that may be released offsite; (2) a significant increase in individual or cumulative occupational radiation exposure; (3) a significant construction impact; or (4) a significant increase in the potential for or consequences from radiological accidents. This conclusion is based on the following information:

- a. Processing of this material will not result in the currently-approved annual yellow-cake production limit of 4380 tons being exceeded.
- b. No physical changes to the mill circuit are required to process this material.
- c. Processing this material will not require EBN [or IUSA] to enlarge its tailings' disposal facilities.
- d. Trucks transporting the material to the mill site will be surveyed and decontaminated, as necessary, in accordance with EBN [OR IUSA]'s procedures, before leaving this site.
- e. Employees involved in handling the material will be provided with personal protective equipment. . . .

C. Pleadings of the Native American Petitioners

Mr. Begay comes closest to alleging a ground for standing. He states:

Our Community and our water wells lie adjacent to, as well as downstream and downwind from the EBN [OR IUSA] Mill. The radionuclides which make up the Cotter Concentrate

originally came from Belgium Congo Ore containing approximately 60% Uranium, and now still contain 10% Uranium. Not only does this hazardous waste contain extremely high radioactivity and radon gas properties, but each time it is processed it adds further harmful constituents, which are perhaps more immediately dangerous to human health than the radionuclides. According to reports, your agency, and the Department of Energy have stated that DOE is unable to stabilize the Cotter Concentrate. Therefore, on the basis of concerns for the health and safety of myself, my family, and my community, I ask for standing to argue against bringing these contaminants to the White Mesa Mill.⁷

Mr. Begay, however, writes from a post office box and does not provide his residential home address, a statement of how he is authorized to represent other Ute citizens, or the residence of any Ute citizen. Nor does his concern show an injury in fact resulting from the amendment, as contrasted with continuing operations of the mill under its existing license. So Mr. Begay fails to provide a basis for standing, either for his organization or himself.

Lula Katso, who is styled as "Spokesperson for Westwater Navajos,"⁸ does not provide a residential address, a statement of authorization to represent other Navajo citizens, or the residence of any represented person. Lula Katso thus fails to show "injury in fact" or any basis for standing, either for the Westwater Navajos or personally.

Mr. Winston M. Mason, Head of Council of Great Avikan House, uses the address of the Native American Peoples Historical Foundation. He does not provide his own residence or the residence of any member of the Historical Foundation. Nor does he state the distance from White Mesa of the Native American Peoples Historical Foundation or any plausible explanation of how it might be harmed. He fails to provide a basis for standing, either for his organization or himself.

D. Environmental Justice

I conclude that, contrary to the position of the Native American Petitioners, the Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" (1994) is not applicable. This case is about continued operation of a site that has already been licensed. It is my responsibility to evaluate the petitions and to ensure that health and safety is protected. There is no reason to think that this action could discriminate against Native Americans. 59 Fed. Reg. 7629.

⁷ Norman Begay's letter of April 30, 1997, at 1.

⁸ See Lula Katso's letters of June 7, 1997, and April 30, 1977, appearing as attachments at the front of the Native American's Supplemental Petition.

Spiritual and Psychological Effects

The Native American Petitioners have expressed profound concerns about the effect of the placement of the Cotter Concentrate near their ancestral burial grounds. While this argument strikes a responsive chord, it does not invoke any legal authority, and I know of no such authority. The Atomic Energy Act and the National Environmental Policy Act are concerned with public health and safety and harm to the human environment. See *PANE v. NRC*, 678 F.2d 222, 249-53 (D.C. Cir. 1982), and *Metropolitan Edison Co. v. PANE* 460 U.S. 766, 772-79 (1983).

IV. NEGOTIATION

The Presiding Officer would be pleased to facilitate productive discussions among the parties. While the case is pending, this should be done in an open forum. After the time for appeal expires, if the case is no longer active, the facilitation could, with special approval of the NRC, occur at private meetings.

Order

For all the foregoing reasons and upon consideration of the entire record in this matter, it is, this 23rd day of July 1997, ORDERED that:

1. Pursuant to 10 C.F.R. § 2.1205(n), the decision to deny the petitions to intervene is appealable to the United States Nuclear Regulatory Commission within ten (10) days of service of this Order of the Presiding Officer.
2. A petition for review and a response to a petition for review must meet the requirements of 10 C.F.R. § 2.786(b)(2)-(6).
3. Pursuant to 10 C.F.R. § 2.771, a petition for reconsideration of a final decision may be filed by a party within (10) days after the date of the decision. The petition for reconsideration shall state specifically the respects in which the final decision is claimed to be erroneous, the grounds of the petition, and the relief sought.
4. Under 10 C.F.R. § 2.734,⁹ a party may file a motion to reopen a closed record to consider additional evidence. The motion must be timely, must address a significant safety or environmental issue, and must demonstrate that

⁹This section is contained in Rules of General Applicability and appears to have no parallel section in 10 C.F.R. Part 2, Subpart L.

a materially different result would be likely had the newly proffered evidence been considered initially.

Peter B. Bloch, Presiding Officer
ADMINISTRATIVE JUDGE

Rockville, Maryland

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Charles Bechhoefer, Chairman
Thomas D. Murphy
Frederick J. Shon

In the Matter of

Docket No. 72-18-ISFSI
(ASLBP No. 97-720-01-ISFSI)

NORTHERN STATES POWER
COMPANY
(Independent Spent Fuel Storage
Installation)

July 30, 1997

The Licensing Board grants the Applicant's motion to withdraw its application and terminate the proceeding. (The Board thereafter on August 7, 1997, considered a petition for reconsideration of this Order.)

MEMORANDUM AND ORDER
(Terminating Proceeding)

This proceeding involves the application of Northern States Power Co. (Applicant) for a license for an Independent Spent Fuel Storage Installation (ISFSI) at an away-from-reactor site. The Applicant on July 22, 1997, wrote the NRC Staff withdrawing its license application and, by motion dated July 24, 1997, has moved to terminate this proceeding.

By Memorandum and Order (Motion to Suspend Proceeding), dated December 3, 1996, LBP-96-26, 44 NRC 406, we granted the Applicant's motion to suspend this proceeding pending the outcome of State-court litigation concern-

ing the ISFSI site. At the time, several petitions for leave to intervene had been filed. We had not yet ruled on contentions — indeed, we cancelled a forthcoming prehearing conference designed to consider, *inter alia*, various Petitioners' proposed contentions. Accordingly, no Notice of Hearing has been issued or could appropriately have been issued prior to the suspension.

In filing its termination motion, the Applicant advises that the State-court litigation is now complete and that it need not continue seeking a license for the proposed ISFSI. Under 10 C.F.R. § 2.107(a), we have authority to grant a motion to terminate a proceeding. Where, as here, a Notice of Hearing has not been issued, it is inappropriate for us to evaluate or impose conditions on the termination. *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), LBP-86-37, 24 NRC 719, 724 (1986). That being so, we are *granting* the Applicant's motion to terminate without seeking the views of various parties or Petitioners for intervention.

Pursuant to 10 C.F.R. § 2.760 of the Commission's Rules of Practice, this Memorandum and Order will constitute the final decision of the Commission forty (40) days from the date of its issuance, unless a petition for review is filed in accordance with 10 C.F.R. § 2.714a or the Commission directs otherwise.

IT IS SO ORDERED.

THE ATOMIC SAFETY AND
LICENSING BOARD

Charles Bechhoefer, Chairman
ADMINISTRATIVE JUDGE

Thomas D. Murphy
ADMINISTRATIVE JUDGE

Frederick J. Shon
ADMINISTRATIVE JUDGE

Rockville, Maryland
July 30, 1997

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR REACTOR REGULATION

Samuel J. Collins, Director

In the Matter of

Docket No. 50-309

MAINE YANKEE ATOMIC POWER
COMPANY and
YANKEE ATOMIC ELECTRIC
COMPANY
(Maine Yankee Atomic Power Station)

July 30, 1997

The Director of the Office of Nuclear Reactor Regulation grants in part a petition dated August 19, 1996, submitted to the Nuclear Regulatory Commission by Patrick M. Sears (Petitioner). The petition requests that the NRC: (1) fine Maine Yankee Atomic Power Company (MYAPCO) and Yankee Atomic Electric Company (YAEC) if records regarding use of the computer code RELAP5YA have not been kept in accordance with YAEC's computer code quality assurance procedures, and (2) inspect all users of RELAP and fine those users not operating within required computer code verification procedures.

Because there is no basis to conclude that the problems identified with the RELAP5/MOD1 vintage ECCS code used by MYAPCO are or may be present in the different RELAP code vintages at other NRC-licensed plants, because the two other users of the RELAP5/MOD1 vintage code have been inspected or are permanently shut down, and because the NRC will conduct computer code inspections of selected NRC licensees and vendors, not limited to users of RELAP, Petitioner's first request is granted in part. By virtue of the NRC Staff's previous and current inspection and review activities, Petitioner's second request is granted in part.

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

I. INTRODUCTION

On August 19, 1996, Patrick M. Sears (Petitioner) filed a petition with the U.S. Nuclear Regulatory Commission (NRC) pursuant to section 2.206 of Title 10 of the *Code of Federal Regulations* (10 C.F.R. § 2.206). Petitioner requested the NRC to (1) fine Maine Yankee Atomic Power Company (MYAPCO) and Yankee Atomic Electric Company (YAEC) if records regarding use of the computer code RELAP5YA have not been kept in accordance with YAEC's computer code quality assurance (QA) procedures, and (2) inspect all users of RELAP and fine those users not operating within required computer code verification procedures.

As the basis for these requests, the petition states that (1) the May 5, 1989 oral statement of Steve Nichols, then licensing supervisor of MYAPCO, to Petitioner, then NRC Project Manager for Maine Yankee Atomic Power Station (MYAPS), that RELAP5YA was "operable" and would be used for subsequent reloads was false; (2) no computer code inspections were performed by NRC before a 1992 inspection at YAEC by Mr. Sears, and not again until 1995; (3) when Mr. Sears was in the Vendor Inspection Branch, he was told not to do any more computer code inspections; (4) RELAP is widely used; (5) RELAP has been shown to have serious deficiencies; and (6) the RELAP problem is not confined to the MYAPS but is endemic to the industry as a whole.

On September 24, 1996, Mr. William T. Russell, then Director of the Office of Nuclear Reactor Regulation, acknowledged receipt of the petition. By letter dated April 14, 1997, Petitioner supplemented his petition by correcting his characterization of Mr. Nichols' comment, substituting the word "operational" for "operable."

II. BACKGROUND

As a result of concerns regarding small-break loss-of-coolant accident (SBLOCA) analyses of emergency core cooling systems (ECCS) raised by the 1979 accident at Three Mile Island Unit 2, and pursuant to 10 C.F.R. § 50.54(f), the NRC required licensees to submit revised, documented SBLOCA analyses which were to meet the guidance provided in NRC's "Clarification of TMI Action Plan Requirements" (NUREG-0737 or TMI Action Plan), Items II.K.3.30 and II.K.3.31. In response to the guidance of Item II.K.3.30, on January 14, 1983, Maine Yankee submitted a report, YAEC-1300P, "RELAP5YA: A Computer Program for Light Water Reactor System Thermal-Hydraulic Analysis" to the NRC. In January 1989, the NRC approved RELAP5YA for use by Maine

Yankee as a 10 C.F.R. Part 50, Appendix K evaluation model, acceptable to demonstrate compliance with the requirements of 10 C.F.R. § 50.46, "Acceptance criteria for emergency core cooling systems for light water nuclear power reactors." RELAP5YA is a generic, non-plant-specific LOCA computer code for calculating ECCS performance over the small-break portion of the break spectrum.

Item II.K.3.31 of the TMI Action Plan states that licensees are to submit plant-specific calculations using the SBLOCA evaluation model approved by the NRC pursuant to Item II.K.3.30. In response to TMI Action Plan Item II.K.3.31, YAEC prepared for Maine Yankee a plant-specific Appendix K RELAP5YA SBLOCA evaluation model analysis and prepared a report in June 1993 identified as YAEC-1868: "Maine Yankee Small Break LOCA Analysis." The SBLOCA analysis described in YAEC-1868 was used to prepare Core Performance Analysis Reports (CPARs) which were submitted to the NRC as part of Maine Yankee's reload analyses for Cycle-14 and Cycle-15 operations, and was the SBLOCA analysis of record throughout Cycle-14 operations; it was not used during Cycle-15 operations because of the intervening January 3, 1996, "Confirmatory Order Suspending Authority for and Limiting Power Operation and Containment Pressure (Effective Immediately), and Demand for Information" (Order).¹ 61 Fed. Reg. 735 (Jan. 10, 1996).

On December 4, 1995, the NRC received allegations that, among other things, YAEC, acting as agent for the Licensee, knowingly performed inadequate analyses of the emergency core cooling system (ECCS) to support two license amendment applications to increase the rated thermal power at which MYAPS operates to 2630 MWt, and then to 2700 MWt. It was further alleged that YAEC management knew that the ECCS for Maine Yankee, if evaluated in accordance with section 50.46, using the RELAP5YA SBLOCA evaluation model, did not meet licensing requirements.

In response to the allegations, NRC dispatched an Assessment Team to YAEC headquarters between December 11 and 14, 1995, to examine, among other things, SBLOCA analyses, especially the SBLOCA analysis which supported the Licensee's operating Cycle-15 reload application. Based on the Assessment Team review, and a meeting held with the Licensee on December 18, 1995, the NRC Staff issued its January 3, 1996 Order. The Order concluded, *inter alia*, that the Licensee had not demonstrated that computer code RELAP5YA would reliably calculate the peak cladding temperature for all break sizes in the small-break LOCA spectrum for Maine Yankee and that, for a variety of reasons, the plant-specific application of RELAP5YA did not conform to the requirements

¹ Among other things, the Order limited operation of MYAPS to 2440 MWt, pending NRC review and approval of a plant-specific SBLOCA analysis that conforms to TMI Action Plan Items II.K.3.30 and II.K.3.31 and that meets the requirements of section 50.46.

of section 50.46 and thus was not acceptable for use by the Licensee. The Order required the Licensee to submit a SBLOCA analysis specific to Maine Yankee for operation at power levels up to 2700 MWt, which must meet the requirements of section 50.46, and which must conform to the guidance of NUREG-0737, Items II.K.3.30 and II.K.3.31, "SBLOCA Methods" and "Plant-Specific Analysis," respectively, and NUREG-0737, Item II.K.3.5, "Automatic Trip of Reactor Coolant Pumps During LOCA." The Order suspended authority to operate Maine Yankee at 2700 MWt maximum power and limited power to 2440 MWt, pending NRC review and approval of the required SBLOCA analysis. MYAPCO submitted the required SBLOCA analysis specific to Maine Yankee on April 25, 1996, and the NRC Staff is currently reviewing it.

The NRC also initiated an investigation by the NRC Office of Investigations (OI) to examine possible wrongdoing. The NRC Staff is currently reviewing the results of that investigation.

III. DISCUSSION

A. Do MYAPCO and Other NRC Licensees Who Use RELAP Operate Within Required Computer Code Verification Procedures?

Petitioner requests that the NRC inspect all users of RELAP and fine those users not operating within required computer code verification procedures. The Staff presumes that the phrase "required computer code verification procedures," as used by Petitioner, means the conditions, if any, of the NRC's approval of the computer code, as well as the Licensee or vendor quality assurance (QA) procedures pursuant to 10 C.F.R. Part 50, Appendix B.

There are many vintages of RELAP, which was developed by Idaho National Engineering Laboratory, such as RELAP4, RELAP5/MOD1, RELAP5/MOD2, and RELAP5/MOD3 (higher suffix numbers indicate more current vintages). Major improvements were made in each new vintage, including the use of more sophisticated modeling of two-phase flow. For example, RELAP5/MOD1 has a "mixture" model with five governing equations, whereas RELAP5/MOD2 has a full two-fluid treatment with six equations.

Each vintage of RELAP has many versions, representing primarily modifications in supporting models on constitutive relationships and corrections of errors. Idaho National Engineering Laboratory maintains a reporting system for problems discovered by users of the code, which are prioritized and referred to the code development staff for resolution. Therefore, it cannot be assumed that a problem with a particular RELAP vintage or version also exists in other RELAP vintages or versions.

Vendors or licensees who use RELAP codes to support license applications normally take a specific vintage or version of RELAP and create their own

variations by making modifications and adding certain features, such as those required by 10 C.F.R. Part 50, Appendix K. The RELAP codes used by different vendors and licensees are not necessarily developed from the same versions or vintages of RELAP. For example, the RELAP5YA code used by YAEC for Maine Yankee SBLOCA analysis was derived from RELAP5/MOD1, while most other RELAP codes used for the ECCS analyses of NRC-licensed nuclear plants were derived from different vintages, namely, RELAP4 or RELAP5/MOD2.

Before a vendor-modified or licensee-modified RELAP code is used for licensing applications, it must be reviewed and approved by the Staff. The Staff's review and approval will require, among other things, benchmark comparison of the code's predictions against experimental test data. In many cases, the Staff's approval of a licensing RELAP code imposes conditions or restrictions for application of the code to ensure that licensing calculations are acceptably conservative, in accordance with the requirements of section 50.46 and Appendix K to Part 50. The implementation by a licensee or vendor of an approved emergency core cooling system (ECCS) code is controlled by the licensee's or vendor's own quality assurance programs in accordance with Appendix B to 10 C.F.R. Part 50.

In view of the above, it cannot be presumed that all other vintages of RELAP codes used by the industry have the same deficiencies as those experienced by Maine Yankee with its particular vintage of RELAP, that is, RELAP5/MOD1. Two NRC licensees other than Maine Yankee, however, used the RELAP5/MOD1 vintage, that is, Yankee Rowe Nuclear Power Station and Vermont Yankee Nuclear Power Station. Yankee Rowe Nuclear Power Station has been permanently shut down for decommissioning since October 1, 1991. In May 1996, the NRC Staff conducted an ECCS code and analysis inspection, and in June 1996, a special inspection of Vermont Yankee. As a result, the NRC issued a Notice of Violation and Proposed Imposition of Civil Penalty — \$50,000 (EA 96-210) on August 23, 1996, for the licensee's failure to assume a specific failure scenario in the LOCA analysis. In that enforcement action, the NRC Staff also concluded that Vermont Yankee's corrective actions were prompt and comprehensive. With respect to Maine Yankee, the NRC Staff has examined MYAPCO's use of RELAP5YA through the Assessment Team review and the OI investigation. The Staff's evaluation of Maine Yankee's use of RELAP5YA is ongoing with regard to any violations of NRC requirements, including section 50.46. The Staff will keep Petitioner informed by providing Petitioner with copies of publicly available inspection reports and enforcement actions.

Petitioner, nonetheless, correctly points out that the NRC Staff should conduct ECCS code and analysis inspections more frequently. In February 1997, the Staff's Maine Yankee Lessons Learned Task Group provided its report to the Commission, "Report of the Maine Yankee Lessons Learned Task Group"

(Dec. 5, 1996), Attachment 1 to SECY-97-042, "Response to OIG Event Inquiry Regarding Maine Yankee" (Feb. 18, 1997). The Task Group identified a need to place additional emphasis on (1) audits and inspections of implementation by licensees and vendors of their ECCS codes and methodologies, not limited to the various RELAP codes, and (2) verification of the conformance by licensees and vendors with the conditions specified in the NRC Staff's Safety Evaluation Reports as a basis for determining whether codes and methodologies conform with NRC requirements. The Task Group also addressed inspections pursuant to the Core Performance Action Plan, performed to assess the impact of reload core design activities on plant safety. Licensees or vendors found to be in violation of NRC regulations will be subject to enforcement actions.

As explained above, there is no basis to conclude that the problems identified with the RELAP5/MOD1 vintage ECCS code used by Maine Yankee are or may be present in the different RELAP code vintages at other NRC-licensed plants. Additionally, the two other users of the RELAP5/MOD1 code vintage have either been inspected (Vermont Yankee) or are permanently shut down (Yankee Rowe). Nevertheless, the NRC will conduct computer code inspections of selected NRC licensees and vendors, not limited to users of RELAP, as explained above.

In view of the above, Petitioner's request to inspect all users of RELAP and to fine those users not operating within required computer code verification procedures is granted in part, since some users of RELAP will be included in forthcoming computer code inspections and since Maine Yankee and Vermont Yankee have already been inspected.

B. Have MYAPCO and YAEC Kept Records of the Use of the RELAP ECCS Computer Code in Accordance with YAEC's Computer Code Quality Assurance Procedures?

Petitioner requests that the NRC fine MYAPCO and YAEC if records regarding use of the computer code RELAP5YA have not been kept in accordance with YAEC's computer code quality assurance (QA) procedures. The NRC Staff's review of the application of RELAP5YA for Maine Yankee between December 11 and 14, 1995, focused on the adequacy of the RELAP5YA SBLOCA analysis to support operation of Maine Yankee during Cycle 15. In particular, the Staff evaluated conformance of the code to SER conditions and compliance of the ECCS evaluation model with regulatory requirements. Although the Staff's review did not focus on record-keeping requirements, the Staff did not identify instances in which the appropriate records had not been kept. The Staff is continuing its evaluation of RELAP5YA for compliance with other NRC requirements.

Siemens Power Corporation (SPC) has prepared a plant-specific SBLOCA ECCS evaluation model for Maine Yankee, which has been submitted by

Maine Yankee in response to the January 3, 1996 Order. The evaluation model is based on SPC's ANF-RELAP SBLOCA methodology, which was originally approved by the NRC in 1989, with further modifications approved by the NRC in 1994. Between February 10, 1997, and April 4, 1997, the Staff conducted a four-week QA inspection of SPC. The inspection included a comprehensive review of documentation associated with SPC's LBLOCA and SBLOCA ECCS evaluation models, including the approved ANF-RELAP SBLOCA methodology. The Staff's findings associated with ANF-RELAP will be documented in the inspection report, which will be issued by the NRC in the near future. A copy of the inspection report will be provided to Petitioner when it is publicly available. In addition, the NRC Staff is currently performing a detailed technical review of the plant-specific ANF-RELAP ECCS evaluation model prepared by SPC for Maine Yankee, and submitted by Maine Yankee. The Staff's evaluation of the plant-specific evaluation model will be documented in a Safety Evaluation Report (SER) when completed. The Staff concludes that these activities respond directly to the issues raised by Petitioner.

In view of the above, the Petitioner's request for a QA inspection of Maine Yankee's and YAEC's use of RELAP is granted in part, by virtue of the Staff's previous and current inspection and review activities. Additionally, the Staff will keep Petitioner informed by providing Petitioner with publicly available inspection reports, enforcement actions, and other documents as appropriate.

IV. CONCLUSION

As explained above, Petitioner's request to inspect all users of RELAP and fine those users not operating within required computer code verification procedures is granted in part. Petitioner's request to fine MYAPCO and YAEC if records regarding use of the computer code RELAP have not been kept in accordance with YAEC's computer code quality assurance procedures is also granted in part.

A copy of this Director's Decision will be filed with the Secretary of the Commission for Commission review in accordance with 10 C.F.R. § 2.206(c) of the Commission's regulations. As provided by this regulation, this Director's Decision will constitute the final action of the Commission 25 days after issuance

unless the Commission, on its own motion, institutes review of the Decision within that time.

FOR THE NUCLEAR
REGULATORY COMMISSION

Samuel J. Collins, Director
Office of Nuclear Reactor
Regulation

Dated at Rockville, Maryland,
this 30th day of July 1997.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Shirley Ann Jackson, Chairman
Greta J. Dicus
Nils J. Diaz
Edward McGaffigan, Jr.

In the Matter of

Docket No. 40-3453-MLA

ATLAS CORPORATION
(Moab, Utah Facility)

August 4, 1997

The Commission concluded that the Petitioner for intervention had failed to demonstrate standing. The Commission therefore denied his appeal of the Presiding Officer's order denying his petition to intervene.

COMMISSION PROCEEDINGS: APPELLATE REVIEW

RULES OF PRACTICE: STANDING

The Commission ordinarily defers to Licensing Board standing determinations, and sees no legal error or abuse of discretion in the Presiding Officer's refusal to grant standing to a Petitioner to intervene, given his failure to offer more than general responses to the Presiding Officer's reasonable and clearly articulated requests for more specific information about his proximity based standing claims. The four opportunities that the Petitioner had to specify his claims were entirely adequate.

MEMORANDUM AND ORDER

The Commission denies the appeal filed by Mr. John F. Darke June 2, 1997, and affirms the Presiding Officer's order, LBP-97-9, 45 NRC 414 (1997). We

do so on the grounds set forth in LBP-97-9. In that order, the Presiding Officer rejected Mr. Darke's request for a formal hearing, concluded that Mr. Darke had not met his burden to establish standing to intervene, and dismissed the proceeding.

We ordinarily defer to Licensing Board standing determinations. See *Yankee Atomic Electric Co.* (Yankee Nuclear Power Station), CLI-96-7, 43 NRC 235, 248 (1996). Here, we see no legal error or abuse of discretion in the Presiding Officer's refusal to grant standing to Mr. Darke, given his failure to offer more than general responses to the Presiding Officer's reasonable and clearly articulated requests for more specific information about Mr. Darke's proximity-based standing claims. The four opportunities that Mr. Darke had to specify his claims were entirely adequate.

IT IS SO ORDERED.

For the Commission

JOHN C. HOYLE
Secretary of the Commission

Dated at Rockville, Maryland,
this 4th day of August 1997.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Shirley Ann Jackson, Chairman
Greta J. Dicus
Nils J. Diaz
Edward McGaffigan, Jr.

In the Matter of

Docket No. 40-8681-MLA
(Alternate Feed Material)

INTERNATIONAL URANIUM (USA)
CORPORATION
(White Mesa Uranium Mill)

August 7, 1997

In response to a letter that included (1) an appeal of a Presiding Officer's decision denying Petitioners standing, (2) moving for reconsideration of the decision, and (3) moving to reopen the record, the Commission instructs the Presiding Officer to pass upon the two motions. The Commission concludes that the Presiding Officer's greater familiarity with the prior proceeding and pleadings in this case rendered him better equipped than the Commission to make prompt initial rulings on the merits of the two motions.

COMMISSION PROCEEDINGS: APPELLATE REVIEW

**RULES OF PRACTICE: APPELLATE FILINGS; APPELLATE
REVIEW (INTERVENTION DENIALS); LICENSING BOARDS;
MOTION FOR RECONSIDERATION; MOTION TO REOPEN
RECORD; RECONSIDERATION PETITIONS**

The Commission disapproves of the practice of simultaneously seeking reconsideration of a Presiding Officer's decision and filing an appeal of the same ruling, because taking that approach would call for rulings on the same issues at the same time from both a trial and appellate forum.

LICENSING BOARDS: JURISDICTION

ADJUDICATORY BOARDS: JURISDICTION

RULES OF PRACTICE: APPELLATE FILINGS; APPELLATE REVIEW (INTERVENTION DENIALS); JURISDICTION (LICENSING BOARDS, PRESIDING OFFICER); LICENSING BOARDS; MOTION FOR RECONSIDERATION; MOTION TO REOPEN RECORD; RECONSIDERATION PETITIONS

Because the Presiding Officer's greater familiarity with the prior proceeding and pleadings in this case renders him better equipped than the Commission to make prompt initial rulings on the merits of the motions for reconsideration and reopening of the record, the Commission instructs him to pass upon those motions, notwithstanding the pendency of the appeal.

MEMORANDUM AND ORDER

On July 30, 1997, three Petitioners jointly submitted a letter to Chairman Jackson¹ styled as an "appeal" of the Presiding Officer's order (LBP-97-12, 46 NRC 1 (1997)) rejecting their claims of standing. The same letter also asked the Presiding Officer to reconsider his decision and to reopen the record.

The Commission disapproves of the practice of simultaneously seeking reconsideration of a Presiding Officer's decision and filing an appeal of the same ruling, *Houston Lighting and Power Co.* (Allens Creek Nuclear Generating Station, Unit 1), ALAB-630, 13 NRC 84, 85 (1981), because taking that approach would call for rulings on the same issues at the same time from both a trial and appellate forum.

Here, the Presiding Officer's greater familiarity with the prior proceeding and pleadings in this case renders him better equipped than the Commission to make prompt initial rulings on the merits of the motions for reconsideration and reopening of the record. See *Curators of the University of Missouri*, CLI-95-1, 41 NRC 71, 94 (1995). We therefore instruct him to pass upon the two motions on their merits expeditiously, notwithstanding the pendency of the appeal. See *Portland General Electric Co.* (Trojan Nuclear Plant), ALAB-627, 13 NRC 20, 21 n.6 (1981). We will take appropriate action on the appeal after the Presiding

¹ Along with this Order, we are serving copies of the appeal letter on the Presiding Officer and on the other parties to the adjudication. All pleadings in Commission adjudications, even in informal Subpart I proceedings, must be accompanied by an appropriate certificate of service. See 10 C.F.R. §§ 2.1203(e), 2.712. This letter contained no certificate of service and apparently was not actually served. We caution the parties to pay heed to the certificate-of-service requirements in the future.

Officer decides whether to grant or deny the requests for reconsideration and reopening.

IT IS SO ORDERED.

For the Commission

JOHN C. HOYLE
Secretary of the Commission

Dated at Rockville, Maryland,
this 7th day of August 1997.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Shirley Ann Jackson, Chairman
Greta J. Dicus
Nils J. Diaz
Edward McGaffigan, Jr.

In the Matter of

Docket No. 55-20726-SP

RALPH L. TETRICK
(Denial of Application for Reactor
Operator License)

August 7, 1997

The Commission grants the NRC Staff's Petition for Review and reverses the Presiding Officer's decision requiring issuance of a Senior Reactor Operator (SRO) license. The Commission disagrees with the Presiding Officer's conclusions that the NRC Staff should have anticipated the need to offer evidence and arguments on the issue whether the candidate's SRO examination score should be rounded up to a passing grade of 80%, and that the Staff's failure to anticipate this need precludes their raising such arguments and evidence on reconsideration. The Commission also disagreed with the Presiding Officer's decision to round up the SRO examination score, but agreed with him that the candidate had incorrectly answered Question 63 of the examination.

TECHNICAL ISSUES DISCUSSED: SENIOR REACTOR OPERATOR EXAMINATION (ROUNDING OF GRADE)

Although the Staff could reasonably have anticipated both that he might rule in the SRO candidate's favor on one of the exam questions and that such a ruling would raise his score to either a 79.59 (question deleted) or 79.80 (question graded in candidate's favor), the Staff need not have further anticipated that the Presiding Officer would then round the revised score upward to the next integer.

TECHNICAL ISSUES DISCUSSED: SENIOR REACTOR OPERATOR EXAMINATION (ROUNDING OF GRADE)

REGULATORY GUIDES: APPLICATION

The version of NUREG-1021 in effect at the time the candidate took his exam did not address rounding directly but did state that a successful applicant must answer correctly "at least 80 percent" of the questions on the written examination. The phrase "at least" on its face suggests strongly that 80% is the minimal acceptable score and that rounding up lower scores is impermissible.

TECHNICAL ISSUES DISCUSSED: SENIOR REACTOR OPERATOR EXAMINATION (ROUNDING OF GRADE)

AGENCY PRACTICE

Agency practice is one indicator of how an agency interprets its regulations. Given that the Staff itself set the 80% threshold in the first place, the Commission is disinclined to disturb its consistently held view.

TECHNICAL ISSUES DISCUSSED: SENIOR REACTOR OPERATOR EXAMINATION (ROUNDING OF GRADE)

REGULATORY GUIDES: APPLICATION

The NRC's recent revision of NUREG-1021 to replace the minimum passing grade of "80 percent" with "80.00 percent" does not support an implication that the former term permitted rounding and therefore needed correction. Rather, the revision was akin both to the clarifying regulatory amendments that the Commission and other agencies regularly promulgate and to the clarifying legislation that Congress regularly enacts.

LICENSING BOARDS: SCOPE OF REVIEW; REVIEW OF NRC STAFF'S ACTIONS; RESPONSIBILITIES

ADJUDICATORY BOARDS: ROLE

REGULATORY GUIDES: APPLICATION

SENIOR OPERATOR LICENSE: SCOPE OF INQUIRY

The decision whether to round up near-passing scores requires a policy choice. Either option is plausible. Here, in the adjudicatory setting, the Commission declines to set aside the NRC Staff's policy judgment, supported by the language of NUREG-1021, to draw the pass-fail line at 80% minimum.

without rounding up. When the Presiding Officer ordered rounding up on the ground that the SRO written examinations are not so precise that tenths of a percent have any meaning and essentially reduced the passing score from 80% to 79.5%, he stepped into a Staff area of responsibility.

MEMORANDUM AND ORDER

On February 28, 1997, the Presiding Officer issued an Initial Decision in this proceeding concluding that Ralph L. Tetrick, who is currently a reactor operator at the Turkey Point Nuclear Generating Plant (Units 3 and 4), had answered correctly seventy-eight out of ninety-eight valid questions on his Senior Reactor Operator (SRO) written examination. As a result of this ruling, the Presiding Officer revised Mr. Tetrick's score upwards to 79.59%. The Presiding Officer then rounded Mr. Tetrick's revised score upwards still further — to the nearest integer, 80 — thereby giving him a passing grade on the written examination. LBP-97-2, 45 NRC 51, *reconsideration denied*, LBP-97-6, 45 NRC 130 (1997). The Presiding Officer accordingly ordered issuance of an SRO license to Mr. Tetrick. The NRC Staff has filed a petition for review seeking Commission reversal of the Presiding Officer's decision.

Mr. Tetrick, in addition to supporting the Presiding Officer's ruling on the "rounding" issue, also asserts as an alternative ground for affirmance that he should be given credit for a correct answer to Question 63 of the written SRO examination.¹ (The Presiding Officer had found that Mr. Tetrick's answer was incorrect. *See* 45 NRC at 53-55.) Recently, because of new information submitted to the Commission, we remanded the Question 63 issue for further consideration by the Presiding Officer. CLI-97-5, 45 NRC 355 (1997). On remand, the Presiding Officer issued a Memorandum and Order again concluding that Mr. Tetrick's answer to Question 63 was incorrect. LBP-97-11, 45 NRC 441 (1997).

For the reasons set forth below, we agree with the Staff's positions regarding both the rounding issue and Question 63. We therefore grant the Staff's petition for review and reverse the Presiding Officer's decision requiring the Staff to issue Mr. Tetrick an SRO license.²

¹ *See Yankee Atomic Electric Co. (Yankee Nuclear Power Station)*, CLI-96-7, 43 NRC 235, 247 n.6 (1996) ("the prevailing party below [may] argue any ground that would defend the ultimate result reached by the Board — including arguments that the Board had rejected").

² In our view, our disposition of this case would not benefit from requiring full briefing.

BACKGROUND

Pursuant to Part 55 of our regulations, an applicant for an SRO license must pass both a written and an operating examination. The passing score for the written examination is 80%. "Operator Licensing Examiner Standards," NUREG-1021. Mr. Tetrick passed the operating exam but received an initial score of only 78% on his 100-question written test, taken on June 14, 1996.

On July 30, 1996, he sought an informal Staff review of his score on the latter exam, challenging the grading of four questions. On September 12, 1996, the Staff upheld the grading of three contested questions but agreed with Mr. Tetrick that the fourth was invalid and should be deleted. The Staff therefore raised Mr. Tetrick's score to 78.8% (seventy-eight out of ninety-nine).

On September 25, 1996, Mr. Tetrick sought a hearing before a Presiding Officer. Mr. Tetrick continued to challenge the grading of the remaining three questions, and also contested the scoring of another question. Following an informal hearing under 10 C.F.R. Part 2, Subpart L, the Presiding Officer issued LBP-97-2, ruling that one of the challenged questions (Number 96) was ambiguous and should be stricken from the written examination, but holding that Mr. Tetrick's answer to the other three challenged questions (Numbers 63, 84, and 90) were indeed incorrect. 45 NRC at 53-58.

This ruling had the effect of raising Mr. Tetrick's score to 79.59% (seventy-eight out of ninety-eight questions). Because the Presiding Officer concluded that the written SRO tests were "not so precise that tenths of a percent have any meaning," he rounded Mr. Tetrick's revised score of 79.59 to the nearest integer, 80, thereby giving him a passing grade on the written examination. LBP-97-2, 45 NRC at 60.

On March 10, 1997, the Staff sought reconsideration of the Initial Decision. The Staff challenged the Presiding Officer's authority to round up Mr. Tetrick's score and submitted supportive evidence showing a Staff practice not to round scores upward to the nearest integer.

On March 27, 1997, the Presiding Officer denied the Staff's request on the ground that the Staff had improperly raised an argument based on evidence that the Staff could have (but had not) submitted during the hearing stage of the proceeding. According to the Presiding Officer, the Staff should have anticipated the possibility that he would rule in Mr. Tetrick's favor regarding one of the four contested questions and that the rounding issue would therefore arise. In justifying his prior ruling regarding rounding, the Presiding Officer explained that the Staff's recent amendment of NUREG-1021 to require a passing score of "80.00 percent" rather than simply "80 percent" was not yet in effect at the time Mr. Tetrick took his written exam, and that there was no other published guidance concerning either the number of significant digits in an examination

score, or whether and how the score should be rounded. LBP-97-6, 45 NRC 130, 131-32 (1997).

The Staff filed with the Commission both a request for stay and a petition for review of the Presiding Officer's rulings in LBP-97-2 and LBP-97-6 on the rounding issue. Responding to the Staff's petition for review, Mr. Tetrick asserted that, if the Commission were to review the Presiding Officer's decisions on the rounding issue, it should also examine whether the Presiding Officer was correct in ruling that Mr. Tetrick had incorrectly answered Question 63 of the written SRO examination.

Shortly thereafter, the Staff submitted to the Commission a May 1, 1997 letter in which Mr. R.J. Hovey, the utility's Vice-President at Turkey Point stated his belief that Mr. Tetrick's answer to Question 63 was a correct one. The Staff, however, continued to maintain otherwise.

The Commission concluded in CLI-97-5, *supra*, that the Question 63 issue appeared to turn ultimately on the interpretation of language in a number of technical documents, some of which might not be in the record. The Commission therefore remanded the issue to the Presiding Officer and directed him to reconsider his prior ruling. The Commission also retained jurisdiction over the Staff's petition for review of the Presiding Officer's rulings on the rounding issue; deferred ruling on that issue; and granted a temporary stay of LBP-97-2 and LBP-97-6.

On remand, the Presiding Officer sought further information from the parties (May 27, 1997 unpublished order) and, based on that information, issued LBP-97-11, *supra*, reaffirming his earlier determination that Mr. Tetrick had incorrectly answered Question 63. The Presiding Officer reasoned that Mr. Hovey's support of Mr. Tetrick's answer was based on the erroneous assumption that the question posited only one annunciator. The Presiding Officer also found that Mr. Tetrick's proposed verification of the two consistent annunciators was unnecessary, given that they verified each other. In addition, the Presiding Officer was influenced by Mr. Tetrick's failure to respond directly to the questions regarding what specific steps Mr. Tetrick would take to verify the validity of the alarms and what would persuade him not to take the required IMMEDIATE ACTION after he had taken those steps. 45 NRC at 445-47.

The case is now back before the Commission to decide the Staff's petition for review challenging the Presiding Officer's decision that Mr. Tetrick should receive his SRO license.

DISCUSSION

We are faced with three issues in this proceeding: (1) whether the Presiding Officer erred in concluding that the Staff's failure to present its rounding

arguments at the hearing bars it from raising it on reconsideration; (2) if so, is the Staff's argument on rounding correct; and (3) is the Presiding Officer correct that Mr. Tetrick incorrectly answered Question 63. We answer all three questions "yes."

A. The "Rounding" Issues

We cannot accept the Presiding Officer's conclusion that the Staff should have anticipated at the hearing that it would need to present its evidence and arguments on the rounding issue. Although we agree with the Presiding Officer that the Staff could reasonably have anticipated both that he might rule in Mr. Tetrick's favor on one of the exam questions and that such a ruling would raise his score to either a 79.59 (question deleted) or 79.80 (question graded in Mr. Tetrick's favor), we see no reason why the Staff should have further anticipated that the Presiding Officer would then round the revised score upward to the next integer.

The version of NUREG-1021 in effect at the time Mr. Tetrick took his exam (Revision 7, Supp. 1 (June 1994)) did not address rounding directly but did state that a successful applicant must answer correctly "at least 80 percent" of the questions on the written examination.³ We believe that the phrase "at least" on its face suggests strongly that 80% is the minimal acceptable score and that rounding up lower scores is impermissible. Our conclusion is supported by the *Oxford English Dictionary* which defines this two-word phrase as "a qualifying phrase, attached to a quantitative designation to indicate that *the amount is the smallest admissible*."⁴ See also *Webster's Third New International Dictionary* (G.&C. Merriam Co. 1976) at 1287 ("at least" means "at the lowest estimate").

The Staff's consistent prior practice confirms our understanding of the "at least 80 percent" standard. The Staff has refused in the past to "round up" almost-passing scores and has considered the 80% cutoff score as the grade below which a candidate will not pass the written exam.⁵ "Agency practice, of course, is one indicator of how an agency interprets its regulations." *Yankee Atomic Electric Co.* (Yankee Nuclear Power Station), CLI-96-6, 43 NRC 123,

³ NUREG-1021 (Revision 7, Supp. 1, June 1994), Examiner Standards (ES) 401 at 6 of 7 (Form ES-401).

⁴ The *Compact Edition of the Oxford English Dictionary*, Vol. 1, Letter L, p. 160, col. 2 (Oxford Univ. Press 1979) (emphasis added). Other portions of the same version of NUREG-1021 use the synonym phrase "80 percent or greater." See ES-401 at 1 of 7; ES-402 at 5 of 6; ES-501 at 3 of 24. We construe this quoted phrase to have a meaning identical to "at least 80 percent."

⁵ See Staff's Request for Stay, dated April 11, 1997, at 4 and supporting evidence cited therein (including three other recent instances in which the Staff refused to license an applicant with a written exam score between 79.50 and 80.00).

129 (1996). Given that the Staff itself set the 80% threshold in the first place,⁶ we are disinclined to disturb its consistently held view.⁷

At bottom, the decision whether to round up near-passing scores requires a policy choice. Either option is plausible. Here, in the adjudicatory setting, we decline to set aside the NRC Staff's policy judgment, supported by the language of NUREG-1021, to draw the pass-fail line at 80% minimum, without rounding up. Cf. *Rockwell International Corp.* (Rocketdyne Division), ALAB-925, 30 NRC 709, 722 n.15 (1989), *aff'd*, CLI-90-5, 31 NRC 337 (1990). In our view, when the Presiding Officer ordered rounding up on the ground that the SRO written examinations "are not so precise that tenths of a percent have any meaning" (LBP-97-2, 45 NRC at 60) and essentially reduced the passing score from 80% to 79.5%, he stepped into a Staff area of responsibility.⁸

B. Question 63

Mr. Tetrick raises with the Commission the issue whether he correctly answered Question 63 of his written SRO examination. That question read as follows:

Plant conditions:

- Preparations are being made for refueling operations
- The refueling cavity is filled with the transfer tube gate valve open.
- Alarm annunciators H-1/1, SFP LO LEVEL and G-9/5, CNTMT SUMP HI LEVEL are in alarm.

Which ONE of the following is the required IMMEDIATE ACTION in response to these conditions?

⁶ See Memorandum to All Power Reactor Applicants and Licensees from Harold R. Denton, Director, NRC's Office of Nuclear Reactor Regulation, dated March 28, 1980, appended as Attachment 1 to Staff's Motion for Reconsideration, dated March 10, 1997.

⁷ The NRC recently revised NUREG-1021 to replace the minimum passing grade of "80 percent" with "80.00 percent." See NUREG-1021 (Interim Rev. 8), ES-401 at 39 of 39 (Form ES-401-7) and Appendix E at 1 of 5 (January 1997). But this revision does not support an implication that the former term permitted rounding and therefore needed correction. Rather, the revision was akin both to the clarifying regulatory amendments that this Commission and other agencies regularly promulgate and to the clarifying legislation that Congress regularly enacts. See, e.g., Final Rule, "Preparation, Transfer for Commercial Distribution, and Use of Byproduct Material for Medical Use," 59 Fed. Reg. 61,767, 61,776 (Dec. 2, 1994); *Wong Yong Sung v. McGrath*, 339 U.S. 33, 47, *modified*, 339 U.S. 908 (1950).

⁸ Our research has identified several cases from around the country where the judiciary declined to disturb testing authorities' refusal to "round up" almost-passing scores. See *Reilly v. Levitt*, 1988 WL 49187 at *4 (S.D.N.Y. May 6, 1988); *McIntosh v. Borough of Manhattan Community College*, 78 A.D.2d 839, 433 N.Y.S.2d 446, 447 (1st Dept. 1980), *aff'd*, 55 N.Y.2d 913, 915, 433 N.E.2d 1274, 1275, 449 N.Y.S.2d 26, 27 (1982); *Marquez v. University of Washington*, 32 Wash. App. 302, 309, 648 P.2d 94, 98 (1982). Similarly, another decision deferred to the testing authority's determination to follow a "rounding up" policy. See *Ash v. Police Commissioner of Boston*, 11 Mass. App. 650, 653, 418 N.E.2d 622, 624 (1981). This line of cases supports our view that the decision to "round up" or not is for the testing authorities, not the adjudicators, to make.

- a. Verify alarms by checking containment sump level recorder and spent fuel level indication.
- b. Sound the containment evacuation alarm.
- c. Initiate containment ventilation isolation.
- d. Initiate control room ventilation isolation.

All parties, including Mr. Tetrick, recognize that answer "b" is correct. Therefore, the only issue before us on appeal regarding Question 63 is whether Mr. Tetrick's answer of "a" is also correct. For the reasons set forth in both LBP-97-2 and LBP-97-11, we conclude that answer "a" is incorrect.⁹ We therefore cannot use Mr. Tetrick's answer to Question 63 as a ground to affirm the Presiding Officer's result in this case.

CONCLUSION

We grant the Staff's petition for review and reverse the Presiding Officer's rulings in both LBP-97-2 and LBP-97-6 regarding the "rounding" of Mr. Tetrick's written examination score.

Commissioner Diaz disapproved this order.

IT IS SO ORDERED.

For the Commission

JOHN C. HOYLE
Secretary of the Commission

Dated at Rockville, Maryland,
this 7th day of August 1997.

⁹In remanding this issue to the Presiding Officer, we relied in large part on Mr. Hovey's May 1st letter arguing that both "a" and "b" are adequate responses to Question 63. We therefore believe that a brief explanation is appropriate as to why we resolve the "Question 63" issue differently from Mr. Hovey. In our view, we agree with the Presiding Officer that Mr. Hovey bases his conclusion on the erroneous assumption that Question 63 asked for an immediate action in response to "an" annunciator alarm. The question instead asked for the immediate action in response to two annunciator alarms *under the specific plant conditions specified in the question.*

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR REACTOR REGULATION

Samuel J. Collins, Director

In the Matter of

Docket Nos. 50-282

50-306

72-10

NORTHERN STATES POWER
COMPANY

(Prairie Island Nuclear Generating Plant;
Prairie Island Independent Spent Fuel
Storage Installation)

August 29, 1997

The Director of the Office of Nuclear Reactor Regulation denies a petition filed by the Prairie Island Indian Community pursuant to 10 C.F.R. § 2.206. The petition asked that the NRC: (1) find that the Licensee violated NRC regulations by using an Independent Spent Fuel Storage Installation before establishing conditions for safely unloading TN-40 dry storage containers, (2) suspend the license until all significant issues concerning the unloading process have been resolved, (3) provide the Petitioners with an opportunity to participate fully in reviewing the unloading procedures for the casks, and (4) update the relevant technical specifications to incorporate mandatory unloading procedure requirements for the TN-40 dry storage containers.

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

I. INTRODUCTION

On May 28, 1997, the Prairie Island Indian Community filed a petition pursuant to section 2.206 of Title 10 of the *Code of Federal Regulations* (10

C.F.R. § 2.206) requesting that the U.S. Nuclear Regulatory Commission (NRC) take action to accomplish the following:

1. Determine that Northern States Power (NSP) violated the requirements of 10 C.F.R. § 72.122(f) by using its Materials License No. SNM-2506 for an Independent Spent Fuel Storage Installation (ISFSI) prior to establishing conditions for safely unloading the TN-40 dry storage containers;
2. Suspend Materials License No. SNM-2506 for cause under 10 C.F.R. § 50.100 until such time as all significant issues in the unloading process, as described herein [the petition], have been resolved, the unloading process has been demonstrated, and until an independent third-party review of the TN-40 unloading procedure has been conducted;
3. Provide Petitioners an opportunity to participate fully in the reviewing of the unloading procedure for the TN-40 cask, hold hearings and allow Petitioners to participate fully in these and any other procedures initiated in response to this petition; and
4. Update the Technical Specifications (TS) for the Prairie Island ISFSI to incorporate mandatory unloading procedure requirements.

The petition has been referred to me pursuant to section 2.206. The NRC letter dated June 27, 1997, to Byron White, on behalf of the Petitioners, acknowledged receipt of the petition and provided the NRC Staff's determination that the petition did not require immediate action by the NRC. A notice of receipt was published in the *Federal Register* on July 3, 1997 (62 Fed. Reg. 36,085).

On the basis of the NRC Staff's evaluation of the issues and for the reasons given below, the Petitioners' requests are denied.

II. BACKGROUND

On October 19, 1993, the NRC issued Materials License No. SNM-2506 to NSP (the Licensee) to allow storage of spent nuclear fuel in TN-40 dry storage casks, designed by Transnuclear Incorporated, at the ISFSI located at the Prairie Island Nuclear Plant. No spent nuclear fuel was allowed to be loaded into a storage cask at Prairie Island until several preoperational license conditions were satisfied. Among the preoperational license conditions were a required training exercise (dry-run) of the loading, handling, and unloading activities for the TN-40 casks and the implementation of written procedures describing the actions to be taken during operation, off-normal, and emergency conditions associated with the Prairie Island ISFSI. The NRC issued TS defining operating limits, surveillance requirements, design features, and administrative controls as Appendix A to Materials License No. SNM-2506.

A report dated April 20, 1995, submitted by the Licensee to the NRC pursuant to 10 C.F.R. § 72.82(e), provided the results of the preoperational tests that were required to be performed by the Licensee before loading of spent fuel into a TN-40 cask. On May 11, 1995, the NRC granted a schedular exemption to the provision of section 72.82(e) that requires licensees to submit the preoperational test results at least 30 days before receipt of spent fuel into the ISFSI. The basis for the exemption was the fact that the NRC Staff had reviewed cask fabrication records, observed portions of the preoperational test activities as they occurred, and completed its review of the report submitted on April 20, 1995. On May 12, 1995, the Licensee began loading spent fuel assemblies into a TN-40 cask. The Licensee subsequently placed the cask, and casks loaded since that time, onto the storage pad within the Prairie Island ISFSI.

NRC regulations include a requirement that an ISFSI be designed to provide for the ready retrieval of spent fuel or high-level radioactive waste for further processing or disposal. This regulation, 10 C.F.R. § 72.122(i), provides as follows:

Retrievability. Storage systems must be designed to allow ready retrieval of spent fuel or high-level radioactive waste for further processing or disposal.

Certain events or conditions could warrant removing a TN-40 cask from the Prairie Island ISFSI and returning it to the spent fuel pool and unloading the stored fuel assemblies. In addition to the regulatory requirements in section 72.122(i) pertaining to retrieval of the fuel assemblies for further processing or disposal, the TS for the Prairie Island ISFSI require the Licensee to take corrective actions in response to those design-basis events or conditions that may challenge the integrity of the storage cask or the cladding of the spent fuel assemblies. For example, section 2.3, "Maximum Cask Lifting Height," section 3/4.3, "Maximum Helium Leak Rate," and section 3/4.5, "Maximum Cask Surface Temperature," of the TS include provisions for unloading of a TN-40 storage cask in response to the specified events or conditions.

NRC regulations in 10 C.F.R. Part 72 require that the design of the storage system and the procedures implemented by specific licensees support the unloading activity, whether it is being performed to allow further processing or disposal of the spent fuel or it is required as part of the response to an unplanned event or condition, while preventing gross ruptures of the fuel cladding in order to prevent operational safety problems. Unloading procedures should also include contingencies in case fuel cladding has degraded during storage such that additional measures are necessary to address increased radiological hazards during the unloading process.

NRC regulations, facility licenses, and NRC-approved quality assurance programs require licensees to establish and maintain a formal process for the

preparation and issuance of procedures and changes thereto. NRC assessments of licensee procedures are generally conducted as part of the NRC's inspection program. In this instance, the major procedures pertaining to dry cask storage activities at Prairie Island, including the procedure for unloading a cask, were reviewed by the NRC Staff during a special inspection conducted from January 24 through May 11, 1995. In addition to the review of the Licensee's facility and procedures, the NRC inspectors observed preoperational testing that the Licensee was required to perform before loading casks with spent fuel assemblies. The inspection findings are documented in NRC Inspection Report 50-282/95002, 50-306/95002, 72-10/95002(DRP), dated June 30, 1995.

The NRC inspectors identified several instances in which the procedures for dry cask storage activities that the Licensee had in place at the beginning of the inspection, including the procedures for loading and unloading of the TN-40 casks, did not ensure compliance with the requirements of the license. Although the inspectors were able to verify that the Licensee corrected the identified procedural deficiencies during the course of the inspection, a Notice of Violation was issued to the Licensee for failing to satisfy Criterion V of Appendix B to 10 C.F.R. Part 50, which, for activities affecting quality, requires the preparation and adherence to procedures appropriate to the circumstances. In addition, the inspectors identified weaknesses in the Licensee's initial performance in overseeing the activities of the cask vendor and in overall planning for dry cask storage activities. However, on the basis of the licensing reviews and inspection findings, documented in Inspection Report 50-282/95002, 50-306/95002, 72-10/95002(DRP), the NRC Staff concluded that as of May 1995, the Licensee had corrected the identified deficiencies and was ready to safely load and, if necessary, unload spent nuclear fuel in TN-40 casks.

In July 1995, the NRC Staff issued an action plan for dry cask storage to manage the resolution of a variety of technical and process issues that were identified during the licensing reviews and inspections completed for the first several ISFSI facilities. An item related to the loading and unloading of dry storage casks was added to the action plan, in part to ensure that the importance of the unloading procedures was emphasized to licensees and technical issues related to unloading problems were resolved. Addition of an item pertaining to unloading was deemed prudent because the Staff observed that some unloading procedures implemented by licensees neglected to consider contingencies and assumptions related to possible fuel degradation, gas sampling techniques, cask design issues, radiation protection requirements, and the thermal-hydraulic behavior of a cask during the process of cooling and filling it with water from the spent fuel pool.

To implement the action plan, the NRC Staff formed a working group to identify issues associated with loading and unloading processes for dry storage casks and to propose means of informing the industry and the NRC Staff of those

issues. The working group considered industry experiences, concerns identified during reviews and inspections, and other issues related to loading and unloading procedures. The working group completed its reviews in April 1996. The concerns related to unloading procedures reviewed by the working group were found to involve either (1) isolated occurrences that had been adequately resolved by site-specific corrective actions or (2) generic issues that were addressed by incorporating remedial measures into ongoing Staff activities, such as the preparation of revised inspection procedures or other guidance documents.

To fulfill some of the goals included in its dry cask storage action plan, the NRC Staff has emphasized the importance of unloading procedures and shared observations with licensees using or considering dry cask storage during opportunities such as the Spent Fuel Storage and Transportation Workshop held in May 1996 and meetings with individual licensees. The Staff revised inspection procedures to specifically instruct NRC inspectors to review unloading procedures developed by licensees and to identify those issues that warrant particular attention. Guidance included in NRC Inspection Procedure 60855, "Operation of an ISFSI," issued February 1, 1996, states:

For unloading activities, attention should be paid to how the licensee has prepared to deal with the potential hazards associated with that task. Some potential issues may include: the radiation exposure associated with drawing and analyzing a sample of the canister's potentially radioactive atmosphere; steam flashing and pressure control as water is added to the hot canister; and filtering or scrubbing the hot steam/gas mixture vented from the canister, as it is filled with water.

Similar guidance was included in NUREG-1536, "Standard Review Plan for Dry Cask Storage Systems," issued in January 1997. Application of the revised guidance ensures that recent and future reviews will address the adequacy of unloading procedures developed by licensees. The Staff also issued NRC Information Notice 97-51, "Problems Experienced with Loading and Unloading Spent Nuclear Fuel Storage and Transportation Casks," dated July 11, 1997, to inform licensees of operating experiences and problems encountered with the loading and unloading of storage and transportation casks for spent nuclear fuel.

To address those ISFSIs that began operation before the improvements in the NRC's review and inspection guidance, the Staff performed audits or inspections of those Licensee programs for which the inspection record did not document whether the unloading procedures adequately addressed the major issues included in the action plan. Regarding Prairie Island, the Staff reviewed the available information and determined that additional reviews or inspections were not necessary because the assessment of the unloading procedure performed as part of the inspection documented in NRC Inspection Report 50-282/95002, 50-306/95002, 72-10/95002(DRP) adequately addressed the concerns included in the NRC action plan.

III. DISCUSSION

The petition requests four actions by the NRC on the basis of the contention that the unloading procedure implemented by the Licensee was inadequate and, therefore, the Licensee violated the NRC regulation requiring it to have the ability to readily retrieve spent fuel or high-level radioactive waste for further processing or disposal.

Item 1: Determine That the Licensee Violated Section 72.122(l)

In support of the petition's contention that the Licensee violated NRC requirements, the Petitioners claim that the procedure to unload a TN-40 cask at Prairie Island has not been adequately evaluated or tested because neither the NRC nor NSP has completely demonstrated that a TN-40 dry cask can be unloaded after it has remained on the storage pad for a number of years. The Petitioners state that their request is supported by the fact that the preoperational test results for the Prairie Island ISFSI were submitted to the NRC on the day before the unloading procedure was approved by the Licensee's Operations Committee. The Petitioners also express concern that only portions of the Licensee's unloading procedure were tested during the required preoperational tests and, therefore, the tests did not provide assurance that an unloading can be done safely. In addition, the Petitioners state that procedures for unloading a cask should address specific concerns regarding failed fuel recovery and possible contamination of the spent fuel pool, venting of radioactive gases, functional checks of radiation monitoring and ventilation systems, and the buildup of steam when water is pumped into the cask as part of the unloading process.

As previously mentioned, cask designs and associated procedures are required to support the unloading of the spent fuel assemblies either to support further processing or disposal or in response to an unplanned event or condition that may challenge the integrity of the storage cask or the cladding of the spent fuel assemblies. Although the NRC Staff agrees with the Petitioners' premise that actually unloading a storage cask would likely result in licensees learning lessons that could result in additional enhancements to unloading procedures, the Staff does not agree that an actual demonstration of the unloading procedure at Prairie Island is warranted. In addition to the Staff's review of the procedure for unloading a TN-40 cask at Prairie Island, reasonable assurance that the TN-40 casks can be safely unloaded is provided by a variety of experiences related to the use and storage of radioactive materials. These experiences include the dry-run exercises that were performed to verify key aspects of unloading procedures for the TN-40 cask; related research sponsored by the commercial nuclear industry, the U.S. Department of Energy, and the NRC; actual loading and unloading of transportation casks; loading of storage casks; handling of spent fuel assemblies

under various conditions; and performing relevant maintenance and engineering activities associated with reactor facilities.

Regarding the Petitioners' concerns pertaining to the dates of the submittal of preoperational tests and the approval of the Licensee's unloading procedure, the NRC Staff identified this discrepancy in Inspection Report 50-282/95002, 50-306/95002, 72-10/95002(DRP). The administrative controls included in the TS for the Prairie Island ISFSI require that the Operations Committee review and approve procedures and changes thereto. The approval of the Operations Committee is usually the last step in the process for preparing or revising a procedure. The fact that the Operations Committee approved the procedure shortly after submittal of the preoperational test results and before fuel loading satisfied the preoperational license condition to implement written procedures before loading spent nuclear fuel into a TN-40 cask. This matter does not, therefore, represent a violation of NRC requirements or introduce concerns pertaining to the technical adequacy of the unloading procedure.

The Petitioners identified several concerns pertaining to the lack of specific guidance in the unloading procedure to address a scenario in which significant fuel degradation occurs during storage. The NRC Staff agrees with the Petitioners that such a scenario would complicate the unloading process by requiring additional measures and precautions to limit the release of radioactive materials from the cask into parts of the reactor facility and nearby environs. The Licensee's unloading procedure includes a step to sample the atmosphere within the cask cavity to test for radioactive and flammable gases before venting the cask cavity and loosening the bolts securing the cask lid. Following the analysis of the gas sample, the Licensee's unloading procedure includes a hold point to allow personnel to determine whether additional steps or precautions are warranted. While acknowledging many of the Petitioners' legitimate concerns regarding the potential difficulties in retrieving failed fuel from dry storage casks, the NRC Staff has concluded that licensees need not be required to incorporate specific guidance into the normal unloading procedure to address this unlikely situation. The Staff's conclusion is based, in part, on the fact that the required compensatory actions and precautions needed to address such situations may vary significantly, depending on the actual results from the analysis of the gas sample. Requiring the Licensee to include contingencies or steps in the unloading procedure to address the unlikely event of failed fuel may unnecessarily complicate and delay the unloading of fuel assemblies that have remained intact during storage. On the basis of licensees' experiences in developing and implementing plans to address the problem of fuel assemblies damaged during reactor operations, in handling radioactive wastes of various forms, and in resolving other comparable problems, the NRC Staff has confidence that licensees could, if necessary, develop a plan to retrieve damaged fuel from a storage cask while minimizing the radiological consequences to

plant workers and the general public. In addition to the general confidence of the NRC Staff that the technical problems associated with retrieving failed fuel could be overcome, requirements for planning and executing such an activity are contained in the licenses issued for the Prairie Island ISFSI and the Prairie Island Nuclear Generating Plant, and NRC regulations in 10 C.F.R. Parts 20, 50, and 72. The NRC Staff has, therefore, accepted gas sampling and defined hold or decision points before breaching the cask confinement boundary as an adequate means to address concerns pertaining to the unlikely degradation of fuel assemblies during storage.

The specific issues raised by the Petitioners to support their claim that the Licensee's unloading procedure is deficient are addressed below.

a. Failed Fuel Considerations

As previously discussed, the NRC Staff has accepted that procedures developed by licensees to support unloading of dry storage casks do not need to address the retrieval of failed fuel, provided that measures to detect possible fuel degradation and a defined hold point for determination of possible compensatory actions are appropriately placed within the subject procedures. As documented in NRC Inspection Report 50-282/95002, 50-306/95002, 72-10/95002(DRP), the Licensee had originally failed to incorporate a step in the unloading procedure for taking a gaseous sample from the cask in order to ensure that fuel degradation had not occurred during storage. However, in response to the findings of the NRC inspectors, the Licensee incorporated sampling of the cask atmosphere and a hold point for deliberation into the unloading procedure and the revised procedure was in place before spent nuclear fuel was loaded into a TN-40 cask. The NRC Staff has found that this action, in combination with the requirement that spent fuel assemblies loaded into TN-40 casks be free of gross cladding defects, provides reasonable assurance that the Licensee will not unknowingly breach the confinement boundary of a cask containing failed fuel. In the unlikely event that the gaseous sample indicates that spent fuel assemblies have degraded during storage, the unloading procedure instructs the Licensee's Operations Committee to add steps or precautions to the procedure in order to minimize the radiological consequences of retrieving the failed fuel. The NRC Staff has found this approach to be acceptable and does not require the Licensee's normal unloading procedure to include contingency actions to address the possible release of radioactive materials to parts of the reactor facility, including the spent fuel pool, that may occur if fuel assemblies degrade during storage. The NRC Staff believes, however, that the Petitioners have identified valid concerns regarding the potential recovery of fuel assemblies that have unexpectedly degraded during storage. As previously mentioned, the Staff believes that the regulations and licenses issued by the NRC require the Licensee to address these and other

problems that may occur in the unlikely event that fuel assemblies that have degraded during storage need to be unloaded from dry storage casks.

b. Venting of Radioactive Gases

The possible need to vent radioactive gases from a cask is among the issues that the Licensee would need to address if the required sampling of the atmosphere within a cask indicates that the spent fuel assemblies have experienced unanticipated degradation during storage. As with the concern regarding the contamination of the spent fuel pool, the need to vent the cask while minimizing the radiological consequences of unloading a cask containing failed fuel is an issue that the Licensee would need to address before revising the procedure and proceeding with the unloading process. In addition to ensuring that the unloading activity results in occupational doses and doses to members of the public that are as low as is reasonably achievable (*see* 10 C.F.R. § 20.1101), the Licensee would need to perform the venting of a cask containing failed fuel in accordance with the Prairie Island Nuclear Generating Plant Facility Operating Licenses, associated TS, and applicable regulations.

c. Radiation Monitors

The Petitioners contend that the unloading procedure must include a "stop-check" to verify that ventilation systems and radiation monitors are functioning before the venting of a cask is performed. Although agreeing with the Petitioners' general premise that prerequisites to performing procedures should include establishing confidence in the tools and equipment being used, the NRC Staff notes that during the anticipated unloading of spent nuclear fuel that has not degraded during storage, special ventilation or radiation monitoring equipment beyond that specified in the Licensee's unloading procedure and radiation protection program is not required. The unloading procedure requires the involvement of radiation protection personnel and the activity must be controlled in accordance with the Licensee's radiation protection program, which includes provisions for the maintenance and calibration of radiation detectors. Although the venting process is not expected to need ventilation systems equipped with filters and radiation monitors, the spent fuel pool special ventilation system could be used if necessary. The spent fuel pool special ventilation system is required to be operable during subsequent steps in the procedure if spent fuel assemblies are being moved and the system must be tested and maintained in accordance with the TS for the Prairie Island Nuclear Generating Plant. In the unlikely event that the Licensee needs to unload a cask containing degraded fuel assemblies, confirming the operability of those ventilation systems and additional radiation

monitoring equipment being used to minimize the release of radioactive materials is an activity that the Licensee would need to address before revising the procedure and proceeding with the unloading process.

d. Steam Buildup

The Petitioners expressed concerns regarding the reaction of the cask and stored fuel assemblies to the introduction of spent fuel pool water during the execution of the unloading procedure. The unloading procedure includes the partial immersion of the TN-40 cask into the spent fuel pool, connection of hoses to the vent and drain connections, and the slow introduction of spent fuel pool water to the cask cavity and stored fuel assemblies. The procedure instructs personnel to continuously monitor the temperature and pressure instrumentation installed on the vent connection and to stop pumping water if the pressure exceeds 10 psig or the temperature exceeds 240°F. In the Staff's judgment, the cooling process imposed by these limitations on temperatures and pressures at the vent port of the cask will adequately ensure that the cooling of the cask and spent fuel is gradual and, thereby, prevent safety problems that could hypothetically result from damage to the cask or the fuel assemblies because of stresses induced by a poorly controlled addition of cooling water from the spent fuel pool.

The Petitioners expressed concerns pertaining to the range of the instrumentation used during the venting of a TN-40 cask and stated that higher ranges for temperature and pressure are necessary. The instrumentation ranges specified in the unloading procedure's drawing of the cask vent port adapter are 50-300°F for temperature and 0-30 psig for pressure. While not judging if these are the optimum ranges for the instrumentation, the NRC Staff finds that the ranges are adequate to support the administrative limits of 240°F and 10 psig established in the procedure and the related response action of stopping the addition of water to the cask if these administrative limits are exceeded. Regarding the Petitioners' concern regarding the need to post hazard warnings during the refilling of a cask, the unloading procedure does include several notes and precautions to remind personnel that the fluid exiting the vent port may present radiological and thermal hazards.

In summary, many of the Petitioners' concerns pertain to potential problems with unloading spent fuel from a TN-40 cask if the fuel cladding has degraded during storage. While acknowledging that such concerns regarding the potential difficulties in retrieving failed fuel from dry storage casks are legitimate, the NRC Staff has concluded that licensees need not be required to incorporate specific guidance into the normal unloading procedure to address this unlikely situation. On the basis of its review of the information provided by the Petitioners and its reviews of the Licensee's procedure for unloading TN-40

casks at Prairie Island, the NRC Staff has not identified violations of section 72.122(l) or other regulatory requirements pertaining to the content or quality of the Licensee's unloading procedure.

Item 2: Suspend Materials License No. SNM-2506

On the basis of the contention that the Licensee's unloading procedure was inadequate, the Petitioners requested that Materials License No. SNM-2506 be suspended until such time as the significant issues in the unloading process have been resolved, the unloading process has been demonstrated, and an independent third-party review of the TN-40 unloading procedure has been conducted.¹

As previously stated, the NRC Staff has performed a review of the procedure for unloading a TN-40 cask at Prairie Island. The review, including verification that the Licensee's unloading procedure was revised to address deficiencies identified by the NRC inspectors, is documented in NRC Inspection Report 50-282/95002, 50-306/95002, 72-10/95002(DRP). The review performed during the NRC inspection, subsequent evaluations performed by the NRC Staff as part of the activities associated with the dry cask storage action plan and the review of this petition, and the required control of the procedure in accordance with Licensee programs developed in accordance with NRC regulations, facility licenses, and NRC-approved quality assurance programs provide reasonable confidence that the Licensee could, if necessary, safely unload a TN-40 cask.

Regarding a third-party review, the NRC Staff's concern about the quality of licensees' unloading procedures led it to include the issue in the dry cask storage action plan. The action plan provided a framework for the identification and resolution of various technical and administrative issues related to the use of dry storage casks. The previously mentioned actions taken by the NRC Staff and licensees adequately resolved the identified issues pertaining to cask unloading procedures. In the specific case of the unloading procedure at Prairie Island, the Licensee revised the procedure to address the problems identified by the Staff during its inspection. On the basis of the actions it has already taken, the NRC Staff does not believe that the situation warrants additional review of the Licensee's unloading procedure by an independent third party.

¹The Petitioners request that Materials License No. SNM-2506 be suspended for cause in accordance with 10 C.F.R. § 50.100. Provisions for the modification, revocation, or suspension of the licenses for ISFSI facilities are contained in 10 C.F.R. § 72.60. The possible reasons for suspending licenses for ISFSIs in accordance with section 72.60 are similar to the corresponding reasons for suspending licenses for production and utilization facilities in accordance with section 50.100.

Item 3: Allow Petitioners to Review Procedure, and for NRC to Hold Hearings and Allow Petitioners to Participate in the Proceedings

The Licensee has provided the NRC with the unloading procedure, including Revision 2, dated November 8, 1996, for placement into the public record, and the Petitioners have been supplied with or have obtained copies of the procedure from the NRC's document control system. Accordingly, Petitioners have had the opportunity to review a recent revision of the unloading procedure. For the reasons previously discussed in this Decision, the NRC Staff sees no reason to undertake additional reviews of the procedure or to initiate a formal proceeding in which the Petitioners could participate. Although the NRC has decided not to initiate a hearing in response to this petition, the Petitioners are encouraged to continue their interactions with the NRC Staff regarding concerns or questions about the operation of the Prairie Island Nuclear Generating Plant or the Prairie Island ISFSI.

Item 4: Update the Technical Specifications for the Prairie Island ISFSI to Incorporate Mandatory Unloading Procedure Requirements

The TS for ISFSIs are required by 10 C.F.R. § 72.44 to include requirements in the following categories:

- (1) Functional and operating limits and monitoring instruments and limiting control settings;
- (2) Limiting conditions;
- (3) Surveillance requirements;
- (4) Design features; and
- (5) Administrative controls.

Although the TS for the Prairie Island ISFSI requires that TN-40 casks be unloaded if certain events or conditions defined in the TS are satisfied, the TS do not include specific requirements for the unloading process. The content of the TS for the Prairie Island ISFSI is typical in this respect since neither section 72.44 nor the associated regulatory guidance documents specify that technical specifications should include special requirements for the unloading procedure.² Instead, the functional and operating limits, limiting conditions, administrative controls, and other requirements included in the TS for the Prairie

²Recent NRC staff guidance pertaining to the appropriate content of technical specifications is provided in NUREG-1536, "Standard Review Plan for Dry Cask Storage Systems," published in January 1997. Similar guidance is provided by NRC Regulatory Guide 3.61, "Standard Format and Content for a Topical Safety Analysis Report for a Spent Fuel Dry Storage Cask," issued in February 1989, and NRC Regulatory Guide 3.48, "Standard Format and Content for the Safety Analysis Report for an Independent Spent Fuel Storage Installation (Dry Storage)," issued in October 1981.

Island ISFSI are intended to maintain the cask and stored spent fuel assemblies within the limits established for safe operation during storage within the ISFSI and activities such as loading and unloading of the casks. For example TS 2.3 limits the allowable lifting heights during movement of the cask from the ISFSI and TS 3/4.2 requires a measurement of the boron concentration of the water in the spent fuel pool before water is introduced to the cask during the unloading process.

The absence of specific requirements in the TS to control the unloading process does not diminish the importance that the NRC Staff places on this activity or the validity of the Petitioners' concerns. The NRC Staff believes that other regulatory requirements provide an equivalent level of protection to the Petitioners' request to include specific requirements in the TS to control the unloading of a TN-40 cask. The administrative controls in the TS for the Prairie Island ISFSI require that the associated procedures, including the unloading procedure, be prepared, reviewed, and maintained in accordance with the requirements of the Prairie Island Nuclear Generating Plant Facility Operating Licenses and associated TS. In addition, under existing NRC requirements, the Licensee must adequately implement procedures to control loading, maintaining, and unloading of dry storage casks (*see* 10 C.F.R. §§ 72.122, 72.150, and 72.152). For example, the NRC inspection documented in Inspection Report 50-282/95002, 50-306/95002, 72-10/95002(DRP) resulted in a Notice of Violation issued to the Licensee because the Licensee failed to satisfy the NRC's requirements in Criterion V of Appendix B to 10 C.F.R. Part 50 by not having incorporated appropriate steps and precautions into the original procedure developed to control unloading of a TN-40 cask. As demonstrated by the example, no changes to the TS or the Safety Analysis Report (SAR) are needed to ensure that enforceable operating controls and limits are in place to address the unloading of a cask.

In regard to another concern raised by the Petitioners, the Prairie Island ISFSI SAR and other docketed correspondence do state that unloading a TN-40 cask would be performed using a procedure that is basically the reverse of the procedure used to load the cask. Although this statement, in a general sense, is true, the NRC Staff agrees with the Petitioners that such statements may be misleading in that they oversimplify the description of the unloading activity. For this reason, the NRC Staff included an item related to unloading procedures in its dry cask storage action plan to ensure that actual unloading procedures did not reflect such an oversimplified representation. The unloading procedure for the dry storage casks at Prairie Island was inspected by the NRC Staff and, as previously discussed, was ultimately found to provide adequate guidance to control the unloading process.

IV. CONCLUSION

For the reasons described above, the NRC has determined that no adequate basis exists for granting the Petitioners' request for suspension of Northern States Power Company's license for dry cask storage of spent nuclear fuel at Prairie Island or for taking the other actions requested by the Petitioners. While acknowledging that the Petitioners' concerns regarding the potential difficulties in retrieving failed fuel from dry storage casks are legitimate, the NRC Staff has concluded that licensees need not be required to incorporate specific guidance into the normal unloading procedure to address this unlikely situation.

A copy of this Decision will be filed with the Secretary of the Commission for the Commission to review in accordance with 10 C.F.R. § 2.206(c).

As provided by this regulation, this Decision will constitute the final action of the Commission 25 days after issuance, unless the Commission, on its own motion, institutes a review of the Decision within that time.

FOR THE NUCLEAR
REGULATORY COMMISSION

Samuel J. Collins, Director
Office of Nuclear Reactor
Regulation

Dated at Rockville, Maryland,
this 29th day of August 1997.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Shirley Ann Jackson, Chairman
Greta J. Dicus
Nils J. Diaz
Edward McGaffigan, Jr.

in the Matter of

Docket No. 70-3070-ML

LOUISIANA ENERGY SERVICES, L.P.
(Claiborne Enrichment Center)

September 3, 1997

The Commission remands to the Atomic Safety and Licensing Board one issue for clarification, before taking action on three pending petitions for review of the Atomic Safety and Licensing Board's Partial Initial Decision, LBP-97-3, 45 NRC 99 (1997), resolving decommissioning funding matters. The remanded issue concerns the Board's finding that the NRC Staff's calculations of dose impacts from deep-mine disposal of waste to be produced at the Claiborne Enrichment Center was reasonable.

ORDER

In this proceeding for a combined construction permit and operating license, the Commission is considering together three petitions for review, two by Citizens Against Nuclear Trash (CANT) and one by Louisiana Energy Services (LES). All three petitions concern waste disposal and decommissioning funding at LES's proposed uranium enrichment facility. Before taking action on the pending petitions, the Commission requires clarification of one issue decided by the Atomic Safety and Licensing Board in LBP-97-3, 45 NRC 99 (1997). As explained below, we remand one issue to the Board for further explanation.

The issue that concerns us is the portion of LES's decommissioning funding estimate allocated for disposal of triuranium octaoxide (U_3O_8). The Board found

LES's estimate reasonable. LBP-97-3, 45 NRC at 113. The Board-approved disposal estimate assumes that deep-mine disposal of U_3O_8 is a plausible strategy that will provide adequate protection to the public and the environment. In its Final Environmental Impact Statement (FEIS) the Staff analyzed the estimated dose impacts from disposal of U_3O_8 in a hypothetical deep-disposal site and found them to be within regulatory limits. NUREG-1484, Vol. 1, at 4-66 to -68 (August 1994).

The migration of U_3O_8 from a deep-mine disposal site depends critically on the characteristics of groundwater at the site. As part of its analysis, the Staff used groundwater characteristics from an actual near-surface site to calculate solubilities and migration of waste radionuclides from two hypothetical deep-disposal sites. Based on these results, the Staff then estimated potential dose impacts from the deep disposal of U_3O_8 via radiological exposure pathways (e.g., drinking water, irrigated crops, and fish), and found them within regulatory limits.

CANT argues that "the FEIS is seriously deficient in its analysis of the likely dose calculations resulting from deeper-than-surface disposal, thereby failing to provide an adequate basis for the NRC staff's conclusion that deeper-than-surface disposal is safe. . . ." CANT Petition for Partial Review of LBP-97-3 at 5 (May 8, 1997). According to CANT, to support the plausibility of deep-mine disposal, the NRC Staff used a "very narrow mix of settings, and then picked and chose data that were not representative of the range of potential conditions [in deep mine cavities]." *See id.* at 6.

The Board rejected CANT's effort to discredit the feasibility of deep-mine disposal. *See* LBP-97-3, 45 NRC at 119-23. The Board noted that no particular mine has been selected or identified as a potential deep-disposal site so that exact characteristics of groundwater in a potentially acceptable deep-disposal facility are not available for analysis. The Staff cited data that establish the range of potential values likely to be found for each sensitive parameter in deep groundwater at the hypothetical geological settings. The Board found it reasonable that the Staff calculated dose impacts using only a single set of values taken from near-surface data for sensitive parameters, given that the near-surface values fell within the expected range for deep groundwater parameters.

However, it is not clear if the Board found it plausible that a deep mine with the exact near-surface values chosen for each sensitive parameter used by the Staff would be available, or if the Board simply found it plausible that there is a mine in the U.S. with characteristics falling within the expected range. It may be unrealistic to assume that a mine exists with the exact groundwater characteristics used by the Staff in calculating dose impacts.

If, as the Commission believes likely, the Board relied only on the plausibility of the existence of a mine with characteristics lying within the potential range, the Board needs to discuss why it found that the Staff's dose impact calculations can be taken as representative of disposal in mines with groundwater characteristics

that differ from the Staff's single set of values. The Board has not identified the effect, if any, that varying the values within the expected range would have on dose impacts. It may well be that varying the values of the sensitive parameters, even using values at the limits of the range, would not result in dose impacts above the regulatory limit, in light of the significantly low dose impacts estimated using the selected values within the range. See FEIS at A-14 to -15. But the Board cited no analysis that would provide assurance that this is correct. The Commission remands this issue to the Board for clarification. "In Commission practice the Licensing Board, rather than the Commission itself, traditionally develops the factual record in the first instance." *Georgia Institute of Technology* (Georgia Tech Research Reactor, Atlanta, Georgia), CLI-95-10, 42 NRC 1, 2 (1995). *Accord Ralph L. Tetric* (Denial of Application for Reactor Operator License), CLI-97-5, 45 NRC 355, 356 (1997).

This limited remand should not unduly delay the ultimate resolution of the adjudication, in view of the substantial issues already pending before the Commission on other appeals. The Commission expects that the Board will be able to decide the remanded issue by November 17, 1997. The Board is free to solicit further affidavits or other pleadings from the parties. If the Board cannot resolve this matter by November 17, 1997, it should advise the Commission and parties of an alternative, reasonable schedule.¹

IT IS SO ORDERED.

For the Commission²

JOHN C. HOYLE
Secretary of the Commission

Dated at Rockville, Maryland,
this 3d day of September 1997.

¹The Commission recently received a letter from counsel for LES, dated August 20, 1997, and served on the LES service list, that asks the Commission its view as to when decisions can be expected. It is not the Commission's practice to announce in advance a firm schedule for its appellate decisions. To do so in this case would be particularly infeasible in view of the complexity of the remaining issues, the incomplete status of the appellate record (final briefs on the pending appeals are not scheduled to be filed until later this month), and competing demands on the time of the Commission and its Staff. The Commission already is giving priority attention to all pending appellate matters in this case, and as evinced by its remand decision here, is asking the Licensing Board to do the same for any decisions it is called upon to make. Over the next several months, the Commission expects to issue a series of decisions, of which this is the first, that together will resolve all currently pending appellate issues.

²Commissioner Diaz was not available for the affirmation of this Order. Had he been present, he would have affirmed the Order.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Shirley Ann Jackson, Chairman
Grete J. Dicus
Nils J. Diaz
Edward McGaffigan, Jr.

In the Matter of

Docket No. 70-3070-ML

LOUISIANA ENERGY SERVICES, L.P.
(Claiborne Enrichment Center)

September 19, 1997

The Commission denies Citizens Against Nuclear Trash's motion for reconsideration of CLI-97-11, 46 NRC 49 (1997). In CLI-97-11, the Commission remanded for clarification one issue decided by the Atomic Safety and Licensing Board in its decision on waste disposal and decommissioning funding. LBP-97-3, 45 NRC 99 (1997). The remanded issue involves the Board's finding that the NRC Staff's calculations of dose impacts from deep-mine disposal of waste to be produced at the Claiborne Enrichment center is reasonable.

ORDER

Citizens Against Nuclear Trash (CANT) has filed a motion for reconsideration of CLI-97-11, 46 NRC 49 (1997). In CLI-97-11, we remanded for clarification one issue decided by the Atomic Safety and Licensing Board in its decision on waste disposal and decommissioning funding, LBP-97-3, 45 NRC 99 (1997). For the reasons discussed below, the Commission denies CANT's motion for reconsideration of CLI-97-11.

Our remand order asked the Board to clarify its explanation of why deep-mine disposal is a plausible strategy for handling depleted uranium waste. CANT believes that because its petition for review challenged the Board's explanation, the Commission is compelled by its own regulations to grant plenary review rather

than order a remand for clarification. We disagree. The section of our regulations to which CANT refers, 10 C.F.R. § 2.786, describes considerations under which the Commission "may" grant a petition for review but does not mandate any circumstance under which the Commission must take review. Commission review under section 2.786 establishes a certiorari-like process that leaves full discretion to the Commission. Nothing in the rule prevents a remand to the Board prior to a Commission decision on whether to grant plenary review.

The Commission considers an immediate remand of the deep-mine disposal issue the most efficient way to deal with what we view as an unclear Board discussion of the issue. The Board, as the Commission's primary adjudicatory fact-finder, is well equipped to handle the remanded matter. Giving the Board an opportunity to clarify the deep-mine disposal issue leaves the Commission free to focus its attention on other pending issues in this proceeding.¹

CANT is not prejudiced by a remand. The Commission expects that the deep-mine disposal issue will be fully aired by the Board and that CANT will have sufficient opportunity to have its concerns addressed. Moreover, when the Board issues its supplemental decision, CANT will be free to supplement its petitions for Commission review if CANT remains dissatisfied with the Board's treatment of the issue. The Commission has neither granted nor denied the petitions for review and would give appropriate consideration to any supplemental petition.

In sum, the Commission sees no reason to reconsider its decision to remand the deep-mine disposal issue to the Board. Accordingly, reconsideration is denied.

IT IS SO ORDERED.

For the Commission

JOHN C. HOYLE
Secretary of the Commission

Dated at Rockville, Maryland,
this 19th day of September 1997.

¹Recently, on September 11, 1997, the Licensing Board issued a procedural order that, among other things, requested the parties' views on the "basis for the Licensing Board's jurisdiction to proceed" on the remanded issue. This Board inquiry may stem from Commission precedent divesting the Board of jurisdiction over matters pending on appeal or on a petition for review. See, e.g., *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-825, 22 NRC 773 (1985). But that general practice, while sensible in most cases, does not apply where, as in this case, the Commission expressly retains jurisdiction and orders a remand for Board consideration of a particular issue. See generally *Commonwealth Edison Co.* (Byron Nuclear Power Station, Units 1 and 2), ALAB-770, 19 NRC 1163, 1168, 1181-82 (1984). In these circumstances, "[w]e see no valid purpose to be served by an extended metaphysical discussion of when jurisdiction . . . passes" from one adjudicatory body to another. See *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-726, 17 NRC 755, 757 (1983).

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD PANEL

Before Administrative Judges:

Peter B. Bloch, Presiding Officer
Charles N. Kelber, Special Assistant

In the Matter of

Docket No. 40-8681-MLA
(ASLBP No. 97-726-03-MLA)
(Re: License Amendment)
(Alternate Feed Material)

INTERNATIONAL URANIUM (USA)
CORPORATION
(White Mesa Uranium Mill)

September 4, 1997

Petitioners' motion for reconsideration is denied because they have not provided any information, beyond conjecture, that the tailings of which they complain represent an increased health or safety hazard. Petitioners still have not met the prerequisite for standing that they show that they are injured by the proposed action. In this amendment case, Petitioners must show that the amendment may injure them *or someone they are authorized to represent*. They have not done that. Hence, the motion for reconsideration is denied for failure to show that the Presiding Officer has made a material error of law or fact.

The motion to reopen the record also is denied. No additional evidence has been presented for admission into the record and there was no showing that the motion was timely. 10 C.F.R. § 2.734.

MEMORANDUM AND ORDER
(Motions for Reconsideration, To Reopen the Record)

Pursuant to CLI-97-9, 46 NRC 23 (1997), the pleading faxed to the Commission by Native American Petitioners (Petitioners) on July 30, 1997, is now

pending before me. It shall be considered a Petition for Reconsideration of LBP-97-12 (Petition at 11) and a Motion to Reopen the Record (*ibid.*) (Petitioners' Motion).

Petitioners' Motion is carefully drafted, well written, and impassioned. The answers of the International Uranium (USA) Corporation (IUSA Answer) and of the Staff of the Nuclear Regulatory Commission (Staff Answer) were carefully written and provide excellent legal analyses of the issues that I am required by law to determine.¹

If the Native American Petitioners had documented the basis for their concerns, they would have been granted a hearing. However, the legal requirements for standing have not been met and a hearing is not appropriate.

What allegations of the Petitioners might have made a difference, if appropriately documented? Petitioners' Motion, at 1, states, about the material that is proposed to be processed at White Mesa: "The track history of Cotter Concentrate alone verifies our claims of injury in fact." Then, at 2, Petitioners' Motion states: "The radioactivity and hazardous constituent wastes of the Concentrates have caused health problems in Lincoln Park, Colorado, instigating a number of lawsuits." Petitioners' pleadings have, however, failed to provide a basis for either of those claims.

Let me agree with Petitioner's Motion, at 2, that the Department of Energy (DOE) had at one time considered the Cotter Concentrates to be mixed wastes. At the time, the DOE did not appreciate the feasibility of removing yellowcake from the Cotter Concentrates, as IUSA has now proposed to do. Under the IUSA proposal, the radioactivity of the Cotter Concentrates, which will be used as feedstock, will have little impact on the surrounding communities. Most of that radioactivity will be recovered as yellowcake and shipped off site. The relevant question for standing purposes is the composition of the "tailings" or waste material after the Cotter Concentrates have been processed. Since the disposal of tailings is already authorized under an existing license, the question of possible injury to the Petitioners is whether the tailings from the milling authorized by this amendment will be more hazardous than tailings already authorized under the license. Petitioners have not provided any information, beyond conjecture, that the tailings represent an increased health or safety hazard.

The Petitioners also argue that the milling operation is not profitable and should be treated as waste disposal rather than uranium milling. Petitioners' Motion at 5. I note that there is no documentation that would support the allegation that a subsidy is being paid to IUSA to support this project. Energy Fuels Nuclear, Inc. (EFN), predecessor in interest to IUSA, alleged on page 8 of its application that recovery of uranium would be profitable. Petitioners' Motion

¹The "Answer of International Uranium (USA) Corporation . . ." was filed August 20, 1997 (IUSA Answer); and the "NRC Staff's Response to Petitioners' Motion . . ." was filed on August 22, 1997 (Staff Answer).

does not provide a basis to doubt this statement. Moreover, even if the Motion did provide a basis for doubting that statement, it does not address why it would be improper to operate an unprofitable milling operation that reduced the cost of waste disposal by recovering valuable yellowcake.

I. ORGANIZATIONAL STANDING: AUTHORIZATIONS

Petitioners' Motion, at 7, draws attention to the following statements made in filings before me:

I (Norman Begay) hold the petitions of 99% of the Native Americans of San Juan County opposing this action.

Included in Nation Navajo's initial filing was a resolution from Westwater Community representing 100% Navajo peoples opposition to the Cotter Proposal.

In addition, Mr. Begay and Ms. Katso, on behalf of all Utah Navajo Nation Chapters holds signed petitions and official resolutions representing 99% of the Navajo Nation population of the affected Navajo population of the county of San Juan in opposition to the Cotter Amendment.

For an organization to have standing, Petitioners must show whom they are authorized to represent.² I accept their representation that the sentiment against the amendment is very strong — though I have not seen the petitions. There is, however, nothing in the record of this case showing that these organizations were authorized to represent anyone other than the people signing the documents.³ Not even Avikan, a nonprofit organization, stated the manner in which the organization authorized its representative to participate in this case.

II. INJURY IN FACT

One prerequisite for standing is whether there has been "injury in fact." The rationale for this requirement is that individuals are permitted to intervene in cases only when they can show that they are injured by the proposed action.

²When an organization relies on members' interest to confer standing on it, the organization must show that at least one member who would possess standing in his own right has authorized the organization to represent him. *Houston Lighting and Power Co.* (South Texas Project, Units 1 and 2), ALAB-549, 9 NRC 644, 646-47 (1979), *aff'd*, LBP-79-10, 9 NRC 439, 447-48 (1979); *Houston Lighting and Power Co.* (Allens Creek Nuclear Generating Station, Unit 1), ALAB-535, 9 NRC 377, 393-94, 396 (1979). When an individual files a request for hearing on behalf of an organization, he must show he is authorized. *Detroit Edison Co.* (Enrico Fermi Atomic Power Plant, Unit 2), LBP-78-37, 8 NRC 575, 583 (1978).

³If the Petitioners continue to fear for the safety of the people who signed the petition, then that portion of the petition could have been omitted. However, we note that Petitioners have already revealed the identity of the signers by stating that almost everyone signed.

In this amendment case, Petitioners must show that the amendment may injure them *or someone they are authorized to represent*. I explained that a party that can show a plausible mechanism by which they may be injured is entitled to standing. It is not enough, in a license amendment case, to allege generally that materials may seep into the water supply. It must be shown that the tailings from the Cotter Concentrates represent an increased risk over already licensed activities.

Petitioners' Motion does not show that LBP-97-12 had an error of law or fact. See 10 C.F.R. § 2.771(b). In particular, they have not shown any error in the following statement about the Staff's Technical Evaluation Report (TER):⁴

It is my conclusion, after reviewing the last section of the TER, that this amendment makes very little substantive change in milling or tailing-disposal operations, making it difficult for petitioners to show "injury in fact." The Staff found, at 3-4 of the TER, that:

[T]he processing of this material will not result in (1) a significant change or increase in the types or amounts of effluents that may be released offsite; (2) a significant increase in individual or cumulative occupational radiation exposure; (3) a significant construction impact; or (4) a significant increase in the potential for or consequences from radiological accidents. This conclusion is based on the following information:

- a. Processing of this material will not result in the currently-approved annual yellowcake production limit of 4380 tons being exceeded.
- b. No physical changes to the mill circuit are required to process this material.
- c. Processing this material will not require EFN [or IUSA] to enlarge its tailings' disposal facilities.
- d. Trucks transporting the material to the mill site will be surveyed and decontaminated, as necessary, in accordance with EFN [OR IUSA]'s procedures, before leaving this site.
- e. Employees involved in handling the material will be provided with personal protective equipment. . . .

There is no information showing that these conclusions were incorrect. Accordingly, Petitioners' Motion failed to establish grounds for reconsidering the prior decision denying that they had standing.

The Staff has documented an error in my earlier decision. I mistakenly stated that information about the composition of the Cotter Concentrates was not publicly available. There was information, not in the record of this case, that was made available to the public since May 1997. Staff Response at 18, including note 13. Hence, Petitioners did have an opportunity to examine the

⁴LBP-97-12, 46 NRC 1, 7 (1997).

public record and to explain why the materials might pose a risk to them or to the environment.

The motion for reconsideration is denied for failure to show that the Presiding Officer has made a material error of law or fact. 10 C.F.R. § 2.734; *Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), CLI-86-7, 23 NRC 233, 235 (1986); *Louisiana Power & Light Co.* (Waterford Steam Electric Station, Unit 3), CLI-86-1, 23 NRC 1, 6 (1986). The motion to reopen the record is denied because no additional evidence has been presented for admission into the record and there was no showing that the motion was timely. 10 C.F.R. § 2.734.

IT IS SO ORDERED.

Peter B. Bloch, Presiding Officer
ADMINISTRATIVE JUDGE

Rockville, Maryland

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Charles Becnhoefer, Chairman
Dr. Jerry R. Kline
Dr. Peter S. Lam

In the Matter of

Docket No. IA 97-068
(ASLBP No. 97-731-01-EA)
(Order Superseding Order
Prohibiting Involvement in
NRC-Licensed Activities,
Effective Immediately)

AHARON BEN-HAIM, Ph.D.
(Upper Montclair, New Jersey)

September 25, 1997

The Atomic Safety and Licensing Board issues a Memorandum and Order that confirms an oral ruling at a prehearing conference denying, pursuant to 10 C.F.R. § 2.202(c)(2)(i), a request for rescission of an immediately effective order issued by the NRC Staff.

ENFORCEMENT ACTIONS: IMMEDIATELY EFFECTIVE ORDERS

RULES OF PRACTICE: IMMEDIATE-EFFECTIVENESS REVIEW

An immediately effective enforcement order issued by the NRC Staff may be challenged pursuant to 10 C.F.R. § 2.202(c)(2)(i).

ENFORCEMENT ACTIONS: STANDARD FOR IMMEDIATE EFFECTIVENESS

An immediately effective order may be challenged as not based on adequate evidence, which the Commission has equated to "probable cause."

RULES OF PRACTICE: BURDEN OF GOING FORWARD AND OF PERSUASION

The movant challenging an immediately effective Staff enforcement order bears the burden of going forward to demonstrate that the Staff's order is not founded on adequate evidence, but the Staff has the ultimate burden of persuasion on whether the requisite standard has been satisfied.

RULES OF PRACTICE: IMMEDIATE-EFFECTIVENESS REVIEW

Claims of a movant under 10 C.F.R. § 2.202(c)(2)(i) may properly suggest the existence of factual disputes, but they may not be sufficient to demonstrate lack of probable cause for a Staff immediately effective order.

PREHEARING CONFERENCE ORDER (Denying Rescission and Establishing Schedules)

I. BACKGROUND

This proceeding concerns the NRC Staff's Order Superseding Order Prohibiting Involvement in NRC-Licensed Activities (Effective Immediately) dated August 27, 1997, published at 62 Fed. Reg. 47,224 (Sept. 8, 1997) (hereinafter, Superseding Order). This Atomic Safety and Licensing Board has been designated to conduct any hearing arising from this Order, which superseded an earlier order dated July 31, 1997.¹ The Superseding Order prohibits Dr. Aharon Ben-Haim from serving as a consultant or otherwise becoming involved in NRC-licensed activities for a period of 5 years, running from July 31, 1997, the effective date of the earlier order.

In his answer to the initial order, dated August 19, 1997, Dr. Ben-Haim requested a hearing and also sought rescission of the immediate effectiveness of the order. The hearing request in summary form outlined Dr. Ben-Haim's answer to many (although not all) of the assertions of the initial order. By filing

¹The Licensing Board was established on August 25, 1997. See 62 Fed. Reg. 46,281 (Sept. 2, 1997).

dated September 8, 1997, supported by four affidavits, the NRC responded to the answer of Dr. Ben-Haim (treating the August 19 answer as applicable to the Superseding Order as well as to the initial order).

The Licensing Board, through its Memorandum and Order (Granting Request for Hearing and Scheduling Prehearing Conference), dated September 11, 1997, treated the August 19, 1997 hearing request as applicable to the Superseding Order (which had replaced the initial order in its entirety), granted Dr. Ben-Haim's request for a hearing and scheduled a prehearing conference for September 18, 1997, in Newark, New Jersey, to hear oral argument on the rescission of immediate effectiveness and to establish certain hearing-related schedules.

At the conference, the Board ruled orally (Tr. 36) that it would not rescind the immediate effectiveness of the Superseding Order, leaving the detailed reasons for this determination to be explained in a written order. We now provide those reasons.

II. RESCISSION REQUEST

Our authority to consider Dr. Ben-Haim's rescission request is set forth in 10 C.F.R. § 2.202(c)(2)(i), which reads, in pertinent part:

The . . . person to whom the Commission has issued an immediately effective order may, in addition to demanding a hearing, at the time the answer is filed or sooner, move the presiding officer to set aside the immediate effectiveness of the order *on the ground that the order, including the need for immediate effectiveness, is not based on adequate evidence but on mere suspicion, unfounded allegations, or error.* The motion must state with particularity the reasons why the order is not based on adequate evidence and must be accompanied by affidavits or other evidence relied on. . . . The motion must be decided by the presiding officer expeditiously. During the pendency of the motion or at any other time, the presiding officer may not stay the immediate effectiveness of the order, either on its own motion, or upon motion of the [affected] person. The presiding officer will uphold the immediate effectiveness of the order if it finds that there is adequate evidence to support immediate effectiveness. *An order upholding immediate effectiveness will constitute the final agency action on immediate effectiveness. An order setting aside immediate effectiveness will be referred promptly to the Commission itself and will not be effective pending further order of the Commission.* [Emphasis supplied.]

Thus, to uphold the immediate effectiveness of the Superseding Order against Dr. Ben-Haim's challenge, we must find that the Staff's immediate-effectiveness determination was based on "adequate evidence." In that connection, the Statement of Considerations accompanying the enactment of the foregoing rule explained adequacy in terms of "the existence of facts and circumstances within the staff's knowledge, of which it has reasonably trustworthy information, sufficient to cause a person of reasonable caution to believe that the order is properly founded." 57 Fed. Reg. 20,194 (May 12, 1992). The Commission went

on to compare the adequate evidence test to "probable cause" necessary for an arrest, a search warrant, or a preliminary hearing — "less than must be shown at the trial but . . . more than uncorroborated suspicion or accusation." 57 Fed. Reg. at 20,196, citing *Horne Brothers, Inc. v. Laird*, 463 F.2d 1268, 1271 (D.C. Cir. 1972). See additional discussion in *Eastern Testing and Inspection, Inc.*, LBP-96-9, 43 NRC 211, 215-16 (1996).

As set forth in *Eastern Testing, supra*, at 216, the movant challenging the Staff's immediate-effectiveness order (here, Dr. Ben-Haim) bears the burden of going forward to demonstrate that the Staff's order is not founded on adequate evidence, but the Staff has the ultimate burden of persuasion on whether the requisite standard has been satisfied. To meet his burden, Dr. Ben-Haim relied primarily on his letter of August 19, 1997, supplemented by additional remarks of counsel at the prehearing conference. He did not present any affidavits.²

For its part, the Staff presented four affidavits from investigators, inspectors, and supervisory personnel participating with respect to the Superseding Order, together with background documentary evidence. They described, *inter alia*, the sources of information relied on by the Staff for its immediate-effectiveness determinations, together with policy reasons motivating such determinations.

Dr. Ben-Haim's August 19, 1997 letter attacks the Staff's initial order for relying on allegedly incorrect information furnished by a named informant, Dr. Gerard W. Moskowitz. Dr. Ben-Haim attacks Dr. Moskowitz' credibility, not that of the inspectors or investigator to whom Dr. Moskowitz provided his information. We have some question whether these statements of Dr. Ben-Haim make the evidence provided to the Staff inspectors and investigators by Dr. Moskowitz unreliable.

However, even assuming (for purposes of argument) the unreliability of Dr. Moskowitz, the Staff treats those statements as merely developing background information and not at the heart of the most serious charges against Dr. Ben-Haim (Tr. 16). According to the Staff, the most serious of the charges against Dr. Ben-Haim arise as a result of his "deliberate misconduct" in allegedly acting as a Radiation Safety Officer (RSO) and Authorized User without being qualified or certified to do so (Tr. 18).³ A Senior Special Agent of the Office of Investigations (OI), Region I, filed an affidavit declaring that, during an OI interview, Dr. Ben-Haim admitted that he acted as the "de facto RSO"

²Dr. Ben-Haim's failure to submit affidavits was explained as based on "advice of counsel because of possible criminal penalties" (Tr. 6). Although we could possibly deny Dr. Ben-Haim's rescission motion on the basis of lack of affidavits, we elect not to do so. We interpret the "other evidence relied on" referenced in 10 C.F.R. § 2.202(c)(2)(i) as arguably covering motions of this sort. *Cf. St. Joseph Radiology Associates, Inc.*, LBP-92-34, 36 NRC 317 (1992).

³According to the Staff, the Commission's governing regulations do not recognize "implicit authority" as suggested by Dr. Ben-Haim. See 10 C.F.R. §§ 35.25, 35.32. Based on what Dr. Ben-Haim has provided thus far, we cannot say this Staff interpretation is "erroneous."

for Newark Medical Associates and authorized dose orders of Tc-99, without receiving delegated authority from the RSO. Dr. Ben-Haim's counsel made no attempt to demonstrate that this OI affidavit was unreliable evidence (Tr. 12), although he suggested that the piece of paper written by Dr. Ben-Haim and relied upon by OI as evidence of Dr. Ben-Haim's unauthorized action was not in fact properly characterized as a prescription (Tr. 31).

The claims of Dr. Ben-Haim may properly suggest the existence of factual disputes, but they are not sufficient to demonstrate that there is not probable cause for the Staff's charges. Furthermore, the circumstance that Dr. Ben-Haim has never been charged with violations with respect to other consulting arrangements with different facilities (Tr. 31-32) does not undercut the Staff's allegations with respect to his action at this facility, although it may have a bearing on the appropriateness of any particular sanction imposed. In these circumstances, the record compels us to deny the rescission motion and uphold the immediately effective order pending further adjudication.

III. SCHEDULES

The Board recognized that the immediately effective Superseding Order placed Dr. Ben-Haim under some hardship, and it urged that an expedited discovery and hearing schedule be adopted (Tr. 36-37, 51). In response to Board suggestions that the parties submit a joint proposed discovery and hearing schedule, the parties responded that they wished to review Dr. Ben-Haim's formal answer to the Superseding Order before considering appropriate schedules. The formal answer was scheduled (by prior agreement) to be filed by September 19, 1997 (and it was in fact filed by that date). The parties agreed to submit a proposed schedule by Tuesday, September 30, 1997, and the Board approved that agreement (Tr. 43).

* * *

Based on the foregoing, it is, this 25th day of September 1997, ORDERED:

1. Dr. Ben-Haim's motion to rescind the Staff's immediate-effectiveness order in this proceeding is hereby *denied*.
2. This denial constitutes final agency action on this matter and is not subject to Commission appeal.

3. The parties are *directed* jointly to submit a proposed discovery and hearing schedule by no later than September 30, 1997.

THE ATOMIC SAFETY AND
LICENSING BOARD

Charles Bechhoefer, Chairman
ADMINISTRATIVE JUDGE

Dr. Jerry R. Kline
ADMINISTRATIVE JUDGE

Dr. Peter S. Lam
ADMINISTRATIVE JUDGE

Rockville, Maryland
September 25, 1997

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD PANEL

Before Administrative Judges:

G. Paul Bollwerk, III, Presiding Officer
Thomas D. Murphy, Special Assistant

In the Matter of

Docket No. 55-61425-SP
(ASLBP No. 97-725-02-SP)

FRANK J. CALABRESE JR.
(Denial of Senior Reactor Operator
License)

September 26, 1997

In this informal proceeding concerning a challenge by Frank J. Calabrese Jr. to the NRC Staff's proposed denial of his application for a senior reactor operator (SRO) license, the Presiding Officer concludes the Staff's action should be affirmed and the application denied because the applicant did not follow facility procedures regarding rapid depressurization during the simulator portion of his SRO examination operating test.

RULES OF PRACTICE: WITNESSES (CREDIBILITY); INFORMAL HEARINGS (CREDIBILITY OF AFFIANTS)

When the credibility of various affiants is at the center of the parties' dispute, the presiding officer would have to convene an oral presentation session to receive testimony. *See* 10 C.F.R. § 2.1235.

REGULATORY GUIDES: APPLICATION; STATUS

Documents bearing the NUREG designation generally do not establish regulatory requirements. *See, e.g., General Public Utilities Nuclear Corp. (Oyster*

Creek Nuclear Generating Station), LBP-97-1, 45 NRC 7, 25 (1997) (citing cases).

**REACTOR OPERATOR LICENSE: EXAMINER GUIDELINES
(APPLICATION)**

While heedful of the discretion afforded the Staff in making its reactor operator examination determinations, a presiding officer properly can look to NUREG-1021 as an important source in assessing whether the Staff has strayed too far afield of its stated twin goals of "equitable and consistent" examination administration. Cf. *Ralph L. Tetric* (Denial of Application for Reactor Operator License), CLU-97-10, 46 NRC 26, 31-32 (1997) (because agency practice is one indicator of how agency interprets regulation, consistently held Staff view on operator testing policy matter will not be disturbed).

**REACTOR OPERATOR LICENSE: EXAMINATION (SIMULATOR
PORTION OF OPERATING TEST)**

Given the "snapshot" nature of the simulator portion of the operating test process, the quality of an applicant's critical decisionmaking during a crucial test interval, no matter how brief in relation to the rest of the test, was an appropriate yardstick for taking the measure of the applicant's performance.

**REACTOR OPERATOR LICENSE: EXAMINATION (SIMULATOR
PORTION OF OPERATING TEST)**

Although there may well be a difference between the Staff's assessment of the safety significance of "actual" and "potential" events at a functioning facility, in the simulator portion of the operator test process in which the Staff is assessing whether it should permit an applicant to be placed as a reactor operator at such a facility when his action (or inaction) can cause such an "actual" event, the distinction between "potential" and "actual" events is one that has significantly less resonance, particularly if the consequences of the applicant's activities ultimately can result in serious reactor core damage.

TECHNICAL ISSUE DISCUSSED

The following technical issue is discussed: Reactor operator testing.

INITIAL DECISION

This 10 C.F.R. Part 2, Subpart L informal adjudication was convened at the behest of Frank J. Calabrese Jr., who requested a hearing to challenge the NRC Staff's action denying his application for a senior reactor operator (SRO) license. Specifically, he seeks to have overturned the Staff's finding that during one of the simulator scenarios in the operating test portion of his SRO examination, he failed properly to use an emergency operating procedure (EOP) in responding to a major transient event, thereby meriting a score that is below the level needed to pass the examination.

For the reasons set forth below, the Presiding Officer concludes that applicant Calabrese has failed to meet his burden of showing that the Staff incorrectly scored the operating test portion of his SRO examination. *See* 10 C.F.R. § 2.1237(b). Accordingly, the Staff's determination that he did not pass the operating portion of the examination is affirmed and his application for an SRO license is denied.

I. BACKGROUND

A. Calabrese License Application and Hearing Request

Applicant Calabrese currently is employed by Pennsylvania Power and Light Company (PP&L) at its Susquehanna Steam Electric Station (SSES), which has two 3300 megawatt General Electric Mark II boiling water reactors. By application dated September 30, 1996, Mr. Calabrese requested an upgrade of his existing reactor operator (RO) license to an SRO license.¹ *See* Hearing File (May 8, 1997), item 1, at 2 (U.S. Nuclear Regulatory Commission (NRC), Personnel Qualification Statement—Licensee, Form 396) [hereinafter Hearing File]. An SRO examination, which consists of a written examination and an operating test, was administered to him over a 4-day period in late-October 1996. Initially NRC examiners found applicant Calabrese failed both the written examination and operating test portions of the SRO examination and proposed denying his SRO license application. *See id.*, item 8, at 1 (Letter from Glenn W. Meyer, Chief, Operator Licensing and Human Performance Branch, Division of Reactor Safety, NRC Region I, to Frank J. Calabrese Jr. (Dec. 2, 1996)). Later, as a result of an informal review of his examination requested by applicant Calabrese, the Staff concluded he had passed the written portion of the examination. As

¹As a licensed RO, Mr. Calabrese is authorized to manipulate the reactor controls at the SSES facility. As an SRO, Mr. Calabrese also would be authorized to direct the licensed activities of other ROs. *See* 10 C.F.R. § 55.4 (definitions of "operator" and "senior operator").

part of that same review, however, the Staff reaffirmed its finding that Mr. Calabrese had failed the operating test portion of the examination, in particular Competency 4, entitled "Compliance With and Use of Procedures." *See id.*, item 13, encl. at 4-5 (Letter from Bruce A. Boger, Director, Division of Reactor Controls and Human Factors, NRC Office of Nuclear Reactor Regulation, to Frank J. Calabrese Jr. (Mar. 3, 1997)). As a result, the Staff sustained its earlier proposed denial of his SRO license application.²

Applicant Calabrese then filed a timely request for an adjudicatory hearing regarding the Staff's determination. *See id.*, item 14, at 1 (Letter from F.J. Calabrese Jr. to NRC Secretary (Mar. 14, 1997)). His hearing petition was assigned to this Presiding Officer, who granted his request on April 8, 1997. *See* 62 Fed. Reg. 15,542, 15,542 (1997); 62 *id.* 18,155, 18,156 (1997). In accordance with 10 C.F.R. § 2.1231, on May 8, 1997, the Staff submitted the hearing file concerning its action on Mr. Calabrese's application. Thereafter, both applicant Calabrese and the Staff filed their written presentations setting forth their positions on why the Staff's denial action was, or was not, appropriate. *See* Presentation on Behalf of Frank J. Calabrese Jr. (June 4, 1997) [hereinafter Calabrese Written Presentation]; NRC Staff Presentation in Support of Denial of [SRO] License for Frank J. Calabrese Jr. (June 30, 1997) [hereinafter Staff Written Presentation]. In addition, in accordance with section 2.1233(a), Mr. Calabrese was afforded an opportunity to respond to the Staff's written presentation. *See* Reply Presentation on Behalf of Frank J. Calabrese Jr. (July 16, 1997) [hereinafter Calabrese Reply Presentation].

Finally, as part of the informal hearing process, the Presiding Officer asked for and received responses to a series of written questions directed to the Staff. *See* Presiding Officer Memorandum and Order (Presiding Officer Questions) (July 23, 1997) [hereinafter Presiding Officer Questions]; NRC Staff Response to Presiding Officer's Questions (Aug. 4, 1997) [hereinafter Staff Questions Response]. Applicant Calabrese was, in turn, provided with an opportunity to address the Staff's response.³ *See* Response on Behalf of Frank J. Calabrese Jr. to NRC Staff Answers (Aug. 18, 1997) [hereinafter Calabrese Questions Response].

The filings and documents described above constitute the record upon which this determination is based.

² Although applicant Calabrese also sought Staff review of a portion of his score on Competency 7, "Direct Shift Operations," the Staff did not consider that request because he received an overall passing grade regarding that competency. *See* Hearing File, item 13, encl. at 5.

³ As is described more fully below, in responding to the Staff's answers applicant Calabrese provided an affidavit from a former NRC employee with experience in the agency's operator licensing program. The Staff was given an opportunity to respond to that affidavit, which it declined to do. *See* Letter from Charles A. Barth, Staff Counsel, to Presiding Officer (Aug. 21, 1997).

B. The Operating Test Portion of the Examination

As described in NUREG-1021, the agency's operator licensing examiner standards manual, agency regulations mandate that the operating test portion of an SRO examination require that an applicant demonstrate he or she understands and can perform those actions needed to accomplish a representative sampling of thirteen qualification items. Those items, which are specified in 10 C.F.R. § 55.45(a), include performing prestartup procedures, identifying and responding to annunciator and condition-indicating signals, and demonstrating knowledge of significant radiation hazards and emergency plan procedures. See Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Operator Licensing Examiner Standards, NUREG-1021, Examiner Standard (ES)-301, at 2 of 26 (rev. 7 Jan. 1993 & Supp. 1 June 1994) [hereinafter NUREG-1021].⁴ And relative to these items, the operating test incorporates two formats — a facility walk-through and performance in a simulator.

The facility walk-through, in turn, is divided into two categories — administrative topics and control room and facility walk-through. The former is designed to cover the knowledge and abilities needed for administrative control of the plant in areas such as daily operations conduct, equipment management, radiation protection, and emergency plan execution. The latter, on the other hand, determines if the applicant's knowledge of plant system design is adequate and if he or she is able to operate those systems safely. Both walk-through categories are administered in a one-on-one, facility walk-through format. See *id.* at 3-4 of 26.

The simulator portion of the operating test, which is the most performance-based operating test category, is intended to evaluate the applicant's ability to operate the plant's systems safely under dynamic conditions. It is administered in a team format with as many as three applicants (or surrogates) filling the RO and SRO licensed positions on an operating crew. This enables the examiners to evaluate each applicant's ability to function as a member of the control room team in the appropriate position. Each team must contend with one or more scenarios, which are an integrated group of events that simulate a set of plant malfunctions and evolutions. These scenarios are designed to allow the examiners to evaluate each applicant individually on a range of applicable competencies. See *id.* at 1, 5 of 26.

⁴ One section of NUREG-1021, ES-303, was included as item 21 in the Hearing File. At the Presiding Officer's request, as an attachment to its June 30, 1997 written presentation the Staff provided a complete copy of the January 1993 version, as supplemented in June 1994, that was in effect at the time of applicant Calabrese's examination. See Staff Written Presentation at 5. The Presiding Officer has relied upon this January 1993 version of NUREG-1021 as an addendum to the hearing file.

SRO candidates are evaluated on as many as eight competency categories,⁵ each of which is broken down into three or four specific rating factors. Applicants are assigned weighted numerical grades under each of the particular rating factors that classify the applicant's performance under that factor. The assigned scores for each rating factor must result in a total score for each competency sufficient to demonstrate proficiency on his or her license level, which commonly is a score of greater than 1.8 out of a possible total of 3.0. Examiners generally can deny the operator license application of any individual who fails to demonstrate proficiency in every single competency.⁶ See *id.* ES-303, at 5 of 27.

In this instance, applicant Calabrese's problems arose in connection with the fourth competency category, "Compliance With and Use of Procedures." As set forth in the pertinent part of the examination report, applicant Calabrese's scores on this "Procedures" competency were as follows:

C. SENIOR REACTOR OPERATOR INTEGRATED PLANT OPERATIONS (SIMULATOR TEST) GRADING SUMMARY						
Competencies/ Rating Factors	Weight	3.0	2.0	1.0	Total	...
4. PROCEDURES						...
A. Reference	0.25	0.75	0.50	<u>0.25</u>		...
B. Correct Use	0.50	1.50	1.00	<u>0.50</u>		...
C. Crew Implementation	0.25	<u>0.75</u>	0.50	0.25	(1.5)	...

Hearing File, item 2, at 3 of 8 (NRC Operator License Examination Report Form ES-303-1 for Frank J. Calabrese (Nov. 26, 1996) (underscoring denotes original handwritten markings)).

C. The Operating Test Scenario at Issue

From the discussion in applicant Calabrese's written presentation, it is apparent that the portion of the operating test now in controversy is the sixth and final event of simulator scenario two, which was one of the two scenarios upon which he was tested. The summary of that scenario event prepared by the SSES Training Center states:

⁵One competency area, "Control Board Operations," is optional for SRO upgrade applicants like Mr. Calabrese. If it is evaluated, however, that competency must be factored into the applicant's final grade. See NUREG-1021, ES-303, at 5 of 27. Mr. Calabrese was, in fact, graded in this area. See Hearing File, item 2, at 3 of 8.

⁶A candidate can receive a score of less than 1.8 on Competency 6, "Communications and Crew Interactions," and still pass the operating test if he or she has a score of at least 1.0 on that competency and total grades for all other competencies that are 2.0 or greater. See NUREG-1021, ES-303, at 5 of 27.

Event Six. A steam line break in the common RCIC [(reactor core isolation cooling)] and HPIC [(high pressure coolant injection)] pipe routing area occurs requiring entry into EO-100-104, Secondary Containment Control. The crew will attempt to isolate RCIC but the outboard valve will not close. The crew will manually scram the reactor as temperatures continue to rise towards maximum safe values. The crew will implement EO-100-102, RPV [(reactor pressure vessel)] Control, and manually scram the reactor. Seven control rods will fail to insert requiring entry into EO-100-113, Level/Power Control. The CRD [(control rod drive)] north areas and remote shutdown panel area will rise above 10 R/hr [(rads per hour)], requiring the crew to enter EO-100-112, Rapid Depressurization. The crew will rapidly depressurize the reactor. Both PCOs [(reactor operators)] and the US [(unit supervisor)] will be actively involved in this *major transient and two component failures*.

Hearing File, item 5, at 3 of 21 (PP&L-SSES Training Center, Simulator Scenario No. 2, Flow Comparator Failure of APRM Upscale Trip, RCIC Pump Operability, Loss of Feedwater Heating, Loss of 1B246, Unisolable RCIC Steam Line Break (rev. 1 Oct. 8, 1996)). Moreover, the scenario indicates that during event six the SRO position occupied by Mr. Calabrese (also referred to as the Unit Supervisor or US) is to perform the following activities:

- Enter and direct actions of EO-100-104, Secondary Containment Control
- Directs starting emergency service water (ESW) and room coolers
- Directs manual scram of reactor on approaching maximum safe temperature
- Enters and directs EO-100-113, Level/Power Control
- Enter and directs actions of EO-100-112, Rapid Depressurization
- Directs preventing injection of low pressure systems
- Directs opening automatic depressurization system (ADS) safety relief valves (SRVs)

See id. at 20 of 21.

1. Applicant Calabrese's Recounting of the Scenario

Applicant Calabrese described event six in his affidavit accompanying his written presentation, *see* Calabrese Written Presentation, Statement of Frank J. Calabrese Jr. (May 30, 1997) at 5-9 [hereinafter Calabrese Statement], and in a supplemental affidavit filed with his response to the Staff's written presentation, *see* Calabrese Reply Presentation, Supplemental Statement of Frank J. Calabrese Jr. (July 11, 1997) at 1-5. It began when the reactor operator (also referred to as the Plant Control Operator—Unit or PCOU) — a role being played by RO applicant Arnold J. Avery — reported a high radiation level in the RCIC area. Recognizing this as an unexplained area radiation level above maximum normal

level, applicant Calabrese declared an emergency, directed reactor building evacuation, and entered EO-100-104, Secondary Containment Control.

Implementing this emergency operating procedure, he directed efforts to have all systems discharging into the RCIC area isolated. He then declared a site area emergency and, because the isolation valve would not close, entered into EO-100-102, RPV Control. Following that procedure, he then attempted to shutdown or scram the reactor. Seven control rods remained partially withdrawn, however. Recognizing this as an anticipated transient without scram (ATWS), he then entered EO-100-113 and followed its alternate control rod insertion directions. This resulted in the control rods inserting further, although not completely, so that reactor power dropped to less than five percent.

At this point, applicant Calabrese recalled that the PCOU reported a high radiation level in the main steam line. Applicant Calabrese states he told the PCOU to continue to monitor radiation levels and he would back up the PCOU on level monitoring because the PCOU had other responsibilities, including reading secondary containment temperatures on a back panel that would require the PCOU to step behind and out of sight of the control room consoles. Applicant Calabrese also continued the EO-100-113 steps required for attempting to insert the seven still-partially withdrawn control rods.

While applicant Calabrese was doing this, the PCOU reported radiation levels that exceeded maximum safe levels in two areas. Under EO-100-104, this required implementation of EO-100-112, Rapid Depressurization, by which radioactive steam from the reactor core is directed into a suppression pool beneath the core to reduce reactor pressure and thereby minimize public radiation exposures. According to applicant Calabrese, the EOPs like EO-100-112, which are in the form of logic tree diagrams directing the operators to certain courses of action depending on plant conditions, are printed on thick boards stacked on edge in a rack in the control room. In this instance, he asserted he looked in the rack where EO-100-112 should have been but was unable to find it. Concerned about the importance of prompt depressurization in avoiding public exposures, he decided to depressurize immediately relying on his memory of what EO-100-112 required.

Toward that end, he called the PCOU and the balance of plant (BOP) operator (also referred to as the Plant Control Operator-Extra or PCOX) — a role being played by SRO candidate Gordon E. Robinson — for a "tailboard" conference. During this discussion, he informed them he planned to enter rapid depressurization and discussed their duties, including the PCOX's assignment to open the automatic depressurization system (ADS) and prevent low pressure emergency core cooling system (ECCS) injection. Thereafter, the PCOU and PCOX returned to their stations and applicant Calabrese went back to looking for EO-100-112, but was still unable to find it.

Applicant Calabrese then directed the PCOX to open the ADS valves to start depressurization. The PCOX acknowledged this direction and asked if he should prevent low pressure injection. Applicant Calabrese stated that he confirmed low pressure injection should be prevented.

After giving this direction, however, applicant Calabrese located the EO-100-112 board, which he previously overlooked because it was pushed to the back of the rack. According to Mr. Calabrese, he then quickly reviewed the procedure and saw its direction that, absent a determination the reactor will remain shutdown under all conditions without the addition of boron, all reactor pressure vessel injection must be stopped and prevented before opening the ADS valves. Recognizing this direction is to prevent a fuel-damaging power increase resulting from a reactivity insertion by the injection of cold water into the reactor, he checked the reactor pressure gauge to see if it had fallen below a level at which low pressure injection would occur. The pressure was at 350 pounds per square inch and falling. He then looked to see if low pressure injection was prevented, and found it was not because one residual heat removal (RHR) pump was still running. He directed the PCOX to turn off that pump, which the PCOX did promptly.

The PCOX then informed applicant Calabrese there may have been some injection. Mr. Calabrese stated he asked the PCOU to check the reactor power and water levels and the PCOU reported there was no change. The scenario then ended, applicant Calabrese declared, without cold water injection or a depressurization-related power excursion or fuel damage.

2. Other Examination Participants' Descriptions of the Scenario

As part of his reply to the Staff's written presentation, applicant Calabrese provided the affidavits of PCOX Gordon Robinson and PCOU Arnold Avery. See Calabrese Reply Presentation, Statement of Gordon Robinson (July 11, 1997) at 1-3; *id.* Statement of Arnold Avery (July 11, 1997) at 1.

a. Mr. Robinson

According to Mr. Robinson, near the end of the scenario Mr. Avery reported radiation exceeded the maximum safe levels in two areas. He recalled that Mr. Calabrese then told both operators that he wanted to hold a tailboard discussion. During this discussion, applicant Calabrese said that rapid reactor depressurization was necessary and Mr. Robinson would need to open the six ADS valves. Mr. Robinson also declared that they discussed the need to prevent low pressure injection, but did not discuss whether low pressure injection should be prevented before opening the ADS valves. Mr. Robinson also recollected

that applicant Calabrese told Mr. Avery he would have certain duties during depressurization, but cannot remember what those were.

Mr. Robinson further declared that after the tailboard discussion, Mr. Calabrese gave him the direction to open the six ADS valves, which he echoed and added "and inhibit low pressure ECCS." Mr. Calabrese then repeated what Mr. Robinson had said. Although Mr. Robinson stated he knew that the ECCS pumps should be inhibited before depressurization, he declared he understood Mr. Calabrese's recitation to be a direction that the ADS valves be opened first. He then complied with this direction without questioning Mr. Calabrese about the order of the two actions because of his concern about not infringing on the pretest directive that the applicants not prompt each other during the test.

Thereafter, according to Mr. Robinson, he placed the ADS hand switches in the open position, looked at the control board indicator to confirm the valves were open, and looked at the reactor pressure indicator to verify pressure was decreasing. He recalled noticing the reactor pressure was about 700 pounds per square inch and decreasing. He reported the ADS valves open status and the decreasing pressure to applicant Calabrese. Mr. Robinson then told Mr. Calabrese he was starting ECCS pump inhibition, which Mr. Calabrese confirmed he should.

Prior to ECCS pump inhibition, Mr. Robinson stated, the "A" Loop Residual Heat Removal (RHR) pump was running in alignment for suppression pool cooling, which sends the pump flow into the pool rather than the reactor. Just before Mr. Robinson turned off the "A" RHR, which was the last pump running, applicant Calabrese directed him "insistently and urgently" to turn that pump off. When he shut it off, he looked at the flow indication for that loop and saw what appeared to be a small "bounce" from zero to approximately 2500 gallons per minute and then back to zero. Mr. Robinson reported to Mr. Calabrese that all low pressure ECCS was inhibited and there might have been some injection based on that flow indication, which Mr. Robinson now believes was a minor simulator response rather than a real flow indicator.

Mr. Robinson also recalled a discussion among all three applicants that took place after completing this scenario and leaving the simulator in which Mr. Avery indicated he had been monitoring the water and power level change indicators when Mr. Robinson was preventing the low pressure ECCS injection and had seen no change in either one. Mr. Robinson also recollected that during this discussion Mr. Calabrese stated that prior to the depressurization sequence he had tried and failed to find the procedure board, but did find it while Mr. Robinson was opening the ADS valves and marked it up to catch up to where they were in the procedure.

b. *Mr. Avery*

As the PCOU, Mr. Avery recalled that during the test he was monitoring rising radiation levels that were approaching maximum safe levels. After going behind the main control panels to perform a back panel task, he returned to find radiation levels had risen above maximum safe levels. He reported this to Mr. Calabrese. Thereafter, Mr. Calabrese held a tailboard discussion during which he told Mr. Avery and Mr. Robinson he was going to initiate rapid depressurization. Mr. Avery remembered monitoring reactor power and water levels while this was happening and, although he does not remember any specific details, he recalled he did not see any significant change in either level.

3. *Staff Description of the Scenario*

The Staff has a somewhat different recollection of the circumstances surrounding event six of the second scenario, which it provided in an affidavit filed with the Staff's written presentation. See Staff Written Presentation, Staff Response to Mr. Calabrese's Written Presentation in the Form of an Affidavit by Siegfried Guenther, John G. Caruso, Tracy E. Walker, and Carl E. Sisco (June 19, 1997) at 13-16 [hereinafter Staff Written Presentation Affidavit].

Staff license examiners John G. Caruso and Tracy E. Walker, both of whom were present during the scenario and observed it,⁷ stated that Mr. Calabrese failed to refer to or comply with the procedures in EO-100-112. Neither examiner recalled, nor do their notes reflect, any attempt by Mr. Calabrese to locate the procedure before Mr. Robinson mentioned the low pressure ECCS pumps after Mr. Calabrese gave the order to open the ADS valves. According to the affidavits, Mr. Caruso, who was monitoring Mr. Calabrese during the scenario, did not note that Mr. Calabrese was having any problems locating this procedure. These Staff affidavits also declared that Mr. Calabrese made no mention of a problem with locating the procedure either when Mr. Caruso questioned him about the scenario after the examination or in any of his submissions during his informal Staff appeal. The Staff examiners further stated they have no recollection of a formal tailboard discussion nor do their notes reflect such a discussion taking place. Both, however, did note Mr. Robinson's observation

⁷The other principal Staff affiant, senior reactor engineer Siegfried Guenther, is an examiner familiar with the agency's "examination procedures and expectation regarding operator performance." Staff Questions Response, Staff Response to Presiding Officer Questions in the Form of an Affidavit by Siegfried Guenther, John G. Caruso, and Tracy E. Walker (Aug. 4, 1997) at 2 [hereinafter Staff Questions Response Affidavit]. He did not, however, become involved with Mr. Calabrese's application until he was given the task of assembling the hearing file for this adjudication. Although he asserts he "has no reason to doubt" the truthfulness and accuracy of the Staff's June 30 written presentation, *id.* at 3, he apparently has no direct knowledge of what happened during the scenario. His "support" of those portions of the Staff's affidavits that describe events during the scenario at issue thus provides little, if any, corroboration for the Staff's version of what transpired.

that the "A" loop RHR pump had begun to inject water in the RPV before that activity was overridden.

II. THE PARTIES' POSITIONS

As the description above makes apparent, applicant Calabrese and the Staff have outlined some serious disagreements about the sequence and significance of events that occurred during event six of scenario two of the simulator portion of his operating test. Not unexpectedly, each party also asserts that events during this portion of scenario two support its position that Mr. Calabrese's application should or should not be granted.

A. Parties' Written Presentations

1. Applicant Calabrese's Position

Mr. Calabrese emphasizes that he received fully satisfactory ratings on twenty-three of the twenty-seven individual rating factors under the eight competencies that were evaluated in the two simulator scenarios. He declares, however, that his "uniformly" good performance was overshadowed by the unsatisfactory rating value of "1" he was assigned under rating factor 4.B, which concerns the correct use of procedures. Because of his score on this rating factor, which is one of the three rating factors under Competency 4, "Compliance With and Use of Procedures," he received an overall score of 1.5 on that competency.⁸ He observes that if he were given a fully satisfactory rating value of "3" or a middle range, marginal score of "2" on rating factor 4.B, he would have a total score above 1.8 for that competency and so would have qualified for an SRO license. See Calabrese Written Presentation at 6-7.

According to applicant Calabrese, each deficiency in an applicant's performance on a simulator test must be judged in light of the total knowledge and ability demonstrated by that applicant during the entire test. Asserting agency examiners found nothing in his performance to criticize other than taking one step in EO-100-112 out of order, he explains that he did look, albeit unsuccessfully, for that procedure. This, along with the fact his failure to refer to the procedure before ordering the ADS valves opened was prompted by his con-

⁸ Initially, Mr. Calabrese also sought a Presiding Officer determination regarding the efficacy of the Staff's scoring of another of the three rating factors under Competency 4 — rating factor 4.A concerning reference to procedures. As part of his August 18, 1997 response to the Staff's answers to a series of questions posed by the Presiding Officer to the Staff, Mr. Calabrese included the sworn statement of former NRC employee Robert J. Pate. See Calabrese Questions Response, Statement of Robert J. Pate (Aug. 14, 1997). In that statement, Mr. Pate declared he agreed with the Staff's position on the scoring of this rating factor. See *id.* at unnumbered p. 2. As a consequence, Mr. Calabrese withdrew his challenge to the Staff's scoring on rating factor 4.A. See Calabrese Questions Response at 5-6.

cern about radioactive leaks, should not be considered to reflect adversely on his ability to understand and use procedures. Applicant Calabrese also asserts that, as the substance of the tailboard discussion makes apparent (and contrary to the Staff's assertion during his informal appeal), he was aware of the need to prevent low pressure injection in conjunction with opening the ADS valves. His action ordering the RHR pump turned off thus was not simply the result of prompting by Mr. Robinson. Nor did he misunderstand or ignore the procedural requirements, but rather "proceeded" when he should have "referred." *See id.* at 18 & n.9; *see also* Calabrese Reply Presentation at 9.

Mr. Calabrese also contends he demonstrated the necessary attributes for an SRO when, after authorizing ADS valve opening and RPV injection prevention, upon finding EO-100-112, he recognized the need to perform the latter before the former and took prompt action to prevent injection before reactor pressure dropped below the low pressure ECCS pumps' shutoff head. Because the grading worksheet indicates an applicant who makes minor errors and timely corrections should be considered marginally satisfactory, his action once he found EO-100-112 to verify the status of low pressure injection prevention and to shut down the "A" loop RHR pump shows that he knows how to use procedures properly. *See* Calabrese Written Presentation at 18-19; *see also* Calabrese Reply Presentation at 10.

At the same time, applicant Calabrese maintains, by taking this action, no significant error occurred that led to plant degradation warranting an unsatisfactory rating in the use of procedures. Acknowledging the Staff's assertion his actions resulted in low pressure injection that could have caused a power spike and core damage, he explains this claim is based on Mr. Robinson's statement after the PCOX turned off the "A" loop RHR pump. He declares, however, that by reason of Mr. Avery's checks on reactor power and water levels, Mr. Robinson subsequently was shown to be incorrect. There was, therefore, no injection or resulting power spike or fuel damage. Mr. Calabrese thus concludes his performance on this scenario does not merit an unsatisfactory rating on the use of procedures. *See* Calabrese Written Presentation at 19-20; *see also* Calabrese Reply Presentation at 11-13.

2. *The Staff's Position*

According to the Staff, its decision not to pass applicant Calabrese based on his performance in event six of scenario two is rooted in his failure to comply with several different regulatory and facility requirements. The Staff notes that under items (6), (8), and (13) in 10 C.F.R. § 55.45(a), an applicant is to be able to "[p]erform control manipulations required to obtain desired operating results during normal, abnormal, and emergency situations," "[s]afely operate the facility's auxiliary and emergency systems, including operation of

those controls associated with plant equipment that could affect reactivity or the release of radioactive materials to the environment," and demonstrate the "ability to function within the control room team as appropriate to the assigned position, in such a way that the facility licensee's procedures are adhered to and that the limitations in its license and amendments are not violated." Moreover, in connection with the Staff-developed competencies for evaluating an applicant's performance in simulator operating tests, under Competency 4 SRO applicants are expected to "USE PROCEDURES CORRECTLY, including following procedural steps in correct sequence [and] abiding by procedural cautions and limitations," and "[e]nsure the safe, efficient IMPLEMENTATION of procedures BY THE CREW." NUREG-1021, ES-303, at 23 of 27 (Form ES-303-4). There is also, according to the Staff, the specific requirement in each operator license that the holder "observe the operating procedures and other conditions specified in the facility license authorizing operation of the facility." See Staff Written Presentation, Staff Written Presentation Affidavit at 8-9.

So too, the Staff makes note of the provisions of PP&L's operating procedures for the SSES facility. See *id.* at 9-10. It points out that under the heading "Procedure Compliance," the licensee's procedural directives state "[p]rocedures represent Management's expectations and bounds of authorization to operate plant systems and equipment. Procedures form the basis [from] which individual operator actions will be evaluated and judged for adequacy. Procedure compliance is our standard to operate the plant safely and efficiently." Hearing File, item 16, at 30 of 75 (PP&L, Nuclear Department Procedure OP-AD-001, ¶6.18.1 (rev. 9 Jan. 29, 1997)).⁹ In addition, the SSES operating procedures declare that an "EOP flowchart shall be present and continuously referred to while being executed." *Id.* at 34 of 75 (¶6.18.6.f).

Concerning the specifics of event six of scenario two, the Staff asserts there were three EOPs of potential importance to Mr. Calabrese's successful completion of that portion of the simulation. EO-100-104, "Secondary Containment Control," indicates in Step SC/R-6 that if rapid depressurization becomes necessary, which it did under this scenario, then the operator must look to EO-100-113, "Level/Power Control." According to the Staff, using EO-100-113 would have provided Mr. Calabrese with the proper procedural steps in two ways.

One, upon which the Staff placed principal reliance in its proposed license denial action, is that under EO-100-113 in the circumstances that existed in event six of scenario two, the operator must to look at Step RD-3 of EO-100-112, "Rapid Depressurization." See Hearing File, item 15, at unnumbered

⁹ In referring to this SSES operating procedure, the Staff has indicated that it has attempted to obtain from the licensee the version in effect at the time of Mr. Calabrese's examination, but has been unable to do so. See Staff Written Presentation at 5. Mr. Calabrese has not sought to show there is any material difference between this version and the one in effect at the time of the examination.

p. 1 (SSES Emergency Operating Procedure EO-100-113, Level/Power Control). This step in EO-100-112 then requires the operator to determine whether the reactor will remain shutdown under all conditions without boron. *See id.* at unnumbered p. 2 (SSES Emergency Operating Procedure EO-100-112, Rapid Depressurization). According to the basis document on this procedure prepared by the facility licensee, such a determination is necessary because, if reactor shutdown cannot be assured, injection of large volumes of cold, unborated water into the RPV during rapid depressurization could result in serious core damage.¹⁰ The basis document also states that reactor shutdown confirmation can best be obtained by observing that all control rods are fully inserted, which did not happen in event six. *See id.*, item 19, at 3 of 15 (PP&L, Nuclear Department Procedure EO-100-112, Rapid Depressurization (rev. 6 May 16, 1994)). And if, as was the case in this simulator exercise, that determination cannot be made, the basis document indicates that precautionary steps must be taken to control RPV injection. Those actions are mandated by Step RD-5, which refers the operator to either Step LQ/L-19 in EO-100-113 or Step RF-13 in EO-100-114, both of which direct the operator to continue with rapid depressurization only after it is confirmed all RPV injection is stopped and prevented. *See id.* at 5 of 15.

According to the Staff, contrary to Step 6.18.6.f of PP&L Nuclear Department Procedure OP-AD-001 quoted above, Mr. Calabrese did not keep the EO-100-112 flowchart present or refer to it continuously while it was being executed. Further, the Staff asserts, nothing provided by Mr. Calabrese adequately explains his clear failure to follow the required procedures. At the end of scenario two, when NRC examiner Caruso specifically questioned Mr. Calabrese regarding his use of EO-100-112, Mr. Calabrese acknowledged he did not take the procedure out and start marking it up until after he had given the order to terminate and prevent low pressure ECCS injection. The examiner also did not note, and Mr. Calabrese did not mention, any problem with locating the flowchart nor did the examinees recall any tailboard discussion at which issue of preventing low pressure injection was discussed. Yet, both Mr. Caruso and Ms. Taylor, the chief examiner, did note Mr. Robinson's observation that the "A" loop RHR pump has begun to inject water into the RPV before it was overridden. *See Staff Written Presentation, Staff Written Presentation Affidavit at 11-16.*

¹⁰ As it is more specifically described in the basis document, if injection is not prevented, as RPV pressure decreases to and below the shutoff head set points of the low pressure ECCS injection system pumps, those pumps may inject large quantities of cold, unborated water into the RPV that would quickly dilute in-core boron concentration and reduce core region water temperature. This, in turn, may result in the addition of positive reactivity sufficient to induce a reactor power excursion large enough to damage the core severely. *See Hearing File, item 19, at 5 of 15 (PP&L, Nuclear Department Procedure EO-100-112, Rapid Depressurization (rev. 6 May 16, 1994)).*

The other EO-100-113 avenue referred to by the Staff is under Step LQ/L-9 of that procedure. According to the Staff, this procedure, which Mr. Calabrese entered when he determined the reactor would not remain shutdown under all conditions without boron, directs the operator to Step LQ/L-19 if rapid depressurization is required. And, as was noted above, this step, which is the same one referred to in Step RD-5 of EO-100-112, directs the operator to prevent low pressure injection into the RPV before initiating rapid depressurization. The Staff, however, did not mention this alleged failure during its review process on the proposed denial of Mr. Calabrese's license application. *See id.* at 18.

In light of these alleged procedural missteps, the Staff does not agree with Mr. Calabrese's assertions that he deserved a higher grade under rating factor 4.B regarding use of procedures. A higher grade under this rating factor was inappropriate because the consequences of the error — severe core damage — rose above the level of what could reasonably be classified as "minor." The fact he performed well during most of the simulator exercise, the Staff asserts, is not sufficient to outweigh the safety-significant procedural error for which he was responsible in what was clearly the most critical portion of his operating test. His failure to comply with both EO-100-112 and EO-100-113 provides adequate justification for his low score on rating factor 4.B. *See id.* at 21-23.

Moreover, recognizing applicant Calabrese's assertions that proper grading of rating factor 4.B should take into account the fact he subsequently found and used the procedure to make timely corrections to prevent RPV injection, the Staff asserts that neither the examiner's notes nor their recollection of events support the notion Mr. Calabrese made any attempt to locate the procedure until Mr. Robinson prompted him concerning preventing injection after Mr. Robinson was given the order to open the ADS valves. Further, the Staff declares that the fact no reactor power or water level increases were detected does not negate Mr. Robinson's observation that the RHR injection valves opened and some injection occurred given such increases could have been masked by the increased reactor water level and might not have caused a measurable power increase. Because there is no way to anticipate or control the pressure rate decrease once the ADS valve is opened, the Staff maintains it is "imperative" the low pressure ECCS pumps be disabled by preventing their injection before rapid depressurization begins. *See id.* at 24-25.

Finally, according to the Staff, although the agency's simulator operating test grading procedure in ES-303 of NUREG-1021 is competency rather than task based, successful reactor depressurization without reactor fuel damage does not necessarily mean an applicant has mastered the eight SRO competencies. Testing necessarily uses scenarios containing a cross-section of events that the Staff evaluates to draw inferences regarding an applicant's ability and compliance with facility procedures and license conditions. The Staff concludes that because of the significance of Mr. Calabrese's errors, it is not confident of his ability

to comply with those procedures in other emergency situations. As a result, the Staff concludes that its denial of his license should be sustained. *See id.* at 25-26.

B. Parties' Responses to Presiding Officer's Questions

After reviewing the parties' written presentations, pursuant to 10 C.F.R. § 2.1233(a), the Presiding Officer posed a series of written questions to the Staff regarding, among other things, its information retention policies relative to the October 1996 operating test and the issues of whether (1) a tailboard discussion was held, and (2) low pressure injection took place.¹¹ Further, in connection with the tailboard and injection issues, the Staff was asked to explain the impact, if any, on Mr. Calabrese's score if it is assumed the matter at issue was found to be as Mr. Calabrese presented it. *See* Presiding Officer Questions at 2-7. The Staff's responses, and Mr. Calabrese replies to the Staff's responses, were as follows:

1. Tailboard Discussion

In response to a Presiding Officer question on whether Staff examiners listen in on tailboard discussions, the Staff states that they do. The Staff also declares that if such a discussion between Mr. Calabrese, Mr. Robinson, and Mr. Avery is assumed to have taken place as described in those individuals' affidavits, Staff knowledge of that discussion would not have affected Mr. Calabrese's score. His score on rating factor 4.B, the Staff asserts, was based on the Staff's analysis that his performance most closely matched the description of a grade "1" on the three-point rating scale in ES-303 in that the consequence of his error — possible severe core damage — rose above the level of what could reasonably be classified as "minor" under the higher grade "2." *See* Staff Questions Response, Staff Questions Response Affidavit at 6-7, 10-11.

Relative to rating factor 4.B, the Staff again maintains applicant Calabrese failed to comply with Step RD-5 of EO-100-112 and Step LQ/L-19 of EO-100-113. As another ground for asserting noncompliance with Step LQ/L-19, the Staff relies on Mr. Avery's failure in his affidavit to indicate Mr. Calabrese ever directed him to take action to prevent further injection from the condensate system or confirm that injection was prevented as that step requires. The Staff

¹¹The Presiding Officer also asked a question regarding Mr. Calabrese's purported difficulty locating the EO-100-112 procedure board. *See* Presiding Officer Questions at 2-3. It was in responding to the Staff's answer to this question Mr. Calabrese declared, based on the response in his own witness' affidavit, that he was abandoning the issue of the Staff's scoring of whether he properly "referred" to procedures under rating factor 4.A. *See supra* note 8.

also declares that even if Mr. Calabrese stated to Mr. Robinson it would be necessary to prevent low pressure injection during any discussion, Mr. Calabrese nonetheless failed to direct that action be performed in the proper sequence. Finally, the Staff declares that if it had taken issue with Mr. Calabrese's conduct of the tailboard discussion, this would have been reflected in connection with the scoring of Competency 6, "Communicate and Interact with the Crew and Other Personnel," or Competency 7, "Direct Shift Operations." In both, however, Mr. Calabrese had overall scores that were satisfactory. *See id.* at 12-13.

In response to the Staff's answer to this question, Mr. Calabrese declares the tailboard discussion was important to the scoring of his exam because it showed he was aware of the need to inhibit low pressure injection. It also is evidence that, contrary to the Staff's assertions during the informal review process, his order directing Mr. Robinson to inhibit low pressure injection was not the result of "prompting" by Mr. Robinson. Further, on the issue of the need to prevent condensate injection, Mr. Calabrese provides another affidavit from Mr. Avery, who explains that his silence on this point in his first affidavit was no indication that this subject was or was not discussed. Mr. Calabrese also declares in his own affidavit that there was no indication in the examiners' notes or in a followup question that there was a problem with condensate injection. Mr. Calabrese also provides an affidavit in which he asserts that no direction to Mr. Avery was required because he could have verified there was no risk of an uncontrolled condensate injection by looking at the control board. *See Calabrese Questions Response at 11-12.*

2. Injection

In discussing the Presiding Officer's question whether Mr. Calabrese's score would have been different if it is assumed that low pressure injection did not occur,¹² the Staff maintains that a significant fact has not been addressed by Mr. Calabrese: the effect of Mr. Robinson depressing the initiation buttons for the RHR systems. According to the Staff, pressing these buttons also sends a message to open the RHR RPV injection valves. Thereafter, injection can occur as soon as reactor pressure drops below the RHR pump shutoff head discharge pressure. Because there is no way to anticipate or control the rate of pressure decrease once the ADS valves were opened, it was imperative the low pressure ECCS pumps be disabled by initiating the systems and then preventing injection before rapid depressurization was begun. *See Staff Questions Response, Staff Questions Response Affidavit at 16-17.*

¹² In responding to that question, however, the Staff now states that it believes Mr. Robinson's suggestion that the change in RHR flow indication may have been a simulator response "has merit and is consistent with the [Staff] examiners' notes." *Staff Questions Response, Staff Questions Response Affidavit at 16.*

The Staff also addresses a related Presiding Officer inquiry regarding the applicability of a statement in ES-303, which concerns the Category B "Control Room Systems/Facility Walk-through" portion of the operating test part of the examination. This examiner standard declares that "[i]f the applicant missed a critical step but later performed it correctly and accomplished the task standard without degrading the condition of the system or the plant, the applicant's performance on that [job performance measure (JPM)] should be graded as satisfactory." NUREG-1021, ES-303, at 4 of 27. According to the Staff, this guidance applies to situations in which an applicant corrects an error that does not represent an unsafe practice, such as starting or stopping the wrong equipment component when the mistake has little consequence and is not an unsafe practice. In Mr. Calabrese's case, however, his error in not consulting and following the proper procedure represented an unsafe practice and thus could not have been graded as satisfactory. See Staff Questions Response, Staff Questions Response Affidavit at 17-18.

In responding to this Staff answer, applicant Calabrese points out that the Staff's position that the occurrence of injection is irrelevant to his score is inconsistent with its reliance throughout the Staff scoring and appeal process on the fact that injection did occur. In addition, its position that his error in failing to follow the appropriate procedure merits an unsatisfactory score, notwithstanding the fact that no injection took place, is inconsistent with longstanding Staff practice. See Calabrese Questions Response at 14-17. In support of this point, Mr. Calabrese relies upon the affidavit of Robert J. Pate, a former agency employee who for some six years in the late 1980s was involved with the agency's operator licensing program. In his affidavit, Mr. Pate declares:

I reviewed the failure of Mr. Calabrese to perform the lockout of the L.P. ECCS pumps in the proper sequence against the anchor statements of ES-303 Rating Factor 4.B. I concluded that the performance of Mr. Calabrese most closely matches the description of a grade of "2" on the 3-point rating scale. Although the term "minor error" does not fit well, it is a better description than a grade of "1" because the action was not a significant error that impeded or slowed recovery or significantly degraded the plant unnecessarily. There was minor degradation of the plant over a two minute period and there was no safety significance as long as the L.P. ECCS pumps were locked out in time to prevent injection.

Over the 21 years that I was employed by the NRC, an actual event was consistently considered much more safety significant than a potential event. In this case, if there was no injection, which from the record appears to be the most probable case, there is no potential damage to the core. If there was an injection, there was a potential for core damage. If the failure to follow procedures had resulted in an injection, I would agree with the Staff that there was a significant degradation and Mr. Calabrese's performance should be graded appropriately.

Id., Statement of Robert J. Pate (Aug. 14, 1997) at unnumbered pp. 4-5 [hereinafter Pate Statement].

Admitting he made a "procedural misstep" by not locating EO-100-112 and then transposing the procedure's steps relative to depressurization and inhibiting injection, Mr. Calabrese nonetheless declares that by continuing to look for the procedure, finding it, and properly using it, he took the immediate actions necessary to rectify his error in a timely manner that prevented significant plant degradation. Because there was no core injection and so no damage to the reactor fuel, he declares he demonstrated he understood the situation and possessed the requisite skill to prevent any negative consequences. As a consequence, he argues he should be given a grade of "2" on rating factor 4.B, which would result in his passing the examination. *See* Calabrese Questions Response at 17-18.

III. ANALYSIS

As the recitation above makes apparent, the dispute between Mr. Calabrese and the Staff over his application has come down to the question whether his score on rating factor 4.B under Competency 4, "Compliance With and Use of Procedures," was appropriate. Relative to this dispute, it is clear the parties are in agreement that Mr. Calabrese did not follow procedure EO-100-112 when he allowed the PCOX to initiate depressurization before inhibiting low pressure system injection. *See* Calabrese Written Presentation, Calabrese Statement at 8, 9; Calabrese Questions Response, Second Supplemental Statement of Frank J. Calabrese Jr. (Aug. 12, 1997) at 4. It is equally apparent, based on the affidavits and other information submitted by both parties, that the applicant and the Staff have various other disagreements about what transpired during event six of scenario two of the simulator test. Principal among these are whether applicant Calabrese and the other two candidates involved in the exam held a tailboard discussion and whether low pressure system injection occurred.

Because the credibility of various of the affiants appears to be at the center of these disputes, if it is necessary to resolve these discrepancies to decide the rating factor 4.B issue, the Presiding Officer would have to convene an oral presentation session to receive testimony. *See* 10 C.F.R. § 2.1235 This is not necessary, however, because the Presiding Officer has decided that, regardless of the outcome of these disputes, the existing record establishes the Staff's

determination to award the lowest score on rating factor 4.B was justified and should be sustained.¹³

As both parties have emphasized, in resolving this matter a focal point is NUREG-1021, Form ES-303-4, the worksheet used by the Staff for grading the competency of SRO candidates on the simulator portion of their test. Of course, the materials in documents bearing the NUREG designation, such as NUREG-1021, generally do not establish regulatory requirements. See, e.g., *General Public Utilities Nuclear Corp.* (Oyster Creek Nuclear Generating Station), LBP-97-1, 45 NRC 7, 25 (1997) (citing cases). NUREG-1021 itself echoes this theme, declaring the examiner standards it contains are intended to "provide policy and guidance to NRC examiners and establish the procedures and practices for examining licensees and applicants for [RO] and [SRO] licenses at power reactor facilities pursuant to [10 C.F.R. Part 55]." NUREG-1021, at iii.

The document, however, goes on to state it is intended to "assist NRC examiners and facility licensees to better understand the initial and requalification examination processes and to ensure the equitable and consistent administration of examinations to all applicants." *Id.* What this suggests is that, while heedful of the discretion afforded the Staff in making its examination determinations, a presiding officer properly can look to NUREG-1021 as an important source in assessing whether the Staff has strayed too far afield of the stated twin goals of "equitable and consistent" examination administration. Cf. *Ralph L. Tetric* (Denial of Application for Reactor Operator License), CLI-97-10, 46 NRC 26, 31-32 (1997) (because agency practice is one indicator of how agency interprets regulations, consistently held Staff view on operator testing policy matter will not be disturbed).

¹³The Presiding Officer's conclusion that he is able to reach a decision in this case based on the existing written record does not gainsay the fact, as the parties' written presentations and the Presiding Officer's followup written questions have revealed, see Presiding Officer Questions at 2, 5-6, that in several circumstances potentially relevant information was not available because the Staff did not retain certain examination-related materials.

For instance, one of the three Staff examiners who observed the simulator scenario in controversy destroyed his notes while this matter was still pending before the Staff. He did this, he asserts, because he was only responsible for testing one of the other applicants who passed the examination and was issued a license, so that his action was consistent with the policy guidance in NUREG-1021, ES-501, at 2 of 24, that states "[o]nce the licensing decisions are complete, the examiners should discard any marked up documentation or rough notes for those applicants receiving licenses" See Staff Questions Response, Response of Carl E. Sisco to Presiding Officer Question Dated July 23, 1997 (July 24, 1997) at 1. In another instance, which was noted by a three-member appeal panel acting as part of the Staff's informal review process, see Hearing File, item 12, attach. at 4-5, Staff examiners did not ask facility officials to retain simulator chart recordings concerning the scenario that could have established whether injection did or did not occur, notwithstanding guidance in NUREG-1021, ES-302, at 5 of 11, indicating that "[p]arameter readings should be collected at meaningful intervals . . . [and t]he chief examiner should retain the recordings as backup documentation to augment the notes taken by the examiners during the simulator test." See Staff Questions Response, Staff Questions Response Affidavit at 14-15.

Given the possible negative inference that can be applied to missing or destroyed evidence, see 2 James H. Wigmore, *Evidence* § 291 (3d ed. 1940), additional Staff review of these policies and their application in the context of simulator tests involving multiple applicants seems warranted.

With the above in mind, the Presiding Officer turns to Form ES-303-4, which relative to rating factor 4.B provides:

4. COMPLIANCE WITH AND USE OF PROCEDURES

DID THE APPLICANT:

- (b) USE PROCEDURES CORRECTLY, including following procedural steps in correct sequence, abiding by procedural cautions and limitations, selecting correct paths on decisions blocks, and correctly transitioning between procedures?

3	2	1
Accurately and promptly executed procedural steps	Minor errors, but made necessary corrections in a timely fashion	Significant errors impeded or slowed recovery or degraded plant unnecessarily

NUREG-1021, ES-303, at 23 of 27 (Form ES-303-4, at 4). Because the award of an integral rating value of "2" would give Mr. Calabrese a passing score on the SRO examination, the parties' dispute comes down to the question whether the "behavioral anchor" under that value or integral rating value "1" more accurately reflects Mr. Calabrese's performance.

As they are set forth above, neither rating value appears to be a perfect fit as a measure of Mr. Calabrese's performance. As the Staff argues, the error Mr. Calabrese admits he made — not following a clear procedure when failure to do so could have resulted in serious damage to the fuel in the reactor core — can hardly be described as "minor" under rating value "2." When Mr. Calabrese ordered depressurization before inhibiting low pressure system injection in violation of a specific facility procedure, as well as NRC and facility requirements that this procedure (and others) must be followed,¹⁴ the Staff is correct in its assertion he placed the facility at significant risk. On the other hand, assuming (as Mr. Calabrese has argued) that his mistake did not cause injection to occur or result in fuel damage, the degree to which Mr. Calabrese's error "impeded or slowed recovery or degraded [the] plant unnecessarily" under rating value "1" is problematic if that rating value is intended to reflect only "actual" plant impedance or degradation.

The Presiding Officer concludes that, even accepting Mr. Calabrese's assertions about the tailboard discussion and the lack of injection, the Staff's judgment applying rating value "1" was correct. By any objective measure, event

¹⁴ In this regard, PP&L procedures also state that "[i]f an existing procedure addresses the evolution to be performed and the current circumstances, the procedure shall be used." Hearing File, item 16, at 31 of 75 (¶ 6.18.3.a).

six of scenario two was intended to test the ability of each applicant, and in particular the SRO candidate, to deal with a significant emergency situation.¹⁵ This portion of the scenario, albeit brief, provided a vital opportunity for the Staff to judge how the candidates reacted when faced with a high-stress situation requiring the exercise of critical decisionmaking skills to reach a safe shutdown of the facility. When faced with this situation, notwithstanding explicit agency and facility requirements that emergency operating procedures be referred to and followed, responding from memory based on an apparently mistaken belief about the time sensitivity of his actions,¹⁶ Mr. Calabrese failed to follow crucial procedure EO-100-112 and thereby unnecessarily put the facility at substantial risk.¹⁷ Not surprisingly, the Staff responded with a score in the lowest range under the rating factor intended to measure such procedure-related activities.

Mr. Calabrese's attempt to downplay the significance of his error by emphasizing his overall performance is not convincing. While the several minutes in which the scenario event at issue occurred were proportionately a small part of the entire operating test, they loomed large in terms of the operator skills and abilities that the examination was designed to test. Given the "snapshot" nature of the operating test process, the quality of Mr. Calabrese's critical decision-making during this crucial interval, no matter how brief in relation to the rest of his test, was an appropriate yardstick for taking the measure of his performance.

At the same time, even accepting Mr. Calabrese's contention that his admitted error did not result in injection or actually impede recovery or degrade the facility, the Presiding Officer finds equally unpersuasive his argument, which Mr. Pate's affidavit emphasizes, that there is a distinction between "actual" and "potential" events in terms of safety significance that was not reflected in the

¹⁵ The Staff observes in its response to the Presiding Officer's July 23 questions that event six was added to scenario two with the intent of creating a more severe event. This was done at the behest of Staff operator license examiner Tracy, who was chief examiner for Mr. Calabrese's October 1996 examination. She apparently took this step as a corollary to a April 1996 Staff inspection report in which she criticized the SSES facility's simulator examinations for not having a control rod insert failure that would mandate operator actions beyond those generally being required under the ATWS scenarios being used for SSES operator licensing applicants. See Staff Questions Response, Staff Questions Response Affidavit at 9.

¹⁶ In his initial written presentation, Mr. Calabrese declared that the reason he did not continue to hunt for the board containing procedure EO-100-112 was his desire to minimize public radiation exposure. See Calabrese Written Presentation, Calabrese Statement at 7. In its August 4, 1997 response to the Presiding Officer's questions, the Staff asserts, without being contradicted by Mr. Calabrese in his August 18 reply, that delaying depressurization by another minute to find the board would not have made a significant difference in radiation levels because the maximum safe levels in two areas already had been exceeded. See Staff Questions Response, Staff Questions Response Affidavit at 4, see also Calabrese Questions Response, Pate Statement at unnumbered p. 2 (Mr. Calabrese should have known terminating releases does not demand action in terms of minutes or priority attention over proper execution of emergency procedures).

¹⁷ As was described earlier, the Staff also asserts Mr. Calabrese violated procedure EO-100-113 by his actions. See *supra* pp. 81, 82-83. Its reliance on those purported missteps for the first time before the Presiding Officer raises the troubling question of the extent to which, in defending its actions before a presiding officer, the Staff for the first time may rely on grounds that it arguably could have asserted, but did not, as a basis for its own decision to deny an operator license application. Given Mr. Calabrese's clear admission that he did not follow EO-100-112, the Presiding Officer need not reach this issue, however.

Staff's decision to give Mr. Calabrese the lowest score on rating factor 4.B. Mr. Pate may well be correct there is such a difference in terms of the Staff's assessment of "actual" events that take place at a functioning facility. Here, however, what the Staff is assessing is whether it should permit an applicant like Mr. Calabrese to be placed in the position of responsibility at such a facility as a senior reactor operator when his action (or inaction) can be the cause of such an "actual" event. In the context of this testing process, the distinction between "potential" and "actual" events is one that has significantly less resonance, particularly when, as with event six, the consequences ultimately can result in serious core damage.

Under these circumstances, the Staff's decision to assign the lowest rating factor was an entirely reasonable exercise of its decisionmaking authority in such examination scoring matters, and, in any event, not arbitrary or an abuse of the discretion afforded it in such matters. The Presiding Officer thus concludes the Staff acted appropriately in proposing to deny Mr. Calabrese's senior operator license application and, affirming that decision, concludes his application must be denied.

IV. CONCLUSION

When viewed against the backdrop of the extensive SRO testing regime, Mr. Calabrese's decision to proceed to depressurization without first obtaining and reviewing procedure EO-100-112 may, at first blush, seem a rather harmless deviation, particularly if one assumes (as the Presiding Officer has done for the purposes of deciding this case) that no direct harm could be attributed to the facility as a result of his admitted misstep. Nonetheless, as both the agency's and the licensee's requirements make clear, in undertaking the crucial responsibility of operating, and directing others in the operation of, a nuclear power reactor, individuals like Mr. Calabrese are expected to follow the procedures that have been established to ensure the safe operation of the facility. Based on Mr. Calabrese's failure to follow a crucial procedure during his simulator test, the Staff acted properly in assigning him an integral rating value of "1" on rating factor B of competency category four, "Compliance With and Use of Procedures."

With this score as an appropriate measure of his performance in that competency category, Mr. Calabrese's grade on the operating portion of the SRO examination falls below the level needed to pass. Accordingly, his application for an SRO license must be denied.

For the foregoing reasons, it is this 26th day of September 1997, ORDERED that:

1. The Staff's proposed denial of the September 30, 1996 application of Frank J. Calabrese Jr., for an SRO license is *affirmed* and his SRO license application is *denied*.

2. Pursuant to 10 C.F.R. § 2.1251(a), this initial decision shall constitute final action of the Commission 30 days from the date on which it is issued, or on *Monday, October 27, 1997*, unless a party petitions for Commission review in accordance with sections 2.786 and 2.1253, or the Commission directs otherwise.

3. In accordance with 10 C.F.R. §§ 2.786, 2.1253, within 15 days after service of this initial decision, or on or before *Thursday, October 16, 1997*, any party may file a petition for review with the Commission on the grounds specified in section 2.786(b)(4). The filing of a petition for review is mandatory in order for a party to have exhausted its administrative remedies before seeking judicial review. Within 10 days after service of a petition for review, any party to the proceeding may file an answer supporting or opposing Commission review. The petition for review and any answers shall conform to the requirements of section 2.786(b)(2)-(3).

G. Paul Bollwerk, III
ADMINISTRATIVE JUDGE

Rockville, Maryland
September 26, 1997

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR REACTOR REGULATION

Samuel J. Collins, Director

In the Matter of

Docket No. 50-213

CONNECTICUT YANKEE ATOMIC
POWER COMPANY
(Haddam Neck Plant)

September 3, 1997

By letter dated March 11, 1997, Ms. Rosemary Bassilakis submitted a petition on behalf of the Citizens Awareness Network and the Nuclear Information and Resource Service (Petitioners) pursuant to 10 C.F.R. § 2.206, requesting that the NRC (1) issue a large civil penalty against the Connecticut Yankee Atomic Power Company (CY) to ensure its compliance with safety-based radiological control routines; (2) modify CY's license for the Haddam Neck facility to prohibit any decommissioning activity at the facility until a 6-month period passes without any contamination events occurring; and (3) place the Haddam Neck facility on the NRC Watch List.

In a Director's Decision dated September 3, 1997, the Director of Nuclear Reactor Regulation respectively deferred and denied Petitioners' requests. The Director concluded that it would be premature at this time to rule on Petitioners' first request, as the NRC is currently considering enforcement action with regard to failed radiation program controls at the Haddam Neck facility. Petitioners' second request was denied on the basis of past environmental and exposure reports, as well as the presence of an onsite NRC Senior Resident Inspector and certain measures memorialized in a Confirmatory Action Letter. Similarly, the Director denied Petitioners' third request, due both to the Haddam Neck facility being permanently shut down as well as other actions taken in response to identified deficiencies at the facility.

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

I. INTRODUCTION

On March 11, 1997, Ms. Rosemary Basilakis submitted a petition pursuant to Title 10 of the *Code of Federal Regulations* section 2.206 (10 C.F.R. § 2.206) on behalf of the Citizens Awareness Network and the Nuclear Information and Resource Service (Petitioners) requesting that the NRC (1) commence enforcement action against the Connecticut Yankee Atomic Power Company (CY) by means of a large civil penalty to ensure compliance with safety-based radiological control routines; (2) modify CY's license for the Haddam Neck Plant, pursuant to 10 C.F.R. 2.202, to prohibit any decommissioning activity, which would include decontamination or dismantling, until CY manages to conduct routine maintenance at the facility without any contamination events occurring for at least 6 months; and (3) place the Haddam Neck Plant on the NRC Watch List.

In support of their requests, the Petitioners claimed that of particular concern was Northeast Utilities' inability to maintain proper radiological controls at the Connecticut Yankee (Haddam Neck) nuclear reactor. The Petitioners quoted an NRC press release describing continuing problems at the Haddam Neck facility, and stated that in their view the facility's management was making empty verbal assurances to the NRC that contamination problems were being properly controlled. The Petitioners also alleged that the NRC Confirmatory Action Letter (CAL) of March 4, 1997, discussing radiological controls at the Haddam Neck Plant, is clearly insufficient.

II. BACKGROUND

The NRC Staff shares the Petitioners' concerns regarding the failures of the Haddam Neck radiological controls program and has detailed these concerns in Inspection Reports 50-213/96-12 (Dec. 19, 1996) and 50-213/97-02 (Mar. 21, 1997), and in the aforementioned CAL (discussed in more detail below). In summary, these failures resulted in the unplanned exposure of two individuals, longstanding discrepancies in the calibration of several radiation monitors that are used to monitor and control radiological effluent releases, and the inadequate control of radioactive material that resulted in the undetected release of contaminated equipment to a nonlicensed vendor.

In response, the NRC has taken comprehensive and significant actions to resolve its concerns in the area of radiological controls, including the aforementioned CAL, a required Licensee response to the findings in Inspection Reports

96-12 and 97-02, a management meeting with the former CY management held at the NRC Region I office, and a second management meeting with the new CY management held on May 28, 1997, in the NRC Region I offices on these same issues. This second management meeting gave NRC regional and headquarters staff an opportunity to meet the new Haddam Neck management and confirm their commitment to resolve the above problems. The meetings were open to public observation. As indicated by the CAL, another meeting between the Region I Administrator and CY management will be held before any NRC determination that the issues noted in the CAL have been resolved. Meanwhile, under the CAL, the Licensee has agreed not to perform any radiological work except that required to maintain the plant in a safe configuration.

The CAL identifies four significant activities to which the Licensee has committed to bring its management and implementation of radiation control programs up to a standard acceptable to the NRC, as follows:

- (1) Identify, in writing, specific compensatory measures that CY will put in place to ensure sufficient management control and oversight of ongoing or planned activities that require radiological controls.
- (2) Hire an independent assessor to assess the quality and performance of the CY radiological control programs and their implementation.
- (3) By May 30, 1997, on the basis of the results of the independent assessment, (a) identify problems, determine root causes, and develop broad-based and specific corrective actions; (b) identify performance measures that may be used to determine the effectiveness of radiological control programs; and (c) submit a plan and schedule to the Regional Administrator, NRC Region I, for implementing improvements in the radiological control programs.
- (4) Before eliminating any interim compensatory measures (as committed to in the response to Item 1, above), meet with the Region I Administrator to describe program implementation and performance improvements achieved or planned.

With regard to CAL Item 1, above, the Licensee has identified and implemented compensatory measures (a) by limiting work in radiologically controlled areas to only work that is considered necessary, (b) requiring specific radiation work permits (RWPs) for more limited ranges of radiological work, and (c) placing additional controls on work requiring a specific RWP. CY also hired an independent assessor, Millennium Services Incorporated, to perform the required assessments, therefore completing CAL Item 2. The Licensee has most recently submitted a response in accordance with CAL Item 3, regarding improvements to its radiation protection program.

The primary objective of the Licensee's Radiation Protection Improvement Plan is to institute near- and long-term permanent improvements to the site Radiation Protection Program by establishing processes to:

- identify problems, root causes, improvement items/initiatives and associated corrective actions using site programs and processes;
- establish responsibility for corrective action implementation;
- prioritize and implement corrective actions using a logic scheme based on potential risk and/or critical facility decommissioning milestones (e.g., reactor coolant system decontamination, major component removal);
- track, trend, and report corrective action implementation using site programs and processes;
- verify corrective action adequacy and completeness in addressing the initial improvement initiative through monitoring and feedback;
- verify that completion of one or more identified corrective actions resolves the identified root cause; and
- document problem resolution, from identification through corrective action closure, using site programs and process.

The Licensee has scheduled completion of its plan to occur by the end of 1997.

A meeting with the Regional Administrator (CAL Item 4) is expected to occur before the end of 1997.

III. DISCUSSION OF PETITIONERS' REQUESTS

The first request was for a large civil penalty to ensure compliance with safety-based radiological control routines.

The NRC is currently considering enforcement action in regard to failed radiation program controls at the Haddam Neck Plant. Therefore, this request is deferred pending a decision on NRC action in this area.¹ After the NRC resolves these issues, the Petitioners will be informed through a future Director's Decision.

The Petitioners also requested that the NRC impose a 6-month moratorium on any decommissioning activities at Haddam Neck until the Licensee demonstrates its competence in avoiding contamination events while conducting necessary maintenance. This request is denied for the following reasons. Although contamination events may occur in the future, there is no reason to believe, based on previous semiannual environmental reports and annual exposure reports of plant workers, that 10 C.F.R. Part 20 dose limits will be exceeded at the Haddam Neck Plant. Additionally, an NRC Senior Resident Inspector is currently on site

¹ In a letter dated May 12, 1997, the NRC proposed a \$650,000 civil penalty against CY (EA-96-001 et al.) for violations found during inspections conducted between November 21, 1995, and November 22, 1996; the Licensee paid the civil penalty on June 11, 1997. Although the violations on which this civil penalty were based do not involve radiological controls, the May 12 action clearly demonstrates the NRC's resolve to impose significant civil penalties on a licensee when appropriate.

to monitor and inspect the Licensee's day-to-day performance. Furthermore, the CAL addresses the radiation protection program at Haddam Neck by focusing on the needed improvements in the Licensee's radiation control program and by ensuring NRC approval before any of the interim measures in Item 1 of the CAL are withdrawn.

The Petitioner's third request was that the NRC place Haddam Neck on the NRC Watch List. As a general policy, an operating plant is placed on the Watch List when a licensee's performance warrants NRC monitoring beyond that normally required by the NRC inspection program. In this case, the Haddam Neck Plant is permanently shut down and will not be returning to operation. Additionally, the NRC's inspection program has led to several actions being taken to respond to the deficiencies identified at Haddam Neck. As described above, these actions include the CAL, meetings with Licensee management to emphasize NRC expectations, a requirement to improve the radiation protection program, and retention of an onsite senior inspector to monitor Licensee performance. The NRC believes that, under these circumstances, the actions taken adequately protect public health and safety and that the current inspection program can appropriately monitor Licensee performance. Therefore, this request is denied.

IV. DECISION

For the reasons stated above, the petition is deferred in part and denied in part. The Decision and the documents cited in the Decision are available for public inspection and copying in the Commission's Public Document Room, the Gelman Building, 2210 L Street NW, Washington, DC.

In accordance with 10 C.F.R. § 2.206(c), a copy of the Decision will be filed with the Secretary of the Commission for the Commission's review. As provided by this regulation, the Decision will constitute the final action of the Commission 25 days after issuance, unless the Commission, on its own motion, institutes a review of the Decision within that time.

FOR THE NUCLEAR
REGULATORY COMMISSION

Samuel J. Collins, Director
Office of Nuclear Reactor
Regulation

Dated at Rockville, Maryland,
this 3d day of September 1997.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR REACTOR REGULATION

Samuel J. Collins, Director

In the Matter of

Docket Nos. 50-250

50-251

50-335

50-389

FLORIDA POWER & LIGHT
COMPANY(St. Lucie Nuclear Power Plant,
Units 1 and 2; Turkey Point Nuclear
Generating Plant, Units 3 and 4)

September 8, 1997

The Director of the Office of Nuclear Reactor Regulation has granted in part and denied in part a petition filed by Thomas J. Saporito, Jr., on behalf of himself and the National Litigation Consultants. The Petitioners requested that the NRC take certain actions with regard to Florida Power & Light Company (FPL), including taking escalated enforcement action against FPL and certain of its employees, granting the Petitioners an interview, and taking various other actions. As grounds for their request, the Petitioners asserted that the NRC's failure to take enforcement action against FPL on the basis of a Secretary of Labor's finding that FPL violated the Energy Reorganization Act (ERA) when it retaliated against Mr. Saporito for raising nuclear safety concerns has resulted in a "chilling effect" and continued discrimination against other FPL employees, that FPL and its managers are liable for creating a hostile work environment at FPL's Turkey Point facility and have failed to stop harassment of and discrimination against Mr. Saporito, and that the record in this case shows the direct participation of Mr. Saporito's "chain of command" in the retaliation against Mr. Saporito. With regard to the Petitioners' request for an interview, this has been granted; in all other respects the petition is denied.

ENERGY REORGANIZATION ACT: PROTECTED ACTIVITY

An employee may not be discriminated against by an employer for coming directly to the NRC with safety concerns. Nonetheless, an employee may also be required by the employer to bring these same concerns to the employee's management. Whether an employee must bring issues to licensee management is dependent on the facts of each specific case.

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

I. INTRODUCTION

By petition dated April 23, 1997 (as supplemented May 11 and May 17, 1997), pursuant to section 2.206 of Title 10 of the *Code of Federal Regulations* (10 C.F.R. § 2.206), Thomas J. Saporito, Jr., on behalf of himself and the National Litigation Consultants (Petitioners), requested that the Nuclear Regulatory Commission (Commission or NRC) take action with regard to operations at the Florida Power & Light Company's (FPL's or Licensee's) Turkey Point Station, Units 3 and 4, and St. Lucie Plant, Units 1 and 2. Specifically, the Petitioners requested that the Commission: (1) take enforcement action to modify, suspend, or revoke FPL's operating licenses for these facilities until FPL can sufficiently demonstrate that employees at FPL nuclear facilities are exposed to a work environment that encourages employees to freely raise safety concerns directly to the NRC without being required to first identify their safety concerns to the Licensee; (2) take escalated enforcement action in accordance with 10 C.F.R. § 2.202, because of discriminatory practices of the Licensee in violation of 10 C.F.R. § 50.7 and/or other NRC regulations, and that the enforcement action be retroactive to the initial occurrence of the violation by the Licensee; (3) conduct a public hearing through the Atomic Safety and Licensing Board and permit Petitioners leave to intervene to perfect an evidentiary record in consideration of whether the Licensee has violated NRC requirements and/or regulations; (4) require the Licensee to post a written notice alongside each NRC Form 3 currently posted at the Licensee's nuclear facilities that alerts employees that they can directly contact the NRC about nuclear safety concerns without first identifying the safety concerns to the Licensee; (5) require the Licensee to provide a copy of the posted communication to all employees and ensure that all employees are made aware of those communications through the Licensee's General Employee Training Program; and (6) require the Licensee to provide the NRC with written documents authored by Licensee officers under affirmation that the requirements described in items 4 and 5 have been fully complied with.

In the supplement of May 11, 1997, the Petitioners requested the imposition of a civil penalty in the amount of \$100,000 against each of three former FPL managers and that the NRC refer the matter of the conduct of these managers to the U.S. Department of Justice (DOJ) for consideration of invoking criminal proceedings.

In the supplement of May 17, 1997, the Petitioners requested imposition of a civil penalty in the amount of \$100,000 against each of six FPL employees and restriction of the licensed activities of these employees and revocation of their unescorted access to nuclear facilities; the imposition of a civil penalty in the amount of \$100,000 against the International Brotherhood of Electrical Workers (IBEW), and that the IBEW be required to inform its members in writing that they have the right to report safety concerns directly to the NRC without fear of retribution and that the IBEW encourages and supports such action at the discretion of its members; and the imposition of a civil penalty in the amount of \$100,000 against two named individuals characterized in the petition as Licensee agents or representatives of the Licensee. The Petitioners also requested investigations of "willful falsification" of a company business record and the cause of "transcripts found missing" in a Department of Labor (DOL) proceeding, and the referral of the matter of the conduct of the individuals and "entities" to the DOJ so that it can consider invoking criminal proceedings. Finally, it was requested that the NRC conduct an interview with the Petitioners regarding the substance of their section 2.206 petition.

By letter dated June 14, 1997, I informed the Petitioners that, pursuant to section 2.206 of the Commission's regulations, the petition, as supplemented, had been referred to me and that action on their requests would be taken in a reasonable amount of time. I further informed the Petitioners that, with regard to their request for a meeting with the NRC Staff, they could call to arrange a suitable day and time for such a meeting.

On May 27, 1997, FPL responded to the petition. In its response, the Licensee maintained that it was strongly committed to maintaining a work environment in which employees are free to raise nuclear safety concerns directly to the NRC and that the petition lacked any factual basis and should be denied.

In response to the Petitioners' request for an "interview" regarding their petition, the NRC Staff held a public meeting with Mr. Saporito on July 14, 1997. During the meeting, Mr. Saporito elaborated upon the bases for the petition and stated his concerns about reporting nuclear safety issues at the St. Lucie plant should the DOL Administrative Law Judge (ALJ) order his reinstatement

as an employee of FPL.¹ During the meeting, Mr. Saporito also raised what he asserted were certain improprieties that occurred during the DOL hearing and specifically requested that the NRC investigate an additional concern that the Licensee or its attorneys may have "whited out" a page of a document he had requested during the DOL proceeding. Mr. Saporito stated that he was adding this request to the petition.

On August 13, 1997, FPL submitted an additional response to the petition. In this response, FPL stated that it was responding in opposition to the supplemental petitions filed by the Petitioners dated May 11 and May 17, 1997, and to assertions made by Mr. Saporito during the July 14, 1997 public meeting.

II. BACKGROUND

As a basis for the requests described above, the Petitioners asserted in their Petition of April 23, 1997, that the NRC's failure to take enforcement action against the Licensee on the basis of the Secretary of Labor's finding that FPL violated the Energy Reorganization Act (ERA) when it discharged an employee (i.e., Mr. Saporito) for raising safety concerns has resulted in a "chilling effect" at FPL and continued discrimination against employees by FPL in violation of section 50.7.² In addition, in the Petitioners' Supplement of May 11, 1997, to their petition, they asserted that Mr. Saporito's "Damages Brief" in the DOL proceeding mentioned above established that the Licensee and its managers are liable for creating a hostile work environment at Turkey Point and have failed to

¹ In response to this concern, the Staff referred Mr. Saporito to 10 C.F.R. § 50.7 and various NRC policy statements and other documents that describe the protection to individuals who raise nuclear safety concerns to the NRC or to their employers, and offered to provide Mr. Saporito copies of relevant documents. The Staff provided Mr. Saporito these documents by letter dated July 28, 1997.

² This proceeding, DOL Case 89-ERA-7 and 89-ERA-17 (hereafter 89-ERA-7/17), involved two complaints by Mr. Saporito in which he alleged, respectively, that he was disciplined and harassed in retaliation for engaging in protected activity and that he was discharged for engaging in protected activity. On June 30, 1989, a DOL ALJ issued a Recommended Decision and Order Denying Complaint, which dismissed both cases. Among other things, the ALJ found that FPL had legitimately terminated Mr. Saporito for acts of insubordination, which included Mr. Saporito's refusal to reveal safety concerns to the Licensee and his insistence that he raise them to the NRC instead. In a Decision and Remand Order issued June 3, 1994, the Secretary held that an employee who refuses to reveal his safety concerns to management and asserts his right to bypass the "chain of command" to speak directly with the NRC is engaging in protected activity and remanded the case to the ALJ to review the record in light of this decision and submit a new recommendation to the Secretary as to whether FPL would have discharged Mr. Saporito for unprotected aspects of his conduct. By letter to the Secretary of Labor from then NRC Chairman Ivan Selin, the NRC expressed concern about the Secretary's broad statement, noting that licensees, not the NRC, are in the best position to deal effectively with safety concerns. In a subsequent order issued February 16, 1995, denying reconsideration of his June 3 decision, the Secretary clarified his June 3 decision by stating that it would not be accurate to interpret the decision as providing an employee an "absolute right" to refuse to report safety concerns to the plant operator. Rather, the Secretary stated that the right of an employee to protection for bringing information directly to the NRC and his duty to inform management of safety concerns are independent and do not conflict but that the employer's motivation should be reviewed on a case-by-case basis, pursuant to a "dual-motive" analysis, to ensure that the employer would have taken the same action regardless of whether an employee insisted on his right to speak first to the NRC. The Secretary specifically noted that his June 3 Order had not decided the ultimate question regarding the appropriate outcome of the dual-motive analysis to the facts of this case.

stop harassment and discrimination against Mr. Saporito. The Petitioners further stated that the record in this case contains evidence showing direct participation of Mr. Saporito's "chain of command" in the retaliatory actions taken against Mr. Saporito.

In their Supplement of May 17, 1997, to the petition, the Petitioners asserted that certain pleadings and transcripts in this DOL proceeding set out a chronology of events surrounding missing record transcripts and the falsification of a Licensee company business record and establish that Licensee employees and union members played a role in discriminating against Mr. Saporito. The Petitioners further stated that additional evidence exists that necessitated a meeting between the NRC and the Petitioners.

III. DISCUSSION

Because of the numerous requests and interrelated nature of the issues raised and the bases provided by the Petitioners, the requests in the petition and supplements previously described have been considered together and are categorized as follows: (1) NRC should take escalated enforcement action against the Licensee and certain individuals employed by the Licensee and refer this matter to the DOJ; (2) NRC should take escalated enforcement and other action against the IBEW; (3) NRC should initiate investigations into matters regarding the DOL proceeding, including willful falsification of a company business record, willful falsification of the DOL transcript, and alleged "whiting out" of a page of a document by the Licensee's attorneys; and (4) miscellaneous requests.

1. Petitioners' Request for Enforcement Action Against the Licensee and Certain Employees of the Licensee

As previously stated, the Petitioners request that the NRC take enforcement action to modify, suspend, or revoke FPL's operating licenses until FPL can sufficiently demonstrate that employees at FPL's nuclear facilities are "exposed to a work environment" that encourages these employees to freely raise safety concerns directly to the NRC without being required to first identify their safety concerns to the Licensee. In addition, the Petitioners request that the NRC take escalated enforcement action against the Licensee because of the Licensee's discriminatory practices in violation of section 50.7 and that this enforcement action be retroactive to the initial occurrence of the violation by the Licensee.

As a basis for this request, the Petitioners assert that the Secretary of Labor found in 89-ERA-7/17 that FPL violated the ERA when it discharged Mr. Saporito but that the NRC failed to take any enforcement action against the

Licensee for this violation, and thus as a direct result of the NRC's failure to take such action, a "chilling effect" was instilled at the Licensee's facilities that continues to dissuade employees from raising safety concerns. The Petitioners cite numerous cases in support of their assertion that the Licensee has continued to discriminate against employees who engage in protected activity.

This request is similar to a request made by Mr. Saporito in an earlier petition, which was addressed in a Director's Decision issued on May 11, 1995 (DD-95-7, 41 NRC 339). As previously described herein, and as explained in DD-95-7, contrary to the Petitioners' assertion, the Secretary of Labor has not yet made a finding on the merits in 89-ERA-7/17 as to whether the Licensee violated the ERA in discharging Mr. Saporito. Rather, in an order issued on June 3, 1994, the Secretary directed the ALJ to submit a new recommendation on whether FPL would have discharged Mr. Saporito absent his engaging in protected activities. Therefore, the Order of June 3, 1994, does not constitute a final decision by the Secretary of Labor, and because there is no DOL finding of discrimination, there is no basis to justify enforcement action by the NRC at this time.³ As further explained in that Director's Decision, the NRC will monitor the DOL proceeding and determine on the basis of further DOL findings and rulings whether enforcement action against the Licensee is warranted.

With regard to the Petitioners' assertion that the NRC's failure to take enforcement action has resulted in a "chilling effect" at the Licensee's facilities, the Petitioners have offered no evidence to substantiate this claim. Over the past 2 years (July 1995-June 1997), eighty-nine allegations from FPL employees or contractors have been submitted to the NRC, of which six have been allegations related to discrimination. Of these allegations, the Staff was unable to evaluate two allegations because the alleged would not reveal his or her identity. With regard to the remaining allegations, in two cases, discrimination was not substantiated. The remaining two allegations are still being evaluated. Should these allegations be substantiated, the NRC will determine at that time whether enforcement action against the Licensee is warranted. Nonetheless, even if these allegations are substantiated, there is presently no indication that there has been a "chilling effect" at the Licensee's facilities. The NRC Staff has conducted inspections of FPL's Nuclear Safety Speakout Program (Employees Concerns Program) and has examined the safety-conscious work environment at FPL's nuclear facilities. The results of the last two inspections, conducted in April-May 1996 and June 1997,⁴ indicate that the Speakout Program has been effective in handling and resolving individuals' concerns. The Speakout

³ As of this date, the ALJ has not issued a new Recommended Decision.

⁴ NRC Inspection Reports 50-250/96-05, 50-251/96-05, 50-335/96-07, and 50-389/96-07, dated May 31, 1996, and 50-335/97-08 and 50-389/97-08, dated July 16, 1997.

Program has been readily accessible, and employees are familiar with the various avenues available by which to express their concerns.

The Petitioners have relied upon 89-ERA-7/17 and eight additional cases to demonstrate both widespread discrimination by FPL against its employees and a lack of NRC enforcement action to deal with this alleged discrimination.⁵ With regard to 89-ERA-7/17, as previously stated, no final determination that discrimination occurred has yet been made by DOL. A close examination of the remaining cases does not support Petitioners' assertion that the NRC's "lax attitude" caused a pattern and practice of discrimination at FPL's nuclear facilities. All of the cases cited by the Petitioners, except for two cases (*Pillow v. Bechtel*, 87-ERA-35, and *Diaz-Robainas v. FPL*, 92-ERA-10), were either settled, voluntarily dismissed at the request of the complainant, or otherwise dismissed by DOL before a final determination was made by the Secretary of Labor. Two of the cases relied upon by the Petitioners did not involve FPL, but other companies (and one of these cases did not involve matters under NRC

⁵The other eight cases and their disposition are as follows:

(1) *Pillow v. Bechtel*, 87-ERA-35: The Secretary found that discrimination by Bechtel had occurred and ordered compensation for damages. The NRC issued Notices of Violation on February 11, 1994, to FPL and Bechtel, for violations that occurred in 1987 and that were based on both 87-ERA-35 and 87-ERA-44 (EA 93-199 and EA 93-200).

(2) *Diaz-Robainas v. FPL*, 92-ERA-10: Although the Secretary of Labor found that discrimination occurred, he remanded the case to the ALJ for a determination of the appropriate remedy, so that the Secretary's decision was not a final decision by DOL. The case settled before the ALJ issued his decision. The NRC issued a Notice of Violation and Proposed Civil Penalty of \$100,000 against FPL for the violation, which occurred in 1992 (EA 96-051). The Licensee paid the civil penalty on December 3, 1996.

(3) *Phipps v. FPL*, 95-ERA-53: The DOL Wage and Hour Assistant Area Director concluded that Mr. Phipps' engaging in protected activities was a factor in FPL's decision to prohibit him from working during plant outages. FPL appealed the decision, and a hearing was scheduled before a DOL ALJ. Before the hearing, the parties entered into a settlement agreement. A final DOL Order, dated February 21, 1996, dismissed the case with prejudice on the basis of a voluntary stipulation by the parties. There was no finding for discrimination by DOL.

(4) *Dysert v. FPL*, 92-ERA-26: The DOL Wage and Hour Area Director determined that there was no discrimination. The complainant appealed, but then requested that the case be dismissed prior to a determination by an ALJ as to whether discrimination occurred. A final order affirming the dismissal of the complaint was issued by the Secretary on June 28, 1993.

(5) *Kleiman v. FPL*, 91-ERA-50: The DOL Wage and Hour Area Director determined that there was no discrimination. The complainant appealed, but then requested that the case be dismissed prior to a determination by an ALJ as to whether discrimination occurred. A final order affirming the dismissal of the complaint was issued by the Secretary on February 21, 1992.

(6) *Young v. FPL*, 93-ERA-30: The DOL Wage and Hour Area Director determined that there was no discrimination. The complainant appealed, but then requested that the case be dismissed prior to a determination by an ALJ as to whether discrimination occurred. A final order affirming the dismissal of the complaint was issued by the Secretary on July 13, 1995.

(7) *Fry v. Atlantic Construction Fabrics, Inc.*, 96-STA-7: This case did not involve FPL or any NRC licensee, did not involve the raising of nuclear safety concerns or any other matters under NRC jurisdiction, and did not arise under the Energy Reorganization Act, but under the Surface Transportation Act.

(8) *Collins v. FPL*, 91-ERA-47 (actually *Collins v. FPC*): The Secretary of Labor issued an order on May 15, 1995, finding that no discrimination occurred. In addition, the respondent in this case was actually Florida Power Corporation, not FPL.

jurisdiction). With regard to *Pillow*, the discrimination that was the subject of this case occurred before the case involving Mr. Saporito. Therefore, such discrimination is neither indicative of FPL's current performance nor could it have resulted from the lack of NRC's enforcement action in the present case.⁶ The only additional cases cited by the Petitioners in which any finding was made by DOL that discrimination occurred were *Phipps v. FPL*, 95-ERA-53, and *Diaz-Robainas*. In *Phipps*, the DOL Wage and Hour Assistant Area Director concluded that Mr. Phipps' engaging in protected activities was a factor in FPL's decision to prohibit him from working during plant outages. FPL appealed the decision; however, the case was dismissed on the basis of a voluntary stipulation by the parties prior to a hearing before an ALJ. The NRC Office of Investigations investigated this case and did not substantiate that discrimination had occurred. In the *Diaz-Robainas* case, the Secretary of Labor did determine that discrimination had occurred. This one example, however, for which the NRC took appropriate enforcement action,⁷ does not support the Petitioners' assertion that the NRC has a "lax attitude" which has caused a pattern or practice of discrimination at FPL's facilities.

For all of these reasons, the Petitioners have not set forth a sufficient basis that would warrant that the NRC take escalated enforcement action against the Licensee at this time. Therefore, this request by the Petitioners is denied.

The Petitioners also request that the NRC impose a civil penalty in the amount of \$100,000 against each of three former FPL managers; a civil penalty in the amount of \$100,000 against six current FPL employees and restriction of the licensed activities of these employees and revocation of their unescorted access to nuclear facilities; and a civil penalty in the amount of \$100,000 against two named individuals characterized in the petition as Licensee "agents" or "representatives." As a basis for this request, the Petitioners allege that these individuals were involved in the discrimination against Mr. Saporito, which is the subject of DOL Case 89-ERA-7/17. Because a final determination has not been made by DOL or NRC that discrimination occurred against Mr. Saporito, the requested enforcement action against these individuals is not warranted at this time.

In addition, the Petitioners request that the NRC refer the matter of the conduct of various FPL managers and other individuals and "entities" (i.e., the Licensee and the IBEW) to the DOJ so that it can consider invoking criminal

⁶ In addition, the NRC has taken enforcement action in the *Pillow* case. See note 5.

⁷ As noted in note 5, the NRC issued a Notice of Violation and Proposed Civil Penalty of \$100,000 to FPL for this violation.

proceedings against these persons and entities.⁸ As discussed in this section, DOL has not made a final determination in this case as to whether discrimination occurred. Therefore, the Petitioners' request is denied pending a final decision by DOL as to whether discrimination occurred in DOL Case 89-ERA-7/17. The NRC will monitor the DOL proceeding on remand to the ALJ and determine on the basis of further DOL findings and rulings in this case whether a violation of NRC requirements has occurred, whether enforcement action against the Licensee or its employees is warranted, and whether this matter warrants referral to the DOJ.

2. *Petitioners' Request for Action Against the IBEW*

The Petitioners request that the NRC impose a civil penalty in the amount of \$100,000 against the IBEW and that the IBEW be required to inform its members in writing that they have the right to report safety concerns directly to the NRC without fear of retribution and that the IBEW encourages and supports such action at the discretion of its members.

The Petitioners request that the NRC take such action because they allege that IBEW officials conspired with FPL management to have Mr. Saporito's site access revoked at Turkey Point Station. The basis for this request was clarified at the meeting between Mr. Saporito and the NRC Staff on July 14, 1997. During that meeting, Mr. Saporito stated that two Licensee officials testified during the DOL hearing that a comment was made by union officials to Licensee management that Mr. Saporito could potentially sabotage the plant, and that, as a result of that comment, his access to the site was revoked.

The testimony of these Licensee officials is a part of the record that is currently before the DOL ALJ. As previously stated, the NRC will monitor the DOL proceeding on remand to the ALJ and determine on the basis of further DOL findings and rulings in this case whether any violation of NRC requirements has occurred that would warrant enforcement action by the NRC. For this reason, this request by the Petitioners is denied.

3. *Petitioners' Request for Initiation of NRC Investigations*

The Petitioners request that the NRC investigate the "willful falsification" of a company business record and the cause of "transcripts found missing" in the

⁸ The Petitioners assert as a basis for their request that enforcement action be taken against Licensee employees and union officials that certain pleadings they have filed in the DOL case, as well as transcript records, provide evidence of retaliation by these individuals. It should be noted that the pleadings and transcripts in a DOL proceeding are not, by themselves, conclusive that discrimination occurred.

DOL proceeding.⁹ During the meeting held with the NRC on July 14, 1997, Mr. Saporito also raised what he asserted were certain improprieties that occurred during the DOL hearing and specifically requested that the NRC investigate an additional concern that the Licensee or its attorneys may have "whited out" a page of a document he had requested during the DOL proceeding. Mr. Saporito stated that he was adding this request to his petition.

This matter relates solely to the conduct of a DOL proceeding. The NRC Staff has, therefore, referred these issues to DOL. The Petitioners' request that the NRC investigate these matters is denied.

4. Other Petition Issues

The Petitioners request that the NRC require the Licensee to post a written notice alongside each NRC Form 3 currently posted at the Licensee's nuclear facilities that alerts employees that they can directly contact the NRC about nuclear safety concerns without first identifying the safety concerns to the Licensee. In addition, the Petitioners request that the NRC require the Licensee to provide a copy of this posted communication to all employees and ensure that all employees are made aware of those communications through the Licensee's General Employee Training Program. Finally, the Petitioners request that the NRC require the Licensee to provide the Commission with documents authored by an officer of the Licensee under affirmation affirming that the Licensee has complied with these requests.

This request is similar to a request made by Mr. Saporito in a petition filed on March 8, 1995, and responded to in a Director's Decision issued on May 25, 1995 (DD-95-8, 41 NRC 346 (1995)). In that petition, Mr. Saporito requested that each Licensee be required to report to the Commission under oath or affirmation that it had completed a review of its station operating procedures to determine whether those procedures included restrictions that would prevent an employee from bringing safety concerns directly to the NRC and that it had communicated to its employees that they were free to bring concerns directly to the NRC without following the normal chain of command. As explained in that Director's Decision, the Secretary of Labor did not hold in his Decision of June 3, 1994, that employees have an "absolute right" to refuse to inform licensee management of public health and safety concerns and to bypass the licensee's

⁹ Mr. Saporito elaborated on these alleged falsifications at the meeting held on July 14, 1997. Specifically, Mr. Saporito asserted, with regard to the missing transcript pages, that 20 pages containing testimony by the Licensee's vice president were missing from the initial copy of the transcript that he was provided (although the record was eventually amended to contain these pages). With regard to the falsification of a business record, he asserted that minutes of a meeting held between him and Licensee officials did not accurately reflect the real reason that his site access was being revoked; that is, that union officials had told Licensee management officials that he might sabotage the plant.

management in order to bring safety concerns directly to the NRC. Although an employee may not be discriminated against by the employer for coming directly to the NRC with safety concerns, an employee may also be required by the employer to bring these same concerns to the employee's management. Whether an employee must bring issues to licensee management is dependent on the facts of each specific case.

As further explained in DD-95-8, the NRC requires in 10 C.F.R. § 19.11(c) that all licensees and applicants for a specific license post NRC Form 3, "Notice to Employees," which describes employee rights and protections. In addition, section 50.7 and associated regulations were amended in 1990 to prohibit agreements and/or conditions of employment that would restrict, prohibit, or otherwise discourage employees from engaging in protected activity. Finally, in November 1996, the NRC issued a brochure, "Reporting Safety Concerns to the NRC" (NUREG/BR-0240), which provided information to nuclear workers on how to report safety concerns to the NRC, the degree of protection that was afforded the worker's identity, and the NRC process for handling a worker's allegations of discrimination. These measures are sufficient to (1) alert employees in the nuclear industry that they may take their concerns to the NRC and (2) alert licensees that they shall not take adverse action against an employee who exercises the right to take concerns directly to the NRC.

The NRC Staff believes that these existing requirements for posting and making other information available to workers are adequate. The Petitioners have not provided a sufficient basis for requiring their suggested additional measures. Therefore, Petitioners' requests related to a supplemental posting are denied.

As previously stated, a public meeting was held with Mr. Saporito enabling him to fully present information regarding the issues raised in the petition. In addition, the NRC will monitor the DOL proceeding referenced in the petition to determine whether there has been a violation of NRC regulations. In view of these facts, there is no basis to hold any hearing at this time. Therefore, the Petitioners' requests related to a public hearing are denied.

III. CONCLUSION

For the reasons discussed above, no basis exists for taking the enforcement actions requested in the petition and its supplements. Nonetheless, as previously described, on July 14, 1997, a public meeting was held between Mr. Saporito and representatives of the NRC Staff, the purpose of which was to provide Mr. Saporito with the opportunity to provide additional information regarding the substance of this petition. Therefore, to the extent that the Petitioners have requested that the NRC conduct an interview with the Petitioners regarding the

substance of their section 2.206 petition, the petition has been granted. With regard to all other aspects of the petition, the petition has been denied.

A copy of this Decision will be filed with the Secretary of the Commission for the Commission to review in accordance with 10 C.F.R. § 2.206(c). As provided by that regulation, the Decision will constitute the final action of the Commission 25 days after issuance, unless the Commission, on its own motion, institutes a review of the Decision within that time.

FOR THE NUCLEAR
REGULATORY COMMISSION

Samuel J. Collins, Director
Office of Nuclear Reactor
Regulation

Dated at Rockville, Maryland,
this 8th day of September 1997.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR REACTOR REGULATION

Samuel J. Collins, Director

In the Matter of

Docket Nos. 50-245
50-336
50-423
50-213
(License Nos. DPR-21
DPR-65
NPF-49
DPR-61)NORTHEAST UTILITIES
(Millstone Nuclear Power Station,
Units 1, 2, and 3;
Haddam Neck Plant)

September 12, 1997

The Director, Office of Nuclear Reactor Regulation, issues a Partial Director's Decision, responding to a variety of requests made in a petition filed by the Citizens Awareness Network (CAN) and the Nuclear Information and Resource Service (NIBS), hereinafter referred to as Petitioners. Petitioners' requests were directed at Northeast Utilities (NU) and specifically its operation of its nuclear facilities in Connecticut. Petitioners' requests for relief included immediate suspension or revocation of NU's licenses, continued shutdown of NU facilities, continued listing of NU facilities on the NRC's Watch List, limitations on precommissioning or decommissioning of any NU facility, and investigations by the NRC into asserted wrongdoing on the part of NU.

The Director deferred Petitioners' requests concerning asserted NU wrongdoing until NRC Staff consideration of this issue is complete. A Final Director's Decision will then be issued. With regard to Petitioners' remaining requests, those requests were granted or denied in whole or in part as set forth in the Partial Director's Decision.

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

I. INTRODUCTION

On November 25, 1996, as amended on December 23, 1996, Ms. Deborah Katz and Mr. Paul Gunter filed a petition on behalf of the Citizens Awareness Network (CAN) and the Nuclear Information and Resource Service (NIRS), hereafter referred to as Petitioners. These two submittals will hereafter be referred to as the petition. The petition was filed with the U.S. Nuclear Regulatory Commission (NRC) and the NRC Executive Director for Operations pursuant to section 2.206 of Title 10 of the *Code of Federal Regulations* (10 C.F.R. § 2.206).

The Petitioners requested that the NRC take the following actions: (1) immediate suspension or revocation of Northeast Utilities' (NU's or Licensee's) licenses to operate its nuclear facilities in Connecticut; (2) investigation of possible NU material misrepresentations to the NRC; (3) continued shutdown of the NU facilities until the Department of Justice completes its investigation and the results are reviewed by the NRC; (4) continued shutdown until the NRC evaluates and approves NU remedial actions; (5) continued listing of the NU facilities on the NRC's Watch List should any facility resume operation; (6) prohibition of any predecommissioning or decommissioning activity at any NU nuclear facility in Connecticut until NU and the NRC take certain identified steps to ensure that such activities can be safely conducted; (7) initiation of an investigation into how the NRC allowed the asserted illegal situation at NU's nuclear facilities in Connecticut to exist and continue for more than a decade; and (8) an immediate investigation of the need for enforcement action for alleged violation of 10 C.F.R. Part 50, Appendix B.¹

The bases for the Petitioners' assertions are NU and NRC inspection findings and NU documents referred to in the petition and a VHS videotape, Exhibit A, which accompanied the petition. No new information regarding Licensee activities was provided by the Petitioners except for the alleged violation referred to in Request 8. The Petitioners assert, in Request 8, that NU relied partly on draft calculations in its presentation at a public predecisional enforcement conference with the NRC Staff, which included a discussion of an event at the Haddam Neck Plant. The Petitioners further assert that the calculations had not

¹ Petitioners requested copies of the Licensee's calculations performed in response to the event at the Haddam Neck Plant that resulted in the introduction of a nitrogen bubble into the reactor vessel. The calculations requested were discussed during a predecisional enforcement conference held on December 4, 1996. The calculations were provided to the Petitioners on July 21, 1997.

been reviewed and approved in accordance with the requirements of Part 50, Appendix B.

The areas of concern identified in the petition include inadequate surveillance testing, operation outside the design as specified in the updated Final Safety Analysis Report (UFSAR), inadequate radiological controls, failed corrective action processes, and the degraded material condition of the plants. The Petitioners also assert that this information demonstrates that there are inadequate quality assurance programs at NU's nuclear facilities in Connecticut, that NU has made material false statements regarding its Millstone units, and that safe decommissioning of the Haddam Neck Plant is not possible given the defective nature of the design and licensing bases for the facility. The videotape records an August 29, 1996 Citizens Regulatory Commission televised interview of a former Millstone Station employee expressing his views on NU management. The tape has been transcribed and placed on the dockets of the facilities cited. The videotape interview included the former employee's views relating to NU's poor management in allowing degradation of the material condition of the plant; poor radwaste practices resulting in potential radiation exposure to employees; and harassment, intimidation, and subsequent illegal termination of employees raising safety concerns.

On January 23, 1997, the NRC acknowledged receipt of the petition and informed the Petitioners that the petition had been assigned to the Office of Nuclear Reactor Regulation to prepare a response and that action would be taken within a reasonable time regarding the specific concerns raised in the petition. The Petitioners were also informed that the requests for immediate action were denied. The Petitioners were further informed that copies of the petition and videotape were sent to the NRC's Office of the Inspector General (OIG) in response to Petitioners' Request 7 and parts of Requests 5, 6, and 8.

II. DISCUSSION

The NRC Staff has reviewed the petition and, with the exception of Request 8, has not identified any new information regarding either the Millstone or the Haddam Neck facilities. Both of the facilities have been the subject of close NRC scrutiny for several years.

A. Millstone Facility

With regard to the Millstone units, the NRC Staff has been concerned for the last several years about the number and duration of violations at the Millstone site in the broad programmatic areas of design and licensing bases, testing, and radiological controls. Programmatic concerns in these areas, along with

concerns in other areas, were major contributors to the decline in performance at the Millstone site. In the most recent systematic assessment of licensee performance (SALP) report of August 26, 1994, the NRC Staff stated in the cover letter that it had noted several performance weaknesses, common to all three Millstone units. Among these were continuing problems with procedure quality and implementation, the informality in several maintenance and engineering programs (contributing to instances of poor performance), and the failure to resolve several longstanding problems at the site. In addition to these programmatic problems, the Licensee has had significant problems in dealing with employee concerns involving safety issues at the site.

On November 4, 1995, the Licensee shut down Millstone Unit 1 for a scheduled refueling outage. The NRC sent a letter to the Licensee on December 13, 1995, requiring the Licensee, before restarting Millstone Unit 1, to inform the NRC, pursuant to section 182a of the Atomic Energy Act of 1954, as amended (the Act), and 10 C.F.R. § 50.54(f), of the actions taken to ensure that in the future the Licensee would operate that facility according to the terms and conditions of the unit's operating license, the Commission's regulations, and the unit's FSAR.

In January 1996, the NRC designated the three Millstone units as Category 2 on the NRC's Watch List. Plants on the Watch List in this category have weaknesses that warrant increased NRC attention until the licensees demonstrate improved performance for an extended period of time.

On February 20, 1996, the Licensee shut down Millstone Unit 2 when it declared both trains of the high-pressure safety injection (HPSI) system inoperable because of a design issue. There was a potential that the HPSI throttle valves could become plugged with debris when taking suction from the sump during recirculation mode.

On March 30, 1996, the Licensee shut down Millstone Unit 3 after finding that containment isolation valves for the auxiliary feedwater turbine-driven pump were inoperable because the valves did not meet NRC requirements. In response to a Licensee root-cause analysis of inaccuracies in the Millstone Unit 1 FSAR, identifying the potential for similar configuration control problems at Millstone Units 2 and 3 and the existing design configuration issues identified at these units, the NRC issued section 50.54(f) letters to the Licensee on March 7 and April 4, 1996. These letters required that the Licensee inform the NRC of the corrective actions taken regarding design configuration issues at Millstone Units 2 and 3 before the restart of each unit.

In June 1996, the NRC designated the three units at Millstone as Category 3 on the NRC's Watch List. Plants in this category have significant weaknesses that warrant maintaining them in a shutdown condition until the Licensee can demonstrate to the NRC that it has both established and implemented adequate

corrective actions to ensure substantial improvement. This category also requires Commission approval before operations can be resumed.

On August 14, 1996, the NRC issued a Confirmatory Order directing the Licensee to contract with a third party to implement an Independent Corrective Action Verification Program (ICAVP) to confirm the adequacy of its efforts to reestablish the design basis and configuration controls for each of the three Millstone units. The ICAVP is intended to provide additional assurance, before a unit restart, that the Licensee has identified and corrected existing problems in the design and configuration control processes for that unit.

On April 16, 1997, the NRC issued another section 50.54(f) letter, which superseded the previously mentioned section 50.54(f) letters and consolidated its requests for information and periodic updates. The information requested included: (1) the identification of significant items needed to be accomplished before restart; (2) identification of items to be deferred until after restart; (3) NU's process and rationale for deferring items; and (4) a description of the actions taken by NU to ensure that future operation will be conducted in accordance with the terms and conditions of the operating licenses, the Commission's regulations, and the FSARs. The Licensee provided the initial information requested by letter dated May 29, 1997. Additional information and updates will be provided in accordance with the time intervals specified in the section 50.54(f) letter.

During eight NRC inspections conducted between October 1995 and August 1996, more than sixty apparent violations of NRC requirements were identified at the Millstone site. These apparent violations were discussed at a public predecisional enforcement conference held at the Millstone site on December 5, 1996. During the meeting, the Licensee stated that management failed to provide clear direction and oversight, performance standards were low, management expectations were weak, and station priorities were inappropriate. The NRC Staff is nearing completion of its evaluation of potential enforcement action to address these apparent violations and their overall impact on the safe operation of the Millstone units.

Additionally, the Licensee has had a chronic problem of not dealing effectively with employee concerns at the Millstone site. On December 12, 1995, the NRC established a review group to conduct an independent evaluation of the history of the Licensee's handling of employee concerns related to licensed activities at the Millstone facility. The review group determined that, in general, an unhealthy work environment, which did not tolerate dissenting views and did not welcome or promote questioning attitudes, has existed at the Millstone facility for the last several years. To address this problem, the NRC issued an order on October 24, 1996, that directed NU to devise and implement a comprehensive plan for handling safety concerns raised by Millstone employees and to ensure an environment free from retaliation or discrimination. In addition,

the order required NU to have an independent third party oversee its employee concerns program. The third party is responsible for providing periodic reports to NU and the NRC detailing its findings and recommendations. The third-party findings and the NU responses to them will be assessed by the NRC Staff for any restart issues.

The NRC regards compliance with regulations, license conditions, and Technical Specifications (TSs) as mandatory. However, the NRC also recognizes that plants will not operate trouble-free.² This is clearly articulated in Criterion XVI, Appendix B, Part 50, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants." Criterion XVI states that "[m]easures shall be established to ensure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected."

The appropriate response to an identified deficiency can and should vary, depending on the safety significance of the deficiency. For example, for rapidly developing situations, when prompt action is required to ensure that plants are not in an unsafe condition, automatic safety systems are in place to shut down the reactor. In other, less time-critical situations, TSs relating to structures, systems, and components (SSCs) vital to the safe operation of a nuclear plant require that specific actions be taken within a predetermined time period when the SSC is determined to be inoperable. The time period is dependent on the safety significance of the SSC. NRC Generic Letter 91-18, "Information to Licensees Regarding Two NRC Inspection Manual Sections on Resolution of Degraded and Nonconforming Conditions and on Operability," provides guidance for licensees to determine what actions are required and when they need to be taken for identified degraded or nonconforming conditions.

The conduct of NRC regulatory oversight at the Millstone site is based on the recognition that it is the Licensee's primary responsibility to demonstrate that corrective actions have been effectively implemented. Thus, the Licensee must determine that a unit is in conformance with applicable NRC regulations, its license conditions, and its FSAR and that applicable licensing commitments have

²The NRC's approach to protecting public health and safety includes the philosophy of defense-in-depth, which supports the identification and correction of degraded or nonconforming conditions discussed above. Briefly stated, this philosophy (1) requires the application of conservative codes and standards, to establish substantial safety margins in the design of nuclear plants; (2) requires high quality in the design, construction, and operation of nuclear plants to reduce the likelihood of malfunctions, and promotes the use of automatic safety system actuation features; (3) recognizes that equipment can fail and operators can make mistakes and therefore requires redundancy in safety systems and components to reduce the chances that malfunctions or mistakes will lead to accidents that release fission products from the fuel; and (4) recognizes that, in spite of these precautions, serious fuel-damage accidents can happen and therefore requires containment structures and safety features to prevent the release of fission products. In the unlikely event of an offsite fission-product release, emergency plans are in place to provide reasonable assurance that protective actions can and will be taken to protect the population around nuclear power plants. These emergency plans are coordinated with local and state officials and the Federal Emergency Management Agency.

been met before the NRC Staff can recommend that the Commission approve the restart of any unit. The Licensee's conformance with NRC regulations, license conditions, and licensing commitments is fundamental to NRC's confidence in the safety of licensed activities. In short, the Licensee has the primary responsibility for the safe operation of its facilities.

In a June 20, 1996 letter to the NRC, the Licensee described its Configuration Management Plan (CMP), which is its principal program to provide reasonable assurance that weaknesses at the Millstone units have been effectively corrected. The CMP includes efforts to understand and correct the licensing and design-bases issues that led the NRC to issue the section 50.54(f) letters and order actions to prevent recurrence of those issues. The Licensee stated that the objective of the CMP was to document and meet the licensing and design-bases requirements of each unit and to ensure that adequate programs and processes are in place to maintain control of these requirements.

The Licensee's CMP must either correct each FSAR deficiency or evaluate it to ensure that the change to the facility does not involve any unreviewed safety question or change to the facility TSs. NU has documented a large number of deficiencies, which vary in scope and safety significance for each unit. These lists contain significant deficiencies that must be corrected before restart and others that the Licensee is planning to correct after the restart. In its continuing reviews of the deficiency lists, the NRC Staff will determine whether the Licensee has appropriately scheduled safety-significant items for completion before restart and whether those items that the Licensee will defer until after restart are appropriate for each unit. The results of these efforts will be documented in NRC inspection reports.

The NRC's regulatory oversight of the Licensee's corrective actions requires extensive planning and program integration. To focus more regulatory attention on all of the restart issues related to the Millstone units, the NRC has established a Special Projects Office (SPO) within the Office of Nuclear Reactor Regulation to oversee these activities. The SPO has developed a comprehensive and multifaceted oversight program to verify the adequacy of NU's corrective actions, programs, and processes. The breadth and significance of the problems identified at the Millstone site require this program. The SPO has developed a Restart Assessment Plan (Assessment Plan) for each of the Millstone units, which includes: (1) the appropriate aspects of NRC Inspection Manual, Manual Chapter (MC) 0350, "Staff Guidelines for Restart Approval"; (2) oversight of NU's ICAVP; and (3) oversight of NU's corrective actions relating to employee concerns involving safety issues. The activities associated with the Assessment Plan are in addition to the normal inspection and licensing activities being carried out at the Millstone site.

MC 0350 establishes the guidelines for approving the restart of a nuclear power plant after a shutdown resulting from a significant event, a complex

hardware problem, or serious management deficiencies. The primary objective of the guidelines in MC 0350 is to ensure that NRC's restart review efforts are appropriate for the individual circumstances, are reviewed and approved by the appropriate NRC management levels, and provide objective measures of restart readiness.

The Assessment Plan for each unit includes those issues listed in MC 0350 that the NRC Staff has identified as relevant to the shutdown of the unit. Each Assessment Plan also includes additional issues determined to be applicable to the specific situation. The Assessment Plans include all actions the NRC expects NU to take before the NRC Staff recommends to the Commission that a unit be permitted to restart. Accordingly, the Staff will use the Assessment Plan for each Millstone unit to track and monitor all significant actions necessary to support a decision on restart approval of the unit.

The Assessment Plan for each Millstone unit includes the requirement to review the NU Operational Readiness Plan, the deficiency lists associated with the Assessment Plan, including restart and deferred items, the corrective action program, work planning and controls, the procedure upgrade program, the nuclear oversight function (quality assurance), outstanding enforcement items, and a Significant Issues List (SIL), which includes issues identified by both NU and the NRC as issues requiring resolution before restart. NRC MC 93802, "Operational Safety Team Inspection" (OSTI), provides the framework for a team inspection to be performed during the later stages of the restart process. The inspection will be structured to focus on the pertinent issues at each of the Millstone units.

Within the SPO, a Millstone Restart Assessment Panel (RAP) has been formed in accordance with MC 0350. The RAP meets to assess the Licensee's performance and its progress in completing the designated restart activities. The RAP is composed of the Director, SPO (chairman); the Deputy Directors of Licensing, Inspections, and Independent Corrective Action Verification Program Oversight; the Project Managers for the three Millstone units; the Inspection Branch Chief; the Senior Resident Inspectors for the three Millstone units; and the appointed Division of Reactor Safety representative. The RAP holds periodic meetings with the Licensee to discuss the Licensee's corrective actions and schedules of each Millstone unit. These meetings are noticed and are open to the public. An additional meeting with the public is usually held that same day in the evening to summarize the meeting with the Licensee, provide an update on NRC activities, and address comments from the public.

The purpose of the ICAVP, as stated in the Confirmatory Order, is to confirm that the plant's physical and functional characteristics are in conformance with its licensing and design bases. The ICAVP audit required by the NRC is expected to provide independent verification, beyond NU's quality assurance and management oversight, that the Licensee has identified and satisfactorily resolved

existing nonconformances with the design and licensing bases; documented and utilized the licensing and design bases to resolve nonconformances; and established programs, processes, and procedures for effective configuration management in the future. NU has started programs to identify and understand the root causes of the licensing and design-bases issues that led to NRC issuance of the section 50.54(f) letters to NU and to implement corrective actions that will ensure that NU maintains the design configuration and that each unit is in conformance with its licensing basis. NU has indicated that the scope of its corrective programs will include those systems that it has categorized as either Group 1 (safety-related *and* risk-significant) or Group 2 (safety-related *or* risk-significant). The ICAVP audit must provide insights into the effectiveness of NU's programs so that the results can be reasonably extrapolated to the structures, systems, and components that were not reviewed in the audit.

As a practical matter, the NRC cannot do a 100% verification of the Licensee's corrective actions, processes, and programs for each Millstone unit. However, a comprehensive and multifaceted oversight process has been developed by the NRC Staff to provide a high level of confidence that the Licensee has implemented required corrective actions and that all of the issues on the SILs have been resolved. The independent third-party evaluations required by the NRC will be used to enhance NRC confidence that the Licensee's corrective action programs have been effectively implemented at each unit.

NRC activities (including oversight of the ICAVP) to ensure that effective corrective actions are being taken by the Licensee will provide additional assurance that the Licensee's corrective action programs have been effectively implemented. These activities will include in-process reviews of the ICAVP contractor's activities, reviews of the ICAVP results, and additional independent reviews of compliance with the design and licensing bases of selected systems. The State of Connecticut's Nuclear Energy Advisory Council has provided input to the NRC Staff for selecting the systems that will be reviewed by the ICAVP contractor and has been invited to observe the NRC Staff's ICAVP inspections.

When the restart review process has identified, corrected, and reviewed relevant issues regarding each Millstone unit, a restart authorization process will be initiated for that unit. Upon receipt of a Staff recommendation and a briefing on any ongoing investigations, the Commission will meet to assess the recommendation and vote on whether to allow the restart of the unit. The same process will be followed for the remaining units.

B. Haddam Neck Facility

With regard to the Haddam Neck Plant, the Licensee shut down the plant on July 22, 1996, as required by the facility's TSs, because of concerns that the containment air recirculation fans service-water piping may exceed design

loads during certain accident scenarios. The Licensee determined that these concerns and other hardware and programmatic problems identified before and during the forced outage should be resolved before restarting the plant. Thus, the Licensee decided to begin Refueling Outage 19 on August 17, 1996. On October 9, 1996, the owners of the Haddam Neck Plant stated that a permanent shutdown of the plant was being considered by the Board of Trustees based on an economic analysis of operations, expenses, and the cost of replacement power. Subsequently, all fuel assemblies were removed from the reactor and placed in the spent fuel pool.

From November 21, 1995, to November 22, 1996, the NRC conducted numerous inspections at the Haddam Neck Plant to review several facets of plant performance. These inspections included a Special Team inspection by NRC headquarters staff focused on engineering performance, a special Augmented Inspection Team (AIT) inspection of a reactor vessel nitrogen intrusion event in late August and early September 1996 that lowered the reactor vessel water level, a special radiation protection inspection of a significant contamination event in November 1996, an emergency preparedness inspection to observe the Licensee's response during an emergency exercise held in August 1996, and several resident inspections. Numerous violations, as well as several significant regulatory concerns, were identified during these inspections. Most of the violations were discussed at a transcribed public predecisional enforcement conference at the Millstone training building in Waterford, Connecticut, on December 4, 1996. The December 4 conference was open to the public and focused on the broader programmatic deficiencies underlying the violations that contributed to the problems at Haddam Neck. A Notice of Violation and Proposed Imposition of Civil Penalties in the amount of \$650,000 was issued on May 12, 1997, and subsequently paid by the Licensee.

The restart process described for the three Millstone units is not applicable to the Haddam Neck Plant. By letter dated December 5, 1996, the Licensee certified to the NRC, pursuant to 10 C.F.R. § 50.82(a)(1)(i) and (ii), that it had decided to permanently cease operations at the Haddam Neck Plant and had permanently removed the fuel from the reactor. The Licensee further noted that a Post-Shutdown Decommissioning Activities Report (PSDAR) and a site-specific decommissioning cost estimate would be submitted in accordance with 10 C.F.R. § 50.82, "Termination of License."

It is important to note that the NRC continues to identify problems at both the Millstone site and the Haddam Neck Plant, as documented in inspection reports issued after this petition was filed. These findings indicate that the corrective actions required to restart the Millstone units have not yet been fully implemented. The NRC Staff will not recommend that the Commission allow the restart of a Millstone unit until the Commission has determined, in

accordance with the Assessment Plan, that the necessary corrective actions have been effectively implemented for the unit.

As for Haddam Neck, a Confirmatory Action Letter (CAL) was issued to the Licensee on March 4, 1997, concerning radiological-control problems at the Haddam Neck Plant. This CAL is an example of the type of action that the NRC takes to ensure that the limited activities at the site will be conducted in a safe manner and in accordance with regulatory requirements. The CAL prohibits the Licensee from performing any radiological work except that required to maintain the plant in a safe configuration until the corrective actions identified in the CAL have been implemented.

III. NRC RESPONSE TO REQUESTED ACTIONS

In summary, the Licensee's implementation of its Configuration Management Plan (CMP) for each Millstone unit, response to the elements in the NRC Staff's Restart Assessment Plan (Assessment Plan) for each Millstone unit, implementation of actions to improve programs to address employee concerns at the Millstone site, and the implementation of the decommissioning process specified in section 50.82 for the Haddam Neck Plant, as discussed above, are the bases for the NRC Staff's responses discussed in this Partial Director's Decision to the specific actions that the Petitioners requested be taken against NU. The Petitioners' requested actions and the NRC Staff's responses are discussed below.³

1. Petitioners request that the NRC immediately suspend or revoke NU's license to operate Connecticut Yankee (Haddam Neck) and the Millstone Nuclear reactors due to chronic, negligent management of the reactors which, for over a decade, has endangered and continues to endanger occupational and public health and safety and the environment due to resultant and cumulative major safety problems and violation of NRC regulations.

The Petitioners base their request to suspend or revoke the operating licenses of Haddam Neck and the three Millstone units on NU reports and NRC inspection findings referred to in the petition and on a videotape in which a former Millstone Station employee expresses his views on NU management and plant conditions. As previously noted, based on the NRC Staff review of these materials, the Petitioners have identified no new information.

With regard to the Millstone units, the units are currently in an extended shutdown and significant management changes at NU have been made in the

³In this Partial Director's Decision, Petitioners' requests have been identified as Requests 1 through 8. These requests correspond to Requests A.1 through A.5, B, and C in the initial petition, and Request II.A in the amendment to the petition.

past year. The NRC's focus is on evaluating improved performance, hardware and programmatic upgrades, and corrective actions. Specifically, NRC review and inspection emphasis will be directed toward the results of NU's actions to correct identified weaknesses in areas such as design controls, radiological controls, quality assurance, work control practices, corrective action processes, and the handling of employee concerns.

The previous discussion provides an overview of the Assessment Plans that the SPO has developed for assessing the adequacy of NU's corrective actions being taken prior to Commission approval of restart for any of the Millstone units. The NRC Staff will have to reach a determination that the corrective actions taken by NU provide reasonable assurance that future operation will be conducted in accordance with the terms and conditions of the operating license, the Commission's regulations, and the design basis, as documented in the FSAR, of each unit before recommending that the Commission approve the restart of any one of the units. Upon receipt of an NRC Staff recommendation and a briefing on ongoing investigations, the Commission will hold a meeting to assess the recommendation and then vote on whether to approve the restart of each unit.

The restart process discussed for the Millstone units does not apply to Haddam Neck. The Licensee has certified to the NRC that operations at the facility have permanently ceased and that fuel has been permanently removed from the reactor.

The Petitioners' request to take immediate action was denied in the letter of January 23, 1997, which acknowledged receipt of the petition. The request to suspend or revoke the licenses for the three Millstone units is denied based on the NRC Staff's conclusion that such action is not warranted by the facts. Programmatic and review efforts are in place. If these efforts are successful, the NRC would allow the Millstone units to resume operation. The request to suspend or revoke the license to operate the Haddam Neck Plant is moot since the Licensee has certified to the NRC that the plant has permanently ceased operation and the fuel has been permanently removed from the reactor.

2. The Petitioners request that the NRC investigate the possibility that NU made material misrepresentations to the NRC concerning engineering calculations and other information or actions relied upon to ensure the adequacy of safety systems at the Haddam Neck and Millstone reactors. The Petitioners said NU made possible material misstatements either through lack of rigor and thoroughness or by providing intentionally misleading information.

The NRC has ongoing investigations related to alleged wrongdoing by NU personnel. The investigative results will be reviewed for possible enforcement action. Depending on the results of the ongoing evaluations of inspections and investigations, both NU as an organization and NU employees found to have engaged in deliberate misconduct will be subject to appropriate enforcement action.

Consistent with the General Statement of Policy and Procedures for NRC Enforcement Actions (NUREG-1600), some enforcement action is normally taken against a licensee for violations caused by significant acts of wrongdoing by its employees. Such action could include a civil penalty or an order. In deciding whether to also take action directly against the responsible employees, the NRC considers a number of factors such as the employee's level in the organization, the employee's training and experience, the degree of supervision, the employee's attitude, and the degree of management responsibility or culpability. A decision to take action directly against an individual is significant and normally will be taken only when the NRC is satisfied that the individual has engaged in deliberate misconduct. The action taken could include prohibiting the individual from involvement in licensed activities for a period of years.

As the NRC is currently evaluating alleged wrongdoing by NU personnel, the Petitioners' request is granted.

3. Petitioners request that the NRC revoke NU's operating licenses for the Haddam Neck and the Millstone Unit 1, 2, and 3 reactors if an investigation determines that NU deliberately provided insufficient and/or false or misleading information to the NRC. If the NRC chooses not to revoke NU's licenses, the Petitioners specifically request that the reactors remain offline until a United States Department of Justice (DOJ) independent investigation is complete and the NRC reviews the conclusions and recommendations contained therein for potential consequences to the Licensee and its agents under NRC regulations. The Petitioners note in a footnote that a DOJ report will likely produce information essential to the NRC's evaluation of NU's management problems. The Petitioners further stated that such information should influence any NRC decision concerning NU's future operation of nuclear reactors in Connecticut.

Since the NRC investigations are ongoing, the NRC cannot respond to the first portion of the request to revoke the licenses of the three Millstone units at this time.

The response to the Petitioners' Request 1 applies to the part of Request 3 asking that the reactors remain offline until the investigations are complete. As noted, the Commission will consider the status of all ongoing investigations, including any referrals to DOJ, in its deliberations before voting on the restart of any of the Millstone units.

The part of the request relating to revoking the licenses of the three Millstone units is deferred until all investigations are complete. The request that the reactors remain offline until the investigations are complete is denied.

This request does not apply to the Haddam Neck Plant, which has already permanently ceased operation.

4. The Petitioners request that, if NRC chooses not to revoke NU's licenses to operate the Haddam Neck Plant and the Millstone Unit 1, 2, and 3 reactors and allows the reactors to return to operation, the reactors remain on the NRC's

Watch List to oversee reactor operations until NU management demonstrates to the NRC that:

- a. NU is able to fulfill NRC regulatory requirements;
- b. NU has met all prior commitments concerning the repair, modification, maintenance, and documentation of the nuclear power stations;
- c. NU has retrained all staff in the application and interpretation of NRC's regulations; and
- d. NU has removed from any positions of responsibility for operation and/or management of the reactors all persons whom DOJ, NRC, or other government investigators and/or civil or criminal prosecutions find to have made material misrepresentations to the NRC during the past decade of mismanagement.

Due to the significance and programmatic nature of the concerns evolving from the various NRC reviews and inspections at the Millstone Station and the fact that each unit is shut down pending resolution of these issues, the Commission put the Millstone units in Category 3 of the Watch List. Accordingly, restart of any of the units is subject to Commission approval. SIL issues, which require resolution for safe operation, will have been addressed and a process will be in place to resolve any deferred items. If the Commission approves restart of any unit, that unit will be placed in Category 2 of the Watch List, where it will remain until the Licensee has demonstrated that satisfactory operational performance can be sustained at the unit.

The restart process, as previously discussed, will ensure that the management attributes identified by the Petitioners in Requests 4.a, 4.b, and 4.c, will be adequately considered within the context of the SPO's Assessment Plans before the NRC Staff recommends that the Commission allow the restart of any unit. Request 4.d will be considered in the restart process when the Commission is briefed regarding investigation efforts and recommendations.

The request to retain the Millstone units on the NRC's Watch List, if the Commission approves restart, is granted. Any unit permitted to restart will be placed in Category 2 of the Watch List, where it will remain until the Licensee has demonstrated that satisfactory performance can be sustained at the unit. Requests 4.a, 4.b, 4.c, and 4.d will be considered as set forth above.

This request does not apply to the Haddam Neck Plant because the Haddam Neck Plant has permanently ceased operation. The NRC will continue its oversight of the defueled facility.

5. Petitioners request that, as a minimum, the NRC keep Haddam Neck and the Millstone Unit 1, 2, and 3 nuclear reactors offline until NU's chronic mismanagement has been analyzed, remedial management programs have been implemented, and the NRC has evaluated and approved the effectiveness of the Licensee's actions. As a minimum, NU should:

- a. thoroughly analyze root causes for deficiencies in NU's FSARs, its documentation of licensing and design bases, its safety analysis, its engineering, its quality assurance, its as low as reasonably achievable (ALARA) programs, and other necessary or required documentation;
- b. create a complete, accurate FSAR — mere "reform" is impossible when the basic document is inadequate and inaccurate;
- c. reevaluate any of its activities initiated under (or which NU should have initiated under) section 50.59 in order to confirm the validity of such activities, particularly to determine the extent to which the FSAR does not match "as-built" configurations. This reevaluation requires more than a paper audit; it requires checking actual physical plant against the existing documentation, component by component and system by system and creating correct documentation where it is lacking and/or inadequate;
- d. institute and document an effective ALARA review of all operational and nonoperational activities that expose workers and/or the public to radiation;
- e. thoroughly document the root causes of NU's chronic and systemic mismanagement, including documentation of the NRC Region I inspection program's staff and management failures over the past decade to detect and deal with this problem;
- f. demonstrate, over a substantial period of time to the satisfaction of the NRC, NU's commitment to respect NRC regulatory requirements and consistently follow them;
- g. retrain all personnel involved in day-to-day operations so that they are thoroughly conversant with NRC regulations; and
- h. update and document Plant Design Change Requests (PDCRs) to include all changes to the reactor's design, and verification by the NRC Staff of these design changes, with closeouts of PDCRs receiving the highest priority.

As previously noted, NRC regulatory oversight programs at the Millstone Station are based on the recognition that the Licensee is primarily responsible for demonstrating that corrective actions have been effectively implemented. Before the NRC Staff can recommend that the Commission approve the restart of a Millstone unit, the Licensee must determine that the unit conforms with applicable NRC regulations, license conditions, and the FSARs and that applicable licensing commitments have been met. The Licensee's conformance with NRC regulations, license conditions, and licensing commitments is fundamental to the NRC's confidence in the safety of licensed activities.

The significant actions that the NRC is taking to monitor the Licensee's activities have been discussed in detail earlier in this Decision. Based on that discussion, the actions requested in Requests 5.a through 5.h, with the exception

of the part of 5.e relating to NRC Staff performance, will be adequately addressed within the context of the SPO's Assessment Plan for each of the Millstone units.

With regard to Request 5.e, the part of 5.e relating to the performance of the NRC Staff is beyond the scope of the 2.206 process and will not be addressed in the Director's Decision relating to this petition. This issue has been referred to the NRC's OIG for action as appropriate.

The request to keep the Millstone units offline until the items identified in Requests 5.a through 5.h, with the exception of the part of Request 5.e relating to NRC's previous actions in dealing with the Licensee, is granted to the extent that the issues will be considered within the SPO's Assessment Plan for each of the units.

This request does not apply to the Haddam Neck facility, which has permanently ceased operation.

6. Petitioners request that, if NU decides to shut down any or all of the nuclear power reactors at issue herein with the intent to commence the decommissioning process, the NRC not permit any decommissioning or predecommissioning activity to take place until:

- a. all the documentation mentioned in earlier requests is available to the NRC and on site at the reactors;
- b. all personnel involved in the decommissioning process have been re-trained (or trained) in the use and interpretation of the applicable NRC regulations in Title 10 of the *Code of Federal Regulations*;
- c. the NRC has appropriately evaluated and replaced personnel and has restructured the NRC Region I inspection program, its management, and the supervising NRC directorate to eliminate the regulatory anarchy that plagued the Connecticut nuclear reactors during the past 10 years; and
- d. the NRC makes certain that NU does not employ any persons in management or operations who made material misrepresentations to the NRC about the status of operations, repairs, modifications, or maintenance of NU's Connecticut reactors.

On October 9, 1996, the owners of the Haddam Neck Plant stated that the Board of Trustees was considering a permanent shutdown of the plant, based on an economic analysis of operations, expenses, and the cost of replacement power. All fuel assemblies were removed from the reactor and placed in the spent fuel pool for temporary storage. By letter dated December 5, 1996, the Licensee certified to the NRC, pursuant to section 50.82(a)(1)(i) and (ii), that it had determined to permanently cease operations at the Haddam Neck Plant and that the fuel had been permanently removed from the reactor. The Licensee further noted that a Post-Shutdown Decommissioning Activities Report (PSDAR) and the site-specific decommissioning cost estimate would be submitted in accordance with section 50.82, "Termination of License." The

PSDAR will be submitted to the NRC and a copy sent to the affected state(s) within 2 years after operations have permanently ceased. The report must include, among other things, a description of the planned decommissioning activities and a schedule for their implementation. No major decommissioning activities may be performed until 90 days after the NRC receives the PSDAR.

The current activities at the site include the operation, monitoring, and maintenance of the spent fuel pool; radioactive waste management; radiological protection; and fire protection. These activities, including any activities relating to decommissioning, must be in compliance with the current license requirements, which apply when the reactor is defueled.

The degree of regulatory oversight required during decommissioning of a nuclear power reactor is considerably less than during its operational phase. When the reactor is operating, the fuel in the reactor core undergoes a controlled nuclear fission reaction that generates a high neutron flux and large amounts of heat. Safe control of the nuclear reaction involves the use and operation of many complex systems, adherence to operational limits, testing of components and systems to ensure their operability, specified procedure adherence, and operator actions. Once the fuel has been permanently removed and temporarily stored in the spent fuel pool, the fuel is still highly radioactive and generates heat caused by radioactive decay. However, no neutron flux is generated and the fuel slowly cools as its energetic decay products diminish. Since the spent fuel is stored in a configuration that precludes the nuclear fission, no generation of new radioactivity can occur. However, the same areas of the facility contain radioactive contamination and those areas must still be controlled to minimize radiation exposure to personnel and to control the spread of radioactive material.

The NRC Staff continues to be concerned about the failures of the Haddam Neck radiological controls program (which recently resulted in the unplanned exposure of two individuals), long-standing discrepancies in the calibration of several radiation monitors that are used to monitor and control radiological effluent releases, and the inadequate control of radioactive material that resulted in the undetected release of contaminated equipment to a nonlicensed vendor.

In response, the NRC has taken comprehensive and significant actions to resolve concerns in the area of radiological controls, including the issuance of a CAL on March 4, 1997, confirming the Licensee's commitment to respond to the findings in Inspection Reports 50-213/96-12, dated December 19, 1996, and 50-213/97-02, dated March 21, 1997. The CAL restricts the Licensee from performing any radiological work except that required to maintain the plant in a safe configuration. The CAL identifies four significant activities required of the Licensee to bring its management and implementation of radiation control programs up to a standard acceptable to the NRC. The activities are to (1) identify, in writing, specific compensatory measures that the Licensee will establish to ensure sufficient management control and oversight of ongoing or

planned activities that require radiological controls; (2) engage the services of an independent assessor to assess the quality and performance of the Licensee's radiological control programs and their implementation; (3) by May 30, 1997, based on the results of that independent assessment, (a) identify problems, determine root causes, and develop broad-based and specific corrective actions, (b) identify performance measures that may be used to determine the effectiveness of radiological control programs, and (c) submit a plan and schedule to the Regional Administrator, NRC Region I, for implementing improvements in the radiological control programs; and (4) before eliminating any interim compensatory measures, meet with the Region I Administrator to describe program implementation and performance improvements achieved or planned.

In summary, the NRC is following the decommissioning process as specified in section 50.82, which requires that no major activities may be performed until 90 days after the NRC receives the PSDAR. The Licensee must comply with all the applicable operating license requirements in effect for the defueled reactor relating to activities currently being performed at the Haddam Neck Plant. Further, the NRC will take appropriate actions for any defueled reactor to ensure compliance with its license and license conditions, such as the actions described above for the failure of adequate radiological controls at Haddam Neck. The Haddam Neck Plant is the only reactor that the Licensee has determined to permanently shut down and decommission.

The request to forbid decommissioning activities or predecommissioning activity at any NU nuclear power reactor until all the requested actions identified in the petition, including items a, b, and d of Request 6, have been completed is denied for the reasons stated above. The NRC Staff has determined that the NRC requirements that govern decommissioning and the activities being undertaken by the Licensee in response to the CAL are sufficient to ensure that the activities at the Haddam Neck facility are being conducted in a safe manner. Request 6.c, relating to the performance of the NRC Staff, is beyond the scope of the 2.206 process and will not be addressed in the Director's Decision relating to this petition. This issue has been referred to the NRC's OIG.

7. The Petitioners request that the NRC commence an investigation into how it allowed the illegal situation at NU's Connecticut reactors to exist and to continue over a decade. Particularly, Petitioners request that the Commission order its staff (directors of the responsible directorates, managers, and Region I management and staff) to answer the following questions, and hold these persons accountable for their answers and actions regarding the past 10 years at NU's Connecticut nuclear power reactors:

- a. What documents did Region I inspectors, their supervisors, and NRC Project Directors and Project Managers review during 10 years of NU's out-of-compliance operation?

- b. If NU provided documents that somehow deceived the Region I inspector, how does the information in these documents relate to the everyday workings and activities conducted during the otherwise undocumented decade of operations at the Millstone and Haddam Neck plants?
- c. How did Region I inspectors, their supervisors, and NRC Project Directorates and Managers find that NU was conducting operations in a way that keeps worker and public exposures to radiation ALARA when NU was not adequately documenting either its licensing basis or the basis of reactor operations?
- d. Knowing, as Region I inspectors must have known, of excessive worker exposures (for example, due to a longstanding problem with leaking pipes as documented by an NU worker in the videotape provided with this petition Exhibit A), how did the Region I inspectors certify that operations at the Millstone and Haddam Neck plants were being conducted ALARA? How did the supervisors, and those in the NRC Project Directorate, make the same certifications?
- e. During the undocumented decade, how did Region I inspectors, their supervisors, and NRC Project Directors and Managers manage to track NU's activities at the Millstone and Haddam Neck plants under section 50.59?
- f. To what extent have NRC Region I inspectors, their supervisors, and NRC Project Directors and Managers allowed the same type of problems to develop at other nuclear power reactors in New England (i.e., Maine Yankee, Pilgrim, Seabrook, Vermont Yankee, and Yankee Rowe)?
- g. Is there any connection between licensees employing Yankee Atomic Electric Company's consulting and engineering services and the serious problems with documentation and lack of compliance with the licensing and design bases at nuclear power stations in New England or in other parts of the country?

This request is beyond the scope of the 2.206 process. It concerns the performance of the NRC Staff and will not be addressed in the Director's Decision relating to this petition. This request has been referred to the NRC's OIG.

8. In the amendment to the petition, the Petitioners request that the NRC take the following actions to enforce its regulations against NU. As part of the 2.206 process, the NRC should provide copies of Haddam Neck's nitrogen calculations to the Petitioners and conduct an independent review to see if the calculations meet the requirements of Part 50, Appendix B. If Appendix B requirements were violated, the Petitioners are concerned that the Licensee cannot safely decommission the Haddam Neck Plant. Accordingly, NU's operating licenses for its Connecticut reactors should be revoked, and NU should not be permitted to commence decommissioning

until it has complied with the conditions outlined in the main body of the original petition. Finally, the Commission should inquire into the NRC Staff's failure to discern this situation and its continuing failure to enforce the terms and conditions of NU's license and NRC regulations.

As noted above, the assertion by the Petitioners that the calculations performed by the Licensee violated NRC requirements is a new issue not previously considered by the NRC Staff.

The subject calculations were performed subsequent to an event at the Haddam Neck Plant that resulted in the formulation of a nitrogen bubble in the reactor vessel. The results of the calculations, which were one of several methods used to confirm the water level during the event, were discussed by the Licensee during a public predecisional enforcement conference held on December 4, 1996.

By letter dated July 3, 1997, the Licensee provided information, including the requested calculations, relating to the different methods used for determining the reactor vessel water level resulting from the nitrogen intrusion event. This information has been placed in the NRC's Public Document Room and the Local Public Document Rooms. The Petitioners were provided a copy of the calculations as an enclosure to a petition status letter dated July 21, 1997, since the calculations are relevant to the Petitioners' concern, are not proprietary, and are in the public domain.

On September 5, 1996, while investigating the root cause of the undetected accumulation of nitrogen gas in the reactor vessel, the Licensee performed a special test (ST 11.7-197, "Determination of Reactor Vessel Level") to verify reactor vessel level. This test was necessary because the reactor vessel level indication system and the core exit thermocouples had been removed from service in accordance with the Licensee's refueling procedures. The reactor level measurement problem had been exacerbated by the nitrogen gas intrusion, which displaced water from the reactor vessel into the pressurizer, resulting in an unquantified decrease in reactor vessel inventory. During the course of the event, the shift manager had requested that the worst-case (lowest) reactor vessel level achieved during the event be determined. As noted in NRC Inspection Report No. 50-213/96-80, "NRC Augmented Inspection Team Review of the Undetected Introduction of Nitrogen Gas into the Reactor Vessel During Plant Shutdown," the plant staff completed a preliminary analysis on September 4, 1996. It was further noted that, at the end of the onsite inspection activities, the Licensee had yet to complete a final volumetric inventory balance calculation. In the Notice of Violation and Proposed Imposition of Civil Penalties in the amount of \$650,000 issued on May 12, 1997, the Licensee was cited for failure to take timely corrective actions following the nitrogen intrusion event, including

the failure to timely establish the actual lowest reactor vessel level resulting from the event.

Subsequently, the Licensee completed two calculations: (1) Calculation 96-MDE-1515-MY, "Reactor Vessel Level Determination," prepared on October 2, 1996, independently reviewed on November 1, 1996, and approved on November 5, 1996; and (2) Calculation 96-MDE-1536-MY, "Reactor Vessel Level Determination," prepared on October 4, 1996, independently reviewed on November 22, 1996, and approved on December 1, 1996. These calculations were performed consistent with the requirements of Part 50, Appendix B.

Also, during the December 4, 1996 predecisional enforcement conference, the Licensee presented the results of reactor vessel water level simulations, which were calculated using the RELAP5/MOD3 code. These simulation results were presented by the Licensee to corroborate, with a diverse methodology, the lowest reactor vessel water level determined by Calculations 96-MDE-1515-MY and 96-MDE-1536-MY. The results of the RELAP5/MOD3 reactor vessel water level simulations presented by the Licensee during the predecisional enforcement conference were only used to corroborate and provide additional insight into the reactor vessel water level that had been determined through Calculations 96-MDE-1515-MY and 96-MDE-1536-MY. These two calculations had been independently reviewed and performed consistent with the applicable provisions in the Licensee's Part 50, Appendix B, "Quality Assurance Program," and are considered by the NRC Staff to suffice to demonstrate the reactor vessel water level.

Under these circumstances, the RELAP5/MOD3 simulations were not required to have been independently verified.

Thus, the assertion by the Petitioners that the calculations discussed during the predecisional enforcement conference violated 10 C.F.R. Part 50, Appendix B requirements is unfounded and no further actions by the NRC are required. The part of Request 8 relating to the performance of the NRC Staff is beyond the scope of the 2.206 process and will not be addressed in the Director's Decision relating to this petition. This part of Request 8 has been referred to the NRC's OIG.

IV. CONCLUSION

The NRC Staff has determined, for the reasons provided in the above discussion, that: Request 2 is granted for both the Millstone units and the Haddam Neck Plant; Requests 4 and 5 are partially granted for the Millstone units; Request 1 and parts of Requests 3, 4, 6, and 8 are denied for the three Millstone units; Requests 6 and 8 are partially denied for the Haddam Neck

Plant; Request 3 is partially deferred for the three Millstone units; Requests 1, 3, 4, and parts of Request 5 are not applicable to Haddam Neck; and Request 7 and parts of Requests 5, 6, and 8 are beyond the scope of the 2.206 process and are not addressed. The deferred parts of Request 3 will be addressed in a Final Director's Decision after any possible wrongdoing is fully considered by the NRC Staff.

As provided for in 10 C.F.R. § 2.206(c), a copy of this Partial Decision will be filed with the Secretary of the Commission for the Commission's review. This Partial Decision will constitute the final action of the Commission (for Petitioners' Requests 1, 2, 5, 6, and 8) 25 days after issuance unless the Commission, on its own motion, institutes review of the Decision in that time.

FOR THE NUCLEAR
REGULATORY COMMISSION

Frank J. Miraglia Jr., Deputy
Director
Office of Nuclear Reactor
Regulation

Dated at Rockville, Maryland,
this 12th day of September 1997.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS

Carl J. Paperiello, Director

In the Matter of

Docket No. 030-01786
(License No. 19-00296-10)NATIONAL INSTITUTES OF HEALTH
(Bethesda, Maryland)

September 17, 1997

The Director of the Office of Nuclear Material Safety and Safeguards grants in part and denies in part a petition dated October 10, 1995, submitted to the Nuclear Regulatory Commission (NRC) by Maryann Wenli Ma, M.D., Ph.D., and Bill Wenling Zheng, M.D., Ph.D. (Petitioners). The petition requests that NRC suspend or revoke the materials license of the National Institutes of Health (NIH) pending resolution of the issues raised by the petition, and that NRC take other appropriate enforcement action, including the imposition of civil penalties against NIH for willful and reckless violations of 10 C.F.R. Part 20. Broadly stated, the Petitioners assert that, as the direct and proximate result of NIH's (1) deliberate failure to control and secure radioactive materials in violation of 10 C.F.R. §§ 20.1801 and 20.1802, (2) failure to maintain an effective bioassay program, and (3) failure to otherwise adhere to the requirements of Part 20, Dr. Ma was contaminated with phosphorus-32 (P-32), resulting in both her and her unborn fetus receiving intakes of radioactive material significantly in excess of regulatory limits, additional NIH employees also being internally contaminated with P-32, and failure of NIH to take proper actions to assess accurately the level of Dr. Ma's internal contamination or provide appropriate medical care and followup treatment.

The Director denies Petitioners' requests for enforcement action against NIH: for the exposure of Dr. Ma beyond regulatory limits, for the exposure of Dr. Ma's fetus, and for the contamination of the water cooler; regarding notification to Dr. Ma of her level of contamination; regarding Dr. Ma's declaration of pregnancy; regarding the conduct of surveys after Dr. Ma's contamination; and

for the failure to accurately calculate Dr. Ma's occupational radiation dose. The Director denies these requests, as well as the request to suspend or revoke the NIH license, because Petitioners did not provide sufficient bases to warrant such actions. The Director granted in part Petitioners' request for enforcement action against NIH for violations of NRC security and control requirements and for violation of NRC requirements related to radiation safety training, ordering radioactive materials, inventory control of radioactive materials, monitoring, and the issuance, use, and collection of dosimetry. The Director granted Petitioners' request for NRC action to ensure adequate procedures and instructions to exposed persons for sample collection as described below.

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

I. INTRODUCTION

By a petition addressed to the Director, Office of Nuclear Material Safety and Safeguards (NMSS), dated October 10, 1995, Maryann Wenli Ma, M.D., Ph.D., and Bill Wenling Zheng, M.D., Ph.D. (Dr. Ma and Dr. Zheng or Petitioners) requested that the Nuclear Regulatory Commission (NRC) take action with respect to the National Institutes of Health (NIH or the Licensee).

Petitioners request that NRC suspend or revoke the materials license of NIH, NRC License No. 19-00296-10, pending resolution of the issues raised by the petition, and that NRC take other appropriate enforcement action, including the imposition of civil penalties against NIH for willful and reckless violations of 10 C.F.R. Part 20.

As a basis for their requests, the Petitioners assert that NIH has willfully and recklessly committed numerous violations of Part 20. Broadly stated, the Petitioners assert that, as the direct and proximate result of NIH's (1) deliberate failure to control and secure radioactive materials in violation of 10 C.F.R. §§ 20.1801 and 20.1802, (2) failure to maintain an effective bioassay program, and (3) failure to otherwise adhere to the requirements of Part 20, Dr. Ma was contaminated with phosphorus-32 (P-32), resulting in both her and her unborn fetus receiving intakes of radioactive material significantly in excess of regulatory limits; additional NIH employees also being internally contaminated with P-32; and failure of NIH to take proper actions to assess accurately the level of Dr. Ma's internal contamination or provide appropriate medical care and followup treatment. A more detailed description of the concerns raised by Petitioners appears in Section III, below.

By letter dated October 30, 1995, Carl J. Paperiello, Director, NMSS, acknowledged receipt of the petition and denied Petitioners' request for immediate

suspension or revocation of the NIH license because, although certain weaknesses had been identified in the 1995 inspections of NIH, these weaknesses were not sufficiently widespread or egregious as to warrant suspension or revocation of the license.

On November 2, 1995, NRC issued a Demand for Information (EA 95-240) to NIH, requesting that NIH respond to the concerns raised in the petition. On December 11, 1995, NIH submitted its "Response to Demand for Information (EA-95-240)." John N. Weinstein, M.D., Ph.D. (Dr. Weinstein), submitted a response to the petition, dated December 15, 1995.

On March 25, 1996, Petitioners supplemented their petition in a written reply to the Licensee's December 11, 1995, "Response to Demand for Information (EA-95-240)." In their supplemental petition, Petitioners contend that NIH's repeated denials that it has any problem with its security over radioactive materials suggest that the NIH radioactive materials license should be suspended or revoked, because the Licensee poses a threat to public health and safety, the Licensee has not responded adequately to other enforcement actions, and is unwilling or unable to comply with NRC requirements. On July 10, 1997, Petitioners submitted another supplement to their petition, requesting immediate revocation or suspension of the NIH license on the grounds that NIH continues in its failure to implement and maintain a program to oversee licensed radioactive materials sufficiently securely to prevent another contamination incident of the type Dr. Ma experienced in 1995. By letter dated August 5, 1997, the supplemental petition was acknowledged and the request for immediate action was denied because NIH has made continuing progress in improving the security and control of licensed radioactive material since the 1995 contamination event. By letter dated September 10, 1997, NIH responded to the July 10, 1997 supplement to the petition.

II. BACKGROUND

NRC license No. 19-00296-10 is a broad-scope license that authorizes possession and use of radioactive material for medical diagnosis, therapy, and research in humans, as well as nonhuman research and development, at facilities in Bethesda, Rockville, Baltimore, and Poolesville, Maryland. The NIH main campus in Bethesda has 21 buildings housing nearly 3000 biomedical research laboratories. There are more than 800 Authorized Users and more than 5000 Supervised Users of radioactive material under NIH's licensed program. NIH's Materials License No. 19-00296-10, originally issued on December 7, 1956, was renewed on June 16, 1997, and will expire on June 30, 2002.

The internal contamination of Dr. Ma was discovered by Dr. Zheng (Dr. Ma's husband) during a survey of the NIH laboratory in which they both worked, on

the evening of June 29, 1995. At 5:58 p.m., Dr. Zheng reported the internal contamination of his wife to the NIH emergency number, and then to their immediate supervisor, Dr. Weinstein, who was on the premises at the time. Dr. Weinstein notified the NIH Radiation Safety Branch (RSB) of Dr. Ma's contamination.

Shortly after 6:00 p.m., an NIH ambulance with two emergency medical technicians responded to the scene, and at approximately 6:40 p.m., two personnel from the NIH RSB responded to the scene. Petitioners told RSB personnel that they believed Dr. Ma had been internally contaminated as a result of eating leftovers she had stored in a conference room refrigerator. The RSB performed surveys with portable radiation detection instruments to determine whether radioactive contamination was present in the laboratory, the adjacent hallways and corridors, and in the conference room. The RSB took smears of Dr. Ma's hands, neck and face to determine if any of the contamination was removable and then had Dr. Ma change out of her clothes into clean scrubs to see if her clothing was radioactive. None of the smears, clothing, or surveys of Dr. Ma showed external contamination. The RSB asked Dr. Ma to submit a urine sample. The sample was surveyed by the RSB and found to contain radioactivity (later determined to be P-32), indicating that Dr. Ma's contamination was internal. Shortly after 8:00 p.m., the NIH ambulance departed with Dr. Ma en route to Holy Cross Hospital (Holy Cross).

NIH RSB staff contacted the on-call physician from the Radiation Emergency Assistance Center/Training Site (REAC/TS)¹ in Oak Ridge, Tennessee, and had the REAC/TS physician speak directly with the emergency room (ER) physician at Holy Cross. The REAC/TS physician stated that he discussed with the Holy Cross ER physician the possibility of administering a phosphate solution for dilution and displacement of the P-32, but that the ER physician chose not to follow this suggestion. The REAC/TS physician also advised the ER physician of the need to collect 24-hour urine samples for determination of Dr. Ma's occupational radiation dose. After consultation with REAC/TS and the NIH Radiation Safety Officer (RSO), the Holy Cross ER physician ordered intravenous infusions of fluids (hydration) in order to dilute Dr. Ma's internal contamination.

The Petitioners did not return to work in the NIH Laboratory of Molecular Pharmacology after the discovery of Dr. Ma's contamination, but eventually returned to work at other laboratories at NIH.

¹ REAC/TS is a Department of Energy response asset that maintains a radiological emergency response team consisting of physicians, nurses, health physicists, and other support personnel. It is on 24-hour call to provide first-line responders with consultative or direct medical and radiological assistance at the REAC/TS facility, accident site, or attending hospital.

On June 30, 1995, NIH informed an NRC inspector on site at the time that Dr. Ma had been internally contaminated with P-32. On June 30, 1995, NRC initiated an Augmented Inspection Team (AIT) evaluation of the event and presented its preliminary findings to NIH on August 8, 1995. During October 23-24, 1995, and November 6-10, 1995, the NRC Staff conducted two special team inspections of NIH. On December 21, 1995, NRC Inspection Report No. 030-01786/95-203 was issued describing the results of those inspections. The AIT issued a redacted version of its report on January 29, 1996, and, upon completion of NRC's investigation, issued the full, unredacted report on January 13, 1997. NRC's Office of Investigations (OI) began an investigation on June 30, 1995. Additionally, the Federal Bureau of Investigation began an investigation, as did the Department of Health and Human Services Office of the Inspector General, and the NIH Police Department. These investigative groups worked in cooperation with each other and shared their findings on an ongoing basis. On January 24, 1997, NRC's OI issued its report, "National Institutes of Health: Wrongful Administration of P-32, Case No. 1-95-033." That report and its associated exhibits are being publicly released concurrent with issuance of this Director's Decision.

NIH performed an assessment of Dr. Ma's intake of P-32, the resultant radiation exposure received by Dr. Ma, and the radiation exposure received by her fetus. In its initial notification to NRC on July 3, 1995, NIH indicated that its estimated ingestion for Dr. Ma was approximately 300 microcuries (μCi) or 11.1 megabecquerel (MBq) of P-32.² On August 29, 1995, NIH reassessed Dr. Ma's dose and calculated her effective dose equivalent to be 4.17 rem [41.7 millisievert (mSv)], based upon an intake of 500 μCi (18.5 MBq), and the dose to her fetus to be 3.2 rem (32 mSv). Most recently, on July 30, 1996, NIH revised its committed effective dose equivalent (CEDE) estimates for Dr. Ma to between 4.7 and 7.0 rem (47 and 70 mSv), corresponding to an intake range of between 570 and 840 μCi (21.1 and 31.1 MBq). The revised dose to the fetus was between 3.7 and 5.4 rem (37 and 54 mSv). Additional discussion of NIH's dose estimates appears in Section III.K, below.

NRC's estimates indicate that Dr. Ma ingested between 30.3 and 46.1 MBq (820 and 1300 μCi) of P-32. Based on these values, Dr. Ma's estimated internal CEDE was between 80 and 127 mSv (8.0 and 12.7 rem). The annual occupational exposure limit applicable to Dr. Ma was, however, 5 mSv (5 rem) total effective dose equivalent per 10 C.F.R. § 20.1201(a)(1)(i). The estimated dose received by Dr. Ma's fetus was between 5.1 and 8.1 mSv (5.1 and 8.1 rem).

² Because the system of units employed by NIH and the Petitioner's Consultant were nonmetric, the English unit is listed first, followed by its metric equivalent in brackets. However, for those instances where NRC has issued a report, metric units are listed first as primary units, followed by the English units in brackets, which is the usual NRC style.

NRC estimated that of the twenty-six other NIH employees who received P-32 contamination from a water cooler situated in a hallway near the Petitioner's laboratory, including Dr. Zheng, one individual who was not an occupational radiation worker received a dose of between 1.5 and 2.5 mSv (150 and 250 millirem), in excess of the applicable dose limit of 1.0 mSv (100 millirem) for members of the public specified by 10 C.F.R. § 20.1301.

NRC issued a series of Confirmatory Action Letters (CALs) to NIH between July 21, 1995, and June 7, 1996, addressing various measures to be taken by NIH, such as: (1) reduction of the possibility of further ingestion of radioactive material by NIH employees; (2) determination of the full scope of the personnel contaminations at NIH; (3) further enhancement and training of NIH staff regarding security of radioactive material; (4) documentation of corrective actions with respect to enforcement of a new NIH security policy; (5) modifications to the surveillance plan for NIH laboratories; and (6) other specific actions for inspections for NRC compliance.³

NRC continued its onsite inspection through July 28, 1995. The AIT conducted a technical debrief with NIH RSB management and staff on August 3, 1995, and with NIH senior management on August 8, 1995. Further NRC inspection activities, including assessment of radiation dose to the exposed individuals, and evaluation of a third-party independent dose assessment, continued through November 15, 1995.

On August 23, 1996, NRC issued a Notice of Violation (NOV) and Proposed Imposition of Civil Penalty of \$2500 (EA 96-027) to NIH for failure to physically secure licensed material or maintain surveillance over it to prevent unauthorized removal. Other violations of NRC requirements were also cited, involving: (1) workers not wearing extremity dosimetry, or returning dosimetry promptly each month, as required; (2) users obtaining radioactive materials without providing required information regarding the identity of the intended user(s) or the signature of the authorized investigator; (3) researchers performing licensed activities without first receiving the required training; and (4) failure to perform thyroid bioassay measurements of researchers who handled gigabecquerel [millicurie (mCi)] quantities of volatile iodine-125. On May 20, 1997, NRC issued an Order Imposing Civil Monetary Penalty in the amount of \$2500 (EA 96-027), which NIH paid on June 6, 1997.

³ CAL 1-95-011 (July 21, 1995); CAL 1-95-011, rev. 1 (July 21, 1995); CAL 1-95-018 (Oct. 27, 1995); CAL 1-95-018, Supp. 1 (Nov. 8, 1995); CAL 1-95-018, Supp. 2 (Dec. 1, 1995); and CAL 1-95-018, Supp. 3 (June 7, 1996).

III. DISCUSSION

A. Violations of NRC Requirements for Security and Control of Licensed Material

Petitioners assert that, as the direct and proximate result of NIH's deliberate failure to control and secure radioactive materials in violation of sections 20.1801 and 20.1802, and to otherwise adhere to the requirements of Part 20, Dr. Ma was contaminated with P-32, resulting in both her and her unborn fetus receiving an intake of radioactive material in excess of regulatory limits. In addition, Petitioners state that twenty-six other NIH employees, including Dr. Zheng, were also internally contaminated with P-32.

Petitioners state that NIH has been unwilling to comply with NRC safety requirements in accordance with Part 20. Specifically, Petitioners state that during the summer of 1994, NIH officials deliberately failed to lock up radioactive material as part of an experiment with a liberalized policy concerning security and use of radioactive materials, which effectively excused laboratories from locking up radioactive materials, in violation of section 20.1801. NIH requested a license amendment on October 31, 1994, to establish and permanently implement a previously submitted "Interim Security Policy," and an exemption from the requirements to secure (under lock and key), or maintain constant surveillance of, licensed radioactive materials not in excess of ten times the activity listed in Appendix C to 10 C.F.R. Part 20, on a per-container basis. Petitioners state that the resultant breakdown in security led to the issuance of CAL 1-95-018, on October 27, 1995, which required NIH to take immediate steps to secure radioactive materials. Petitioners state that NIH objected to complying with security regulations, and did not withdraw its application for an exemption from the security requirements until after the contamination of Petitioners.

Petitioners state that NRC's repeated discovery of unsecured radioactive materials and of absence of security controls in several NIH laboratories indicates a systemic failure of security rather than an isolated problem, and that NIH's lax control and security of radioactive materials created an environment where acts such as the deliberate contamination of Dr. Ma were bound to occur, given that the means to commit such an offense were readily available. Petitioners state that security over radioactive materials used in the Petitioners' laboratory was nonexistent. Specifically, the refrigerator and freezer used to store radioactive reagents were not locked, the lab was frequently left unattended during non-working hours, and there were no procedures to document individuals' access to the refrigerator or freezer, or to check to see if records were kept regarding the documented use of radioactive materials in that laboratory.

Petitioners state that despite NIH's reckless disregard of NRC requirements, since 1986 NRC has taken no enforcement action against NIH or the National

Cancer Institute (NCI)⁴ for repeated violations of Part 20 regulations related to security and control of radioactive material, occupational exposure, notification of exposure, incineration, surveys, monitoring, and dosimetry.

Contrary to the assertions in the petition, since 1986, and before the June 1995 contamination incident, NRC had taken enforcement action against NIH for violations of NRC requirements concerning security and control of radioactive materials, occupational overexposures, surveys, monitoring, and dosimetry.⁵ Although many of these enforcement actions involved Notices of Violation for SL IV violations and no civil penalty, they still constitute enforcement action taken by NRC.⁶

The requirements of sections 20.1801 and 20.1802 to secure and control licensed material are absolute in that the rules specify no radioactivity thresholds. NIH established a threshold amount for the security of radioactive materials located in laboratories based on Part 20, Appendix C quantities and NUREG/CR-6204, "Questions and Answers Based on Revised 10 C.F.R. Part 20" (January 1994). The answer to Question 129 indicates, in part, that the security requirements described in sections 20.1801 and 20.1802 will not be enforced

⁴ NIH and NCI are two different licensees. Science Applications International Corp. holds NRC broad-scope license for activities at the NCI-Frederick Cancer Research and Development Center facility located at Fort Detrick in Frederick, Maryland (NRC License No. 19-21091-01). Prior to March 1995, the license was held by Program Resources Incorporated (PRI). Since 1985, NRC has issued to PRI six NOVs associated with either cited severity level (SL) IV violations or a monetary civil penalty: (1) during a February 1995 inspection, three SL IV violations were cited for inadequate surveys for P-32 personnel contamination, failure to perform thyroid bioassays, and failure to perform proper package surveys; (2) during a January 1993 inspection, two SL IV violations were cited for failure to wipe test packages and perform thyroid bioassays; (3) during a February 1991 inspection, one SL IV violation was cited for failure to perform package surveys; (4) during a January 1989 inspection, one SL IV was cited for failure to perform survey instrument calibration; (5) a \$2500 Civil Penalty was issued on February 27, 1987, for an SL III violation from an inspection performed earlier that month; and (6) a December 1986 inspection resulted in five violations being cited for extremity overexposure, inadequate training, improper transfer and disposal of radioactive material, and exceedance of the license possession limits.

⁵ (1) The June 11-13, 1990 inspection resulted in an NOV categorized at an SL IV, for failure to obtain specific user estimates of solid radwaste generation, as well as other noncited violations for loss of radioactive material that was licensee-identified (Report No. 90-001). (2) The July 8-12, 1991 inspection resulted in an NOV categorized at an SL IV for failure to secure radioactive material (Report No. 91-001). (3) The July 20-24, 1992 inspection identified an inadequate dose assessment for a lutetium-177 contamination incident, and resulted in an NOV characterized as an SL IV (Report No. 92-001). (4) The January 13, 1993 inspection resulted in an escalated enforcement action (EA 93-009) categorized at two SL IVS and one SL III for failure to survey after use of radioactive material, a failure to supply dosimetry for a P-32 worker, and a P-32 contamination extremity overexposure, respectively (Report No. 93-001). (5) The April and May 1994 inspections resulted in enforcement action (EA 94-123) categorized as two SL IVS for failure to secure, as well as a failure to survey, after using radioactive material (Report No. 94-001). The security violations from the April-May 1994 inspections also resulted in the issuance of a CAL on May 5, 1994. On July 12, 1994, an additional security violation resulted in the loss of a package containing 2.6 MBq (70 µCi) of iodine-125. The 1994 security violations were discussed at an enforcement conference held with the Licensee on July 27, 1994, and subsequently were cited as an SL IV in an NOV issued to NIH on August 16, 1994. (6) During the April and May 1994 inspections, an apparent violation was identified for incinerator operations (Report No. 94-001). On August 10, 1994, however, NIH informed NRC that it had permanently discontinued incineration operations at NIH in May 1994. Consequently, no enforcement action regarding incineration was taken.

⁶ See "General Statement of Policy and Procedures for NRC Enforcement Actions," 10 C.F.R. Part 2, Appendix C (1986-1995), and NUREG-1600, "General Statement of Policy and Procedures for NRC Enforcement Actions" (July 1995), § VI.

for quantities of radioactive material described in Part 20, Appendix C, which are exempt from labeling by 10 C.F.R. § 20.1905(a). By an amendment request dated October 31, 1994, NIH asked for permission to store up to ten times Appendix C quantities of radioactive material per container in posted radioactive material use areas without the requirement for direct oversight or lock and key. In March 1995, NIH requested an exemption from the requirements of sections 20.1801 and 20.1802 to store less than Appendix C quantities in unlocked (and unattended) refrigerators or freezers in corridors. NRC approved the NIH request in June 1995 because these quantities did not require labeling.⁷ In response to the event of June 1995, NIH revised its security policy for radioactive materials to require that all licensed material must be in locked storage, or in a locked room, if otherwise unattended, effective October 26, 1995. On January 19, 1996, NIH submitted a license amendment to, among other things, permit licensed material that is exempt from the labeling requirements of section 20.1905(a) to be exempted from the revised October 26, 1995 NIH security policy. NRC renewed the NIH license on June 13, 1997, but did not authorize any exemptions to the security and control requirements of sections 20.1801 and 20.1802.

Petitioners are correct in stating that there have been security and control problems at NIH that required amelioration. In particular, the failure to secure refrigerators and freezers used to store radioactive reagents, and the failure to secure or maintain surveillance over laboratories, formed the basis for a series of NRC enforcement actions. Several CALs were issued to address security and control of radioactive material after the June 1995 contamination of Dr. Ma.⁸ On August 23, 1996, NRC issued an NOV and Proposed Imposition of Civil Penalty of \$2500 (EA 96-027) to NIH for failure to physically secure licensed material or maintain surveillance over it to prevent unauthorized removal. On May 20, 1997, NRC issued an Order Imposing Civil Monetary Penalty in the amount of \$2500 (EA 96-027), which NIH paid on June 6, 1997. Based on the inspections and the investigation, the NRC Staff does not conclude that these

⁷ See NMSS Technical Assistance Request dated June 19, 1995, from L. Camper, NRC Headquarters, to R. Bellamy, NRC Region I.

⁸ On July 21, 1995, CAL 1-95-011 was issued, which described the actions that NIH would take to reduce the possibility of further ingestion of radioactive material and to determine that the full scope of the personnel contaminations was known. On July 21, 1995, CAL 1-95-011, rev. 1, was issued to clarify certain points in the first CAL. On October 27, 1995, NRC issued CAL 1-95-018, which described the actions that NIH would take following an NRC special inspection on October 23 and 24, 1995, to further enhance and train NIH staff regarding security of radioactive material. On November 8, 1995, NRC issued CAL 1-95-018, Supp. 1, to further document the corrective actions that NIH took with respect to enforcement of the new NIH security policy, modifications to the surveillance plan for NIH laboratories, and other specific actions for inspections for NRC compliance. On December 1, 1995, NRC issued CAL 1-95-018, Supp. 2, to adjust each deadline within CAL 1-95-018 and its supplement. This supplement described the ongoing upgrades, to the radioactive material security program, that required that any posted room or area that contained radioactive materials in use, radioactive waste, or radioactive materials in unsecured storage, would be required to be locked when unoccupied. On June 7, 1996, NRC issued CAL 1-95-018, Supp. 3, to further clarify issues with regard to security and control of licensed radioactive material in building corridors and laboratory freezers at NIH.

violations were willful, contrary to the assertions of Petitioners. Moreover, although the AIT Report stated that the Licensee's violations of NRC security and control requirements could have been a contributing factor, after review of the various inspection and investigative results, the NRC Staff concludes that the violations of NRC security and control requirements did not contribute to the internal contamination of Dr. Ma, her fetus, or the other twenty-six NIH employees, including Dr. Zheng.

Since the 1995 contamination event at NIH, NRC performed several inspections of NIH. Additionally, over this period, NIH performed 90,857 laboratory audits. The most recent NRC inspection report in July 1997 found that NIH has made continuing and significant progress in improving the security and control of licensed radioactive material since the 1995 contamination event. For example, the average rate of noncompliance with NRC security and control requirements has declined to 0.25% of laboratories surveyed, from an average rate of 0.57% since the last NRC inspection of September 1996. See NRC Inspection Report No. 030-01786/97-001 (July 29, 1997). Additional enforcement action for security and control violations is not warranted.

In view of the above, Petitioners presented valid concerns regarding security and control of licensed material at NIH, and their request for enforcement action with respect to violations of NRC security and control requirements was granted in part as described above.

B. Dosimetry, Radiation Safety Training, and Ordering Radioactive Materials

Petitioners state that Dr. Weinstein, the Senior Investigator in the Laboratory of Molecular Pharmacology and the former supervisor of Petitioners, insisted that the Petitioners begin working with radioactive materials before they were given radiation safety training and, on two occasions, directed the Petitioners to use Dr. Weinstein's and another Authorized User's identification number to order radioactive material before Petitioners were assigned their own identification numbers. Petitioners state that the AIT found that during the first 3 months of their research, the Petitioners were given radioactive materials that had been ordered by a researcher who had since left NIH, which was not reported by the Authorized User, Dr. Weinstein, as required on NIH Form 88-1; and that in November 1994, Petitioners were using phosphorus-33 (P-33), a low-energy beta-emitting isotope requiring whole-body dosimetry (or whole-body badges) during its use, but that Petitioners had not been trained to use radioactive material. In addition, Petitioners state that an NRC interview of a former researcher revealed that she had ordered radioactive materials for herself and

shared them with other researchers, although these users were not listed on NIH's Form 88-1.⁹

NIH worker training, use of identification numbers for procurement of licensed materials with NIH Form 88-1, and dosimetry issuance and collection were reviewed during the October 23-24 and November 6-10, 1995 NRC inspections. As a result of those inspections, NRC cited NIH for several violations. Specifically, the Licensee was cited for allowing users to order radioactive materials electronically between October 3 and November 20, 1995, without the signature of the authorized investigator. This violation was cited as an SL IV (EA 96-027). Additionally, NIH was cited for permitting the use of sulfur-35, P-32, and P-33 by two researchers in October 1994, before providing the researchers with the training course entitled, "Radiation Safety in the Laboratory," on November 29, 1994. This violation was also cited as an SL IV (EA-96-027). NIH was not cited for Petitioners' use of P-33 without the use of whole-body dosimetry because neither the NIH License nor NRC regulations require such dosimetry for low-dose material. See Section III.C and note 12, below. NIH was cited, however, for violations of license requirements to use extremity dosimetry when using more than 185 MBq (0.5 mCi) of P-32 (EA 96-027).

Accordingly, Petitioners' request for enforcement action against NIH for violations of dosimetry, training, and ordering radioactive materials requirements was granted in part as described above.

C. NIH Routine Monitoring of, and Dosimetry for, Petitioners

Petitioners state that Dr. Ma was internally contaminated, in part as a result of NIH's failure to document Dr. Ma's exposure history at NIH, and failed to properly assess Dr. Ma's internal radiation doses, in violation of 10 C.F.R. §§ 20.1202, 20.1204, 20.1501, and 20.1502. Petitioners state that NIH did not routinely monitor Petitioners' exposure to radiation and radioactive material through use of an appropriate dosimetry program. Specifically, the dosimetry given to Petitioners when they first arrived at NIH was never collected or analyzed, no dosimetry was assigned to them at the time of Dr. Ma's contamination, and as a result Petitioners were not wearing dosimetry at the time of Dr. Ma's contamination. Petitioners state that in November 1994, Petitioners were using P-33, a beta-emitting isotope requiring whole-body dosimetry during its use, but Petitioners were not wearing required dosimetry, and Petitioners had never been issued dosimetry by Dr. Weinstein although they used P-32 in December 1994, and until March 1995.

⁹These facts do not constitute a violation of NRC regulations or the NIH license.

NIH was not required to routinely monitor Petitioners' occupational exposure to radiation, or to document their occupational exposure history. Section 20.2106(a) of 10 C.F.R., "Records of individual monitoring results," provides, in part, that "[e]ach licensee shall maintain records of doses received by all individuals for whom monitoring was required pursuant to § 20.1502 . . ." (emphasis added). Section 20.1502(a) provides that "[e]ach licensee shall monitor occupational exposure to radiation and shall supply and require the use of individual monitoring devices by — (1) Adults likely to receive, in 1 year from sources external to the body, a dose in excess of 10 percent of the limits in § 20.1201(a)" (emphasis added). Based on NRC's review of information maintained by NIH for the past 10 years regarding occupational exposures at NIH, it is evident that it is not likely that any NIH user of NRC-licensed radioactive materials would exceed 10% of the applicable occupational standard in 10 C.F.R. § 20.1201.¹⁰ Accordingly, issuance of personnel dosimetry monitoring, although done by NIH as a prudent measure in operating its Radiation Safety Program, was not required by section 20.1502. Since monitoring of Petitioners was not required, the recording requirements of 10 C.F.R. § 20.2106 were not applicable to Petitioners.¹¹

Condition 29 of the NIH License required the use of extremity (wrist or finger) monitors by occupational workers using P-32 in quantities greater than 0.5 mCi (185 MBq), but did not require the use of whole-body dosimetry by persons using P-32 or P-33.¹² Based on a review of the Petitioner's laboratory notebooks, it appears that Dr. Ma did not use P-32. Additionally, Dr. Ma states that she advised her obstetrician that she had previously been working with low-dosage material (P-33) and, upon learning of her pregnancy, stopped handling radioactive isotopes altogether. Nonetheless, NIH internal documents demonstrate that NIH provided whole-body dosimetry to Petitioners on October 28, 1994.¹³ Although Petitioners' laboratory notebooks indicate that Dr. Zheng used P-32 on October 17, 1994, 11 days before receipt of a whole-body

¹⁰ In addition, during 1995, 6374 individuals at NIH were issued monitoring devices. Only one individual (other than Dr. Ma) using NRC-licensed materials exceeded 10% of the applicable occupational external dose standard [the total deep dose equivalent to this individual was reported as 550 millirem (5.5 mSv)].

¹¹ In addition, Regulatory Guide 8.34, "Monitoring Criteria and Methods to Calculate Occupational Radiation Doses," addresses the applicability of the dose recording requirements when monitoring is not required. Regulatory Guide 8.34, § 1.4, states that "[w]hile the results of required monitoring are subject to the dose recording requirements of § 20.2106, the results of monitoring provided when not required by § 20.1502 are not subject to the dose recording requirements."

¹² License Condition 29 requires conduct of the NIH program in accordance with the NIH license application dated July 28, 1986. Attachment 10-D of the July 28, 1986 application states that persons using or in close proximity to persons using gamma emitters, P-32, or radiation-producing machines "should wear body film badges." This is a recommendation, not a requirement, regarding whole-body dosimetry for only P-32. P-33 usage does not require any dosimetry. In addition, Attachment 10-D states that the "license requires extremity monitors for P-32 > 0.5 mCi." See *id.* at 35.

¹³ NIH "Response to Apparent Violations in Inspection Report Nos. 030-01786/95-002 (Redacted) and 030-01786/95-203" (May 23, 1996), Exhibit AIT-AV2-1.

dosimeter, this was not a violation of NIH License Condition 29. Moreover, because Petitioners never worked with more than 185 MBq (0.5 mCi) of P-32, they were not required to wear extremity dosimetry. Additionally, since the monitoring required by License Condition 29 is not required pursuant to section 20.1502, the results of that monitoring would not be subject to NRC dose recording requirements, contrary to the Petitioners' assertion. See note 11, *supra*.

NRC conducted two special-team inspections on October 23-24, 1995, and November 6-10, 1995, in which NIH personnel dosimetry issuance and collection were evaluated. Although review of exposure records during this inspection indicated that occupational doses to individuals from exposure to licensed materials were well below NRC limits, NIH was cited for one SL IV violation involving the failure to issue, wear, and return individual monitoring devices (EA 96-027).

Accordingly, Petitioners' request for enforcement action against NIH for violations of monitoring and dosimetry requirements was granted, in part, as described above.

D. Inventory Control of Radioactive Materials

Petitioners assert that NIH exercised poor inventory control of radioactive materials. Specifically, if NIH had accurately monitored the use and disposal of radioactive materials, particularly P-32, it might be possible to ascertain who had ordered, but not used, the requisite amounts of P-32 within the time frame of Petitioners' contamination, and possibly assist law enforcement officials to ascertain who contaminated Petitioners. Petitioners relied on the findings of the AIT that: (1) the accuracy of inventory records is questionable because researchers only estimate the amount of material removed from each vial, radioactive decay is rarely accounted for, and if the vial is not emptied (because the expiration date has passed), the users do not check the balance before disposal; and (2) the computerized inventory system NIH used to replace Form 88-1 does not comply with the NIH license because the electronic document does not include the signature of the Authorized User, and has no mechanism to reasonably verify that an Authorized User had placed an order for radioactive materials and had received those materials.

NIH places ultimate responsibility for the proper use of radioactive material on the Authorized User who orders the material. Authorized Users are permitted by NIH policy to order and share radioactive material with other users, and a Supervised User may work under more than one Authorized User. If an Authorized User wishes to transfer responsibility for material ordered under her/his authorization, an NIH 88-1 form must be completed transferring responsibility to another Authorized User. The RSO stated that routine laboratory audits

include checks to see who is using radioactive material and that unauthorized use is dealt with severely.

NIH License Condition 29 makes Authorized Users responsible for maintaining a record of the receipt, use, and disposal of radioactive materials under their authorization by use of Form NIH-88-16, "Isotope Receipt, Utilization, and Disposal Record" or equivalent. In addition, the RSO, in a memorandum dated October 3, 1995, reminded Authorized Users that transfers among other Authorized Users must be documented by completion of the same form and submittal of the form to the RSB before the transfer. During NRC inspections conducted October 23-24 and November 6-10, 1995, the inspectors were informed, during discussions with Authorized Users and RSB staff, that each shipment of radioactive material delivered has normally been accompanied by Form NIH 88-1. Authorized Users stated that they knew that they were required to keep records of the material currently on hand after loss by decay or disposal of material, and all those interviewed used the Form NIH 88-1. The inspectors did not identify any instances in which the inventory was not being kept current.

Regarding the Petitioner's concern about the accuracy of inventory records, NIH has recognized a need to review its radioactive material accountability portion of the Radiation Safety Program. Accordingly, the NIH RSO directed a complete and thorough physical inventory for radioactive materials during the latter half of 1996.¹⁴ As of June 23, 1997, this inventory was completed, and now serves as the baseline for an online, real-time tracking of all radioactive materials within the RSB's centralized database system. Each Authorized User receives a complete inventory of his/her materials from the centralized database each month and is requested by the RSB to adjust records consistent with his/her use and disposal of radioactive materials.

For the NIH Authorized User to track the use of individual items of NRC-licensed materials, a new computer-generated inventory and disposal form was developed and is currently in use at NIH. This system permits Authorized Users to make changes in users, if required, and to report disposal and other inventory changes to RSB for update in the centralized database. This system, not present before 1996, substantially enhances NIH's accountability for radioactive material. Increased accountability has received NIH senior management attention and is considered by NRC Staff to be a potential deterrent to the use of licensed radioactive materials for unauthorized purposes.

Initial use of the computerized inventory system, however, involved violation of NRC requirements. NIH License Condition 29 requires that the radiation safety identification number and name of all persons who will use the radioactive material, the name and signature of the Authorized User, be entered on form

¹⁴ See Letter from M. Gottesman, NIH, to R. Blough, NRC Region 1, dated June 23, 1997.

NIH 88-1.¹⁵ Between October 3 and November 20, 1995, however, the Licensee allowed users to order radioactive materials electronically, without the signature of the Authorized User. In addition, an NIH 88-1, submitted for order and use of radioactive materials received on September 9, 1994, did not include the radiation safety identification numbers and names of all persons who would use the radioactive material. NIH was cited for these irregularities as an SL IV violation (EA 96-027).

Accordingly, Petitioners' request for enforcement action against NIH for poor inventory control of radioactive materials was granted in part as described above.

E. Timeliness of NIH Emergency Personnel Response to Contamination Incident

Petitioners contend that NIH personnel responding to the scene of the incident failed to respond in a timely manner to the contamination event, resulting in Dr. Ma's transport to Holy Cross Hospital more than 3 hours after discovery of her contamination. Petitioners state that after RSB officials confirmed Dr. Ma's contamination, they took 1 hour searching for a shower to decontaminate her, that RSB officials surveyed the conference room and refrigerator, and that RSB officials directed Dr. Ma to provide a urine sample, which confirmed that her contamination was internal.

Dr. Zheng reported the internal contamination of Dr. Ma to the NIH emergency number at approximately 5:58 p.m., shortly after discovery of her contamination. The first NIH personnel (two emergency medical technicians) responded immediately and arrived on the scene with an ambulance at approximately 6:00 p.m. Dr. Zheng also notified Petitioners' immediate supervisor, Dr. Weinstein, who was on the premises at the time. Dr. Weinstein, the Authorized User, contacted the RSB at 6:00 p.m. and notified the Chief of the Radiation Safety Operations Section about the contamination incident. In addition, the NIH Fire Department independently notified the Deputy RSO, at approximately the same time, of a possible radioactive material contamination event involving an "injection of radioactive material." (The Deputy RSO is at the top of the emergency call list for response to incidents involving radioactive materials). The Deputy RSO advised the RSO of the report at approximately 6:00 p.m. and contacted the NIH Occupational Medical Service (OMS) for information on the incident.

¹⁵ License Condition 29 requires conduct of the NIH program in accordance with the NIH license application dated July 28, 1986. Item 10.6 of the July 28, 1986 application required, in part, that the Authorized User provide to the Radiation Safety organization a completed Form NIH 88-1, "Request for Purchase and Use of Radioactive Materials," for each incoming shipment before the materials are released to the investigator. Form NIH 88-1 was provided as Attachment 10-F to the July 28, 1986 application. Form NIH 88-1 requires, in part, that the radiation safety identification numbers and names of all persons who will use the radioactive material, the name of the authorized investigator, and the signature of the authorized investigator, be entered on the form.

At approximately 6:15 p.m., the first of two responding RSB health physicists was notified by the RSB receptionist that a second health physicist was on the phone with the RSB Section Chief talking about a possible contamination event in Building 37. The two responding RSB health physicists picked up spill and skin decontamination kits (which is a routine and necessary event response function) and responded to Building 37. Both health physicists met the Deputy RSO in the RSB parking lot at Building 21, and were informed that Dr. Ma was being transported to OMS at Building 10. The health physicists responded directly to OMS and were advised by the physician on duty that Dr. Ma was still in Building 37. The health physicists then responded to the fifth floor of Building 37, arriving at approximately 6:40 p.m.

To determine if Dr. Ma's contamination was external or internal and to identify the source of the contamination, the RSB took several measures. The emergency medical technicians and the RSB both evaluated Dr. Ma's condition and questioned Petitioners about the source of her contamination. The RSB took smears of Dr. Ma's hands, neck, and face to determine if any of the contamination was removable and then had Dr. Ma change out of her clothes into clean scrubs to see if her clothing was radioactive. None of the smears, surveys, or clothes of Dr. Ma showed external contamination.¹⁶ The RSB asked Dr. Ma to submit a urine sample at approximately 7:00 p.m. The sample was surveyed by the RSB and found to contain radioactivity, indicating that the contamination was internal. The RSB health physicists performed surveys with portable radiation instruments to determine whether radioactive contamination was present in the laboratory, adjacent hallways and corridors, and in the conference room. Shortly after 8:00 p.m., NIH transported Dr. Ma to Holy Cross Hospital, where Dr. Ma arrived at approximately 8:20 p.m. Holy Cross was selected over Suburban Hospital, which was much closer, because Suburban Hospital did not have an obstetrics department.

Based on the inspections and the investigation, NRC Staff concludes that NIH personnel responded properly and in a timely fashion to the incident. The actions taken by NIH to determine whether Dr. Ma was externally or internally contaminated and to identify the source of her contamination are time-consuming steps that must be taken during event response to ensure that the spread of radioactive contamination is prevented, especially when the event involves the transfer of personnel off the Licensee's site and into a hospital setting. Moreover, because there were no signs of a life-threatening condition or immediate danger to Dr. Ma, which would have made immediate transport

¹⁶ Because Dr. Ma's clothing was not contaminated, there was no need for her to shower in order to remove external contamination. Petitioner's assertion that RSB took 1 hour searching for a shower to decontaminate Dr. Ma was not substantiated by the inspections or the investigation.

necessary, the Licensee's attention to these measures was eminently reasonable before transport of Dr. Ma to the hospital.

F. Defects in NIH Emergency Response to Dr. Ma's Contamination

Petitioners state that NIH's emergency response to Dr. Ma's contamination was defective in that NIH gave inappropriate and inadequate information and advice to Dr. Ma regarding her level of contamination, and failed to advise Dr. Ma concerning precautions to prevent spreading that contamination. Specifically, Petitioners state that one of the two RSB health physicists who responded to the event erroneously told Petitioners, before Dr. Ma's transport to Holy Cross Hospital and before any analysis concerning the extent of Dr. Ma's contamination, that the exposure Dr. Ma received was well within the allowable limits, that there was no risk to her, and, although it was not certain, that there appeared to be no problem posed to Dr. Ma's fetus. Additionally, Petitioners state that no one warned Dr. Ma about the possibility of vomiting as a consequence of her contamination, or instructed Dr. Ma as to appropriate steps to prevent contamination of her home as a result of vomiting. As a result, Dr. Ma contaminated her car and apartment.

The Petitioners are correct in stating that at the time that the two RSB staff responded to the event, there was no way (within the first few minutes) to determine if the radiation exposure that Dr. Ma received was within NRC regulatory limits, or if the dose received was harmful. Indeed, the only thing that could be determined at that time was whether or not the radioactive contamination was internal or external, which the RSB staff did effectively.

There are no NRC requirements concerning advice by licensees to their employees during emergencies concerning the possibility of further contamination of the employee's home and belongings. As occupational radiation safety workers at NIH, the Petitioners were required to, and did, complete formal radiation safety training on November 29, 1994. As part of that training, personnel protective procedures were described to limit the exposures from both external and internal sources of radiation. In addition, as part of their required daily radiation surveys, the Petitioners were aware of the potential hazards associated with contamination and radioactive material in their control and the need to isolate and remove any detected contamination.

On the evening that Dr. Ma became internally contaminated with P-32, the RSB staff at NIH and the hospital staff at Holy Cross informed Dr. Zheng that Dr. Ma's blood and urine were contaminated. The next day, the RSB staff surveyed the Petitioners' automobile because Dr. Ma had indicated that she had vomited in it earlier that morning. RSB staff found contamination inside the passenger's side of the car and decontaminated the affected area immediately. RSB staff also surveyed the Petitioners' apartment where contaminated areas

were cleaned up or physically removed material for radioactive decay. Effective communications during emergencies are difficult, at best, and might have been improved by reminding Dr. Ma of the *potential* for not only her excreta being contaminated, but also any other bodily fluids released as well. However, the failure to fully advise Dr. Ma of the potential spread of contamination via body fluids was not a violation of any NRC requirement.

Petitioners also state that the NIH response to Dr. Ma's contamination was defective because RSB officials failed to secure the area, thus providing an opportunity for NIH personnel to tamper with or contaminate evidence.¹⁷ In fact, before departing the scene of the event on June 29, 1995, NIH RSB personnel locked the conference room and marked it with security tape. The NIH RSB also asked Dr. Weinstein to secure the laboratory, which he did by locking it. On June 30, 1995, the NIH RSB changed the locks to the conference room, and again locked the laboratory and then secured it with police tape. Based on a review of the evidence, NRC concludes that NIH took all reasonable measures to secure the scene after responding to the event.

G. NIH Conduct of Surveys After Contamination Incident

Petitioners state that in violation of 10 C.F.R. § 20.201(b) and an October 14, 1992 commitment by NIH to emphasize to all users the importance of notifying Radiation Safety promptly of spills of radioactive materials when there is personnel contamination, NIH failed to conduct surveys reasonably necessary under the circumstances surrounding discovery of Dr. Ma's contamination on June 29, 1995, and thus failed to detect P-32 contamination of a water cooler until July 14, 1995, which caused an additional twenty-six people, including Dr. Zheng, to become internally contaminated.

NRC stated in its AIT report of January 13, 1997, that because NIH did not survey the water cooler in the corridor near Petitioners' laboratory until July 14, 1995, twenty-six other individuals (besides Dr. Ma) were internally contaminated with P-32 by drinking water from the cooler. After review of all the evidence, however, the Staff concludes that, although it would have led to a more desirable outcome to have identified the contaminated water cooler earlier, under the circumstances, NIH conducted all reasonably necessary surveys. When NIH safety response personnel were called to the scene, Dr. Ma and Dr. Zheng insisted that Dr. Ma had been contaminated by food that she

¹⁷ Petitioners assert that this provided Dr. Weinstein with an opportunity to "find" a coffee cup with a centrifuge tube, both contaminated, that RSB officials attest were not present when they surveyed the same area earlier, and that, on his own initiative, Dr. Weinstein put the items in a plastic bag and moved the items into his lab and locked the door. In fact, two NIH employees had seen the coffee cup and centrifuge tube in the hallway near Petitioners' lab over a period of 1 to 7 days before the event. Additionally, the NIH RSB directed Dr. Weinstein to put these items aside for the NIH RSB's later examination and to secure the laboratory.

had stored in the conference room refrigerator. Dr. Ma and Dr. Zheng also told RSB personnel that they brought all their own food and beverages to work with them. Immediately after the event, Dr. Ma and Dr. Zheng denied that they drank any liquid from Building 37, and stated that they brought all liquids from home. In the days after the incident, Dr. Zheng denied drinking water from the water cooler. Nonetheless, NIH sought to determine if other individuals also had been internally contaminated. After specimens provided by other NIH employees on July 13, 1995, demonstrated their internal contamination with P-32, and in an attempt to identify a common source of contamination, NIH surveyed the water coolers and coffee stations on the fifth floor of Building 37 on July 14, 1995, and identified contamination in a water cooler located in the hallway. Only later did Drs. Ma and Zheng tell the NIH RSB that they had drunk from the contaminated water cooler. Finally, although NRC's AIT inspection arrived at NIH on June 30, 1995, one day after the discovery of Dr. Ma's contamination, NRC Staff did not consider the possibility that Dr. Ma might have been contaminated by using a water cooler or suggest surveying water coolers.

Accordingly, the NRC Staff concludes that under the circumstances, NIH did not fail to conduct reasonably necessary surveys after discovery of Dr. Ma's contamination, in violation of 10 C.F.R. § 20.1501(b).¹⁸

H. Procedures for Collection of Samples in Contamination Events

Petitioners state that before Dr. Ma's internal contamination, NIH failed to have a procedure in place to provide clear instructions to Dr. Ma about sample collection. Petitioners note that John Glenn, Ph.D. (Dr. Glenn), Chief, Radiation Protection and Health Effects Branch, Office of Nuclear Regulatory Research, NRC, stated at the December 19, 1995 Commissioner briefing that NIH "lost information about early excretion of P-32 because clear instructions were not provided to the exposed individual about sample instruction [collection of samples]."¹⁹

The events and transcript from the December 19, 1995 Commissioner briefing on *The Generic Implications of Recent Events Involving Ingestion of Radioactive Material at Research Facilities* reveal a similarity between the NIH AIT and the Massachusetts Institute of Technology (MIT) Incident Investigation Team (IIT) events in that both licensees lost information about early excretion of P-32 because clear instructions had not been provided to the exposed individual about

¹⁸ At the time of the incident, 10 C.F.R. § 20.1501(a) required licensees to perform surveys that are reasonable under the circumstances. On January 1, 1993, 10 C.F.R. § 20.201, with a similar requirement, became extant.

¹⁹ Dr. Glenn's comment was made before full information was available regarding sample collection after the NIH event. With the benefit of all the evidence, it is now apparent that clear instructions were provided to Dr. Ma and that no information was lost. See Section III.K.2.

how to collect samples. Although there is a considerable amount of guidance in the scientific literature available on the management of contaminated persons, NRC Staff determined that it would be beneficial to provide guidance to licensees on the levels of intake that should be considered for medical evaluation, the available methods to reduce the committed dose resulting from an intake, as well as guidance for the collection of samples for analysis. Consequently, NRC Staff has completed its evaluation of current regulatory guidance on the collection of samples for analysis, as well as the analysis of intakes, and will revise the existing regulatory guidance to licensees.

Accordingly, the Petitioners' request for NRC action to ensure adequate procedures and instructions to exposed persons for sample collection is granted as described above.

I. Dr. Weinstein's Interactions with NIH Radiation Safety Response Personnel

Petitioners state that Dr. Weinstein interfered with the NIH radiation safety response to Dr. Ma's contamination, and delayed transport of Dr. Ma to the hospital for emergency treatment. Specifically, Petitioners state that Dr. Weinstein performed smear tests, directed Dr. Ma to drink a lot of water, argued with NIH RSB officials about how to save urine samples in order to get a correct determination of the amount of radiation Dr. Ma had ingested, attempted to interfere with RSB personnel efforts to question and counsel Dr. Ma about the biological effects of radioactive materials and her contamination, tried to answer questions asked of Dr. Ma by RSB personnel, and attempted to usurp RSB functions by conducting a survey of the NIH conference room where Dr. Ma had stored her food.

Based on the inspections and the investigation, NRC concludes that Dr. Weinstein did not interfere with the reasonable and necessary NIH radiation safety personnel measures in response to the contamination event, delay Dr. Ma's transport to the hospital, or usurp or attempt to usurp RSB functions. Both Dr. Weinstein and Dr. Zheng provided assistance to NIH RSB personnel in counting smears taken from Dr. Ma by RSB personnel. Dr. Weinstein reasonably asked Dr. Ma to drink liquids. (Dr. Weinstein recalled that the NIH RSB recommended over the phone that Dr. Ma drink liquids to stay hydrated.) The Holy Cross Hospital ER physician and the NIH RSO agreed that intravenous hydration of Dr. Ma was advisable. Petitioners state that Holy Cross Hospital issued instructions to Dr. Ma on her discharge to maintain good hydration. Additionally, the RSB directed Dr. Ma to provide a urine sample for immediate survey, a measure necessary for the NIH RSB to determine with certainty whether Dr. Ma was internally contaminated and thus whether to transport Dr. Ma to the hospital. The evidence does not corroborate the Petitioners' assertion that Dr. Weinstein

argued with RSB personnel about the proper procedure for saving specimens from Dr. Ma. NIH RSB personnel at the scene described Dr. Weinstein as urging Dr. Ma's immediate transport to the hospital, along with Dr. Zheng, and as being impatient. Dr. Weinstein was not the only non-RSB person to survey the conference room. Dr. Zheng told an NIH colleague that he had found radioactive contamination in the conference room by surveying it. That colleague and a second colleague then surveyed the conference room for contamination shortly before arrival of the RSB. Dr. Weinstein went to survey the conference room after a third and a fourth colleague had already begun surveying the room.

J. Medical Care of Dr. Ma and Treatment to Reduce Her Contamination

Petitioners state that NIH personnel gave conflicting and harmful directions to Holy Cross ER personnel which delayed Dr. Ma's treatment, that NIH provided inadequate medical treatment of Dr. Ma, which was completely ineffective to reduce her contamination, and that the only effort NIH made to hasten the removal of the ingested radioactivity was to give Dr. Ma intravenous infusions of fluid at Holy Cross Hospital. Petitioners state that the Holy Cross ER physician's attempt to consult with REAC/TS in Oak Ridge, Tennessee, was frustrated because the Holy Cross Hospital telefax machine was unable to receive information from REAC/TS. Petitioners believe that Dr. Ma should have been given phosphate orally as the buffered sodium salt, calcium intravenously, and parathyroid intramuscularly, but was only given intravenous infusions of fluid (hydration therapy), based on directions by NIH personnel, which resulted in no discernible enhancement of P-32 elimination.

Petitioners state that Dr. Weinstein's presence in Dr. Ma's treatment points up fundamental flaws in NIH medical intervention and investigative security protocols, and the fact that Dr. Ma was directed by the Holy Cross ER physician to follow up with Mr. Zoon, Dr. Weinstein, and Dr. Ma's personal obstetrician-gynecologist (OB-GYN) "demonstrate [s] that the ER physician looked to NIH officials, including Dr. Weinstein, to direct treatment of Dr. Ma for internal contamination."

Petitioners state that NIH provided inadequate medical care to and followup on Dr. Ma. Specifically, NIH had no plan in place to ensure that one single person was in charge of directing and coordinating a contaminated employee's medical care and followup. No one from NIH met with Dr. Ma to discuss her contamination levels, and what, if any, medical treatment might decrease her contamination levels, except for a copy of the early NIH contractor, Oak Ridge Institute for Science and Education (ORISE) intake calculation of 9.8 MBq (265 μ Ci), given to Dr. Ma in July 1995 by the NIH RSO. The NIH OMS failed to provide any medical care or followup treatment to remove the ingested

radioactivity. Petitioners state that Dr. Stansbury of OMS examined Dr. Ma on June 30, 1995, and that no services were provided by OMS after that date, except to request blood work results. Petitioners state that although Dr. Ma told Dr. Stansbury of her severe lower thoracic pain, Dr. Stansbury attributed the pain to Dr. Ma's pregnancy and recommended no followup other than for Dr. Ma to see her OB-GYN.

Petitioners state that on August 4, 1995, they visited OMS and reported that Dr. Ma was experiencing vomiting and severe pain in her lower right side, but that Dr. Ma was again referred to her OB-GYN. Petitioners state that on August 8, 1995, Dr. Ma again reported to OMS that she continued to experience frequent vomiting and nausea, and again no treatment or intervention was suggested. After the end of July 1995, no one from NIH requested additional urine samples from Dr. Ma, only blood samples. Dr. Ma states that subsequent tests revealed that the cause of Dr. Ma's lower thoracic pain was a significant liver function abnormality resulting from her contamination.²⁰

NIH took reasonable and appropriate measures to determine whether Dr. Ma's contamination presented a life-threatening condition or immediate danger to Dr. Ma and her fetus, and whether her contamination was external or internal, before transporting Dr. Ma to a hospital for treatment. See Section III.E, *supra*. NIH also contacted the on-call physician from REAC/TS and put the REAC/TS physician in direct contact with the ER physician at Holy Cross Hospital, thus making expert advice available to Holy Cross Hospital and expediting Dr. Ma's treatment by Holy Cross Hospital. The ER physician decided not to follow the recommendation of the REAC/TS physician to administer a phosphate solution for dilution and displacement of the P-32 because of Dr. Ma's pregnancy. After consultation with both the REAC/TS physician and the NIH RSO, the ER physician ordered intravenous infusions of fluids (hydration) in order to dilute Dr. Ma's internal contamination, as was his prerogative. Additionally, based on the inspections and the investigation, NRC cannot conclude that Dr. Weinstein influenced or interfered with the Holy Cross ER physician's treatment decision regarding Dr. Ma's contamination. Before he arrived at Holy Cross at approximately 11:15 p.m., Dr. Weinstein was aware that the NIH RSB recommended that Dr. Ma "push" fluids in order to maintain hydration. See Section III.I, *supra*. The IV hydration ordered for Dr. Ma was started around 9:00 p.m., long before Dr. Weinstein arrived at Holy Cross or spoke to the ER physician.

Moreover, based on the medical information made available by Petitioners to NRC's Medical Consultant, the NRC concludes that the symptoms reported by Dr. Ma were not related to her ingestion of P-32. The professional literature

²⁰ Medical data provided by Petitioners did not substantiate this assertion.

reveals three cases in which persons were inadvertently administered high levels of P-32.²¹ The intakes in these cases were approximately fifteen to thirty times greater than Dr. Ma's intake of between 30.3 and 48.1 MBq (820 to 1300 μ Ci) of P-32. The person with the highest intake reported symptoms that were consistent with low blood counts, an expected response to exposure to relatively high radiation doses. Blood count depressions, with no symptoms, were observed in the other two cases. NRC's Medical Consultant concluded that Dr. Ma's white blood cell count, white blood cell differential count, and her platelet count were all within normal limits, and that minor abnormalities in Dr. Ma's hematological profile, which did not include blood count depression, were consistent with typical plasma volume expansion during pregnancy. Additionally, radiation intakes sufficiently large to cause nausea and vomiting are accompanied by a depression or ablation of the bone marrow, which was not indicated by Dr. Ma's laboratory data. Finally, experience with intakes of P-32 much larger than Dr. Ma's intake, both accidental and as part of medical treatment, in which P-32 is frequently injected intravenously in doses seven to fifteen times greater than Dr. Ma's intake, has not been observed to produce clinical symptoms. Accordingly, the NRC concludes that any symptoms Dr. Ma may have experienced, such as nausea and vomiting,²² resulted from causes other than her ingestion of P-32.

NRC licensees are clearly required to determine the nature and extent of radiological overexposures to occupational workers and members of the public, to maintain records of such exposures, and to provide notifications to exposed individuals and reports to NRC. *See, for example*, 10 C.F.R. §§ 19.13, 20.1204, 20.1501, 20.1502, 20.2106, 20.2107, 20.2202, 20.2203, 20.2205, and 20.2206. NRC requirements, however, impose no additional obligations upon licensees to provide medical care and followup to individuals exposed to radioactive materials for the purpose of removing radioactive contamination or ameliorating the medical effects of contamination.

In view of the above, to the extent that Petitioners are dissatisfied with the medical treatment provided to Dr. Ma by Holy Cross Hospital, or with any medical care provided by NIH to Dr. Ma apart from dose assessment, dose recordkeeping, or notification and reporting of Dr. Ma's dose, Petitioners' remedies, if any, do not lie with NRC.

²¹ *Blood*, Vol. 61, No. 4 (1983), at 746-50; *Schweizerische Medizinische Wochenschrift (Journal Suisse de médecine)*, Vol. 124, No. 42 (Oct. 22, 1994), at 1848-51; and *American Journal of Medical Sciences*, Vol. 254, No. 4 (Oct. 1967), at 451-63. *See also* NUREG-1535, "Ingestion of P-32 at Massachusetts Institute of Technology, Cambridge, Massachusetts, Identified on August 19, 1995" (December 1995).

²² Dr. Ma's reported nausea and vomiting started long before her ingestion of P-32. An NIH technician observed Dr. Ma "always" vomiting at NIH for approximately 2 months prior to the contamination event.

K. Estimates of Internal Contamination of Dr. Ma and Her Fetus

Petitioners state that NIH failed to take proper actions to accurately assess, and as a result, greatly underestimated Dr. Ma's internal contamination, that NIH failed to consider all the relevant data in assessing Dr. Ma's internal contamination, demonstrating that NIH is not able or willing to impartially evaluate its worker's radiation exposure levels when exposures are in excess of federal limits, and that NIH lied to Dr. Ma, to federal regulators, and to the public, about the magnitude of the exposure and the likely harm to Dr. Ma and her fetus. Specifically, the Petitioners state the following:

- NIH failed to take suitable and timely measurements from Dr. Ma to accurately calculate her occupational dose, in violation of 10 C.F.R. § 20.1204(a). NIH should have taken a full 24-hour urine sample following detection of Dr. Ma's contamination. Over the first 2 days, urine was collected as spot samples at each void, rather than collecting the entire urinary excretion over a 24-hour period as recommended by NUREG/CR-4884, "Interpretation of Bioassay Measurements" (1987). Additionally, NIH should have continued 24-hour urine collections and analysis until the activity level of the samples no longer yielded useful results. Instead, the NIH dose evaluation was based solely on samples collected during the first month following the intake.
- NIH incorrectly suggests that Dr. Ma is responsible for NIH's inadequate urine analysis because she returned a weekend's collection of urine in one carboy (a container), rather than three, and failed to follow through with continuing urine collection despite urging by NIH personnel. Dr. Ma did everything requested of her by NIH until it became evident that NIH had little interest in her health or in providing her medical care. NIH OMS and RSB officials asked Dr. Ma to collect all of her urine over the weekend following her contamination. Dr. Ma returned a weekends' urine collection in one carboy rather than three because two of the three wide-mouthed containers provided by RSB officials were defective and leaked. Dr. Ma was asked to bring in urine samples for the couple of weeks following her contamination. Dr. Ma collected her urine voluntarily until the end of July 1995, and submitted urine samples through July 27, 1995. Dr. Ma stopped providing samples because she did not receive any assistance or information from NIH. NRC estimated a significantly greater dose than did NIH, using the same information available to NIH.
- Between June 29, 1995, and July 27, 1995, Holy Cross provided NIH with twenty-five urine samples collected by Dr. Ma.
- Based on a whole-body scan performed by NIH on June 30, 1995, Dr. Jorge Carrasquillo, Acting Chief, Nuclear Medicine Department, NIH,

- estimated that Dr. Ma had still retained a total of 862 μCi (31.9 MBq) of P-32 on that date.
- NIH's preliminary estimate of Dr. Ma's ingestion of P-32 on July 3, 1995, was approximately 300 μCi (11.1 MBq), which was not based on a 24-hour sampling of standard systemic excreta data as recommended by NUREG/CR-4884 and the National Council on Radiation Protection and Measurements (NCRP) Report No. 87, "Use of Bioassay Procedures for Assessment of Internal Radionuclide Deposition" (1987). Additionally, the initial dose estimate relied entirely on analysis of urine samples and was not confirmed through analysis of fecal samples, which led to significant understatement of Dr. Ma's internal contamination.
 - The July 5, 1995 NIH estimate of Dr. Ma's intake was 265 μCi (9.8 MBq) of P-32 and was not based on the total volume Dr. Ma excreted, but was based on a sample. When the NIH RSO provided Dr. Ma with a copy of the ORISE estimate, he told Dr. Ma that the NIH estimate was "more or less the same."
 - By letter dated July 28, 1995, Mr. Zoon advised NRC's Region I Office that evaluation of the total intake of Dr. Ma was continuing and could result in an estimated intake potentially exceeding the 10 C.F.R. Part 20, Appendix B Annual Limit on Intake (ALI) for P-32 of 600 μCi (22.2 MBq).
 - At NRC's request, NIH asked its first consultant, ORISE, to confirm isotopic analyses performed by the NIH RSB with four of the first fifteen urine specimens taken on June 29 and 30, 1995, and with three urine samples and one blood sample. None of the samples was taken from a full 24-hour period and NIH failed to take any fecal samples. The August 15, 1995 revised estimate of Dr. Ma's intake performed by ORISE for NIH was between 740 and 820 μCi (27.4 and 30.3 MBq), resulting in an effective dose equivalent to Dr. Ma of between 5.8 and 6.4 rem (58 and 64 mSv), and to her fetus a dose of between 4.6 and 5.1 rem (46 and 51 mSv).
 - On August 29, 1995, NIH transmitted to NRC the "final" NIH assessment of Dr. Ma's effective dose equivalent as 4.17 rem (41.7 mSv), based upon an estimated intake of 500 μCi (18.5 MBq), and of the dose to her fetus as 3.2 rem (32 mSv). This analysis was not conducted in accordance with draft ANSI N13.30, "Performance Criteria for Bioassay" (1989). NIH also failed to continue the collection and analysis of excreta to ensure that Dr. Ma's excretion of P-32 followed the mathematical model NIH had used to predict her initial dose, and NIH failed to account for the effect of hydration therapy when initially evaluating the urine data. NIH's use of the "weighted least-squares fit" method to

assign its final dose is unacceptable because actual excretion does not follow the anticipated model.

- NRC's estimate of Dr. Ma's intake was between 30.3 and 48.1 MBq (820 and 1300 μ Ci) and of her internal committed effective dose equivalent (CEDE) was between 80 and 127 mSv (8.0 and 12.7 rem). Although both NRC and Petitioners' consultant excluded data from the first 2 days of urine collection as unreliable, NIH relied on those data primarily.
- The Petitioners' consultant estimated that Dr. Ma ingested 1000 μ Ci (37 MBq) of P-32 corresponding to a CEDE of 9.2 rem (92 mSv), and that her fetus received a dose of between 3 and 6.4 rem (30 and 64 mSv), based on an analysis of eleven urine specimens collected from Dr. Ma between June 29 and August 23, 1995.

Despite the inherent limitations in analysis based on excreta data and some differences in the assumptions used to evaluate the ingested activity and radiation dosimetry, the final estimates obtained by NIH, the Petitioners', and NRC are reasonably close. See Table 1, *infra*. Accordingly, the Petitioners' concerns that NIH did not accurately assess Dr. Ma's dose and the dose to her fetus are unsubstantiated.

Organization	Date	Dr. Ma's Dose Estimate		Dr. Ma's Fetal Dose Estimate	
		(rem)	(mSv)	(rem)	(mSv)
NIH	7/96	4.7-7.0	47-70	3.7-5.4	37-54
NRC	12/95	8.0-12.7	80-127	5.1-8.1	51-81
Petitioners' consultant	10/95	9.2	92	3.0-6.4	30-64

I. Petitioners' Estimates

Petitioners retained the services of David A. Dooley, Ph.D., a Certified Health Physicist with expertise in internal dose assessment, to perform an assessment of the radiation dose and its effects upon Dr. Ma and her fetus. Based upon radioanalysis conducted by TMA/Norcal Laboratory, of eleven urine specimens collected by Dr. Ma between June 29 and August 23, 1995, Dr. Dooley estimated that Dr. Ma received an exposure of 9.2 rem (92 mSv) and that her fetus received an exposure of 3.0 and 6.4 rem (30 and 64 mSv). Although Dr. Ma continued to submit urine samples to Dr. Dooley until October 4, 1995 analysis of those samples did not result in revision of Dr. Dooley's estimates.²³ Dr. Dooley estimated that, because of the P-32 intake, Dr. Ma would suffer an

²³ See Letter dated April 16, 1996, from Judith A. Wolfer, Esq., to Cynthia Jones, NRC.

increased lifetime excess cancer risk of approximately 30% to 83%, and her fetus would experience a risk of childhood cancer "30 to 150 times that of an unexposed child."²⁴

2. *NIH Estimates*

NIH performed an assessment of Dr. Ma's intake of P-32, the resultant radiation exposure received by Dr. Ma, and the radiation exposure received by her fetus based on urine specimens collected by Dr. Ma.

On June 29, 1995, the NIH RSB gave instructions to collect all of Dr. Ma's urine to Dr. Ma, to the paramedics who transferred her to the hospital, and to the Holy Cross ER physician. The Licensee also contacted radiation emergency medical professionals via telephone at REAC/TS and arranged for the REAC/TS physician to speak directly with the Holy Cross Hospital ER physician, to assist with the evaluation of Dr. Ma's P-32 intake and the radiation dose to Dr. Ma and to her fetus. Given the apparent level of P-32 internal contamination, Dr. Ma's pregnancy, and the ER physician's lack of experience in dealing with radioactive material internal contamination events, this was an eminently reasonable measure. The REAC/TS physician, who also happened to be an OB/GYN, believed that medical intervention at the hospital would not have been very effective in inhibiting phosphorus absorption from the gastrointestinal tract because, by the time Dr. Ma had arrived at Holy Cross, and based on discussion with the RSB, the REAC/TS physician understood that over 9 hours had elapsed since the suspected ingestion and the P-32 would have essentially been totally absorbed over this time period. The REAC/TS physician also asked the ER physician to instruct Dr. Ma to collect 24-hour urine samples for evaluation of P-32 kinetics.²⁵ The Holy Cross ER physician recalled that the NIH RSO requested that all of Dr. Ma's urine was to be measured, the volume for each void recorded, and then all of the urine to be placed in one container every 24 hours. In addition, Dr. Weinstein suggested to the ER physician that each urine void, at least during hospitalization, be saved separately, so that more time points would be available for modeling in determining the radiation exposure. He also suggested that the same could be accomplished by saving a small sample from each void (and recording the volume collected), separate from the continuing 24-hour collection. Dr. Weinstein believed that either procedure, if followed, would result in the availability of more information and no loss of urine.

The Holy Cross ER physician decided to develop his own method for collection of urine, and instructed his nurses that each time Dr. Ma voided, the

²⁴ See Letter from Dr. David Dooley, dated April 15, 1996, to Debra C. Katz, Esq.

²⁵ Letter from Ronald E. Goans, Ph.D., M.D., REAC/TS, dated November 8, 1995, to Shawn W. Goggins, NIH, and Memorandum from Ronald E. Goans, Ph.D., M.D., dated July 17, 1995, to Dr. Robert Ricks, REAC/TS.

amount would be measured, a small sample of each void would be maintained separately, and the rest would be put into one large container. The instructions given by the Holy Cross ER physician to Dr. Ma for collection of urine did not differ significantly from the recommendation of the REAC/TS physician, or of Dr. Weinstein, and were appropriate for proper assessment of Dr. Ma's intake and exposure, as well as that of her fetus. Holy Cross Hospital instructed Dr. Ma to collect urine on a 24-hour basis. When Dr. Ma reported to RSB on June 30, 1995, she brought the urine collected since departing Holy Cross, and was instructed to continue collecting urine on a 24-hour basis.

NIH states that when Drs. Ma and Zheng reported to the RSB for followup at 11:00 a.m. on June 30, 1995, they brought with them Dr. Ma's urine, in tubes and a container, and stated to RSB staff that was all the urine collected at the hospital and since discharge. Later that day, when Dr. Ma complained of back pain, she was escorted, at RSB's recommendation, to the NIH OMS where she was examined by a physician, and additional urine and blood samples were taken for radioanalysis. The results of the blood samples were within the expected range for a woman in her 17th week of pregnancy. Dr. Ma returned for a gamma camera scan at 5:00 p.m. at the NIH Clinical Center, and at that time was provided three carboys by RSB for the upcoming weekend and was advised to collect all her urine over the weekend using one carboy for each day. NIH states that on Monday, July 3, 1995, Dr. Ma returned only one carboy full of urine, stating to RSB staff that it was the urine from the evening of June 30 to July 1, 1995.

Based on NIH's preliminary notification, NRC issued PNO-I-95-025, "Internal Contamination of Researcher," on July 3, 1995, which stated that NIH had indicated that a 32-year-old female, who was in her fourth month of pregnancy, had received an estimated ingestion of approximately 11.1 MBq (300 μ Ci) of P-32.²⁶

Subsequent urine samples, when received from Dr. Ma, were analyzed promptly. NRC's AIT determined that the Licensee analyzed all samples accurately, as confirmed by the analyses performed for NRC by ORISE, and by NRC's Region I Laboratory. The periodic reanalysis of samples by the Licensee to ensure that the samples contained no additional radioactive contaminants was appropriate.

On August 29, 1995, based upon additional urine analysis, NIH performed another assessment of Dr. Ma's exposure. NIH calculated Dr. Ma's effective dose equivalent to be 4.17 rem (41.7 mSv), based upon an estimated intake of

²⁶ PNs constitute early notice of events of possible safety or public-interest significance. Information contained in PNs is received without any verification or evaluation, and is basically all that is known by the licensee and NRC Staff as of the date of issuance to the public. They are also known as preliminary notifications of occurrence (PNOs).

500 μCi (18.5 MBq), and the dose to Dr. Ma's fetus to be 3.2 rem (32 mSv). This reassessment was based on a total of twenty-six urine samples obtained from Holy Cross Hospital and Dr. Ma.

In 1996, NIH contracted with Skrable Enterprises, Inc., to perform a reassessment of all available urine data, as well as an evaluation of creatinine levels in the urine samples in order to confirm sample validity. This consultant suggested modification of the standard model parameters for the short-term retention compartments and use of creatinine-normalized data to improve the fit of the estimate to the sample data. These suggestions accounted for the varying time periods of sample collection. Based upon this reassessment, NIH revised its estimate of Dr. Ma's CEDE to between 4.7 and 7.0 rem (47 and 70 mSv), corresponding to an intake range of between 570 and 840 μCi (21.1 and 31.1 MBq). The revised dose to the fetus was calculated to be between 3.7 and 5.4 rem (37 and 54 mSv). Also on July 30, 1996, NIH RSB staff delivered its revised estimates entitled, "Report of 1995 Radiation Dose, NRC License 19-00296-10," to Dr. Ma at NIH, which summarized the doses described above and stated that the "levels (received by Dr. Ma) are considered to be safe and are not expected to result in a health impact."²⁷

Regarding the concerns of the Petitioners' that NIH failed to account for the effect of hydration therapy, NIH's report of its last estimate of Dr. Ma's 1995 occupational radiation dose states that NIH's consultant was not only aware of the large variation exhibited by the bioassay data as a result of hydration therapy, but accounted for these differences by using a modified biokinetic model and creatinine-normalized urine data to account for the large variances in the bioassay data. Moreover, the last NIH estimates are reasonably close to those of NRC and the Petitioners. Accordingly, the effects of hydration therapy upon the NIH dose estimates appear to raise no cause for concern.

As to the Petitioners' concerns that NIH's use of the weighted least-squares fit method was unacceptable because actual excretion does not follow the anticipated models, NRC's second consultant, Lawrence Livermore National Laboratory (LLNL), performed an independent assessment of the NIH data to determine if differences in the dose estimates may have been due to the use of the different internal dose assessment codes. When the first two data values were removed from the NIH data set, the unweighted least-squares intake assessment using the CINDY code was 30 MBq (810 μCi). Intake assessments from CINDY using the LLNL-treated data set ranged from 20.7 to 40.7 MBq (560 to 1100 μCi). This range of results is also consistent with the ORISE intake estimates of between 22.9 and 30.3 MBq (620 and 820 μCi). These results indicate that differences in correcting for 24-hour excretion also do not

²⁷ See NIH Memorandum from the NIH RSO, dated July 30, 1996, to Dr. Ma.

significantly influence the intake estimates. Therefore, the differences in the dose assessments between NIH's August 29, 1995 estimate and NRC's estimate were mainly due to differences in data handling. The major difference in these two dose estimates was the treatment of the sample data from the first few days post-intake. However, since the last NIH estimates now yield relatively close results with those of the Petitioners and NRC, NIH's use of the least-squares method in its earlier estimate is not cause for concern.

After the surveys and bioassays of persons who had access to the contaminated conference room, NIH determined that twenty-six individuals, including Dr. Zheng and in addition to Dr. Ma, were positive for P-32 contamination. All of the twenty-one individuals who were occupational workers as defined by 10 C.F.R. § 20.1003 received radiation exposures of less than 10% of NRC's annual occupational exposure limit of 50 mSv (5 rem) specified by section 20.1201(a)(1)(i). Of the five individuals who were members of the public, as defined by section 20.1003, one individual received a dose in excess of NRC's annual limit of 1 mSv (0.1 rem) for members of the public specified by 10 C.F.R. § 20.1301(a)(1). This individual's dose was estimated to be between 1.5 and 2.5 mSv (150 and 250 millirem).

Petitioners are correct in stating that the July 3, 1995 preliminary NIH estimates for Dr. Ma and her fetus' intake were not based upon full and complete data. NRC requires licensees to notify NRC within 24 hours of any event that may have caused, or threatens to cause, an individual to receive a dose exceeding 50 mSv (5 rem). 10 C.F.R. § 20.2202(b)(1)(i). Once information is reported to NRC, NRC issues a preliminary notification in accordance with NRC Inspection Manual Chapter 1120, §§ 1120-07 and 1120-08. These notifications promptly provide information to the Commissioners, as well as other NRC and Agreement State management, on matters that are of significant safety concern or have, or potentially could have, high public interest. These notifications, however, are not assumed to constitute final estimates.

As far as the Petitioners' concern that the NIH bioassay program was faulty in not collecting and analyzing fecal samples, NRC-approved models and methods provide guidance for the use of either urine or fecal samples. See NUREG/CR-4884, "Interpretation of Bioassay Measurements" (1987). Based on descriptions in the International Commission on Radiological Protection Publication 30, the biokinetic model for phosphorus predicts that about 80% of the ingested phosphorus is absorbed from the gastrointestinal tract and enters the bloodstream. From there, 15% is assumed to go directly to excretion through urine and feces, with a half-life of 0.5 day; 15% goes to intracellular fluids; 40% is incorporated into soft tissue; and 30% is incorporated into the skeleton. The 15% that goes to early excretion is considered to enter directly into the kidney/bladder compartment, from which it is eliminated within a 4-hour retention time. Because the route of Dr. Ma's intake was via ingestion,

and because there is little excretion of P-32 from the systemic compartment into the feces, NIH's use of urinary excretion data and decision not to use fecal excretion data was entirely appropriate.

Although NIH did not follow ANSI N13.30, they were not required to do so. Not only was this guidance issued as a draft for public comment at the time of the event, but NRC had not endorsed its use in any NRC Regulatory Guide.²⁸ Moreover, ANSI N13.30 is industry-issued guidance only, and does not constitute a regulatory requirement.

Petitioners are correct in stating that early reports from NIH of July and August 1995 were not based upon full and complete data. In hindsight, the August 29, 1995 report of NIH should not have been referenced as "final" assessments of dose. As NRC's LLNL evaluation points out, documented intakes of P-32 demonstrate an increase in urinary output of radiation over the first few days after intake. Since the concentration of phosphorus in the systemic compartments of the body is reflected in the urine, it is reasonable to conclude that urine activity may establish an equilibrium within a few days after the intake. Therefore, the early NIH dose assessments during the first month after the incident tended to underestimate the dose because of the nature of phosphorus biokinetics and the limited usefulness of internationally accepted models derived primarily for standard setting. It is understandable, however, that an internal dosimetrist may have a strong desire to maintain and use the first few days of bioassay samples. Continued use of these early excretion values also provides more consistency with early dose estimates, since these early values have more statistical weight. However, at long times after an intake (i.e., 20 to 30 days for P-32), an evaluation of the entire set of data must be performed relative to the projected values. It is during this time that a reevaluation should be made regarding the validity, usability, and statistical weight of the early times after intake. NIH's last set of consultants, as well as the NRC's and Petitioners' consultants, had the advantage of retrospective insight into the data, and based on that insight, did not use the urinary excretion data from the first few days after intake.

3. *NRC Estimates*

ORISE, serving as a scientific consultant to NRC, and using bioassay data provided by NIH, performed an assessment for NRC of the intake by, and resultant P-32 radiation Dr. Ma was exposed to, and of the radiation exposure received by her fetus. One of the major differences between the early estimates

²⁸ ANSI N13.30, "Performance Criteria for Radiobioassay," was issued as a draft standard for comment in September 1989, and was finalized in May 1996. NRC has not yet endorsed it for licensee use in any NRC Regulatory Guides.

of the Licensee and NRC was NIH's use of the annual limit on intake (ALI) that was based on Reference Man [70 kilograms (kg)], versus NRC's use of an ALI based on Reference Woman (57 kg). NRC requires licensees to calculate doses to individuals in accordance with ALIs that are based on Reference Man. See 10 C.F.R. Part 20, Appendix B, notes to Table 1, "Occupational." Because NRC's understanding was that Dr. Ma weighed approximately 53 kg, the model to calculate the ALI that more appropriately represented the circumstances of Dr. Ma's contamination was Reference Woman, and consequently all NRC dose estimates were based upon that model.

Because of the differences in the results of the assessments performed by the Licensee (dated August 26, 1995) and by NRC's scientific consultant to the AIT, ORISE (dated August 9, 1995), NRC contracted with a third party, LLNL, to independently review the assessments performed by the Licensee, and by ORISE, for NRC.

Based on the work of its consultants, NRC estimates that Dr. Ma ingested between 30.3 and 48.1 MBq (820 and 1300 μ Ci) of P-32, an amount of P-32 in excess of the 22.2 MBq (600 μ Ci) annual limit specified by Part 20, Appendix B, Table 1, col. 1. Based on these values, NRC estimates that Dr. Ma's internal CEDE was between 80 and 127 mSv (8.0 and 12.7 rem). The estimated radiation exposure received by Dr. Ma's fetus was between 51 and 81 mSv (5.1 and 8.1 rem). A more detailed discussion of NRC's dose assessment can be found in the AIT final report of January 13, 1997.

NRC also contracted with one of its medical consultants to review and characterize the safety significance of the exposures to Dr. Ma and her fetus, summarized in his final report dated September 4, 1996. Based on NRC's estimated exposures to Dr. Ma and her fetus, NRC's medical consultant concluded that no deterministic or stochastic effects to Dr. Ma, and no deterministic effects to her fetus are expected. In regard to potential stochastic consequences to the fetus, although there is moderate uncertainty in the data used for cancer risk estimation as a result of *in utero* radiation exposure, in this case, an excess risk of 0.33% is estimated (for comparative purposes, the natural risk of childhood cancers is about 0.1%). Thus the probability that the exposed fetus will *not* develop a radiation-induced childhood cancer is 99.67% (range 99.60 to 99.74%). It is unknown whether this risk estimate should be reduced because of the low dose and low dose rate associated with this internal exposure from P-32.

NRC performed a review of both the NIH AIT and the MIT IIT contamination events in order to determine if NRC guidance to licensees regarding instructions for collection of excreta and analysis of fetal dose based upon maternal uptake is adequate. As a result of this review, the staff issued additional guidance to licensees on analysis of fetal doses, NUREG/CR-5631, rev. 2, "Contribution of Maternal Burdens to Prenatal Radiation Doses" (May 30, 1996).

One of NRC's scientific consultants reviewed and confirmed the NIH estimates of dose received by the twenty-six individuals who drank from the contaminated water cooler. NRC concluded that no deterministic or stochastic consequences are expected for any of the twenty-six individuals, including Dr. Zheng, who were internally contaminated with P-32.

L. Directions to Hospital Emergency Room Personnel Concerning Assessment of Dr. Ma's Level of Contamination

Petitioners state that NIH personnel gave conflicting and harmful directions to Holy Cross ER personnel, which interfered with efforts to properly assess Dr. Ma's contamination. Specifically, the NIH RSO directed the ER physician at Holy Cross to collect the total volume of urine for a 24-hour period, whereas Dr. Weinstein instructed the ER physician to aliquot a small part of the samples already taken and to discontinue efforts to collect urine over a 24-hour period, in conflict with NUREG/CR-4884, "Interpretation of the Bioassay Measurements" (1987). Petitioners also state that the Holy Cross ER physician did not know whose instructions to follow and so developed a compromise plan, and when Dr. Ma was released from Holy Cross, no instructions were given to her to collect her urine at any interval.

NRC concludes that the NIH RSB gave appropriate instructions, in view of the limited NRC guidance available to licensees at the time of this event regarding urine collection, *see* Section III.H, *supra*, to Dr. Ma, to the paramedics who transferred her to the hospital on June 29, 1995, and to the Holy Cross ER physician for urine collection. Additionally, the three methods for collection of Dr. Ma's urine recommended to the ER physician by the REAC/TS physician, the NIH RSO, and Dr. Weinstein were not significantly different from each other or conflicting, and the instructions given by the Holy Cross ER physician to Dr. Ma for collection of urine were appropriate for proper assessment of Dr. Ma's intake and exposure, as well as that of her fetus. *See* Section III.K.2, *supra*. Accordingly, NRC Staff cannot conclude that Dr. Ma was given inadequate or conflicting instructions.

M. NIH Notification to Dr. Ma of Her Radiation Exposure Level

Petitioners state that in violation of 10 C.F.R. § 19.13(d), NIH deliberately failed to notify Dr. Ma of her estimated radiation exposure level at the same time such notification was provided to NRC. Specifically, the only NIH notification provided to Dr. Ma was a copy of the August 1995 ORISE report estimating her contamination at 265 μCi (9.8 MBq), despite NRC direction to NIH to make notifications required by section 19.13(d). As a result, before NRC's actions to

estimate her intake, Dr. Ma had to learn of her exposure levels from indirect sources and consulted with an independent health physicist at great personal cost.

NRC notified NIH by letter dated December 1, 1995, from Thomas T. Martin, Regional Director for Region I, and by letter dated January 29, 1996, from Charles W. Hehl, Director, NRC Region I, Division of Nuclear Material Safety, that NIH was required to make notifications pursuant to section 19.13(d) regarding the estimated radiation exposure of Dr. Ma and her fetus. The December 1, 1995 letter notified NIH that Dr. Ma received a dose in excess of the applicable occupational regulatory limits, 10 C.F.R. § 20.1201(a)(1)(i), specifically that NRC estimates her internal CEDE was between 80 and 127 mSv (8.0 and 12.7 rem) and that NRC estimates the radiation exposure received by Dr. Ma's fetus was between 51 and 81 mSv (5.1 and 8.1 rem).

By letter and facsimile dated May 15, 1997, counsel for Petitioners notified NRC that NIH had revised its dose estimates for Dr. Ma and her fetus, and Petitioners' counsel provided a copy to NRC of an NIH memorandum dated July 30, 1996, containing the revised estimates. Although this document is addressed to Dr. Ma, Petitioners' counsel state that Dr. Ma never received this memorandum and that NIH never notified her directly of her radiation dose after the accident.

NIH revised its original dose estimates after engaging an independent expert on internal dose assessment and bioassay interpretation to perform an analysis of the dose to Dr. Ma and her fetus. NIH's independent consultant completed its analysis and prepared a report to NIH dated March 4, 1996. NIH provided its memorandum dated July 30, 1996, summarizing Dr. Ma's 1995 revised radiation dose estimates for her and her fetus, to NRC at its request, on April 4, 1997, by facsimile. Based on the NIH consultant's report, NIH revised its dose estimates to a CEDE of between 4.7 and 7.0 rem (47 and 70 mSv) to Dr. Ma, corresponding to an intake range of between 570 and 840 μ Ci (21.1 and 31.1 MBq), and a dose of between 3.7 and 5.4 rem (37 and 54 mSv) to Dr. Ma's fetus.

NRC regulations at section 19.13(d) require that NIH provide Dr. Ma with a report of her exposure data at a time not later than NIH's transmittal to NRC of NIH's report on Dr. Ma's exposure. NIH denies that it never provided Dr. Ma with the revised dose estimates. NIH states that its Area Health Physicist hand-delivered the July 30, 1996 memorandum to Dr. Ma on July 30, 1996. The Area Health Physicist states that, at that time, she explained the contents of the memorandum to both Dr. Ma and Dr. Zheng, asked if they had any questions, and identified NIH personnel to contact if Petitioners had any questions. The

Area Health Physicist states that Petitioners opened the envelope and read the memorandum in her presence.²⁹

Accordingly, NIH did violate 10 C.F.R. § 20.2203(a)(2)(i), because NIH did not submit a written report to NRC within 30 days after learning of the occupational dose to Dr. Ma in excess of the limits for adults in section 20.1201. A Notice of Violation is being issued concurrently with the issuance of this Director's Decision. However, NIH did inform Dr. Ma of its revised dose estimates on July 30, 1996, in accordance with section 19.13(d). Accordingly, Petitioners' request for enforcement action for violation of section 19.13(d) is denied.³⁰

N. Declaration of Pregnancy and Minimization of Radiation Exposure to Dr. Ma

Petitioners state that, in violation of 10 C.F.R. § 20.1208, their supervisor, Dr. Weinstein, coerced Dr. Ma to not submit a written declaration of pregnancy to the NIH RSB, even though it was her clear desire to receive maximum protection for her fetus from exposure to radiation and radioactive materials, and thus Dr. Weinstein constructively denied Dr. Ma her right to receive protection for her fetus from ionizing radiation in excess of 0.5 rem (5 mSv). Petitioners state that between June 19 and June 23, 1995, Dr. Weinstein withheld the NIH form used to file a declaration of pregnancy, and insisted that if Dr. Ma filled out the declaration form, it would "cause trouble for the lab." Petitioners also state that Dr. Weinstein disagreed with the steps proposed by Petitioners to minimize radiation exposure of Dr. Ma during her pregnancy.

As a related matter, Petitioners also state that because Dr. Weinstein was in a hurry to patent the results of their research (a novel method to display more efficiently the existence of expressed genes), which would have had significant scientific and commercial value, Dr. Weinstein urged Petitioners to work tirelessly, and over a period of several weeks before the contamination incident, repeatedly requested Petitioners to terminate Dr. Ma's pregnancy. Based on the several inspections and the investigation, NRC concludes that the evidence does not substantiate Petitioners' assertions that Dr. Weinstein urged Petitioners to work tirelessly, requested Petitioners to terminate Dr.

²⁹ See Letter dated August 15, 1997, from Robert A. Zoon, Radiation Safety Officer, NIH, to Carl J. Paperiello, NRC, and attached "Memorandum" dated August 14, 1997, from Beth Reed, NIH Area Health Physicist, to Robert A. Zoon.

³⁰ Although there is a dispute as to whether in fact NIH notified Dr. Ma of its revised dose estimates, Dr. Ma was in fact provided with the revised NIH dose estimates from another source.

Ma's pregnancy,³¹ and was in a hurry to patent the results of Petitioners' research,³² or that the research would have had significant scientific and commercial value.³³

Based on the inspections and investigation, NRC concludes that the evidence does not substantiate Petitioners' assertions that Dr. Weinstein, with coercion or otherwise, prevented or tried to prevent Dr. Ma from declaring, or interfered with Dr. Ma's declaration of, her pregnancy in writing,³⁴ or that Dr. Weinstein objected to or interfered with any measures proposed or taken by Petitioners to minimize exposure of Dr. Ma's fetus to radiation. Additionally, Petitioners both took the "NIH Radiation Safety in the Laboratory" training course on November 29, 1994. That training covered NIH procedures on written declarations of pregnancy for occupational workers and instructions for pregnant employees as to how to obtain the NIH form used to submit a written declaration of pregnancy. Although not required to do so, Dr. Weinstein obtained the NIH form for Petitioners and provided it to Petitioners on June 23, 1995. Dr. Ma, however, did not request the form, nor did she submit the formal declaration of her pregnancy to the NIH RSB, as provided in the materials covered in her training. In view of the above, Dr. Ma's failure to submit a written declaration of pregnancy was voluntary. Accordingly, the 5-mSv (0.5-rem) occupational exposure limit specified by 10 C.F.R. § 20.1208(a) for the fetus of a declared pregnant worker was not applicable to Dr. Ma.

Based on the above, Petitioners' request for enforcement action against NIH for violation of section 20.1208 is denied.

³¹ In addition to the lack of evidence corroborating this assertion, there are significant inconsistencies in Dr. Ma's account of how she learned of the alleged request. In the petition, Dr. Ma stated that in the evening, after returning from a meeting with Dr. Weinstein at NIH, Dr. Zheng informed Dr. Ma that Dr. Weinstein had made the alleged request earlier that day. Dr. Ma, however, told investigators that she learned of the alleged request during a meeting at NIH with Dr. Zheng and Dr. Weinstein, a week after Dr. Weinstein made the alleged request to Dr. Zheng, and that Dr. Zheng had not told Dr. Ma of the request.

³² In addition to the lack of evidence to corroborate this assertion, Petitioners made contradictory statements regarding Dr. Weinstein's plans for publication of the results of Petitioners' research. Several days after discovery of Dr. Ma's contamination, Dr. Ma told a colleague that the Petitioners wanted to publish their research paper before obtaining a patent application (contrary to usual procedures), but that Dr. Weinstein was trying to delay publication of the research paper. Dr. Ma told investigators shortly afterwards that Dr. Weinstein believed that her pregnancy would prevent her from handling radioactive materials, when Dr. Weinstein had applied for a patent and was trying to get the Petitioners' research paper published. A few days later, Dr. Zheng submitted a statement to investigators asserting that over the past 3 or 4 months Dr. Weinstein had been trying to delay publication of the research paper.

³³ The investigation indicates that the Petitioners' research, which was conducted to investigate a proposal of Dr. Weinstein, did not constitute a major scientific discovery and had little commercial value.

³⁴ Moreover, the investigation produced evidence that Dr. Ma was not eager to declare her pregnancy. Dr. Ma told an NIH colleague approximately 2 months before the contamination incident that she was reluctant to inform Dr. Weinstein of her pregnancy, because then she might have to stop conducting experiments involving radiation.

O. Responsibility for Contamination of Dr. Ma and Twenty-Six NIH Employees

Based on the inspections and the investigation, NRC concludes that Dr. Ma and twenty-six NIH employees were deliberately contaminated with P-32. Dr. Ma's exposure and the exposure of one of the twenty-six employees contaminated by the water cooler were beyond regulatory limits, in violation of 10 C.F.R. §§ 20.1201 and 20.1301, respectively. Neither the means of administering P-32 to Dr. Ma,³⁵ nor the person(s) responsible for the contamination of Dr. Ma³⁶ and of the water cooler, which was the source of contamination to the twenty-six NIH employees, however, was definitively identified. In the absence of any evidence to the contrary, NRC presumes that the violations were caused by an employee(s) of NIH and that the material belonged to NIH. As explained above, NRC also concludes that the contamination of Dr. Ma and of the water cooler was not a result of the Licensee's violations of NRC requirements for security and control of radioactive material. See Section III.A, "Violations of NRC Requirements for Security and Control of Licensed Material," *supra*. Normally, the exposures beyond regulatory limits in this case would be subject to significant enforcement action. However, under the circumstances of this case, the Commission has decided to exercise its enforcement discretion and not initiate formal enforcement action against NIH for these violations. Discretion is being exercised because NIH fully cooperated with the investigation, there is no evidence that NIH contributed directly or indirectly to the deliberate misuse of licensed material involved, and NIH could not reasonably foresee that an employee or employees would maliciously misuse radioactive material as was done in this case.

Accordingly, enforcement action against NIH, in addition to that already taken in the NOV and Proposed Imposition of Civil Penalty \$2500 (EA 96-027) and the Order Imposing Civil Penalty \$2500 (EA 96-027), is not warranted in this case

³⁵ Petitioners assert that Dr. Ma was contaminated at NIH on the evening of June 28, when she ate food that she had stored in an NIH conference room refrigerator the previous evening. Dr. Ma's contamination was discovered at approximately 6:00 p.m. on June 29. The evidence indicates that Dr. Ma was not contaminated by food she had stored in the NIH conference room refrigerator. In the evening of June 29, the NIH RSB found no radioactive contamination of the conference room refrigerator, the contents of the refrigerator, Dr. Ma's desk, the table at which Dr. Ma ate, the trash cans or containers or tables in the halls near Petitioners' lab, the lab, or Dr. Weinstein's office. On June 30, the microwave used by Dr. Ma to heat her food at NIH, and the plastic containers and the utensils used by Dr. Ma to eat the food she brought to NIH, were surveyed, and no contamination was found. Additionally, the evidence indicates that the P-32 contamination of the carpet in front of the conference room refrigerator occurred sometime after 5:00 p.m. on June 29. The AIT report states in the chronology that the NIH RSB initial estimated time of ingestion was noon on June 29, 1995. However, after review of the physical evidence and radiation surveys, NIH used 11:00 a.m., June 28, 1995, as the most probable initial ingestion time. NIH also used this initial ingestion time for the other twenty-six contaminated NIH individuals involved. NRC also used this initial time of ingestion in its dose estimates.

³⁶ The investigation produced no evidence to corroborate Petitioners' assertions that Dr. Weinstein had suggested to several people either that Petitioners already had a child in China, or that Petitioners deliberately contaminated themselves in order to terminate Dr. Ma's pregnancy.

for the occupational exposure of Dr. Ma beyond regulatory limits, the exposure of the member of the public beyond regulatory limits, or the contamination of the water cooler.³⁷

IV. CONCLUSIONS

The following requests of Petitioners are granted in part as described above: for enforcement action against NIH for violations of NRC security and control requirements and for violation of NRC requirements related to radiation safety training, ordering radioactive materials, inventory control of radioactive materials, monitoring, and the issuance, use, and collection of dosimetry. Petitioners' request for NRC action to ensure adequate procedures and instructions to exposed persons for sample collection is granted as described above. The following requests of Petitioners for enforcement action against NIH are denied: for the exposure of Dr. Ma beyond regulatory limits, for the exposure of Dr. Ma's fetus, and for the contamination of the water cooler; regarding notification to Dr. Ma of her level of contamination; regarding Dr. Ma's declaration of pregnancy; regarding the conduct of surveys after Dr. Ma's contamination; and for the failure to accurately calculate Dr. Ma's occupational radiation dose. Finally, Petitioners' request to suspend or revoke the NIH license is denied.

A copy of this Decision will be filed with the Secretary of the Commission for Commission review in accordance with 10 C.F.R. § 2.206(c) of the Commission's regulations. As provided by this regulation, the Decision will constitute the final action of the Commission 25 days after issuance, unless the Commission, on its own motion, institutes a review of the Decision within that time.

FOR THE NUCLEAR
REGULATORY COMMISSION

Carl J. Paperiello, Director
Office of Nuclear Material Safety
and Safeguards

Dated at Rockville, Maryland,
this 17th day of September 1997.

³⁷ See Letter from Ashok C. Thadani, Acting Deputy Executive Director for Regulatory Effectiveness, to Michael M. Gottesman, M.D., Deputy Director for Intramural Research, NIH, dated September 17, 1997.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR REACTOR REGULATION

Samuel J. Collins, Director

In the Matter of

Docket Nos. 50-361
50-362

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

September 19, 1997

The Director of the Office of Nuclear Reactor Regulation denies a petition filed pursuant to 10 C.F.R. § 2.206 by Stephen Dwyer on September 22, 1996, asking the Nuclear Regulatory Commission to shut down the San Onofre Nuclear Generating Station, Units 2 and 3, pending a complete review of the seismic risk based on new information gathered at the Landers and Northridge earthquakes.

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

I. INTRODUCTION

By petition dated September 22, 1996, Stephen Dwyer (Petitioner) requested that the Nuclear Regulatory Commission (NRC) take action with regard to San Onofre Nuclear Generating Station (SONGS). The Petitioner requested that the NRC shut down the SONGS facility "as soon as possible" pending a complete review of the "new seismic risk."¹ The Petitioner asserted as a basis for this request that a design criterion for the plant, which was "0.75 G's acceleration," is "fatally flawed" on the basis of new information gathered at the Landers

¹ In his e-mail dated March 26, 1997, supplementing his petition, the Petitioner also requested removal of "all spent fuel out of the southern California seismic zone."

and Northridge earthquakes. The Petitioner asserted (1) that the accelerations recorded at Northridge exceeded "1.8G's and it was only a Richter 7+ quake," (2) that there were horizontal offsets of up to 20 feet in the Landers quake, and (3) that the Northridge fault was a "Blind Thrust and not mapped or assessed." On November 22, 1996, the NRC Staff acknowledged receipt of the petition as a request pursuant to 10 C.F.R. § 2.206 and informed the Petitioner that there was insufficient evidence to conclude that the requested immediate action was warranted. Notice of the receipt of the petition indicating that a final decision with respect to the requested action would be forthcoming at a later date was published in the *Federal Register* on November 29, 1996 (61 Fed. Reg. 60,734).

The Petitioner provided supplemental information in support of his petition in a letter dated December 10, 1996, two e-mails dated March 26, 1997, and an e-mail dated May 28, 1997.² My Decision in this matter follows.

II. DISCUSSION

A. Regulatory Requirements Associated with Potential Earthquake Motion and the Licensing Basis for SONGS

The design bases for each nuclear power plant must take into account the potential effects of earthquake ground motion.³ The seismic design basis, called the safe-shutdown earthquake (SSE), defines the maximum ground motion that certain structures, systems, and components necessary for safe shutdown are designed to withstand.⁴ SONGS Units 2 and 3 seismic design basis is consistent with the siting criteria set forth in Title 10 of the *Code of Federal Regulations*, Part 100, Appendix A, "Seismic and Geologic Siting Criteria for Nuclear Power Plants." Appendix A describes the nature of the investigations required to obtain the geologic and seismic information necessary to determine site suitability and

² By letter dated June 26, 1997, the NRC Staff advised the Petitioner that his e-mail dated April 25, 1997, concerning the ability of the SONGS steam generators to withstand a major seismic event, would be treated as a separate section 2.206 petition.

³ See 10 C.F.R. Part 50, Appendix A, Criterion 2 and 10 C.F.R. § 50.34(a)(1)(i); see also 10 C.F.R. Part 100, Appendix A, § V(a) which provides, in part, that "the design of each nuclear power plant shall take into account the potential effects of vibratory ground motion caused by earthquakes." The investigative obligations of Part 100, Appendix A, which are only imposed explicitly on applicants for construction permits, were effective December 13, 1973 (38 Fed. Reg. 31,279 (Nov. 13, 1973)). The licensing board issued its decision regarding the SONGS Units 2 and 3 construction permits on October 15, 1973. However, the SONGS site was reviewed against the Appendix A criteria during the construction permit licensing review which was updated at the operating license review stage.

⁴ The SSE is defined, in part, as

that earthquake which is based upon an evaluation of the maximum earthquake potential considering the regional and local geology and seismology and specific characteristics of local subsurface material. It is that earthquake which produces the maximum vibratory ground motion for which certain structures, systems, and components are designed to remain functional.

See 10 C.F.R. Part 100, Appendix A, § III(c).

provide reasonable assurance that a nuclear power plant can be constructed and operated at a site without undue risk to health and safety of the public. Among other particulars, Appendix A requires⁵ —

- Determination of the lithologic, stratigraphic, hydrologic, and structural geologic conditions of the site and the region surrounding the site.
- Identification and evaluation of tectonic structures underlying the site and the region surrounding the site, whether buried or expressed at the surface.
- Evaluation of physical evidence concerning the behavior during prior earthquakes of the surficial geologic materials and substrata underlying the site.
- Determination of the static and dynamic engineering properties of the materials underlying the site, such as seismic wave velocities, density, water content, porosity, and strength.
- Listing of all historically reported earthquakes that affected or that could reasonably be expected to have affected the site.
- Correlation of epicenters of historically reported earthquakes, where possible, with tectonic structures, any part of which is located within 320 kilometers (200 miles) of the site. Epicenters that cannot be correlated with tectonic structures shall be identified with tectonic provinces, any part of which is located within 320 kilometers (200 miles) of the site.
- For capable faults⁶ that may be of significance in establishing the SSE or that are longer than 330 meters (1000 feet) and within 8 kilometers (5 miles) of the site, determination of the length of the fault; the relationship of the fault to the regional tectonics structures; and the nature, amount, and geologic history of displacements along the fault, including the estimated amount of maximum Quaternary displacement related to any one earthquake along the fault are required.

The information collected in these investigations is used to determine the vibratory ground motion at the site, assuming that the epicenters of the earthquakes are situated at the point on the tectonic structures or in the tectonic provinces nearest to the site. The earthquake that could cause the maximum vibratory ground motion at the site is designated the SSE. The vibratory ground motion produced by the SSE is defined by response spectra, which are smoothed design

⁵ See 10 C.F.R. Part 100, Appendix A, §IV.

⁶ A capable fault is a fault that has exhibited one or more of the following characteristics: (1) movement at or near the ground surface at least once within the past 35,000 years or movement of a recurring nature within the past 500,000 years; (2) macro-seismicity instrumentally determined with records of sufficient precision to demonstrate a direct relationship with the fault; and (3) a structural relationship to a capable fault according to characteristics (1) or (2), above, such that movement on one could be reasonably expected to be accompanied by movement on the other. See 10 C.F.R. Part 100, Appendix A, §III(g).

spectra developed from a set of vibratory ground motions caused by more than one earthquake.

SONGS was licensed consistent with the seismic and geologic siting criteria for nuclear power plants set forth in Part 100, Appendix A, described above. The site has undergone geologic, geophysical, geotechnical, and seismic investigations and reviews that are at least as thorough and comprehensive as those of any critical facility.⁷ The SONGS SSE is based on the assumed occurrence of a surface-wave (M_s)⁸ magnitude 7 earthquake on the offshore zone of deformation (OZD), a right lateral strike-slip fault zone, approximately 8 kilometers from the site at its closest approach. This magnitude 7 event is larger than any earthquake known to have occurred on the OZD, and the resulting ground motion estimate is larger than that which could reasonably be expected at the SONGS site from any other seismic source. The determination of the SSE was made in accordance with the criteria and procedures specified in Appendix A to Part 100 and using a multiple hypothesis approach in which several different methods were used to determine each parameter; sensitivity studies were performed to account for the uncertainties in the earth sciences.

In addition, the plant has design margins (capability) well beyond the demands of the SSE. The ability of a nuclear power plant to resist the forces generated by the ground motion during an earthquake is thoroughly incorporated in the design and construction of the plant. The codes that govern the construction of residential and commercial buildings are far less stringent than the requirements for nuclear power plants. As a result, nuclear power plants are able to resist earthquake ground motions well beyond their design basis, the SSE, and far above the ground motion that would result in damage to buildings designed and built to commercial codes.

⁷The findings of these investigations were reviewed extensively by the Staff and were litigated in proceedings concerning the issuance of the construction permit and operating licenses for SONGS Units 2 and 3. See LBP-73-36, 6 AEC 929 (1973), ALAB-248, 8 AEC 957 (1974); and see LBP-82-3, 15 NRC 61 (1982), ALAB-673, 15 NRC 688 (1982), ALAB-717, 17 NRC 346 (1983); and see *Carstens v. NRC*, 742 F.2d 1546 (D.C. Cir. 1984), cert. denied, 471 U.S. 1136 (1985) (the Court of Appeals affirmed the Commission's granting of the operating licenses for SONGS Units 2 and 3, noting the voluminous record and substantial evidence supporting the seismic review).

⁸In 1935, Charles Richter introduced the concept of magnitude to describe the size of earthquakes. His original formula was based on events in southern California recorded on torsion seismographs within 600 km of the epicenter. This is the magnitude labeled M_L . Over the years Richter and others developed formulas to compute magnitudes from body and surface waves (m_b and M_c) at distant (teleseismic) stations as well as other methods to compute magnitudes for local events in other areas of the world. Most of these methods of computing magnitude use as the measured variable the amplitude of one or more seismic waves. All of these magnitude procedures, including the moment magnitude M_w , have been developed to produce a number that represents the size of an earthquake, and each was shingled onto Richter's original procedure so that the formulas would produce similar values at particular places on the magnitude scale. Each computation procedure has its own magnitude or distance range over which it is valid. Surface wave magnitude is normally calculated from the amplitudes of waves with periods near 20 seconds. Moment magnitude is based on the seismic moment. Seismic moment is calculated from recordings on digital seismographs and compared to the waveform synthetic seismograms from numerical models of the fault rupture to determine the moment.

The geologic and seismic siting and the design of SONGS were reviewed by the NRC Staff, the U.S. Geologic Survey, the National Oceanic and Atmospheric Administration, the Advisory Committee on Reactor Safeguards and were litigated before the Atomic Safety Licensing Board before they were licensed by the Commission.⁹ The NRC continually monitors the adequacy of the design of nuclear power plants in order to protect the public health and safety. The SONGS Licensee performed an individual plant examination of external events (IPEEE).¹⁰ The IPEEE is a program that involves the evaluation of the capability of a nuclear power plant to withstand the effects of several natural phenomena such as earthquakes, fires, and floods, well beyond its design bases. The most recent geologic and seismic information for the southern California region was used in the probabilistic analysis to quantify the seismic hazard and the uncertainties for the SONGS site for this program.

The ground motion from an earthquake at a particular site is a function of the magnitude and focal mechanism (type of faulting, i.e., normal, reverse, strike slip) at the earthquake source. It is also a function of the distance of the facility from the fault and the geology immediately under the facility site. The estimates of SSE ground motion for the SONGS site conform with the procedures and criteria specified in Part 100, Appendix A, and the Standard Review Plan (SRP)¹¹ §§ 2.5.1 and 2.5.2 (NUREG-0800). As previously stated, the earthquake that was determined to control the design of SONGS is an $M_S = 7$ located on the OZD at a distance of 8 kilometers from the site. The appropriate level of conservatism for characterizing the ground motion through a site-specific spectrum as specified in SRP 2.5.2 is the 84th percentile. This level of conservatism was used in the design and licensing review of SONGS Units 2 and 3.

Since the SONGS plants were licensed, a new magnitude scale, moment magnitude (M_w), has come into common usage. The most recently published ground motion attenuation relationships¹² use M_w . An attenuation relationship is a relationship between sized earthquake, distance to fault, and the amplitude of the ground motion. Since magnitude 7 M_w is equal to magnitude 7 M_S ,¹³

⁹ See cases cited *supra* note 7.

¹⁰ See Response to Generic Letter 88-20, Supp. 4, Individual Plant Examination of External Events (IPEEE), dated December 15, 1995, discussed, *infra*, at pp. 184-85.

¹¹ The SRP is used as guidance for the Office of Nuclear Reactor Regulation staff responsible for the review of applications to construct and operate nuclear power plants.

¹² N.A. Abrahamson and W.J. Silva, "Empirical Response Spectral Attenuation Relations for Shallow Crustal Earthquakes," 68 *Seismological Research Letters* 94-127 (1997); David M. Boore, William B. Joyner, and Thomas E. Fumal, "Equations for Estimating Horizontal Response Spectra and Peak Acceleration from Western North American Earthquakes: A Summary of Recent Work," 68 *Seismological Research Letters* 128-53 (1997); K.W. Campbell, "Empirical Near-Source Attenuation Relationships for Horizontal and Vertical Components of Peak Ground Acceleration, Peak Ground Velocity and Pseudo-Absolute Acceleration Response Spectra," 68 *Seismological Research Letters* 154-79; K. Sadigh, C.Y. Chang, J.A. Egan, F. Makdisi, and R.R. Yongs, "Attenuation Relationships for Shallow Crustal Earthquakes Based on California Strong Motion Data," 68 *Seismological Research Letters* 180-89 (1997).

¹³ Thorne Lay and Terry C. Wallace, *Modern Global Seismology* (Academic Press 1995).

there is no need to make a conversion between M_w and M_s when comparing the ground motion estimates obtained using the recent attenuation relationships to the SONGS SSE ground motion.

B. Responses to the Petitioner's Concerns

1. Concern That SONGS Is in a High Seismic Hazard Area

In the enclosure to his letter,¹⁴ the Petitioner referenced "a recent paper by M.D. Petersen et al. (Seismic Hazard Analysis, AEG, 1-20-96)" and stated that it concludes that the entire Los Angeles, Ventura, and Orange Counties are high hazard areas. The Petitioner stated that the paper also concludes that accelerations of 0.4g (pga), 1.0g (0.3-second SA), and 0.5g (1-second SA) can occur nearly everywhere.

The NRC Staff attempted to find the reference mentioned by Mr. Dwyer but was unsuccessful. Mark D. Petersen of the California Division of Mines and Geology informed the Staff that the correct reference is an article that he and his coauthors published in the *Bulletin of the Seismological Society of America*.¹⁵ Dr. Petersen made a presentation at a workshop on seismic hazard in southern California in January 1996 and gave participants in the workshop preprints and reprints of some of his recent publications. The cited reference was one of these handouts.

In the section of the paper entitled "Hazard Maps," the authors state:

The DMG probabilistic seismic hazard maps (10% exceedance in 50 years) for peak ground acceleration (pga) and 5% damped spectral acceleration (SA) at 0.3- and 1-sec periods on alluvial site conditions are shown in Figures 3 through 5. These maps may be useful in characterizing regional variations in seismic hazard in southern California but should not be used as input for detailed site-specific estimates of ground shaking in the earthquake-resistant design of individual structures.¹⁶

The paper then states —

The three maps show similar hazard patterns that indicate high hazard over the entire tri-county area. The expected peak accelerations exceed 0.4g (pga), 1.0g (0.3 s SA), and 0.5g (1 s SA) nearly everywhere in the tri-county area.¹⁷

¹⁴ Stephen Dwyer, Letter to Dr. Shirley Jackson and Frank J. Miraglia, Jr., with enclosure, dated December 10, 1996.

¹⁵ Mark D. Petersen, Chris H. Cramer, William A. Bryant, Michael S. Reichle, and Tousson R. Topozada, "Preliminary Seismic Hazard Assessment for Los Angeles, Ventura, and Orange Counties, California, Affected by the 17 January 1994 Northridge Earthquake," 86 *Bulletin of the Seismological Society of America* S247-61 (1996).

¹⁶ *Id.*

¹⁷ *Id.*

To address the acceleration values mentioned by the Petitioner with respect to SONGS, the NRC Staff has produced Figure 1, which contains a plot of the SONGS SSE seismic response spectrum at 5% of critical damping and the values quoted from the Petersen paper. Since period in seconds is the reciprocal of frequency in Hertz, the 1-second-period spectral acceleration (0.5g) is plotted at a frequency of 1 Hertz, the 0.3-second-period acceleration (1.0g) is plotted at a frequency of 3.33 Hertz, and the peak ground acceleration (0.4g) is plotted at a frequency of 33 Hertz. Figure 1 demonstrates that the spectral accelerations (accelerations plotted in the response spectra) used in the design of SONGS are significantly higher than those from the Petersen paper, thus showing the conservatism of the design basis for SONGS.

2. Concern About a Large Earthquake on the San Andreas Fault

In the enclosure to his letter dated December 10, 1996, entitled "Uncertainty Factors Affecting Seismic Risk Modelling in Southern California," the Petitioner stated "We must prepare for a great event on the Southern San Andreas Fault." He also mentioned an earthquake on the San Andreas in his e-mail message.¹⁸

The NRC Staff agrees that there must be preparation for a large event on the San Andreas fault and finds that the SONGS seismic design is well able to withstand the demands of a large earthquake on the southern San Andreas fault. Although the geologic evidence appears to indicate that the largest event to have occurred on the southern San Andreas in the Quaternary Period (the last 2 million years) is estimated to have been in the moment magnitude (M_w) range of 7.5 to 8; to evaluate the potential ground motion at the SONGS site from a large earthquake on the southern San Andreas fault, the Staff made the very conservative assumption of a moment magnitude 8.25 strike-slip earthquake at the closest distance of the San Andreas fault to the site (90 kilometers). This assumption was made to calculate the effects of a large earthquake on the San Andreas fault. The results are plotted in Figure 2 which demonstrates that the design-basis (SSE) spectrum for SONGS is much higher than the ground motion estimates from the M_w 8.25 on the San Andreas fault using four recent attenuation relationships. These four empirical attenuation relationships were developed after the occurrence of the Northridge and Landers earthquakes, and include the recent strong ground motion from these events. They were performed by internationally known experts in earthquake ground

¹⁸ Stephen Dwyer, e-mail message to Dr. Jackson, Subject: San Onofre Nuclear Power Plant Risk, dated September 22, 1996.

SONGS 2 & 3 SSE
Comparison with Petersen et al, 1996
5% of critical damping

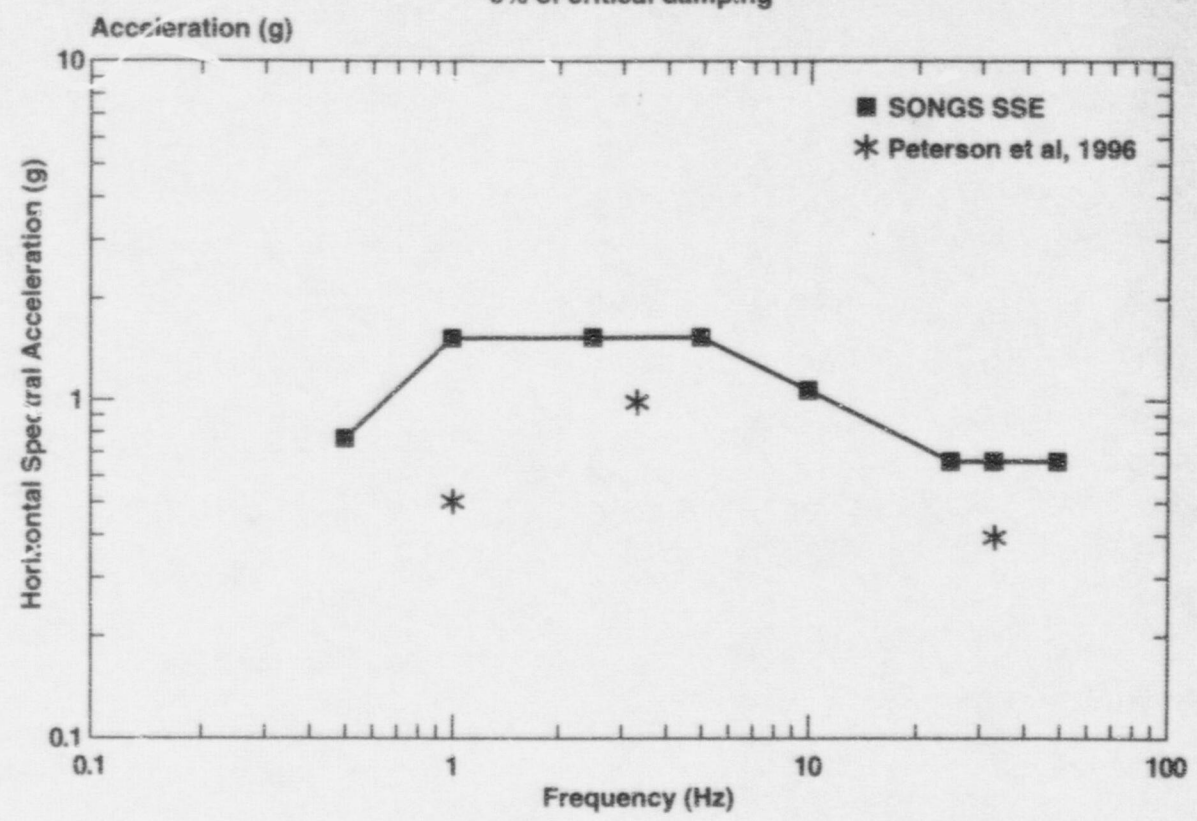


Figure 1

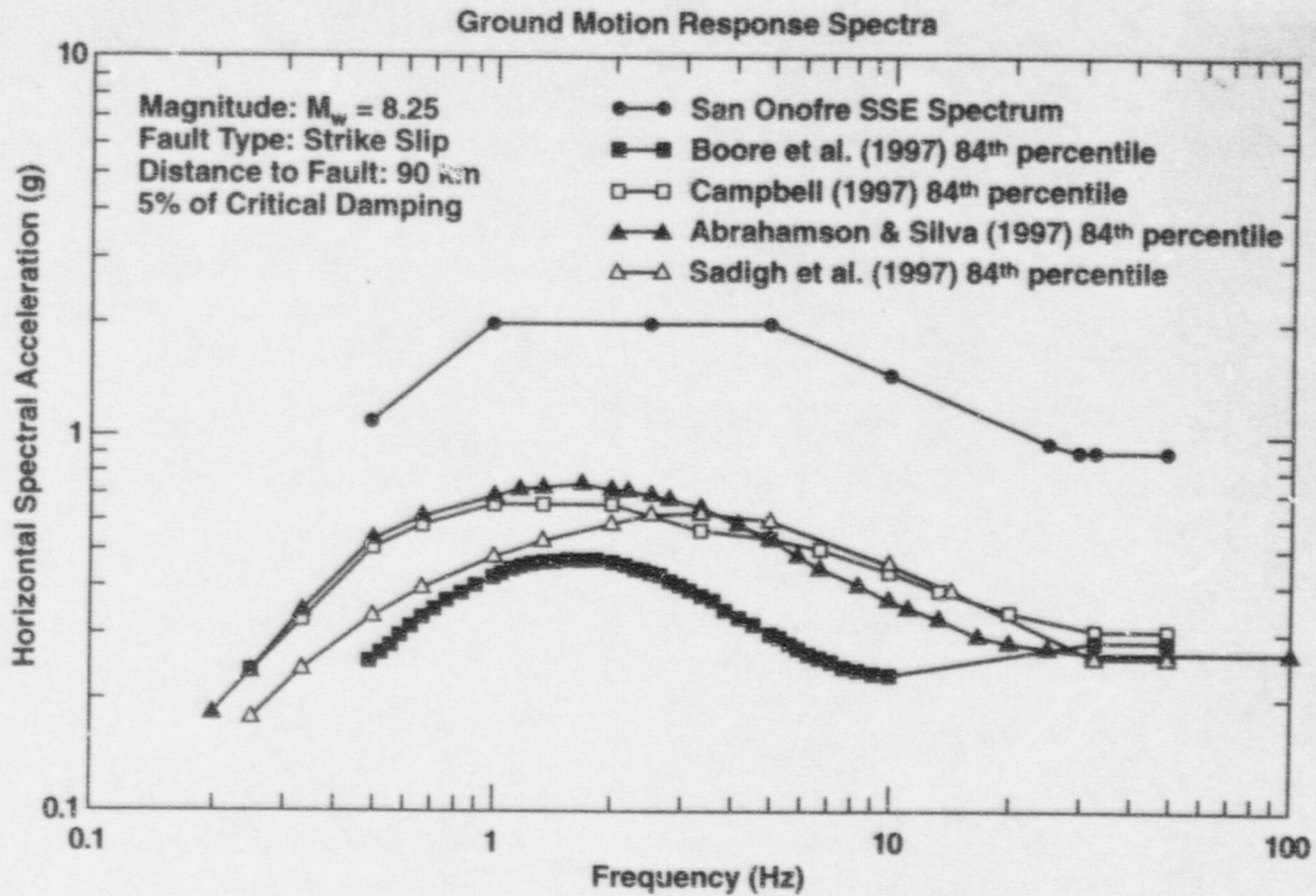


Figure 2

motion analysis and were published in the *Seismological Research Letters*,¹⁹ the peer-reviewed journal of the Seismological Society of America. The assumption of a moment magnitude 8.25 strike-slip earthquake and the SONGS site foundation geology were used as input parameters for these four earthquake ground motion attenuation relationships.²⁰ The ground motion estimates were made at the 84th percentile level recommended by SRP § 2.5.2. The plots of the results obtained from these four attenuation relationships and the SONGS Units 2 and 3 SSE design response spectrum are shown in Figure 2. The plotted information in the figure demonstrates that the SONGS design is well able to accommodate the demand of the ground motion of the large earthquake on the southern San Andreas fault since it envelopes the estimates of the four relationships at all frequencies.

3. *Concern About the SONGS Design Basis in Light of the Landers and Northridge Earthquakes*

In an e-mail message to Chairman Jackson, dated September 22, 1996, the Petitioner stated —

I am a geologist in Southern California, and I am deeply concerned by the current situation at San Onofre NPP. The design criteria for this old plant was 0.75 G's acceleration. With the new information gathered at the Landers and Northridge Quakes, this criteria is fatally flawed. The accelerations recorded at Northridge exceeded 1.8 G's!!! and it was only a Richter 7+ quake. Horizontal offsets of up to 20 feet in the Landers quake were also way beyond geologists and seismologists estimates. The whole science is in disarray. Also the Northridge fault was a Blind Thrust and not mapped or assessed. If we have a larger quake here on the San Andreas, or a smaller one closer to the plant, well I hate to imagine What's even worse is the fact that scientists are not able to give us the info we need to evaluate the situation.

The main points of the Petitioner's message appear to be —

- A peak ground acceleration recorded from the Northridge magnitude M_w 6.7 earthquake exceeded 1.8g.
- The Northridge earthquake occurred on a blind fault that had not been mapped or assessed
- The maximum horizontal displacement of almost 20 feet due to the Landers magnitude 7.3 earthquake is much larger than would be estimated.
- Scientists are not able to provide the information to evaluate the situation.

The magnitude 6.7 Northridge earthquake of January 17, 1994, occurred on a buried thrust fault in the San Fernando Valley and was similar to the 1971

¹⁹ Abrahamson and Silva, *supra* note 12.

²⁰ *Id.*

San Fernando Valley earthquake. The distance from this earthquake epicenter to the SONGS site is about 130 kilometers (80 miles). The Northridge earthquake was felt at SONGS. A free-field seismic instrument at SONGS recorded a peak ground acceleration of 0.025g, which is significantly less than the SSE peak ground acceleration of 0.67g, thus indicating that an earthquake in the epicentral region of Northridge poses no threat to the plant.

The peak ground acceleration of 1.8g from the Northridge earthquake referred to by the Petitioner was recorded by the California Division of Mines and Geology station in Tarzana. The anomalous character of the seismic response at the Tarzana site is well known.²¹ The intense shaking at the Tarzana site is a condition of the site and is not characteristic of the Northridge earthquake. This fact is demonstrated by the unusually strong ground motion that was also observed there during the 1987 Whittier Narrows earthquake²² and during the aftershocks following both the Northridge and Whittier Narrows mainshocks. In recognition of the unusually high ground motion recordings at Tarzana, there have been a number of studies of this site²³ to try to determine the cause of the high recordings. These studies have attributed the high peak ground accelerations to the site's specific geology. The anomalous site effect was found to be confined to a small area 50 meters in radius around the station; beyond this area, the ground motion recordings were down to their normally expected values. It is, therefore, inappropriate to rely on data recorded at the unique Tarzana site to make judgments about ground motion estimates at other locations. The geologic formations under the SONGS site differ from those at the Tarzana site. The SONGS site does not anomalously amplify the earthquake ground motion as the Tarzana site does. During the evaluation of the site, no geologic formations under SONGS were identified that would result in exceptionally high earthquake ground motions. Further, recorded earthquakes at SONGS have not exhibited any unusual amplifications.

As a result of their studies of the near-field ground motions from thrust faults, Somerville et al.²⁴ found that the ground motions from the Northridge earthquake, in general, are within the 84th percentile when compared to previ-

²¹ J.A. Rial, "The Anomalous Seismic Response of the Ground Motion at the Tarzana Hill Site During the Northridge 1994 Southern California Earthquake: A Resonant, Sliding Block?" 86 *Bulletin of the Seismological Society of America* 1714-23 (1996).

²² A.M. Shakal, M. Huang, and T. Cao, "The Whittier Narrows, California, Earthquake of October 1, 1987: CSMIP Strong Motion Data," 4 *Earthquake Spectra* 75-100 (1988).

²³ R.D. Catchings and W.H.K. Lee, "Shallow Velocity Structure and Poisson's Ratio at the Tarzana, California Strong-Motion Accelerometer Site," 86 *Bulletin of the Seismological Society of America* 1704-13; Rial, loc. cit.; Paul Spudich, Margaret Hellweg, and W.H.K. Lee, "Directional Topographic Site Response at Tarzana Observed in Aftershocks of the 1994 Northridge, California, Earthquake: Implications for Mainshock Motions," 86 *Bulletin of the Seismological Society of America* S193-S208 (1996).

²⁴ Paul Somerville, Chandan Saikia, David Wald, and Rover Graves, "Implications of the Northridge Earthquake for Strong Ground Motions from Thrust Faults," 86 *Bulletin of the Seismological Society of America* S115-25 (1996).

ously developed empirical attenuation relations for thrust faults. This finding indicates that the Northridge ground motion data would not cause seismologists to revise ground motion estimates for thrust fault earthquakes. The data from this earthquake have been incorporated into the strong ground motion databases and have not significantly altered the results of the attenuation relationships. In addition, it is inappropriate to use the ground motions from thrust faults for estimates in a region in which there is no potential for this type of faulting, such as the South Coast Borderland where SONGS is located.

To address the issue of whether there is a potential for buried thrust faults at the SONGS site, the Staff referred to a book by Yeats et al.²⁵ that contains a list and a map of the regions of the world that have the potential for large reverse-fault earthquakes. Thrust faults are low-angle reverse faults. In California, the regions listed are the northern California coast, the Coast Ranges of central California, and the western Transverse Ranges. The 1994 Northridge earthquake and the 1971 San Fernando Valley earthquake are related to the western Transverse Ranges. There is no indication of reverse-fault earthquakes in the South Coast Borderland where SONGS is located.

In southern California, the mountain ranges flanking the "Big Bend" of the San Andreas fault (the Transverse Ranges) strike east-west and are bounded on the south by north-dipping range-front reverse faults, part of a discontinuous system of faults that extends from the Santa Barbara Channel eastward to the eastern end of the San Gabriel Mountains. Other important reverse faults in this region include the Pleito fault in the southern margin of the South San Joaquin Basin; the south-dipping Oak Ridge fault in the Ventura Basin which extends eastward to the San Fernando Valley as a blind thrust that produced the 1994 Northridge earthquake; and a blind reverse-fault system beneath the Sierra Monica Mountains North of the Los Angeles basin. Major earthquakes generated by these reverse faults include the 1952 Kern County earthquake in the South San Joaquin Valley (M_s 7.7), the 1971 San Fernando earthquake at the eastern edge of the Ventura basin (M_w 6.7), the 1978 Santa Barbara earthquake in the western Ventura basin (M_L 5.9), the 1987 Whittier Narrows earthquake in the Los Angeles basin (M_L 5.9), the 1991 Sierra Madre earthquake at the southern edge of the San Gabriel Mountains northeast of Los Angeles (M_L 6.0), and the 1994 Northridge earthquake in the San Fernando Valley (M_L 6.7). Of these, only the 1952 and 1971 earthquakes produced surface rupture. Global Positioning System satellite geodesy confirms the high convergence rate as a result of reverse slip on these faults,²⁶ indicating this is an active thrust fault area. These indications were not seen in the SONGS area.

²⁵ Robert S. Yeats, Kerry Sieh, and Clarence R. Allen, *The Geology of Earthquakes* (Oxford University Press 1997).

²⁶ *Id.*

To state that the Northridge earthquake occurred on a blind fault that had not been mapped or assessed is an oversimplification. Blind thrust faults are recognized as significant sources of seismic hazard in areas of active folding, and the Transverse Ranges-Los Angeles basin has long been recognized as such an area. If, before the Northridge earthquake, such a fault had been sought as part of a siting investigation, it or the active folding indicative of such a fault would have been found and would have been considered in the seismic hazard estimate. In addition, the potential occurrence of an M_w 6.5 to 7 on a buried fault has been assumed in the commercial design and construction codes for the area where the Northridge earthquake occurred, so in effect, the potential for blind faults has been accounted for.

The types of site investigations, borehole drilling, and seismic survey profiles normally performed for critical facilities such as nuclear power plants are not used for normal residential or commercial structures because of the high costs of such work. For residences or commercial buildings, the codes rely on more generalized hazard estimates, such as those found in Petersen et al.²⁷ These hazard studies incorporate all the known geologic information in their ground motion estimates.

The most promising new data for the identification of areas of potential buried thrust faults comes from geodetic measurements of the satellite-based Global Positioning System, which is capable of determining convergence rates across folded terranes. Geomorphic studies are important in that the deformation of late Quaternary stream or coastal terraces provides quantitative data on the uplift rates or lack of uplift of postulated active folds over buried faults. In fact, the locale of the 1987 Whittier Narrows, California earthquake was identified more than 70 years ago²⁸ as an active anticline on the basis of warped geomorphic surfaces.

The SONGS site lies in a relatively stable structural block bounded by major northwest-southeast trending strike-slip faults. The relative motion between the Pacific plate and the North American plate is accommodated, in part, by dextral strike slip along the San Andreas fault system and faults in the borderlands, extension in the Gulf of California, and contraction in the Transverse Ranges and the Los Angeles basin region.²⁹

²⁷ Mark D. Peterson et al., *supra* note 15.

²⁸ F.F. Vickery, "The Interpretation of the Physiography of the Los Angeles Coastal Belt," 11 *Bulletin of the American Association of Petroleum Geologists* 417-24 (1927).

²⁹ M.L. Zoback and R.E. Anderson, "Cenozoic Evolution of the State of Stress and Style of Tectonism in Western United States," 300 *Philosophical Transactions of the Royal Society of London* 407-34 (1981); R. Weldon and E. Humphreys, "A Kinematic Model of Southern California," 5 *Tectonics* 38-48 (1986); D.F. Argus and R.G. Gordon, "Sierra Nevada-North America Motion From VLBI and Paleomagnetic Data — Implications for the Kinematics of the Basin and Range, Colorado Plateau, and California Coast Ranges," 69 *EOS Transactions, American Geophysical Union* 1418 (1988); R.S. Stein and R.S. Yeats, "Hidden Earthquakes," 260 *Scientific American* 48-57 (1989).

The tectonic setting of the SONGS site is significantly different from the complex regime of the Transverse Ranges and the Los Angeles basin. This difference is reflected in the higher seismicity in the Transverse Range and the Los Angeles basin than in the SONGS site area. The presence or absence of blind thrust faults in a region is indicated by the presence or absence of significant uplift and folding of late Quaternary period deposits and geomorphic surfaces³⁰ as evidenced in the Transverse Ranges and the Los Angeles basin region. Mapping of marine terraces along the western flank of the San Joaquin Hills to the north of the SONGS site indicates a uniform uplift rate for the past 80,000 to 120,000 years.³¹ Lajoie et al.³² reported on the coastal region between San Onofre Bluff and Torrey Pines north of Soledad Mountain in San Diego and noted that there has been no significant crustal tilt perpendicular to the coastline during much of the Quaternary Period. There is also no indication from the marine terrace studies of significant tilt parallel to the coastline during much of the Quaternary Period. The marine terrace data, along with other geological mapping and geophysical surveys, have not identified geologically young folds or blind thrust faults in the SONGS site vicinity. The closest capable fault to the site is the OZD 8 kilometers from the site, and it is the postulated earthquake on this fault that dominates the seismic hazard at SONGS. Therefore, the statement that the Northridge earthquake occurred on a blind fault that had not been mapped or assessed, and the implication that such a condition could also exist at the SONGS site, are not valid.

The Landers magnitude M_w 7.3 earthquake of June 28, 1992, was in the Eastern California Shear Zone (ECSZ) approximately 140 kilometers from the SONGS site. The ECSZ is a complex zone of predominantly right lateral strike-slip faulting. The earthquake was caused by strike-slip faulting on five fault segments with a total rupture length of about 70 kilometers.³³

Campbell and Bozorgnia³⁴ used 167 accelerograms recorded during the Landers earthquake to study the ground motions from this event. A comparison of these recordings with ground motions predicted by contemporary attenuation relationships indicated that relationships developed before the Landers earth-

³⁰ Stein and Yeats, *supra* notes 25 and 29.

³¹ D.T. Barrie, T. Totnall, and E. Gath, "Neotectonic Uplift and Ages of Pleistocene Marine Terraces, San Joaquin Hills, Orange County, California," *The Regressive Pleistocene Shoreline Coastal Southern California* 115-22 (E.G. Heath and W.L. Lewis eds., South Coast Geological Society, Inc., 1992 Annual Field Trip Guide Book No. 20, 1992).

³² K.R. Lajoie, D.J. Ponti, C.L. Powell II, S.A. Mathieson, and A.M. Sarna-Wojcicki, "Emergent Marine Strandlines and Associated Sediments, Coastal California: A Record of Quaternary Sea-Level Fluctuations, Vertical Tectonic Movements, Climatic Changes, and Coastal Processes," *The Regressive Pleistocene Shoreline Coastal Southern California* 81-104, (E.G. Heath and W.L. Lewis eds., South Coast Geological Society, Inc., 1992 Annual Field Trip Guide Book No. 20, 1992).

³³ Yeats, et al., *supra* note 25.

³⁴ K.W. Campbell and Y. Bozorgnia, "Empirical Analysis of Strong Ground Motion from the 1992 Landers, California, Earthquake," 84 *Bulletin of the Seismological Society of America* 573-88 (1997).

quake made a reasonable prediction of the Landers ground motions within 60 kilometers of the fault, and relationships developed after the Landers earthquake did a reasonably good job of predicting the Landers ground motions within the distance ranges for which they were applicable. This information shows that there was nothing extraordinary about the ground motions from the Landers earthquake that would challenge the adequacy of the near-field ground motion estimates made for the SONGS SSE. To demonstrate the adequacy of the SONGS SSE ground motion, Figure 3 contains a plot of the SSE response spectrum and the 84th percentile response spectra obtained from the four recent earthquake ground motion attenuation relationships to estimate the ground motion for a magnitude M_w 7 earthquake at a distance of 8 kilometers. The SONGS response spectrum envelopes the response spectra of all four relationships at all frequencies.

To address the issue of the 20 feet (6 meters) of fault displacement as a result of the Landers earthquake, the Staff has reviewed the work of researchers on this subject. Postearthquake investigations have found that slip on the Landers earthquake faults was extremely heterogeneous both along strike and down dip. The magnitude of the horizontal offset varied along the fault trace, but was typically 2 to 3 meters with maximum strike-slip offset of about 6 meters.³⁵ This offset is not unusual and is within the range of offsets for an earthquake of this size.³⁶ The U.S. Geological Survey, with NRC sponsorship, has conducted paleoseismic studies of the fault segments that ruptured during the Landers earthquake. Trenches across the faults provide clear evidence of the two most recent pre-1992 surface faulting events. The most recent faulting, Holocene age, has displacements essentially the same as the 1992 event. Evidence from the trenches also indicates that the segments that ruptured during the 1992 event had ruptured during the previous events.³⁷ If, before the Landers earthquake, these faults had been subjected to the type of investigations that nuclear power plant sites undergo, the earthquake and fault rupture potential would have been identified.

There are no faults at the SONGS site capable of surface offset. The fault nearest to the SONGS site capable of significant surface offset is the OZD, which is 8 kilometers from the site. Assuming that there were to be offsets on

³⁵ Carlos Lazarte, Jonathan D. Bray, Arvid M. Johnson, and Robert E. Lemmer, "Surface Breakage of the 1992 Landers Earthquake and Its Effects on Structures," *84 Bulletin of the Seismological Society of America* 547-61 (1994).

³⁶ Donald L. Wells and Kevin J. Coppersmith, "New Empirical Relationships Among Magnitude, Rupture Length, Rupture Width, Rupture Area, and Surface Displacement," *84 Bulletin of the Seismological Society of America* 974-1002 (1994).

³⁷ David P. Schwartz, personal communication to Dr. Robert Rothman, of the NRC Staff, June 1997. Dr. Schwartz is a senior geologist employed by the U.S. Geological Survey in Menlo Park, California, and an international authority on paleoseismology.

Ground Motion Response Spectra

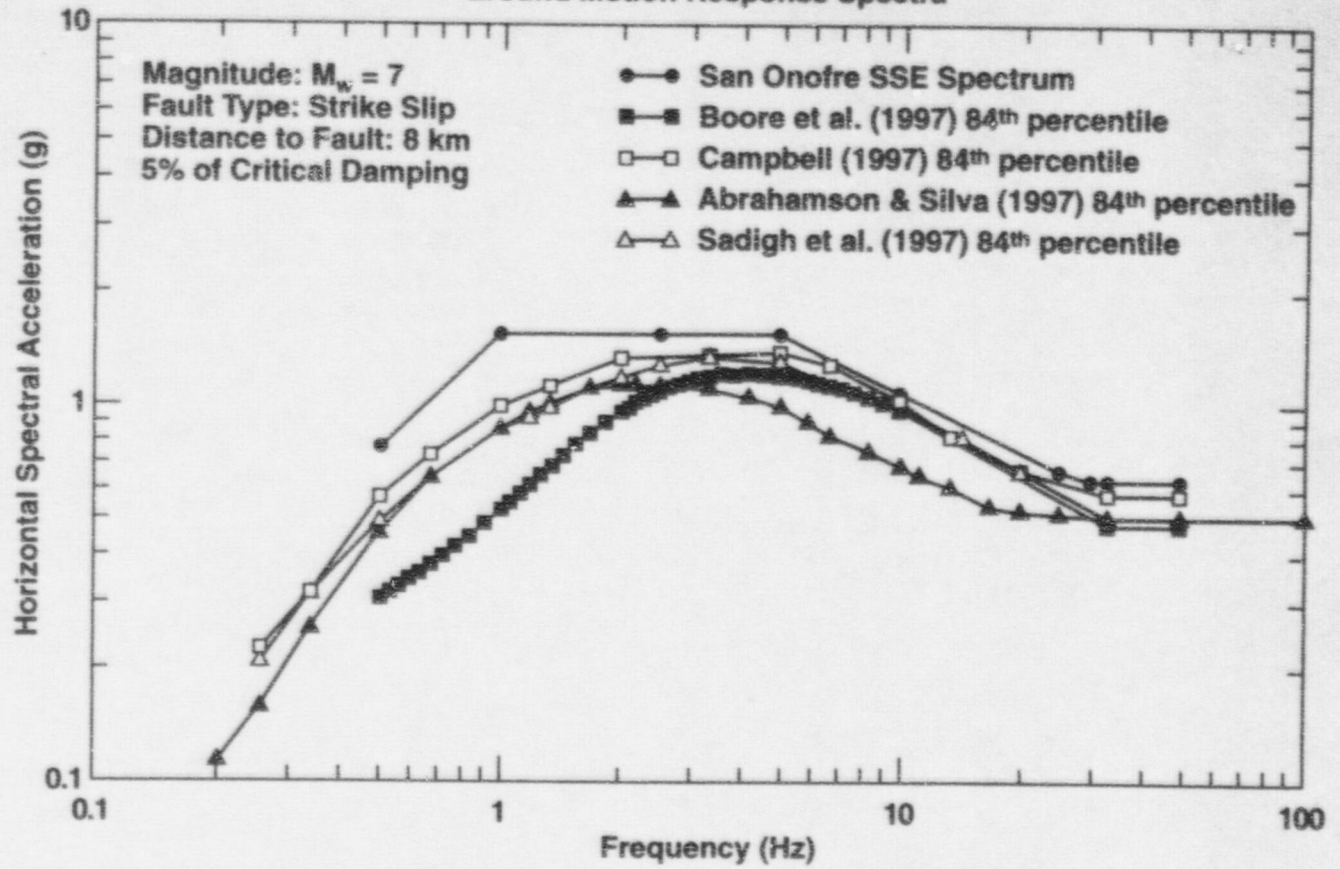


Figure 3

the order of 6 meters or more on the OZD, they would have no detrimental effect on SONGS because of the distance of the fault, the orientation of the fault, and the potential ground motion to which the plant is designed.

With respect to the Petitioner's statement that scientists are not able to provide the information to evaluate the situation, the Staff notes that numerous papers have been published in the scientific literature and presentations made at national and international scientific meetings on these two earthquakes. In addition, the Seismological Society of America has devoted one issue of its *Bulletin*³⁸ to the Northridge earthquake and another issue to the Landers earthquake.³⁹ The information about these events is understood and is widely distributed in the professional community.

4. Concern About "Seismic Analysis Uncertainties"

In the enclosure to his letter dated December 10, 1996, the Petitioner provided a list of ten seismic analysis uncertainties⁴⁰ and implied that these must be addressed because new surprises will occur with each event.

The Petitioner appears to have compiled a list of uncertainties in estimating seismic hazards from the Petersen paper.⁴¹ There is nothing unique about this list. These are the types of issues a geologist or a seismologist performing earthquake hazard investigations must routinely confront. They are among the points that the NRC Seismic and Geologic Siting Criteria for Nuclear Power Plants and the NRC SRP were developed to address.

The geologic and seismic investigations and reviews that were performed for the licensing of SONGS Units 2 and 3 were deterministic in nature. In the deterministic method, the uncertainties were not explicitly quantified. Rather, a multimethod approach with sensitivity studies was used. For instance, to determine the maximum magnitude estimate for a fault empirical relationship, such as magnitude as a function of the parameter's slip rate, the fault length, the rupture length per event, the rupture area, and the historical seismicity were used. Also, various fault segmentation models were used in magnitude estimates. To

³⁸ *Bulletin of the Seismological Society of America*, Vol. 86, No. 1, Pt. B Supp. (February 1996).

³⁹ *Bulletin of the Seismological Society of America*, Vol. 84, No. 3, (June 1994).

⁴⁰ List of Seismic Analysis Uncertainties: (1) how to quantify slip rates and maximum magnitudes along with their uncertainties for all fault sources; (2) how to incorporate blind thrusts with appropriate weighting; (3) what seismogenic zone widths to use for various fault zones; (4) which magnitude distributions are most appropriate for various faults; (5) how to incorporate background seismicity and which "b" value is most appropriate for exponentially distributed earthquakes; (6) whether to use source zones or simple point sources in modelling background seismicity; (7) which alternative segmentation models are viable (including alternative cascades models for "A" zones); (8) how to incorporate geodetic data directly in the model; (9) which attenuation relations are most appropriate and how to model ground motion from large ($M > 8$) earthquakes; (10) how to resolve the discrepancy between the rate of earthquakes in this and other seismic hazard models and the historic earthquake record (especially in the Transverse Ranges).

⁴¹ Peterson et al., *supra* note 15.

determine the ground motion from a magnitude 7 earthquake at a distance of 8 kilometers, attenuation relationships from the statistical analysis of empirical ground motion data, theoretical numerical modeling studies, and the response spectra from magnitude 6.5 and larger earthquakes recorded at distances of 13 kilometers and less were used. The SSE for the SONGS site enveloped all of these estimates. The geology in the site region was investigated by geologic mapping, excavation of faults, offshore and onshore seismic reflection profiles, onshore refraction profiles, geophysical surveys, drill holes, well logs, trenching, geomorphic surveys, and geodetic studies. The information from these various studies was analyzed by experienced professional geologists and geophysicists, and the site characteristics were thus developed in a conservative manner. Independent studies and reviews were performed by the NRC Staff, the U.S. Geologic Survey, the National Oceanic and Atmospheric Administration, and the Advisory Committee on Reactor Safeguards. These studies and reviews confirmed the Licensee's determinations.

The uncertainties in seismic hazard estimates can be addressed quantitatively through a probabilistic seismic hazard analysis. In 1991, the NRC issued Supplement 4 to Generic Letter 80-20 requesting licensees of nuclear power plants to perform an IPEEE to identify plant-specific vulnerabilities to severe accidents. Among the events to be assessed were earthquakes, internal fires, high winds and tornadoes, external floods, and transportation and nearby facility accidents. As part of the SONGS IPEEE program, a state-of-the-art probabilistic seismic hazard analysis was performed. In response to an NRC request for information, Southern California Edison submitted its contractor's final report on the seismic hazard study.⁴²

In the seismic hazard study, ground motion exceedance probabilities were calculated using hypotheses about the causes and characteristics of earthquakes in the region. Scientific uncertainty about the causes of earthquakes and about the physical characteristics of potentially active tectonic features lead to uncertainty in the inputs to the seismic hazard calculations. These uncertainties were quantified using the tectonic interpretations developed by earth scientists knowledgeable about the region. These experts evaluated the likelihood associated with alternative tectonic features and with alternative characteristics of these potential sources. These and other uncertainties were propagated through the entire analysis. The result of the analysis is a spectrum of hazard curves and their associated weights. These curves quantify the seismic hazard at the site and its uncertainty.

The major components of the probabilistic seismic hazard analysis are the identification of the seismic sources, the determination of the earthquake

⁴² Risk Engineering, Inc., "Seismic Hazard at San Onofre Nuclear Generating Station," prepared for Southern California Edison Co., Final Report (1995).

magnitude distribution and rate of occurrence for each source, the estimation of the ground motion, and the incorporation of these factors by the probability analysis into the hazard curves. The Risk Engineering, Inc., report⁴³ more than adequately demonstrates how the uncertainties of the type the Petitioner listed in the enclosure to his letter were addressed. The comparison of the probabilistic seismic hazard results to the SSE indicates that the SSE response spectrum has an annual probability of being exceeded in the range of 5×10^{-6} to 4×10^{-4} , depending on the frequency. This estimate is similar to the probabilistic hazard estimates for other critical facilities in the western United States. The low frequency of exceedance of the SSE ground motion provides further assurance that the licensing basis for SONGS provides adequate protection of the health and safety of the public.

5. *Concern About the Failure of Welded-Steel Frames in Commercial Buildings During the Northridge Earthquake*

In an e-mail message to Dr. Shirley Jackson,⁴⁴ the Petitioner stated —

The breaking of welds in steel buildings in the San Fernando Valley is a warning that all sorts of steel welds and fittings are vulnerable. The number of such welds and fittings at SONGS is almost uncountable, and it's therefore unrealistic to believe that they will all be undamaged or broken at forces far below the Design Basis Event of 67%g.

It appears that the Petitioner is referring to the failure of welded-steel moment-resisting frames (WSMFs) in high-rise residential and commercial buildings during the 1994 Northridge earthquake. Following the Northridge earthquake, inspections of many otherwise intact buildings indicated structural damage to WSMFs. The WSMFs were specifically designed on the basis of the assumption that they would be capable of extensive yielding and plastic deformation. The deformation was assumed to be accomplished by the yielding of plastic hinges in the beams at their connections to the columns. Damage was expected to consist of moderate yielding at the connections and localized buckling of the steel elements. However, contrary to the design assumption, the WSMF failures were brittle fractures with unanticipated deformations in girders, cracking in column panel zones, and fractures in beam-to-column weld connections. A number of factors related to seismic analysis and design, materials, fabrication, and construction have been identified as contributing to the failure of the WSMFs

⁴³ *Id.*

⁴⁴ Stephen Dwyer, e-mail message to Dr. Shirley Jackson, Subject: 2.206 Petition Re SONGS Seismic Hazards, dated May 28, 1997.

and are the focus of research projects sponsored by the Federal Emergency Management Agency.⁴⁵

The method of computing seismic loads, their combination with other non-seismic loads, the acceptance criteria, and the quality assurance requirements for nuclear power plants are significantly more conservative than those for non-nuclear buildings designed using building codes for residential or commercial structures. For nuclear power plants, two levels of ground motion, based on very conservative siting criteria, are determined for designing the safety-related structures, systems, and components. For the lower level of vibratory motion, the operating-basis earthquake,⁴⁶ the load factors, and acceptable allowable stresses ensure that the stresses in plant structures remain at least 40% below the yield stress of the material. For the higher level vibratory motion, the SSE, the associated load factors, and allowable stresses ensure that the stresses in steel structures do not exceed the yield stress of the material. The NRC Staff design review guidance specified in SRP § 3.7.2 does not accept the use of inelastic deformation of any steel member or connection in nuclear power plants for design-basis seismic events. Also, the use of broadband design response spectra, conservatively defined structural damping values, consideration of amplified forces at higher elevations in the plants, and consideration of all three components of the design-basis vibratory motion in the dynamic analysis ensure that the loads and load paths of the seismic events are properly considered in the design, as opposed to the use of static shear forces in nonnuclear structures. For these reasons, the failure of WSMFs in residential and commercial buildings as a result of the Northridge earthquake is not relevant to nuclear power plants.

On the basis of its review of the Petitioner's request that the SONGS units be shut down due to inadequate protection against potential earthquake ground motion, the Staff has concluded that the Petitioner has not presented a basis for such an action.

III. CONCLUSION

On the basis of the above assessment, I have concluded that no substantial health and safety issues have been raised by the Petitioner that would require taking the action requested by the Petitioner. As explained above, the SONGS site has undergone extensive geologic, geophysical, geotechnical, and seismic investigations and reviews, including a recent analysis to quantify the seismic hazard and uncertainties for the SONGS site. Furthermore, SONGS was

⁴⁵ FEMA 267, "Interim Guidelines: Evaluation, Repair, Modification and Design of Welded Steel Moment Frame Structures, Program to Reduce the Earthquake Hazards of Steel Moment Frame Structures," Federal Emergency Management Agency, Washington, DC (1995).

⁴⁶ See 10 C.F.R. Part 100, Appendix A, § III(d).

licensed consistent with the seismic and geologic siting criteria for nuclear power plants set forth in Part 100, Appendix A. The Petitioner has not provided any information in support of his concerns and requested actions, including information regarding recent earthquakes, that the NRC Staff was not already aware. Accordingly, the Petitioner's requested action, pursuant to section 2.206, is denied.

A copy of this Decision will be filed with the Secretary of the Commission for the Commission to review in accordance with 10 C.F.R. § 2.206(c) of the Commission's regulations. As provided by this regulation, the Decision will constitute the final action of the Commission 25 days after issuance, unless the Commission, on its own motion, institutes a review of the Decision within that time.

FOR THE NUCLEAR
REGULATORY COMMISSION

Samuel J. Collins, Director
Office of Nuclear Reactor
Regulation

Dated at Rockville, Maryland,
this 19th day of September 1997.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS

Carl J. Paperiello, Director

In the Matter of

Docket No. 72-10

NORTHERN STATES POWER
COMPANY(Goodhue County Independent Spent
Fuel Storage Facility)

September 26, 1997

The Director of the Office of Nuclear Material Safety and Safeguards denies a petition filed by Florence Township, Minnesota, on August 26, 1996. The Petitioner asked that the NRC find that Northern States Power Company (NSP) had violated NRC regulations by not permitting Lake City, Minnesota, the opportunity to comment on the emergency plan for a proposed independent spent fuel storage installation (ISFSI) before submitting the plan to the NRC. On that basis, Petitioner asked that a civil penalty be imposed. In addition, Petitioner asked that the NRC reject NSP's application and require NSP to take certain actions with regard to the ISFSI application.

DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.202**I. INTRODUCTION**

On August 26, 1996, Florence Township, Minnesota (Petitioner), filed a petition requesting that the Nuclear Regulatory Commission (NRC) institute a proceeding pursuant to 10 C.F.R. § 2.202 with regard to the application by Northern States Power Company (NSP), claiming that NSP violated the Commission's regulations by failing to provide Lake City, Minnesota, with an opportunity to comment on a proposed emergency plan for an independent spent fuel storage installation (ISFSI) before submission to the NRC. The Petitioner

requested that NRC: (1) determine that NSP violated the requirements of 10 C.F.R. § 72.32(a)(14) by refusing to allow Lake City, Minnesota, 60 days to comment on NSP's emergency plan before submitting it to NRC; (2) reject NSP's application as incomplete and inadequate and return it to the corporation; (3) require that NSP specifically name the local governments referred to in section 5.6 of the emergency plan that are expected to respond in case of an accident; (4) require that NSP allow 60 days to the named local governments to review and comment upon NSP's emergency plan prior to NSP's resubmission of the application; (5) impose a penalty in the amount of one million dollars and require NSP to compensate the Petitioner in the amount of \$7500.00 for time expended by its Board and attorney in attempting to obtain the emergency plan before its submission to the NRC; and (6) provide hearings on this petition at which the Petitioner and members of the public may participate.

The Petitioner asserts as the basis for this request the regulatory requirement found in section 72.32(a)(14) of Title 10 of the *Code of Federal Regulations* (10 C.F.R. § 72.32(a)(14)):

The licensee shall allow the offsite response organizations expected to respond in case of an accident 60 days to comment on the initial submittal of the licensee's emergency plan before submitting it to NRC. Subsequent plan changes need not have the offsite comment period unless the plan changes affect the offsite response organizations. The licensee shall provide any comments received within 60 days to NRC with the emergency plan.

The petition has been referred to me for a decision. For the reasons given below, I have concluded that the Petitioner's requests should be denied.

II. BACKGROUND

NSP has an onsite ISFSI at Prairie Island Nuclear Generating Plant (PINGP), which has a capacity to store 1920 spent fuel assemblies in 48 Transnuclear TN-40 casks. In 1994, the Minnesota legislature enacted statutes authorizing NSP to store spent nuclear fuel at the ISFSI. 1994 Minn. Laws ch. 641, arts. 1,6 (*codified at Minn. Stat. §§ 116C.77-.80 (1996)*). The legislation authorized the immediate use of five casks and allowed the use of four additional casks upon a determination that NSP had: (1) filed a license application with NRC for a separate dry-cask storage facility in Goodhue County; (2) continued a good-faith effort to implement the alternate site; and (3) arranged for the use of additional megawatts of wind power. The law also provided that NSP could not construct at the second site without first obtaining a Certificate of Site Compatibility from the Minnesota Environmental Quality Board (MEQB). The MEQB was authorized to certify that the alternative Goodhue County site was comparable to the independent spent fuel storage facility site located on Prairie Island.

NSP applied for a certificate from the MEQB in July 1995. It identified two possible sites for the Goodhue County spent fuel storage facility, both in Florence Township, south of the City of Red Wing.¹ On October 2, 1996, after receiving the report of a citizen Advisory Task Force, the MEQB determined that because of the additional risks it believed to be inherent in transporting spent nuclear fuel to a second site in Goodhue County away from PINGP, no other site in Goodhue County would be comparable to the Prairie Island facility and denied a certificate.

NSP's application to NRC included an emergency plan for the Goodhue County facility, which contained comments from the Minnesota Departments of Public Safety and Public Health, as well as the Goodhue County, Minnesota, Office of Emergency Management, which coordinates emergency services within the county. NRC completed its acceptance review and docketed the NSP application on September 9, 1996. A "Notice of Consideration of Issuance of a Materials License for the Storage of Spent Fuel and Notice of Opportunity for Hearing" was published in the *Federal Register* on September 17, 1996. The Petitioner and several others sought a hearing as provided by 10 C.F.R. § 2.105. An Atomic Safety and Licensing Board (ASLB) was established on October 9, 1996. Among the issues raised in the petitions to intervene by the Petitioner and by Lake City, Minnesota, were issues associated with emergency planning, substantially similar to the issues raised by the Petitioner in the petition requesting that the NRC institute a proceeding pursuant to section 2.202. Consequently, the Staff deferred the response to the petition until completion of the ASLB hearing process.

Because of the physical proximity of its Reservation to PINGP, the Prairie Island Indian Community had been particularly interested in seeing the offsite ISFSI built. Since the MEQB decision effectively ended the possibility of that facility being developed, the Indian Community initiated litigation in the Minnesota State Courts in December 1996, seeking to overturn the MEQB decision. When the litigation began, NSP requested and was granted a suspension of both NRC Staff's review of the Goodhue County application and the ASLB proceeding, just prior to the prehearing conference that was scheduled for December 1996. State litigation ended in July 1997, when the Minnesota Supreme Court declined to hear an appeal of the Minnesota Court of Appeals ruling that affirmed the MEQB decision. Subsequently, in a letter dated July 22, 1997, NSP withdrew the Goodhue County application. NRC acknowledged the withdrawal in a letter dated August 4, 1997. The ASLB issued a Memorandum and Order

¹ One of these was the site chosen by NSP for inclusion in its application to NRC. It is described as being situated south of Frontenac Station, north of Wells Creek, and between Territorial Road and the CP Rail railroad tracks.

terminating its proceeding on July 30, 1997. However, a motion for reconsideration is currently under review by the Board.²

III. DISCUSSION

Section 72.32(a)(14) provides that the offsite response organizations *expected by the Licensee* to respond to an onsite emergency should be provided an opportunity to comment on an ISFSI emergency plan.³ As required by section 72.32(a)(14), NSP contacted the offsite response organizations it expected to respond to an onsite emergency at the proposed Goodhue County facility. NSP requested comments from the Minnesota Departments of Public Safety and Public Health and the Goodhue County, Minnesota, Office of Emergency Management. All three responded to NSP's request. Their comments were provided to NRC with the emergency plan.

The Petitioner claims that because the Lake City, Minnesota, Fire Department contracts with Florence Township to provide fire protection, it is one of the offsite response organizations that NSP would contact in case of an onsite emergency at the Goodhue County ISFSI. Lake City is not located in Goodhue County, however, and therefore is not expected by the applicant to respond to an onsite emergency.

The emergency plan appropriate for an ISFSI is an onsite emergency plan. The Staff has determined that there are no credible accidents at an ISFSI that have significance for offsite emergency preparedness.⁴ There is no specific requirement that any particular political jurisdiction be contacted to comment on an ISFSI emergency plan. Rather, the applicant is required to determine which services it will require from offsite providers and to seek comments from those organizations. NSP did not indicate in the emergency plan that Lake City, Minnesota, was expected to respond to an onsite emergency. Further, no

² On July 30, 1997, the Petitioner filed a response to NSP's July 24, 1997 Motion for Withdrawal of Application and Termination of Proceeding. In the response, the Petitioner requested that the ASLB dismiss the NSP application with prejudice, or alternatively, deny NSP's application, or impose a condition of withdrawal that the application for the Florence Township site shall not be resubmitted. The ASLB considered this Petitioner's June 30, 1997 submittal to be a motion for reconsideration. On August 29, 1997, the Staff responded that Florence Township's motion for reconsideration should be denied on the basis that the proceeding had not sufficiently progressed such that dismissal with prejudice is appropriate, and on the basis that Florence Township has not demonstrated legal harm warranting the relief it requests.

³ The regulatory requirements for comments on the emergency plans for ISFSIs, like the requirements for the emergency plans, are separate and quite different from those for nuclear reactors. The requirements for emergency plans for ISFSIs are for onsite emergencies only. Because offsite health effects have not been identified for accidents at ISFSIs, there is no requirement for neighboring jurisdictions to be involved in emergency response. There is, for instance, no requirement for evacuation planning and hence no need for the kinds of more elaborate plans associated with nuclear reactors.

⁴ See NUREG-1140, "A Regulatory Analysis on Emergency Preparedness for Fuel Cycle and Other Radioactive Material Licensees."

evidence has been provided that NSP, at the time of the submittal of the license application, had plans to seek emergency planning assistance from Lake City, Minnesota. Thus, there is no violation of section 72.32(a)(14) to warrant any enforcement action.

The Petitioner raised several additional requests regarding NRC's review of NSP's Goodhue County application. These are matters that the NRC considers during the license review, not as part of a petition filed under section 2.206. Further, in light of the fact that NSP has now withdrawn the application, they are moot.

IV. CONCLUSION

I have concluded that NSP did not violate NRC regulations by failing to provide Lake City, Minnesota, with an opportunity to respond to the proposed emergency plan. As provided by 10 C.F.R. § 2.206(c), a copy of this Decision will be filed with the Secretary of the Commission for the Commission's review.

FOR THE NUCLEAR
REGULATORY COMMISSION

Carl J. Paperiello, Director
Office of Nuclear Material Safety
and Safeguards

Dated at Rockville, Maryland,
this 26th day of September 1997.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Shirley Ann Jackson, Chairman
Greta J. Dicus
Nils J. Diaz
Edward McGaffigan, Jr.

In the Matter of

Docket No. 40-8027-EA
(Decontamination and
Decommissioning Funding)

SEQUOYAH FUELS CORPORATION
and GENERAL ATOMICS
(Gore, Oklahoma Site)

October 8, 1997

The Commission affirms the Licensing Board's approval of settlements between the Staff and both General Atomics (GA) and Sequoyah Fuels Corporation (SFC). The settlements addressed the two companies' financial responsibility for cleaning up the Gore, Oklahoma facility owned and operated by GA's subsidiary, SFC. In approving the settlements, the Commission sets forth in considerable detail the factors it considers when evaluating a settlement of an enforcement proceeding.

**RULES OF PRACTICE: SETTLEMENT OF CONTESTED
PROCEEDING**

The Commission, like other adjudicatory bodies, looks with favor upon settlements. The Commission considers the facts in the light most favorable to a settlement and is loath to second-guess the parties' (including Staff's) evaluation of their own interests. On the other hand, the Commission does not simply rubber-stamp all enforcement settlements, but rather looks independently at such settlements to see whether they meet the public interest.

RULES OF PRACTICE: SETTLEMENT OF CONTESTED PROCEEDING

ADJUDICATORY BOARDS: ROLE

REGULATIONS: INTERPRETATION (10 C.F.R. § 2.203)

Section 2.203 of the Commission's rules of practice sets forth the Board's function in reviewing settlements in enforcement cases, i.e., that (1) settlements are subject to the Board's approval; (2) the Board, in considering whether to approve a settlement, should "accord[] due weight to the position of the staff"; and (3) the Board may "order such adjudication of the issues as [it] may deem to be required in the public interest to dispose of the proceeding."

RULES OF PRACTICE: SETTLEMENT OF CONTESTED PROCEEDING; APPELLATE REVIEW (SETTLEMENT); STANDARD OF REVIEW

COMMISSION PROCEEDINGS: APPELLATE REVIEW

Commission review of Board decisions on legal and policy matters such as the adequacy of a settlement is *de novo*, although the Commission gives respectful attention to the Board's views. In conducting its review, the Commission uses the "due weight to . . . staff" and "public-interest" standards set forth in 10 C.F.R. § 2.203 and *New York Shipbuilding Corp.*, 1 AEC 842 (1961). Moreover, the Commission remains mindful that the enforcement context of this proceeding necessarily restricts the scope of remedies that Intervenors may demand to those set out by the NRC Staff in its enforcement order.

RULES OF PRACTICE: SETTLEMENT OF CONTESTED PROCEEDING (ENFORCEMENT PROCEEDING, DEFERENCE TO STAFF POSITION)

The Staff's position, while entitled to due weight, is not itself dispositive of whether an enforcement settlement should be approved.

RULES OF PRACTICE: SETTLEMENT OF CONTESTED PROCEEDING (ENFORCEMENT PROCEEDING, DEFERENCE TO STAFF POSITION)

Having "lived" with the case as a litigant, the NRC Staff necessarily knows the record as well as, and probably better than, the Board and the Commission. The Staff has a similarly close familiarity with the strengths and weaknesses

of its own factual and legal contentions. In addition, it is the Staff — not the Board or the Commission — who has negotiated with the enforcement targets and who consequently is in the strongest position at the agency to assess what those agency targets are willing to concede and how much they are willing to pay.

RULES OF PRACTICE: SETTLEMENT OF CONTESTED PROCEEDING (ENFORCEMENT PROCEEDING, DEFERENCE TO STAFF POSITION)

The Staff has the best sense of how it should allocate its limited enforcement resources, as measured against other priorities, to provide the maximum protection of the public health and safety, and whether the investment of further time and money in litigating (as compared with settling) a particular case is a responsible use of those scarce resources.

RULES OF PRACTICE: SETTLEMENT OF CONTESTED PROCEEDING (ENFORCEMENT PROCEEDING, DEFERENCE TO STAFF POSITION)

The Commission is willing to presume that its Staff acted in the agency's best interest in agreeing to the settlements. Only if the settlements' opponents show some "substantial" public-interest reason to overcome that presumption will the Commission undo the settlements.

RULES OF PRACTICE: SETTLEMENT OF CONTESTED PROCEEDING (ENFORCEMENT PROCEEDING, PUBLIC INTEREST)

In examining a settlement of an enforcement proceeding, the Commission divides its public-interest inquiry into four parts: (1) whether, in view of the agency's original order and the risks and benefits of further litigation, the settlement result appears unreasonable; (2) whether the terms of the settlement appear incapable of effective implementation and enforcement; (3) whether the settlement jeopardizes the public health and safety; and (4) whether the settlement approval process deprives interested parties of meaningful participation.

RULES OF PRACTICE: SETTLEMENT OF CONTESTED PROCEEDING

The Commission tends to look more favorably upon settlements that will reduce the amount of money spent on litigation over liability issues and make that money available for cleanup.

RULES OF PRACTICE: SETTLEMENT OF CONTESTED PROCEEDING (ENFORCEMENT PROCEEDING, PUBLIC INTEREST, RISKS AND BENEFITS)

In reviewing risks and benefits, the Commission considers (1) the likelihood (or uncertainty) of success at trial; (2) the range of possible recovery and the related risk of uncollectibility of a larger trial judgment; and (3) the complexity, length, and expense of continued litigation.

RULES OF PRACTICE: SETTLEMENT OF CONTESTED PROCEEDING (ENFORCEMENT PROCEEDING, PUBLIC INTEREST, RISKS AND BENEFITS)

The test for approval of a settlement is not whether it grants a particular party everything it theoretically might have won had the case been fully litigated. Such a test would be indistinguishable from a merits judgment based on a judicial finding of liability and would deprive the remaining parties of all incentive to settle.

RULES OF PRACTICE: SETTLEMENT OF CONTESTED PROCEEDING (ENFORCEMENT PROCEEDING, PUBLIC INTEREST, IMPLEMENTATION AND ENFORCEMENT)

Were the Staff to discern a pattern of improper disbursements, the agency could then require the licensee to obtain Staff's preapproval of all disbursements in excess of a certain dollar figure. If the recipient of improper disbursements were aware of the settlement with licensee, the Staff could seek reimbursement from the recipient. In addition, any willful violations of the Commission's orders may lead to criminal sanctions.

RULES OF PRACTICE: SETTLEMENT OF CONTESTED PROCEEDING (ENFORCEMENT PROCEEDING, PUBLIC INTEREST, IMPLEMENTATION AND ENFORCEMENT)

The Commission is loath to jeopardize a settlement by adding a new requirement of little demonstrable worth.

RULES OF PRACTICE: SETTLEMENT OF CONTESTED PROCEEDING (ENFORCEMENT PROCEEDING, PUBLIC INTEREST)

The adjudicator's function is not to determine whether the resulting array of rights and liabilities is the one that will *best* serve society, but only to confirm that the resulting settlement is within the *reaches* of the public interest.

NUCLEAR REGULATORY COMMISSION: AUTHORITY

The Commission lacks authority to nullify private debts.

RULES OF PRACTICE: SETTLEMENT OF CONTESTED PROCEEDING

The essence of settlements is compromise and the Commission will not judge them on the basis of whether the Staff (or any other party) achieves in a settlement everything it could possibly attain from a fully and successfully litigated proceeding.

RULES OF PRACTICE: SETTLEMENT OF CONTESTED PROCEEDING (ENFORCEMENT PROCEEDING, PUBLIC INTEREST, PUBLIC HEALTH AND SAFETY)

NUCLEAR REGULATORY COMMISSION: HEALTH AND SAFETY RESPONSIBILITIES; RESPONSIBILITIES UNDER AEA

The Commission would not accept a settlement of an enforcement adjudication where the settlement in actuality jeopardized the public health and safety.

RULES OF PRACTICE: SETTLEMENT OF CONTESTED PROCEEDING (ENFORCEMENT PROCEEDING, PUBLIC INTEREST)

NUCLEAR REGULATORY COMMISSION: RESPONSIBILITIES UNDER AEA

The NRC is not required under the AEA to adhere without compromise to the remedial plan of an enforcement order. Such a restriction would effectively preclude settlement because, by prohibiting any meaningful compromise as to remedy, it would eliminate the element of exchange which is at the heart of settlement of any litigation.

RULES OF PRACTICE: SETTLEMENT OF CONTESTED PROCEEDING (ENFORCEMENT PROCEEDING, PUBLIC INTEREST, PUBLIC HEALTH AND SAFETY)

NUCLEAR REGULATORY COMMISSION: HEALTH AND SAFETY RESPONSIBILITIES

An NRC-licensed facility's compliance with the Commission's safety rules can be an important indicator that the facility does not jeopardize public health and safety. But this does not preclude the Commission, when settling enforcement controversies, from agreeing to alternate devices to protect health and safety.

RULES OF PRACTICE: SETTLEMENT OF CONTESTED PROCEEDING (ENFORCEMENT PROCEEDING, PUBLIC INTEREST, PUBLIC HEALTH AND SAFETY); WAIVER OF RULES OR REGULATIONS

ENFORCEMENT ACTIONS: ENFORCEMENT DISCRETION

Where the Staff in an enforcement settlement does not insist on strict compliance with a particular Commission regulation, it is neither waiving that regulation at issue nor amending it, but is instead merely exercising discretion to allow an alternative means of meeting the regulation's goals.

RULES OF PRACTICE: SETTLEMENT OF CONTESTED PROCEEDING

A settlement itself has no precedential value.

RULES OF PRACTICE: NONTIMELY SUBMISSION OF ARGUMENT; APPELLATE REVIEW (SCOPE OF REVIEW)

COMMISSION PROCEEDINGS: APPELLATE REVIEW

If a party fails to raise an argument before the Board, it may not do so on appeal.

RULES OF PRACTICE: SETTLEMENT OF CONTESTED PROCEEDING (ENFORCEMENT PROCEEDING, PUBLIC INTEREST, MEANINGFUL PARTICIPATION)

Intervenors in an enforcement proceeding may only intervene with respect to matters found to be within the scope of the Staff's enforcement order and may not expand the breadth of the order or proceeding. In other words, intervenors take enforcement cases as they find them. They may not control how such cases are prosecuted or compromised. Nor may they simply object to settlement in order to block it.

RULES OF PRACTICE: SETTLEMENT OF CONTESTED PROCEEDING (ENFORCEMENT PROCEEDING, PUBLIC INTEREST, MEANINGFUL PARTICIPATION)

Although it is useful for intervenors, based on available information, to raise objections to enforcement settlements as outside the public interest, it would not be sound practice, or even possible, for the Commission to place in intervenors' hands the same information and considerations that may have influenced the NRC Staff to strike a compromise with SFC and GA.

RULES OF PRACTICE: SETTLEMENT OF CONTESTED PROCEEDING (ENFORCEMENT PROCEEDING, PUBLIC INTEREST, MEANINGFUL PARTICIPATION)

Less information is available when a case settles than would be if the case were fully litigated. But this fact of life does not undercut the viability of a settlement.

RULES OF PRACTICE: SETTLEMENT OF CONTESTED PROCEEDING (ENFORCEMENT PROCEEDING, PUBLIC INTEREST, MEANINGFUL PARTICIPATION)

Where a grant of discovery into the merits of a settlement would create a second major litigation, such a grant would serve as a major disincentive to

engaging in the arduous, yet desirable, task of settling complex enforcement cases.

MEMORANDUM AND ORDER

On January 22, 1997, the Commission issued an order (CLI-97-1, 45 NRC 1) granting both a joint petition of Native Americans for a Clean Environment ("NACE") and the Cherokee Nation (collectively "Intervenors") and a petition of the State of Oklahoma ("Oklahoma") for Commission review of an Atomic Safety and Licensing Board Memorandum and Order, LBP-96-24, 44 NRC 249 (1996). The Board order had approved a settlement agreement between the NRC Staff and General Atomics ("GA") regarding GA's financial responsibility for cleaning up the Gore, Oklahoma facility owned and operated by GA's subsidiary, Sequoyah Fuels Corp. ("SFC").

Earlier in this proceeding, the Board had issued a similar order approving the Staff's settlement with SFC regarding SFC's own responsibility for the cleanup of the Gore site. LBP-95-18, 42 NRC 150 (1995). The Commission had granted Intervenors' petitions for review of that order, and had also granted Oklahoma permission to file with the Commission a brief *amicus curiae*. CLI-96-3, 43 NRC 16 (1996).

All parties have filed briefs with the Commission regarding both LBP-95-18 and LBP-96-24, with Oklahoma and Intervenors (collectively "opponents") objecting to the settlements and urging reversal of those two orders, and with the Staff, SFC, and GA urging their affirmance. For the reasons set forth below, we affirm LBP-95-18 and LBP-96-24 and approve both the GA and SFC settlements without modification.

Background

This proceeding stems from an October 15, 1993 enforcement order in which the Staff held SFC and GA jointly and severally responsible for providing financial assurance for the decommissioning of the Gore facility under 10 C.F.R. § 40.36. 58 Fed. Reg. 55,087 (Oct. 25, 1993). The Staff considered SFC responsible under the terms of its license and GA responsible under the theory that it "exercised and exercises *de facto* control over the day-to-day business of SFC." *Id.* at 55,089-91. The Staff ultimately negotiated separate settlements with SFC and GA.

I. THE SFC SETTLEMENT

Under this settlement agreement, SFC agreed to commit all of its present and future net assets and net revenues to funding the decontamination and decommissioning of the SFC site. In exchange, the Staff agreed to forgo further enforcement or other action against SFC to secure any additional decommissioning funding beyond that specified in the settlement.

In LBP-95-18, a majority of a three-judge Board approved the SFC settlement as being in the public interest. The majority rejected Intervenors' arguments that the settlement would permit SFC's assets to be consumed by creditors or GA, rather than used to fund decommissioning. According to the majority, neither the agreement nor the underlying enforcement action could affect the status of legitimate SFC debts, and therefore Intervenors' line of argument was outside the scope of the enforcement proceeding. Moreover, the majority found that the funds originally set aside for decommissioning were committed by SFC to be used for that purpose under the agreement. 42 NRC at 152-54. The majority also reasoned that the "avoidance of protracted and needless litigation is in the public interest." *Id.* at 155.

In a separate statement, Judge Bollwerk declined to join in approving the settlement without knowing more about the Staff's periodic review of SFC's financial records contemplated by the agreement and the NRC's position as a creditor in the event that SFC filed for bankruptcy. *Id.* at 156-59.

On appeal, the opponents challenge the settlement agreement on the ground that it does not actually ensure that SFC will commit all possible financial resources to decontaminate and decommission the SFC facility. More specifically, they argue that the settlement fails to provide a decommissioning cost estimate for the Gore site, to establish a fixed dollar amount as SFC's contribution to the decommissioning costs, and to prevent SFC from improperly disbursing those funds that are earmarked for cleanup to instead pay the debts of GA, including an outstanding \$10.6 million loan from Kerr-McGee Chemical Corporation (GA's predecessor as owner of SFC) or other unnecessary expenses.

The Staff and SFC respond that the NRC has obtained the maximum possible assurances from SFC, that the Staff can take action to enforce the terms of the agreement if necessary, and that there is consequently no point in expending further agency and SFC resources on litigation.

II. THE GA SETTLEMENT

Under the Staff's settlement agreement with GA, the company agreed to pay either \$9 million or \$5.4 million (depending on the results of a still-pending query to the IRS on the tax status of such payments), to create a decommissioning

trust fund for such monies, to relinquish all control over both the fund and the monies, to permit the Staff to approve the distribution of all such monies, and to remove two GA officers from SFC's Board of Directors. The Staff in turn agreed to forgo further enforcement or other action against GA based on either GA's affiliation with SFC or the Staff's theory that GA's exercise of *de facto* control over SFC's day-to-day business activities renders it a "*de facto* licensee."

In LBP-96-24, 44 NRC 249, the same two-judge majority of the Board approved the GA settlement as in the public interest. The Board reasoned that the GA and SFC settlements combined to provide sufficient assurance of adequate funding for the decommissioning. The Board also concluded that approval of the settlement was supported by a balancing of various public-interest factors — intensity of negotiations, complexity of legal and factual questions, value of immediate recovery as compared with possibility of recovery after extensive litigation, and the parties' own judgments as to the fairness and reasonableness of the settlement. 44 NRC at 257.

Judge Bollwerk again dissented, explaining that, to vote for approval of the GA settlement, he would first need to see the Staff's current best estimate of (a) the total decommissioning costs for the Gore facility, (b) the maximum revenue that will be generated for decommissioning work under the ConverDyn agreement,¹ and (c) the funds available for such work from other sources. He also asked, assuming that SFC and GA funds were insufficient to pay for the complete decommissioning of the Gore facility, what additional cleanup mechanisms would be available to complete that decommissioning, and whether the GA settlement would have any adverse effect on the availability of those mechanisms. 44 NRC at 259-62.

On appeal, the opponents argue that the settlement is contrary to the public interest because: it fails to ensure that GA will commit sufficient resources to decontaminate and decommission the Gore facility; it fails to disclose the terms of a secret "global settlement" with GA involving the company's facilities in both Gore and San Diego, California; it fails to correct numerous problems created in the SFC settlement; and it unlawfully grants GA an unconditional and indefinite waiver of decommissioning funding requirements without public notice and opportunity for a hearing.

The Staff and GA disagree. They consider the agreement an acceptable compromise, given each side's vulnerabilities. They also argue that the "global

¹ ConverDyn is a general partnership formed in 1992, by General Atomic Energy Services, GAES Limited Partnership, and Allied Signal Energy Services. ConverDyn's purpose is to market UF₆ conversion and other services worldwide to utility companies. When SFC ceased purification and conversion operations at its Gore facility in 1992, it signed a Standby Agreement with ConverDyn under which ConverDyn would provide ongoing UF₆ conversion services on behalf of SFC. Under the Standby Agreement (as amended in 1994), ConverDyn pays SFC various fees each year. According to the Staff, these fees are expected to provide SFC with \$72 million of its \$89 million anticipated revenue through the year 2003.

settlement" is a fiction and that the Commission's approach to addressing the decommissioning of GA's San Diego facilities is beyond the scope of this enforcement proceeding. Finally, they consider the settlement an exercise of enforcement discretion rather than a waiver of regulations.

Discussion

It is axiomatic that the Commission, like other adjudicatory bodies, looks with favor upon settlements.² We consider the facts in the light most favorable to a settlement and are loath to second-guess the parties' (including our Staff's) evaluation of their own interests. On the other hand, we do not simply rubber-stamp all enforcement settlements. As explained below, we look independently at such settlements to see whether they meet the public interest. See, e.g., *Randall C. Orem, D.O.*, CLI-93-14, 37 NRC 423 (1993). As the Second Circuit has stated, "[t]he evaluation of a proposed settlement requires an amalgam of delicate balancing, gross approximations and rough justice."³

I. THE STANDARD FOR BOARD AND COMMISSION REVIEW OF SETTLEMENTS

Section 2.203 of the Commission's rules of practice sets forth the Board's function in reviewing settlements in enforcement cases. This section provides that (1) settlements are subject to the Board's approval; (2) the Board, in considering whether to approve a settlement, should "accord[] due weight to the position of the staff"; and (3) the Board may "order such adjudication of the issues as [it] may deem to be required in the public interest to dispose of the proceeding." See also 27 Fed. Reg. 377, 380 (Jan. 13, 1962). The third element of section 2.203 means, as we stated earlier in this proceeding, that the NRC Staff has no "untrammeled discretion" to accept compromises once an enforcement case is before the Board, and that "the presiding officer's approval of settlement is a matter that must give due consideration to the public interest." *Sequoyah Fuels Corp. (Gore, Oklahoma Site)*, CLI-94-12, 40 NRC 64, 70-71 (1994). *Accord New York Shipbuilding Corp.*, 1 AEC 842 (1961).

² See *Rockwell International Corp. (Rocketdyne Division)*, CLI-90-5, 31 NRC 337, 340 (1990); *Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452, 456 (1981); 10 C.F.R. §§ 2.759, 2.1241; *Isby v. Bayh*, 75 F.3d 1191, 1196 (7th Cir. 1996) (*Isby*).

³ *City of Detroit v. Grinnell*, 495 F.2d 448, 468 (1974) (*Grinnell*), citing *Saylor v. Lindsley*, 456 F.2d 896, 904 (2d Cir. 1972).

Commission review of Board decisions on legal and policy matters such as the adequacy of a settlement is *de novo*,⁴ although we of course give respectful attention to the Board's views. In conducting our review, we use the "due weight to . . . staff" and "public interest" standards set forth in 10 C.F.R. § 2.203 and *New York Shipbuilding*. Moreover, we remain mindful that the enforcement context of this proceeding necessarily restricts the scope of remedies that Intervenor may demand to those set out by the NRC Staff in its enforcement order. See, e.g., *Bellotti v. NRC*, 725 F.2d 1380, 1381 (D.C. Cir. 1983); *Sequoyah Fuels Corp.*, CLI-94-12, 40 NRC at 70; *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), CLI-80-10, 11 NRC 438, 440-42 (1980).⁵

This restriction on the remedies at issue in this proceeding⁶ eliminates the need to consider arguments by the settlements' opponents seeking to expand the remedies against SFC and GA beyond those sought by the NRC Staff. On the other hand, if the Intervenor or Oklahoma conclude at some future date that either GA or SFC is violating the terms of its settlement or if they are dissatisfied with any enforcement action the Staff is taking (or not taking), they are free to file a petition under 10 C.F.R. § 2.206 seeking additional or stricter enforcement actions.⁷

II. ANALYSIS OF THE SETTLEMENTS

Having discussed the general standards we apply in reviewing settlements, we now turn to the settlements in this proceeding. As noted above, we first give

⁴ For this reason, we need not reach Intervenor's question whether *the Board* made the required independent determination, supported by the record, that the GA settlement meets the "public interest" consideration of protecting the public health and safety.

⁵ As we stated in *Marble Hill*:

We believe that public health and safety is best served by concentrating inspection and enforcement resources on actual field inspections and related scientific and engineering work, as opposed to the conduct of legal proceedings. This consideration calls for a policy that encourages licensees to consent to, rather than contest, enforcement actions. Such a policy would be thwarted if licensees which consented to enforcement actions were routinely subjected to formal proceedings possibly leading to more severe or different enforcement actions. Rather than consent and risk a hearing on whether more drastic relief was called for, licensees would, to protect their own interests, call for a hearing on each enforcement order to ensure that the possibility of less severe action would also be considered. The end result would be a major diversion of agency resources from project inspections and engineering investigations to the conduct of hearings.

11 NRC at 441-42.

⁶ At the outset of this case, one intervenor candidly acknowledged that it is "precluded from advocating any measures beyond the scope of the October 15th Order." NACE's Reply to SFC's Answer in Opposition to NACE's Motion to Intervene, dated Dec. 30, 1993, at 9. See also CLI-94-12, 40 NRC at 70 ("NACE recognizes in this instance that it may only intervene with respect to matters found to be within the scope of the Staff's enforcement order and may not expand the breadth of the order or proceeding").

⁷ See *Kelley v. Selin*, 42 F.3d 1501, 1515 (6th Cir. 1995); *Bellotti*, 725 F.2d at 1383; *Sequoyah Fuels Corp.* (UF₆ Production Facility), CLI-89-19, 24 NRC 508, 513-14 (1989); *Marble Hill*, CLI-80-10, 11 NRC at 442.

"due weight" to the position of the Staff and then consider the general "public interest."

A. "Due Weight" to Be Accorded the Staff's Position

We begin our "due weight" discussion by reiterating our statements earlier in this proceeding that the Staff's position, while entitled to due weight, is not itself dispositive of whether an enforcement settlement should be approved:

Once proceedings have been initiated, . . . the Staff's discretion is never absolute. While the agency's enforcement discretion may be at its zenith as the agency decides whether to initiate enforcement action, that discretion does not negate the participatory rights in agency proceedings under statute or regulation once a proceeding has been initiated or a matter set for hearing.

* * * *

[O]nce an enforcement order has been set for hearing . . . , the NRC Staff no longer has untrammelled discretion to offer or accept a compromise or settlement. In any pending proceeding, the presiding officer's approval of settlement is a matter that must give due consideration to the public interest.⁸

However, the fact that the Board (and the Commission) give less than absolute deference to the Staff's views on a settlement hardly means that such views either can be ignored or constitute only a minor factor in the Board's and Commission's evaluation of a settlement — a result that the opponents apparently desire. See note 8, *supra*. The presence of the "due weight" language in 10 C.F.R. § 2.203 provides dispositive proof of the importance of the Staff's views. Several considerations reinforce the usefulness of the "due weight" approach, both in general and in this particular proceeding.

⁸ *Sequoyah Fuels Corp.*, (Gore, Oklahoma Site), CLI-94-12, 40 NRC 64, 70-71 (1994). Intervenors assert that the Board must accord due weight to Staff's views *only* if Staff expressly states that the settlement adequately addresses the health-and-safety concerns raised in Staff's original enforcement order, but not if Staff addresses merely whether the settlement is in the public interest. However, Intervenors cite no support for this novel proposition. Our regulatory standard for approving settlements is the "public interest" (10 C.F.R. § 2.203), and the NRC Staff's adjudicatory submissions understandably and appropriately focus on that broader standard. The public interest includes, but is not limited to, consideration of the public health and safety (our mandate under the Atomic Energy Act ("AEA")). Our statutory authority for the Commission's "public interest" review of settlements under 10 C.F.R. § 2.203 is not the AEA (which is silent regarding settlements) but rather section 5(b) of the Administrative Procedure Act ("APA"), which permits a far broader scope of considerations.

Nor can we accept Intervenors' related position that the appropriate test for settlement approval is whether the settlement satisfies the purpose of the Staff's original enforcement order. Such satisfaction is only one of the factors which we consider when examining the "public health and safety" element of the public interest. See *Randall C. Orem*, CLI-93-14, 37 NRC at 429 (Commission's approval of an enforcement settlement was based only in part on the facts that "the original [enforcement] order sought termination of a license . . . [and that] this result is achieved under the agreement without further litigation"). An insistence that a settlement reach in full the same goals as the original enforcement order would effectively preclude settlements in enforcement cases.

Having "lived" with the case as a litigant, the NRC Staff necessarily knows the record as well as, and probably better than, the Board and the Commission. The Staff has a similarly close familiarity with the strengths and weaknesses of its own factual and legal contentions (e.g., here, its controversial position that SFC's parent corporation, GA, may be viewed as a *de facto* NRC licensee). In addition, it is the Staff — not the Board or the Commission — who has negotiated with the enforcement targets (in this case, for many months) and who consequently is in the strongest position at the agency to assess what those agency targets are willing to concede and how much they are willing to pay.⁹

Finally, the Staff also has the best sense of how it should allocate its limited enforcement resources, as measured against other priorities, to provide the maximum protection of the public health and safety, and whether the investment of further time and money in litigating (as compared with settling) a particular case is a responsible use of those scarce resources.¹⁰ Such exercise of enforcement discretion is essential to the efficient working of the Commission's administrative process in enforcement proceedings.

This resource allocation factor is particularly relevant to the instant settlements. If past is prologue to the future, a full hearing of this proceeding would be quite lengthy and expensive. In the first 3 years of this case, the parties have submitted nearly 400 filings. The time and expense associated with these filings would likely be relatively small compared with the time and cost of the remainder of this litigation. By the date of the GA settlement, the proceeding had not yet even reached the hearing stage, discovery had barely begun, and the prospect of extensive discovery battles loomed large. The case had also taken a detour through the federal courts. See *General Atomics v. NRC*, 75 F.3d 536 (9th Cir. 1996). The settlements will permit the NRC to avoid further expenditures of its scarce resources.

Both as a general matter and especially as applied to the instant proceeding, all of the reasons for giving "due weight" to the Staff's views justify giving quite substantial deference to the Staff's support of the SFC and GA settlements. We are willing, in short, to presume that our Staff acted in the agency's best interest in agreeing to the settlements. Only if the settlements' opponents show some "substantial" public-interest reason to overcome that presumption will we undo the settlements. See *Sequoyah Fuels*, CLI-94-12, 46 NRC at 71 n.10.

⁹The federal courts, like the Commission, assign substantial importance to factors such as these and consequently accord considerable weight to the opinions of experienced counsel when deciding whether to approve settlements. See, e.g., *Torrisi v. Tucson Electric Power Co.*, 8 F.3d 1370 (9th Cir. 1993), *cert. denied*, 512 U.S. 1220 (1994); *Granada Investments, Inc. v. DWG Corp.*, 823 F. Supp. 448, 453 (N.D. Ohio 1993). The scales tip even more toward judicial approval where, as here, government officials prosecuting an enforcement case favor the settlement. See *United States v. Microsoft*, 56 F.3d 1448, 1462 (D.C. Cir. 1995) (*Microsoft*).

¹⁰See *Marble Hill*, 11 NRC at 441-42, *quoted supra* at p. 206. Cf. *Microsoft*, 56 F.3d at 1459 ("a settlement, particularly of a major case, will allow the Department of Justice to reallocate necessarily limited resources").

B. "Public-Interest" Factors in Reviewing Settlements

We divide our public-interest inquiry into four parts: (1) whether, in view of the agency's original order and the risks and benefits of further litigation, the settlement result appears unreasonable; (2) whether the terms of the settlement appear incapable of effective implementation and enforcement; (3) whether the settlement jeopardizes the public health and safety; and (4) whether the settlement approval process deprives interested parties of meaningful participation.¹¹

1. Risks and Benefits

In reviewing a settlement, the first "public-interest" factor we examine is the risks and benefits of settling as compared to litigating the proceeding. More specifically, we consider: (1) the likelihood (or uncertainty) of success at trial, (2) the range of possible recovery and the related risk of uncollectibility of a larger trial judgment, and (3) the complexity, length, and expense of continued litigation. On balance, we believe that these considerations support approval of the GA and SFC settlements.

a. GA Settlement

To the extent the opponents suggest that the GA settlement can be approved only if it grants the Staff (or the opponents) everything they theoretically might have won had the case been fully litigated — which in this proceeding would translate into guaranteed full funding of all decommissioning costs — we reject their position. Opponents' argument, if accepted, would deprive the Staff's adversaries (here, GA and SFC) of all incentive to settle. *See also* note 8, *supra*. Such a "settlement" would be indistinguishable from a merits judgment based on a judicial finding of liability. It is simply "inappropriate . . . to measure the remedies in the [settlement] decree as if they were fashioned after trial." *Microsoft*, 56 F.3d at 1461.

Here, the NRC Staff faces a substantial possibility of defeat if the case proceeds to trial. The Staff's untested "*de facto* license" theory would likely turn in large part on its ability to overcome the legal maxim that shareowners (here GA) of a corporation (here SFC) are not liable for the corporation's obligations, absent equitable circumstances warranting "piercing the corporate

¹¹In addition to *Microsoft*, where the D.C. Circuit considered a statutory "public-interest" standard applicable to antitrust enforcement settlements, we have looked to several other judicial authorities that have used standards similar to ours when reviewing settlements. *See, e.g., Massachusetts School of Law at Andover v. United States*, 118 F.3d 776, 782 (D.C. Cir. 1997); *Armstrong v. Board of School Directors*, 616 F.2d 305, 314 (7th Cir. 1980) (*Armstrong*); *Girsh v. Jepson*, 521 F.2d 153, 157 (3d Cir. 1975) (*Girsh*); *Grinnell*, 495 F.2d at 462.

veil."¹² On the one hand, there is no governing Commission or court law directly supporting Staff's "de facto licensee" theory. On the other hand, both the Board and the United States Court of Appeals for the Ninth Circuit appear to conclude that there *could* be a set of facts that, if proven, would establish Commission jurisdiction over GA as posited in the 1993 enforcement order.¹³ Thus, both the Staff and GA understandably concluded that neither side could be certain of a victory on the issue of jurisdiction.

Absent a settlement, the NRC Staff's effort to make GA the ultimate guarantor of the cleanup of SFC's Gore site not only would face difficult legal hurdles but might also run into significant practical problems. The financial information in the record suggests that GA is not necessarily a "deep pocket" and that a victory by the Staff on the liability issue might not lead to a fully collectible judgment, should SFC default on its cleanup obligation and the NRC attempt to force GA to spend tens of millions of dollars on the cleanup effort.

For example, GA asserts that its financial condition has worsened substantially as the result of congressional funding cutbacks in programs for which GA is a contractor, i.e., the Gas-Turbine Modular Helium Reactor program (eliminated in 1995) and the nuclear fusion research program (cut by 20% in 1995). In addition, according to GA, its current business operations and future business opportunities have suffered and continue to suffer as a result of the as-yet-unresolved enforcement order at issue in this proceeding, particularly in view of its loss of a significant line of credit from Citicorp.¹⁴ These statements raise a significant risk that any judgment against GA might well be collectible only in part.

Furthermore, if the Commission were to reject the settlement and full-scale litigation were to resume, the proceeding would undoubtedly prove complex, lengthy, and expensive. The time and expense of involving senior NRC Staff and senior corporate management in a full hearing would be considerable. The complex jurisdictional issue of first impression (whether GA was a *de facto* licensee) not only would generate much discovery and contentious litigation but also could easily result in any final Commission decision being appealed to a

¹² See, e.g., *United States v. Cordova Chemical Co.*, 113 F.3d 572 (6th Cir. 1997); *Joslyn Manufacturing Co. v. T.L. James & Co.*, 893 F.2d 80, 82-84 (5th Cir. 1990), *cert. denied*, 498 U.S. 1108 (1991).

¹³ The Board denied GA's motion for summary judgment on this issue and the Court of Appeals did not find the Commission's jurisdiction "plainly lacking." *Sequoiah Fuels Corp. (Gore, Oklahoma Site)*, LBP-94-17, 39 NRC 359, *review declined*, CLI-94-11, 40 NRC 55 (1994); *General Atomics v. NRC*, 75 F.3d 536, 541 (9th Cir. 1996). Particularly in environmental cases, the judiciary has been willing to hold parent companies liable for their subsidiaries' acts when there is strong evidence of parental control. See, e.g., *United States v. Kayser-Roth Corp.*, 910 F.2d 24 (1st Cir. 1990), *cert. denied*, 498 U.S. 1084 (1991).

¹⁴ That line was, according to GA, essential to make business acquisitions, to backstop letters of credit and performance bonds required by domestic and foreign customers, to levelize fluctuating cash requirements, and to provide a source of funds in an emergency. GA states that the line of credit which it was later able to obtain provides less credit at less favorable terms and that GA's opportunities to pursue business opportunities have consequently been limited.

United States Court of Appeals. The settlement of the Staff's claim against GA will permit the parties and the Commission to avoid these expenditures of time and money. As we indicated at the outset, we tend to look more favorably upon settlements that will reduce the amount of money spent on litigation over liability issues and make that money available for cleanup.

The long and short of the GA settlement is that the NRC Staff has obtained from GA a commitment to contribute either \$5.4 million or \$9 million (depending on the outcome of GA's pending request for an IRS tax ruling) to cleaning up the SFC site at Gore. To be sure, this is a much smaller commitment than the NRC Staff theoretically might have obtained had it pursued the enforcement litigation to the end. On the other hand, further litigation raises the substantial possibility of leaving GA free of cleanup responsibility altogether, despite a major investment of NRC Staff time and resources. And, even if the original Staff enforcement order ultimately survived all litigation attacks, the victory might prove chimerical. GA may well lack the financial wherewithal to serve as a full guarantor of the cleanup expenses, as the original enforcement order essentially contemplated. Under these circumstances, we are not inclined to second-guess the views of our Staff, GA, and the Licensing Board that the GA settlement achieves a reasonable result.

b. SFC Settlement

As for the SFC settlement, the Staff's position contains no apparent vulnerabilities on the merits similar to the jurisdictional ones affecting its case against GA, and we believe, based on the current nascent record, that the Staff might well prevail against SFC if the proceeding were to go to a full hearing. The level of uncertainty associated with the Staff's case against SFC appears significantly lower than the level of uncertainty associated with its case against GA.

This is not to say, however, that the Staff acted unreasonably in reaching a settlement with SFC. The settlement has the obvious advantages of halting diversion of SFC resources from cleanup to litigation and of saving Staff resources as well. In addition, in approving the SFC settlement, the Board concluded (and the Staff and SFC emphasize on appeal) that, under the SFC settlement, the NRC will receive from SFC "all that the NRC would be entitled to receive in the absence of an agreement and a decision issued in NRC's favor." LBP-95-18, 42 NRC at 154 (emphasis added). This conclusion, if taken at face value, mitigates quite strongly in favor of accepting the SFC settlement. However, the settlement's opponents do not take it at face value. They question whether the SFC-pledged funds will actually prove collectible. We turn to that question in the next portion of this decision.

2. *Implementation and Enforcement*

The opponents of the SFC settlement do not agree with the Licensing Board that the agreement effectively commits SFC "to furnish all of its assets and revenues" to the cleanup of its Gore site.¹⁵ See LBP-95-18, 42 NRC at 155. In their view, the agreement suffers from a number of fatal flaws, including a failure to prevent diversion of SFC funds, an inadequate reporting requirement, a lack of adequate protection against an SFC bankruptcy, and incomplete financial information. In our view, none of these objections is sufficient to upset the SFC settlement agreement, both for the reasons the Licensing Board gives (42 NRC at 152-55) and for the reasons we give below.

a. *Improper Disbursal of Assets*

According to the opponents, nothing in the agreement prevents SFC from improperly disbursing its assets, i.e., taking funds earmarked for decommissioning and instead improperly using them to pay unreasonable or unnecessary expenses such as drawing down or retiring GA's debt. The opponents fear that such action by SFC would render uncollectible the assets and revenue that SFC pledges in its settlement to contribute towards decommissioning the Gore facility.

It seems to us that the only two ways to guarantee that funds will not be improperly disbursed would be either to prohibit SFC from paying its debts until after the completion of decommissioning or to give the Staff the authority to preapprove all SFC's expenses. In our opinion, both are unacceptable. The first approach is legally questionable: We doubt that the NRC may lawfully nullify creditors' valid claims against SFC. Such an effort also would be counterproductive: If SFC could not pay its debts, it could find no vendors, contractors, or employees willing to provide the goods and services needed for decommissioning. The second approach (NRC preapproval of all SFC transactions) would, in our view, misallocate resources by placing an enormous administrative burden on both the Staff and SFC.

We acknowledge the risk of improper disbursal but agree with the Licensing Board that the "NRC is not left helpless in the event of any deception" on SFC's part. LBP-95-18, 42 NRC at 152. "[A]ny transfer of SFC assets and revenues to claimants who had no legal entitlement to them would subject SFC to an enforcement action (by the NRC) . . . for violating the Settlement Agreement." *Id.* (internal quotation marks omitted). In other words, the Staff, by using its own investigative authority and the settlement's reporting requirements (providing for

¹⁵ The opponents raise no similar concerns about the implementation and enforcement of the GA settlement, nor do we see any such problems with that settlement.

annual financial audits), is in a position under the SFC settlement to discover and counteract improper disbursements.¹⁶

b. Reporting Requirements

The opponents doubt the effectiveness of the SFC settlement's reporting requirements and consider the Staff's authority to require SFC to request the return of misspent funds to be small comfort. They point out that it is far easier to prevent misspending in the first place than it is to recover misspent funds held by nonlicensees.

They go on to suggest four amendments to improve the reporting requirement: (1) require the annual reports to include specific information regarding decommissioning expenses or to justify the reasonableness of those expenses; (2) provide for public access to the annual reports; (3) require the filing of financial reports by other entities related to SFC (i.e., Sequoyah Holding Corporation ("SHC"), Sequoyah Fuels International Corporation ("SFIC"), and ConverDyn); and (4) provide for Staff review of SFC's quarterly financial reports. As we explain below, these "improvements" would be marginal at best and do not justify reopening the settlement agreement.

The suggested requirement that the annual reports either include specific information regarding decommissioning expenses or justify the reasonableness of those expenses would merely provide the Staff with information to which it already has access, both under its general investigatory and enforcement authority and also under the terms of the settlement. *See* SFC Settlement Agreement ¶ 5, 42 NRC at 164 ("SFC will make its financial records and books available for audit by the NRC Staff at any reasonable time").

The suggested public access to SFC's annual reports poses obvious confidentiality problems for a privately held company. Intervenors have not offered any solution to these confidentiality problems. Regarding the suggested filing of financial reports by other entities related to SFC (i.e., SHC, SFIC, and ConverDyn), none of these entities is even a party to the instant proceeding. Consequently, the settlement cannot bind them to file reports.

Finally, regarding the suggested provision of quarterly financial reports to the Staff, we note that every 3 months the Staff already receives from the Environmental Protection Agency ("EPA") copies of SFC's quarterly financial statements as well as its quarterly reports describing activities conducted and the nature and amount of revenues used for those activities.

¹⁶ For instance, were the Staff to discern a pattern of improper disbursements, the agency could then require SFC to obtain Staff's preapproval of all disbursements in excess of a certain dollar figure. If the recipient of improper disbursements were GA or some other entity with knowledge of the SFC settlement, the Staff could seek reimbursement from the recipient. In addition, any willful violations of the Commission's orders may lead to criminal sanctions. *See generally* AEA § 223, 42 U.S.C. § 2273.

c. *Bankruptcy*

The next alleged defect in the SFC settlement relates to a possible future bankruptcy of that company. Intervenors ask whether the NRC can improve its current position as an unsecured creditor in the event that SFC files for bankruptcy, and suggest that the public would be best served by the settlement requiring SFC to provide advance notice of its intent to file for bankruptcy.

We cannot agree with Intervenors' suggestion. It is not at all clear that advance notice would enhance the NRC's position in a potential SFC bankruptcy. Intervenors speculate that, with advance notice, the NRC might issue some form of immediate order that would give priority to decontamination costs over creditor claims in a bankruptcy proceeding. But no one explains precisely why a prebankruptcy decontamination order by the NRC would have more weight than a postbankruptcy order (or, for that matter, more weight than SFC's existing cleanup obligations). And, as the NRC Staff points out in its brief, an NRC order issued on the eve of bankruptcy, resting on special advance notice given the NRC but no one else, conceivably could be rendered void by the bankruptcy court under its equitable powers.

The Commission, of course, claims no particular bankruptcy expertise. But absent a more definitive showing of the utility of advance notice than has been presented in this case, we decline to add an unbargained-for notice requirement to what seems on balance a reasonable settlement. We are loath to jeopardize that settlement by adding a new requirement of so little demonstrable worth. See Clause 11 of the Settlement Agreement, reprinted at 42 NRC 165 (allowing withdrawal from settlement in the event of "any substantive modification").

We see only one other possible means by which the agency could improve its position if SFC goes bankrupt — to require SFC to obtain an additional surety instrument guaranteeing the decommissioning funds in the event that the Licensee goes bankrupt. However, according to the Staff, SFC cannot provide more than the \$750,000 letter of credit that it has already obtained. Nothing in the record leads us to believe that the Staff is incorrect.

SFC's status as the owner of a shutdown facility with significant decommissioning liabilities would most likely preclude SFC from qualifying for such an additional letter of credit. Consequently, the only realistic situation in which a bank would issue such a letter of credit would be if the letter were fully collateralized by cash — a situation that would defeat the decommissioning goal by removing that same cash from the pool of money available to decommission the site.¹⁷ We agree with the Staff and SFC that this approach would be impractical

¹⁷ Intervenors respond that it does make sense to collateralize funds, if only to protect them from Kerr-McGee's \$10.6 million claim. Our discussion of the Kerr-McGee loan, *infra* at pp. 216 *et seq.*, is dispositive of Intervenors' response.

and counterproductive. Consequently, we do not consider the absence of this second approach in the settlement to be a factor mitigating against its approval.

d. Insufficient Financial Information

The settlement opponents argue that the settlement agreements and the adjudicatory record lack sufficient financial information to assess the settlements' workability. For the reasons set forth below, we consider the absence of these pieces of proprietary information to be either irrelevant or insufficiently important to scuttle the settlement.

(i) "Best Bargain"

Intervenors argue that the financial data in the record are insufficient to permit a fair evaluation of whether the Staff obtained the best bargain in the public interest. We reject this argument on two grounds. First, it ignores the established judicial precedent — equally applicable in the administrative context — that the adjudicator's "function is not to determine whether the resulting array of rights and liabilities is the one that will *best* serve society, but only to confirm that the resulting settlement is within the *reaches* of the public interest." *Microsoft*, 56 F.3d at 1460 (internal quotation marks omitted, emphases in original). See generally 10 C.F.R. §§ 2.759, 2.1241 (requiring only that a settlement be "fair and reasonable"). Second, we need not reject a settlement merely because one of the parties might have received a more favorable result had the case been fully litigated.¹⁸

(ii) Decommissioning Costs and SFC's Contribution

Intervenors want to know the current best estimate of the costs of decommissioning the Gore site and the dollar amount for SFC's contribution to those costs. We do not consider these pieces of information to be essential to an adequate settlement. As the Board correctly pointed out, the SFC settlement will provide this agency with "all that [it] would be entitled to receive in the absence of an agreement and a decision issued in NRC's favor." LBP-95-18, 42 NRC at 154. Additional financial information will not improve our position *vis a vis* SFC.

¹⁸ Our approach is similar to that of the federal courts in this regard. See, e.g., *Isby*, 75 F.3d at 1200; *Microsoft*, 56 F.3d at 1460, 1461 n.9; *EEOC v. Hiram Walker & Sons, Inc.*, 768 F.2d 884, 889 (7th Cir. 1985) (*Hiram Walker*); *Grinnell*, 495 F.2d at 455 n.2 ("there is no reason, at least in theory, why a satisfactory settlement could not amount to a hundredth or even a thousandth part of a single percent of the potential recovery").

The record, in any event, now contains a significant portion of the information sought by Intervenor. Under the terms of the settlement, a major element (and, according to the NRC Staff, *the* major element) of SFC's contribution will be ConverDyn's revenue.¹⁹ The most recent information available to the Commission indicates that SFC's revenues from ConverDyn and other sources are estimated at \$88-89 million through the year 2003, and \$96 million through the year 2005.²⁰ SFC's most recent decommissioning cost estimate is \$82,268,000.²¹

(iii) *Claims on ConverDyn's Revenue*

The opponents want to know the details of the claims on ConverDyn's revenues that would have a higher payment priority than payments to SFC. They are concerned that the settlement's failure to specify the nature of these other claims on ConverDyn's revenues, together with GA's potential control over ConverDyn,²² removes any assurance that ConverDyn's profits will actually be dedicated to decommissioning rather than used by GA for its own financial purposes.

Although the opponents do not say so explicitly, this argument essentially calls into question the appropriateness of the relationship between ConverDyn and its parent companies. However, the issue of the reasonableness of this relationship is not before the Commission. The instant proceeding is bounded by the terms of the enforcement order which placed this issue outside of the parameters of this proceeding by providing that the relationship "appears to be a *bona fide* arrangement among the various parties." 58 Fed. Reg. at 55,089. Moreover, as opponents' line of argument is based only on speculation, we see no reason to allow them discovery, especially given the current settlement posture of this case. See Section II.B.4 of this Order, *infra*, at pp. 222 *et seq.*

(iv) *Kerr-McGee Loan*

The opponents are concerned that SFC might misuse some of its assets or revenue to pay off all or part of the \$10.6 million loan from Kerr-McGee to GA, SHC, and SFIC. They argue that SFC's status as a shutdown business with no profit-making future deprives it of any incentive to conserve its resources for future decommissioning, and that GA has an obvious incentive to have

¹⁹ See SFC Settlement Agreement ¶1.b, Attachment to LBP-95-18, 43 NRC at 161; NRC Staff's Answer in Opposition to Intervenor's Petition for Review of LBP-95-18, dated Dec. 1, 1995, at 8 n.4.

²⁰ Staff's Appeal Brief, dated March 10, 1997, at 14; Letter from John H. Ellis, President, SFC, to Carl J. Paperiello, NRC, dated Feb. 28, 1997, attached as Appendix 1 to General Atomics' Brief in Support of Affirmation of LBP-96-24, dated March 17, 1997.

²¹ See GA's Appeal Brief, dated March 17, 1997, Appendix 1.

²² See note 1, *supra*, and the organizational chart provided as Appendix A to this Order.

SFC pay off as much of GA's debt to Kerr-McGee as possible. The opponents propose that the settlement be amended to preclude SFC from paying GA's debt to Kerr-McGee unless and until decommissioning is satisfactorily completed. According to the opponents, this amendment would also preclude GA from unjustly enriching itself by using SFC to pay the debts of GA's subsidiaries, SFIC and SHC.

The problem here, as we noted above, is that the Commission has no authority to nullify private debts. The Kerr-McGee issue, in any event, lacks practical significance because Kerr-McGee has already indicated in writing that it does not intend to enforce its rights against SFC until the Gore site decommissioning has been completed. Kerr-McGee presumably has every incentive to permit SFC to proceed with decommissioning unimpeded, for if the SFC effort fails, Kerr-McGee may well be drawn into the decommissioning process (and expenses) via the "Superfund" law, i.e., the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. §§ 9601-9675.

(v) Letter of Credit and Decommissioning Reserve Account

Opponents' next area of financial inquiry is a variation on their Kerr-McGee query — they want to know whether the settlement will make available to SFC's creditors its \$750,000 letter of credit required under 10 C.F.R. § 40.36²³ and its roughly \$3.8 million decommissioning and reclamation account ("decommissioning reserve account") required under its NRC license. We see no real problem with either the letter of credit or the reserve account.

The letter of credit requires any funds drawn on it to be placed in a Standby Trust, the contents of which can be used only for decommissioning. Thus, Intervenor's request that the settlement be modified to commit the funds to decommissioning is unnecessary.

The following facts, offered by GA and SFC, shed further light on this matter: To enable SFC to obtain the letter of credit, GA deposited the \$750,000 in an escrow (or cash collateral) account held by GA at Citibank of North America; the money in the cash collateral account was not loaned to GA; and the principal has never been the property of SFC. The letter of credit is (by its own terms) an "irrevocable" commitment by the bank to pay the NRC \$750,000, and is automatically renewed each year absent 90 days' notice by the bank. If the bank gives such 90-day notice, and if SFC cannot within 30 days provide alternative assurance that it can replace the letter of credit, then the NRC may draw down the full amount. Thus, the bank's requirement that SFC provide financial backing for the letter of credit is irrelevant to the bank's obligation to the NRC under

²³ The letter of credit is appended as Attachment 3 to SFC's Reply to intervenors' Renewed Opposition, dated Sept. 29, 1995.

the same letter of credit. We find these explanations from GA and SFC both uncontroverted and satisfactory, and we therefore see no need for further inquiry into the \$750,000 letter of credit.²⁴

As for the decommissioning reserve, Intervenor's are incorrect to view it as a separate source of decommissioning funding that was set aside and protected from incursions by other business expenses, and that had to be backed by either cash or other assets. The reserve is instead a balance sheet accounting mechanism indicating that retained earnings have been appropriated by a company in accordance with legal or contractual requirements or as a result of authorization by its board of directors.²⁵

Indeed, according to the Staff, SFC's balance sheet already provides the remedy sought by Intervenor's, i.e., those reserves are separately identified in SFC's audited financial statements and are balanced against expenses for "specific waste disposal projects and decommissioning activities" rather than against "other debts and expenses." NRC Staff's Brief Regarding Commission Review of Settlement Agreement Between Sequoyah Fuels Corp. and the NRC Staff, dated April 29, 1995, at 9-10. As the SFC balance sheet already provides what the Intervenor's seek, we see no advantage to reiterating these matters in the settlement.

3. *Public Health and Safety*

We must next determine whether the settlements jeopardize public health and safety and therefore are inconsistent with the NRC's governing statutes and rules or with public policy.²⁶ The settlements' opponents raise three arguments regarding this general issue — one focused on statutory authority, one on regulatory compliance, and one on general environmental law. We see no violation of law or jeopardy to public health and safety that would justify the Commission's rejection of the settlements and the consequent further litigation on the 1993 enforcement order.

²⁴ In a related matter, Intervenor's object to the fact that the SFC settlement does not require the interest from the letter of credit's cash collateral account to be dedicated, along with the principal, for use in decommissioning the site. Intervenor's Initial Brief, dated March 25, 1996, at 12-13, *relying on* Reg. Guide 3.66. This objection fails. Because the funds in the account were placed there by GA rather than SFC, any interest from those funds belongs to GA and is irrelevant to the SFC settlement. See SFC's Reply to Intervenor's Opposition to Settlement Agreement, dated Sept. 15, 1995, at 9. Moreover, nothing in Reg. Guide 3.66 requires that a cash collateral account even be established to support a letter of credit, much less that the interest from such an account must be committed to decommissioning funding.

²⁵ See GA's Reply Brief, dated April 29, 1996, at 9-10. See also SFC's Reply to Intervenor's Renewed Opposition, dated Sept. 29, 1995, at 5 (a reserve is an accounting practice used "to indicate that retained earnings have been appropriated in accordance with legal or contractual requirements or as a result of authorization by the board of directors"), quoting *Intermediate Accounting, Comprehensive Volume* at 744 (5th ed. 1972). Intervenor's have not controverted GA's and SFC's statements.

²⁶ See, e.g., *In re Smith*, 926 F.2d 1027, 1029 (11th Cir. 1991) (settlement is void as against public policy if it directly contravenes a federal statute or policy).

a. *Statutory Authority*

Opponents argue that the GA settlement is inconsistent with the Commission's statutory duty under the AEA to protect public health and safety. According to Intervenor, the Commission lacks statutory authority to compromise public health and safety. They assert that although the Commission may compromise the amount of a monetary penalty for noncompliance with a standard or agree on alternate means of compliance, the Commission is barred from negotiating away compliance itself or accepting a compromise that jeopardizes public health and safety.²⁷

It is of course true that the Commission would not accept a settlement of an enforcement adjudication where the settlement in actuality jeopardized the public health and safety. But, as the Board found and as we agree, that is not the case with the GA and SFC settlements.

The record fully supports a finding that the two settlements do not jeopardize public health and safety. SFC currently predicts revenue from ConverDyn in excess of \$88 million through the year 2003, and in excess of \$96 million through the year 2005, all of which must be devoted to cleaning up the Gore site. GA's Appeal Brief, dated March 17, 1997, Appendix 1; Staff's Appeal Brief, dated March 10, 1997, at 14. This amount alone would be more than sufficient to cover the \$82,268,000 in decommissioning expenses (SFC's current estimate). GA's Appeal Brief, dated March 17, 1997, at 22. GA's additional sum of either \$5.4 or \$9 million adds a further cushion. Prior to the SFC and GA settlements, the NRC had no contractual guarantee that these funds would be dedicated to decommissioning. Now it does.

The opponents' apparent view that the NRC must adhere without compromise to the remedial plan of the 1993 enforcement order is similar to a line of argument rejected by the Seventh Circuit in *Armstrong v. Board of School Directors*, *supra* — a decision we find both analogous and persuasive. There, the court was faced with the contention (made by the Intervenor in that proceeding) that "once liability is established in a school desegregation suit, . . . the plaintiffs may not exchange their right to a particular remedial plan for other remedies or programs or for a speedy resolution of the litigation." *Armstrong*, 616 F.2d at 316. The court rejected that approach as too rigid and concluded

²⁷ Opponents support their argument by ascribing legal significance to the Staff's failure to agree expressly with the statement in the GA settlement that both GA and SFC consider their funding mechanisms to be adequate to pay for the Gore site's decommissioning. Intervenor's Petition for Review of L3P-96-24, dated Nov. 26, 1996, at 7; Oklahoma's Appeal Brief, dated Feb. 11, 1997, at 6; Intervenor's Appeal Brief, dated Feb. 18, 1997, at 7. We attach no significance to the Staff's decision not to join in GA's statement. Even an express statement by the Staff that the mechanisms were insufficient in this respect would not necessarily be fatal to the settlement. As explained above, the essence of settlements is compromise (*Hiram Walker*, 768 F.2d at 889; *Armstrong*, 616 F.2d at 315), and we will not judge them on the basis of whether the Staff (or any other party) achieves in a settlement everything it could possibly attain from a fully and successfully litigated proceeding. See note 18 and associated text, *supra*.

that "such a rule would effectively preclude settlement because, by prohibiting any meaningful compromise as to remedy, it would eliminate the element of exchange which is at the heart of settlement of any litigation." *Id.*

We therefore reject Intervenor's argument that we lack authority under the AEA to approve settlements that provide a remedy or a level of assurance regarding public health and safety that is less than what the Commission originally sought in a contested enforcement order.

b. Regulatory Compliance

The settlements' opponents suggest that compliance with agency regulations is the *sine qua non* of protecting the public health and safety, and that the settlements here impermissibly fail to guarantee full compliance with our rule governing financial assurance for decommissioning, 10 C.F.R. § 40.36. The NRC Staff agrees that the settlements do not require SFC and GA to meet the literal terms of section 40.36.

We readily agree, of course, that an NRC-licensed facility's compliance with our safety rules can be an important indicator that the facility does not jeopardize public health and safety. But we cannot agree with the opponents' wooden view that in settling enforcement controversies the NRC cannot agree to alternate devices to protect health and safety. Taken to its logical extreme, insistence on strict regulatory compliance in all cases, as the settlement opponents demand here, would rule out agency use of exemptions and enforcement discretion to relax rules in particular circumstances — a position at odds with maintaining regulatory flexibility and with NRC rules and practice. *See, e.g.*, 10 C.F.R. § 40.14 (exemptions); *Portland General Electric Co.* (Trojan Nuclear Power Station), CLI-95-13, 42 NRC 125, 127-29 (1995) (enforcement discretion).

In this case, as we discussed at length earlier in this opinion, the NRC Staff faced a situation where GA might well prevail in its contest with the Staff, leaving the NRC with nothing at all from GA, and where SFC seemed incapable of producing the precise financial guarantees contemplated by section 40.36 but offered to commit all revenues to site cleanup. In circumstances like these, we cannot say it was unreasonable for the NRC Staff to exercise enforcement discretion and to pocket offers of full revenue from SFC and \$5.4 to \$9 million from GA rather than to continue a quixotic quest for strict regulatory compliance.

In our view, the NRC Staff in the end obtained a settlement that substantially meets the financial assurance goals underlying section 40.36. We are not inclined

to expend further agency resources on an enforcement fight that is unlikely to result in more assurance than what the NRC Staff already has obtained.²⁸

c. Miscellaneous Environmental Issues

Oklahoma asserts that the SFC settlement will adversely affect its own and the EPA's ability "to ensure that remediation will proceed as to pollutants under their jurisdictions since the theories of liability are similar" to those asserted in the instant proceeding. Oklahoma's Amicus Curiae Brief, dated April 11, 1996, at 9. We disagree. Neither of these governmental entities will be prejudiced by the SFC settlement, given that the SFC settlement itself has no precedential value²⁹ and given further that the instant Order does not address the merits of any theory of liability in this proceeding.

Oklahoma also argues, for the first time in its Initial Appeal Brief challenging the GA settlement, that Commission approval of the GA settlement is contrary to the requirements of the National Environmental Policy Act ("NEPA"). According to Oklahoma, it is premature for the Commission to determine finally who is responsible for decommissioning costs and the amount of such costs, and to bar further action by the NRC Staff, when the decision process for determining these costs has only just begun.

Because Oklahoma failed to raise these arguments before the Board, it may not do so on appeal.³⁰ Even were Oklahoma not so barred, we would reject its argument on the merits. The Staff can best assess the decommissioning alternatives if it first knows how much money GA has to spend on decommissioning. The settlement provides that information. Thus, our approval of the GA settlement supports rather than preempts the NRC's NEPA review.

²⁸ In a related argument on regulatory (and statutory) compliance, Oklahoma asserts that both settlements contravene the financial assurance requirements of the Commission's regulations (10 C.F.R. § 40.36) and the AEA (42 U.S.C. § 2201(x)). According to Oklahoma, the settlements permit SFC to "reduce [its] 'net' revenues and its net worth, by incurring new debts, paying off old debts, paying debts to GA, releasing GA from existing agreements, [and] transferring assets and income to related entities . . .", thereby reducing the Commission, Oklahoma, and the public to the status of unsecured creditors. Oklahoma's Appeal Brief, dated Feb. 11, 1997, at 10-11. Oklahoma continues that the Staff, in reaching these settlements, has exceeded its authority by failing to require compliance with section 40.36, by failing to explain why it is waiving that regulation, and by thereby failing to provide adequate notice and opportunity for comment on this *de facto* amendment to this regulation.

We disagree with Oklahoma's arguments. We have dealt elsewhere in this Order with the substance of Oklahoma's financial assurance argument, and we need not do so again here. We would nonetheless add that the Staff is neither waiving section 40.36 nor amending it, but is instead merely exercising discretion to allow an alternative means of meeting the rule's financial assurance goals. Moreover, section 2201(x) is irrelevant here because the section applies only to byproduct materials as defined in section 11e(2) of the AEA — a kind of material not handled at the Gore facility.

²⁹ See Settlement Agreement between NRC and GA at 12 ("no inference adverse to either party shall be drawn based on the parties having entered into this Settlement Agreement"), appended as Attachment 1 to NRC Staff's and GA's Joint Motion for Approval of Settlement Agreement, dated July 11, 1996.

³⁰ See, e.g., *Philadelphia Electric Co. (Limerick Generating Station, Units 1 and 2)*, ALAB-845, 24 NRC 220, 248 n.29 (1986). Cf. *Hiram Walker*, 768 F.2d at 892 (argument opposing a settlement was rejected because it was raised for the first time on appeal).

4. *Meaningful Participation*

Because of the procedural posture of this adjudication, the settlements' opponents have obtained no discovery on the liability and the decommissioning cost issues in this proceeding. As a result, they believe that they lack sufficient information to judge the merits of either settlement, particularly on the issues of (i) GA's financial capabilities and responsibilities and (ii) the Staff's and the Commission's consideration of GA's San Diego facilities during settlement negotiations. Opponents argue that their lack of access to important information on these issues vitiates their right to meaningful participation in the case.

We cannot agree with the opponents' grievance. Early in this adjudication, we made clear that outside parties "may only intervene with respect to matters found to be within the scope of the Staff's enforcement order and may not expand the breadth of the order or proceeding." CLI-94-12, 40 NRC at 70. In other words, Intervenor take enforcement cases as they find them. They may not control how such cases are prosecuted or compromised. Nor may they "simply object to settlement in order to block it." *Id.* at 71 n.10. Otherwise, of course, the agency would be turning over its prosecutorial powers to private parties, and "the scope of many proceedings would be 'virtually interminable' and 'free-ranging.'" *Id.* at 70, citing *Bellotti v. NRC*, 725 F.2d at 1381.

It is useful for concerned Intervenor, based on available information, to raise objections to enforcement settlements as outside the public interest, and they have done so here with considerable force. But it would not be sound practice, or even possible, for the Commission to place in Intervenor's hands the same information and considerations that may have influenced the NRC Staff to strike a compromise with SFC and GA.³¹ As outlined in general terms earlier in this decision, numerous subjective factors, including agency enforcement priorities and resources, an assessment of adversaries' determination and skill, shared confidences at settlement meetings, and an evaluation of likelihood of litigation success, go into a decision to settle. These kinds of matters are simply not susceptible of review by adjudicators and third parties. *Cf. Heckler v. Chaney*, 470 U.S. 821 (1984).

Insofar as the settlement opponents demand discovery access to confidential commercial and corporate information, their requests would surely meet with determined resistance. *Cf. Sequoyah Fuels Corp. (Gore, Oklahoma Site)*, CLI-95-16, 42 NRC 221 (1995). We decline to devote further adjudicatory resources to this sort of dispute in a case where, in our judgment, the NRC Staff already has reached settlements that we view as reasonable in light of the risks, benefits, and costs of further litigation. *See* Section II.B.1, *supra*.

³¹ Obviously, less information is available when a case settles than would be if the case were fully litigated. But this fact of life does not undercut the viability of a settlement. *See Isby*, 75 F.3d at 1199; *Microsoft*, 56 F.3d at 1461; *Girsh*, 521 F.2d at 160; *Grinnell*, 495 F.2d at 462.

In short, we see no value in the kind of reopened discovery proceedings and information-sharing — essentially a second major litigation to assess the virtues of settlement — that the settlement opponents demand. Such an approach not only would produce no fruitful result, in our judgment, but also would serve as a major disincentive to engaging in the arduous, yet desirable, task of settling complex enforcement cases. *Cf. Massachusetts School of Law at Andover v. United States*, 118 F.3d at 784-85.

One specific matter concerning the parties' knowledge bears further discussion. Intervenor maintain that, in a secret "global settlement" addressing all decommissioning claims against GA, the Staff evaluated the relative risks of the various GA facilities in San Diego and the SFC site and apparently apportioned some amount of GA resources among them, based on that risk assessment. Moreover, Intervenor assert that the global settlement was presented to the Commission in a secret *ex parte* briefing. According to Intervenor, such *ex parte* communication undermines the basic fairness of the hearing process and precludes effective judicial review of our final decision. The remedy sought by the Intervenor is full disclosure of all documents relating to the settlement with GA.

In our instant review of the GA settlement, we give *no* consideration whatever to the decommissioning of GA's San Diego facilities. We judge the current GA settlement purely on its own merits. Disclosure of the San Diego-related documents sought by the opponents is therefore unnecessary.³² In addition, even were the opponents to demonstrate from the requested documents that the money available for decommissioning the Gore site might have been greater had Staff not reached an understanding with GA regarding the decommissioning of its San Diego facilities, such a demonstration would in no way affect our decision today.³³ The NRC's arrangements for GA's San Diego facilities reflect an exercise of enforcement judgment on how best to prioritize and allocate resources — an inquiry outside the purview of the adjudicatory process. *Cf. CLI-95-16*, 42 NRC at 25-26. In any event, the mere possibility that a party might have received a more favorable result is not a sufficient reason to overturn a settlement.³⁴

³² It is our understanding, in any event, that Intervenor have already received large portions of this material through a Freedom of Information Act request. These documents show that, in 1996, the Commission considered the NRC Staff's then-proposed exercise of enforcement discretion for the GA's San Diego facilities independently and without reviewing or passing on the potential Gore settlement.

³³ In a related argument, Intervenor assert that the GA "secret global settlement" unlawfully grants GA an unconditional and indefinite waiver of decommissioning funding requirements as they apply to GA's facilities in San Diego, CA, without public notice and opportunity for comment. Intervenor's Initial Brief, dated Feb. 18, 1997, at 22 n.18. Because neither the enforcement order, the Board's Order approving the GA settlement, nor the instant Order addresses GA's San Diego facilities' decommissioning, the matter is beyond the scope of this proceeding.

³⁴ "A settlement will not be rejected solely because it does not provide a complete victory" for a particular party. *Isby*, 75 F.3d at 1200, citing *Hiram Walker*, 768 F.2d at 889.

Conclusion

For the foregoing reasons, we affirm LBP-95-18 and LBP-96-24.
IT IS SO ORDERED.

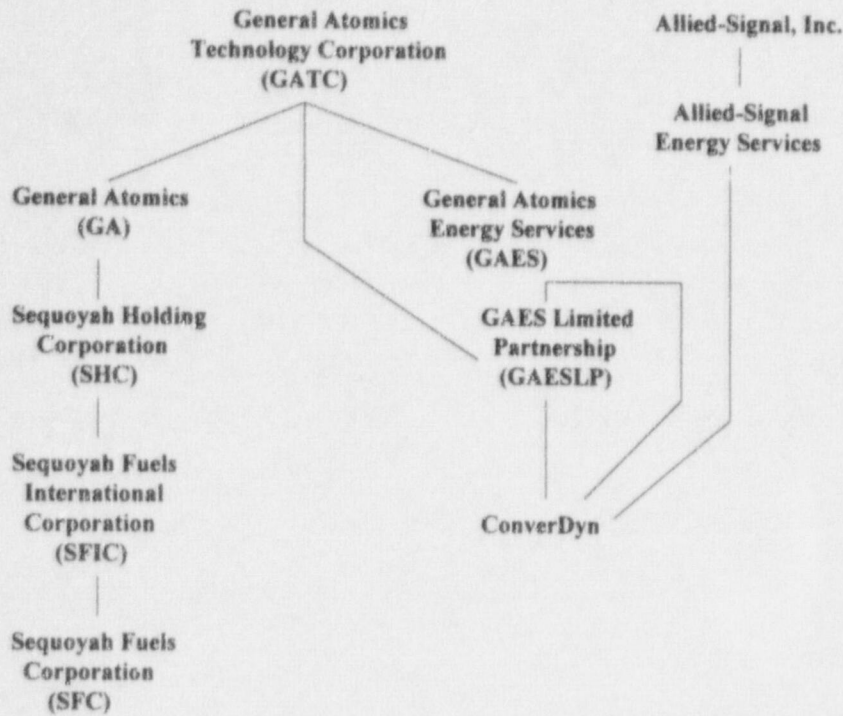
For the Commission

JOHN C. HOYLE
Secretary of the Commission

Dated at Rockville, Maryland,
this 8th day of October 1997.

APPENDIX A

CHART ILLUSTRATING THE RELATIONSHIP
OF DIFFERENT COMPANIES ASSOCIATED WITH
SEQUOYAH FUELS CORPORATION



Based on Intervenors' Initial Appeal Brief, filed March 25, 1996, at 2-3 n.1, 4 n.3, 22 n.23, in turn based on GA's Answer to NRC Staff's First Set of Interrogatories, dated June 29, 1994, at 2. See also SFC's Response in Opposition to Intervenors' Petition for Review [of LBP-95-18], dated Nov. 27, 1995, at 5 n.5; SFC's Response Brief, dated April 29, 1996, at 7; Intervenors' Opposition to Joint Motion for Approval of Settlement Agreement Between NRC Staff and GA, dated Aug. 9, 1996, at 3-4, 8; Staff's Appeal Brief, dated March 10, 1997, at 2.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

**Charles Bechhoefer, Chairman
Thomas D. Murphy
Frederick J. Shon**

In the Matter of

**Docket No. 72-18-ISFSI
(ASLBP No. 97-720-01-ISFSI)**

**NORTHERN STATES POWER
COMPANY
(Independent Spent Fuel Storage
Installation)**

October 15, 1997

The Licensing Board denies reconsideration of its earlier order (LBP-97-13, 46 NRC 11 (1997)) terminating the proceeding without prejudice. It determines that termination with prejudice, as sought by one petitioner for intervention, is inappropriate in the circumstances.

RULES OF PRACTICE: TERMINATION OF PROCEEDING

The rule authorizing licensing boards to terminate a proceeding (10 C.F.R. § 2.107(a)) prior to issuance of a notice of hearing is ambiguous on its face as to whether a board may impose conditions on such termination.

RULES OF PRACTICE: TERMINATION OF PROCEEDING

Termination of a proceeding with prejudice is not warranted where there has been no demonstration that there has been substantial prejudice to an opposing party or to the public interest. That an opposing party may "linger in uncertainty"

about a future application does not constitute such a demonstration. In addition, termination with prejudice (i.e., barring future use of a site for a designated purpose) would be inappropriate in the absence of any information that would justify precluding the site from such future use.

MEMORANDUM AND ORDER
(Denying Reconsideration and Terminating Proceeding)

This proceeding concerns the application of Northern States Power Company (NSP or Applicant) for a license to possess spent fuel and other radioactive materials associated with storage of spent fuel from the Prairie Island Nuclear Power Plant, in an independent dry-cask spent fuel storage installation (ISFSI) located at an away-from-reactor site in Goodhue County, Minnesota. Pending before this Atomic Safety and Licensing Board is a petition by Florence Township for us to reconsider our July 30, 1997 order terminating this proceeding without prejudice (LBP-97-13, 46 NRC 11) and to substitute a termination with prejudice or subject to defined conditions.

For the reasons that follow, we are denying Florence Township's petition and reaffirming our earlier order to terminate the proceeding without prejudice.

I. BACKGROUND

Petitions for leave to intervene and requests for a hearing were filed by seven entities: the Minnesota Department of Public Service; the Minnesota Environmental Quality Board; the Prairie Island Indian Community; the Prairie Island Coalition; the City of Red Wing, Minnesota; Florence Township, located in Goodhue County, Minnesota; and the City of Lake City, Minnesota. We have not yet ruled on the admissibility of any of the foregoing petitioners and thus have never issued a Notice of Hearing.

In December 1996, we had scheduled a prehearing conference to consider these petitions but, as a result of pending litigation in the Minnesota courts concerning the suitability of the proposed Goodhue County site, we cancelled the prehearing conference (scheduled for December 17-19, 1996) and granted NSP's motion to suspend this proceeding. LBP-96-26, 44 NRC 406 (1996). Thereafter, reflecting the outcome of the state-court litigation that permitted the dry-cask storage sought by NSP on the Prairie Island site itself and satisfied NSP's current need for offsite storage, NSP withdrew its ISFSI application and, on July 24, 1997, moved to terminate this proceeding. NSP expressed its view that, in the absence of a Notice of Hearing, we lacked authority to impose conditions on the termination.

On July 30, 1997, we granted NSP's termination motion, pointing out that it would be inappropriate for us to impose conditions on the termination. LBP-97-13, 46 NRC 11. Simultaneously, Florence Township, a petitioner for intervention, filed a response to NSP's termination motion, favoring termination but seeking dismissal of NSP's application "with prejudice" or, alternatively, subject to a condition that NSP's application for an ISFSI on the Florence Township site not be resubmitted. By Memorandum and Order (Petition for Reconsideration), dated August 7, 1997, we determined to treat Florence Township's response as a petition for reconsideration of LBP-97-13, postponed the effective date of LBP-97-13, and invited other parties or petitioners to respond.

We received responses from NSP, the NRC Staff, the Minnesota Environmental Quality Board (MEQB), the Minnesota Department of Public Service, and the Prairie Island Dakota Community.¹ Florence Township filed a reply, to which no party responded (even though it raised several matters not clearly comprehended within Florence Township's petition).

II. DISCUSSION

In its termination motion, the Applicant took the position that we had no authority to impose conditions on the withdrawal of an application prior to issuance by this Board of a Notice of Hearing (which we could not issue until we had found at least one petitioner to have standing and to have submitted an acceptable contention). Indeed, prior to the suspension of this proceeding, petitioners had not yet been required to submit supplements to their petitions that would include their contentions, even though several had submitted contentions prematurely, and we had not held the prehearing conference designed to assist us in making determinations on the adequacy of standing and contentions.

On its face, the termination authority (set forth in 10 C.F.R. § 2.107(a)) is at best ambiguous:

(a) The Commission may permit an applicant to withdraw an application prior to the issuance of a notice of hearing on such terms and conditions as it may prescribe, or may, on receiving a request for withdrawal of an application, deny the application or dismiss it with prejudice. Withdrawal of an application after the issuance of a notice of hearing shall be on such terms as the presiding officer may prescribe.

¹We granted the Prairie Island Dakota Community's telephone request for an extension of time within which to file a response, and it filed within that period. We are treating the Prairie Island Dakota Community (which did not file an intervention petition under that name) as a subset of the Prairie Island Indian Community, which had filed a petition. Both groups are represented by the same counsel. Only parties and petitioners that had filed intervention petitions were eligible to comment on the terms of withdrawal, and we accordingly have considered the comments of the Prairie Island Dakota Community in issuing this Memorandum and Order.

Because we are exercising the delegated authority of the Commission in this proceeding (see 10 C.F.R. § 2.721(a)), we could perhaps construe the termination authority as *permitting* us to impose terms and conditions prior to issuance of a Notice of Hearing and *requiring* us to consider the appropriateness of such terms and conditions after issuance of a Notice of Hearing. This interpretation would be consistent with Florence Township's position.

Alternatively, the regulation could be construed, as the Applicant asserts, as permitting us to impose terms and conditions *only* after the issuance of a notice of hearing. For this interpretation, NSP cites *Vermont Yankee Nuclear Power Corp.* (Vermont Yankee Nuclear Power Station), CLI-93-20, 38 NRC 83, 84-85 (1993). That case, however, explicitly applies only to a "license amendment" proceeding governing a nuclear power plant and thus may not govern an initial application for an ISFSI such as this one.

We need not, however, resolve these jurisdictional questions. For we agree with both NSP and the Staff, as well as the Prairie Island Dakota Community and the Minnesota Department of Public Service, that any conditions here (or, alternatively, dismissal with prejudice or denial of the application) are unwarranted and, hence, as we earlier held, inappropriate.

Such relief might be considered where there is "substantial prejudice to the opposing party or to the public interest in general." *Puerto Rico Electric Power Authority* (North Coast Nuclear Plant, Unit 1), ALAB-662, 14 NRC 1125, 1133 (1981); see also *Quoyah Fuels Corp.*, CLI-93-7, 37 NRC 175, 179 (1993), endorsing the "substantial prejudice" standard. Florence Township has made no such showing here.

A. Florence Township Position

In its initial petition, dated July 30, 1997, Florence Township indicated that, if NSP retained the option to submit another application for an ISFSI in that community, it (Florence Township) would "linger in uncertainty" about a future application. It mentions that it has spent "tens of thousands of hours and nearly as many dollars" in opposing the ISFSI. It adds that, without a condition that the application shall not be resubmitted, "there is no finality to the withdrawal, there is no closure, and it must remain ever diligent and indefinitely on the alert." It concludes that, without limitations as to resubmittal, NSP's withdrawal is "nothing more than an extended suspension," for which the rules assertedly do not provide.

In its August 29, 1997 reply to responses submitted by other parties and petitioners — a filing that we had not authorized and to which no party or petitioner responded — Florence Township discussed jurisdictional and other legal issues but added no significant additional reasons for imposing conditions

on the termination.² It clarified that it was seeking only a very narrowly tailored term that would prevent NSP from submitting the same application for the same sites. It also characterized the withdrawal in terms of an "unusual situation[] which involve[s] substantial prejudice to the opposing party or to the public interest in general," citing *Energy Fuels Nuclear, Inc.*, LBP-95-20, 42 NRC 197 (1995).

Florence Township also reiterates the asserted damage it would suffer if the site for an ISFSI were approved, as set forth in its intervention petition. These, however, are allegations of injury if a new facility were applied for that could be asserted if such eventuality occurred. They have never been proved in an adjudicatory hearing and, in any event, are not a result of the requested termination. The only discrete factor that Florence Township discusses (in terms of the harshness of a with-prejudice termination) is the availability of other sites for NSP to use as an ISFSI, if necessary. But this factor could also be considered in the context of a new application, when and if submitted. It is premature to consider it now.

Finally, Florence Township asserts that, if NSP's application is dismissed without prejudice, Florence Township is entitled to compensation. It questions whether we can order payment of monetary compensation and accordingly does not provide figures concerning any amounts it has expended. But it further states that it would accept compensation in the form of a narrow prohibition — in essence, a reiteration of its previous claim for relief.

B. Other Participants' Positions

The Applicant and NRC Staff each seek denial of the Florence Township petition, and dismissal of the NSP application without prejudice. Each asserts jurisdictional bases for this position — our alleged lack of authority to condition the withdrawal. As stated earlier, however, we are not deciding those questions at this time.

On the merits, the Applicant points out that, as a matter of law, the possibility of a second proceeding does not justify dismissal with prejudice or the imposition of conditions on withdrawal, citing *North Coast*, ALAB-662, *supra*, at 1135, and *Duke Power Co.* (Perkins Nuclear Station, Units 1, 2, and 3), LBP-82-81, 16 NRC 1128, 1135 (1982). The Staff observes that the possibility of future litigation expenses is precisely the consequence of any dismissal without prejudice (citing *North Coast*, ALAB-662, *supra*), and does not provide a basis for departing from the "usual rule" that dismissals should be permitted without

² If it had suggested new matters of substance, we either would have invited responses or stricken the pleading as impermissible.

prejudice. See also *Philadelphia Electric Co.* (Fulton Generating Station, Units 1 and 2), ALAB-657, 14 NRC 967, 979 (1981).

As for other petitioners, the MEQB (which earlier had disapproved the suitability of the Goodhue County site for an ISFSI) states that it would be futile for NSP to resubmit an application for the Goodhue County site because NSP could not obtain the requisite state approval for that site. The MEQB thus concludes that, as a matter of state law, it is of no consequence whether we condition the termination, and it expresses no opinion on whether we should do so. It adds that, should state law change, Florence Township would be on an equal footing with other municipalities and townships.

The Minnesota Department of Public Service, in a filing dated August 25, 1997, disagrees with Florence Township and indicates that Florence Township should be satisfied with the finality of our July 30, 1997 Order terminating the proceeding without prejudice. For different reasons, the Prairie Island Dakota Community, which favors finding a site other than the Prairie Island site now being utilized, in its August 29, 1997 response states that dismissal with prejudice, as sought by Florence Township, would be "inappropriate at this time." The Dakota Community notes that NSP's withdrawal is based entirely on the decision of the MEQB and not on the merits of the site, that dismissal with prejudice implies a decision on the merits, and that because we have no evidence before us on the merits of the site, it would clearly be inappropriate for us to dismiss the petition with prejudice.

C. Licensing Board Conclusion

We have considered all of the foregoing views and conclude, largely for the reasons expressed most forcefully by the Prairie Island Dakota Community, that dismissal with prejudice or with conditions would be inappropriate. In particular, conditions would suggest that we had reviewed the site on the merits and found some fault with it. See *Perkins*, LBP-82-81, *supra*, 16 NRC at 1135. We clearly have not done so. Beyond that, the expenses of participation outlined by Florence Township are not of the type that would warrant granting of relief, even assuming we have the authority to grant it. *Id.* The state of the proceeding as of the suspension date — when contentions had not even been submitted or required — suggests no significant expenses have been incurred. Nothing that Florence Township has submitted indicates otherwise.

III. ORDER

Accordingly, for the reasons set forth, it is, this 15th day of October 1997, ORDERED:

1. Florence Township's petition for reconsideration of LBP-97-13 is *denied*.

2. NSP's motion to terminate this proceeding without prejudice is *granted*.

This proceeding is hereby *terminated* without prejudice.

3. Pursuant to 10 C.F.R. § 2.760 of the Commission's Rules of Practice, this Memorandum and Order will constitute the final decision of the Commission forty (40) days from the date of its issuance, unless an appeal is filed in accordance with 10 C.F.R. § 2.714a or the Commission directs otherwise. An appeal to the Commission may be filed by petitioners or parties, as set forth in 10 C.F.R. § 2.714a, within ten (10) days of service of this Order. The appeal shall be asserted by the filing of a notice of appeal and accompanying supporting brief. Any other party or petitioner may file a brief in support of or in opposition to the appeal within ten (10) days after service of the appeal.

THE ATOMIC SAFETY AND
LICENSING BOARD

Charles Bechhoefer, Chairman
ADMINISTRATIVE JUDGE

Thomas D. Murphy
ADMINISTRATIVE JUDGE

Frederick J. Shon
ADMINISTRATIVE JUDGE

Rockville, Maryland
October 15, 1997

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Charles Bechhoefer, Chairman
Dr. Jerry R. Kline
Dr. Peter S. Lam

In the Matter of

Docket No. IA 97-068
(ASLBP No. 97-731-01-EA)
(Order Superseding Order
Prohibiting Involvement in
NRC-Licensed Activities
(Effective Immediately))

AHARON BEN-HAIM, Ph.D.
(Upper Montclair, New Jersey)

October 22, 1997

The Licensing Board grants the Staff's motion to delay the proceeding for 120 days, to accommodate referral of the proceeding to the Department of Justice for possible criminal prosecution. Because there had been no explanation why a delay of this length was necessary and because of the impact of delay upon Dr. Ben-Haim, who is subject to an immediately effective order barring his participation in NRC-licensed activities, the Board required detailed reasons should any further delay be sought, including possible production at a prehearing conference of a Department of Justice representative for Board questioning.

MEMORANDUM AND ORDER
(Staff's Motion for Delay of Proceeding)

On September 30, 1997, the NRC Staff filed a motion for an order delaying this proceeding for 120 days, subject to the possibility of a request for an exten-

sion of time. This proceeding concerns a currently effective Staff enforcement order that prohibits Dr. Aharon Ben-Haim from engaging in NRC-licensed activities for 5 years commencing July 31, 1997. (See LBP-97-15, 46 NRC 60 (1997), for a further description of this proceeding.) In a response dated October 15, 1997, Dr. Ben-Haim indicated that he would not oppose the Staff's motion.

According to the Staff, the purpose of the delay is to accommodate its referral of the files in this proceeding to the Department of Justice for possible criminal prosecution. Based on an affidavit of Bruce A. Levy, Assistant U.S. Attorney for the District of New Jersey, which spells out the substantive reasons why a delay should be granted, the delay "should be for no less than one hundred and twenty days, subject to the possibility of a request for an extension." The Staff's motion reiterates the need for a delay of that length. Neither the Department of Justice nor the NRC Staff provides any explanation as to why a delay of as long as 120 days is warranted.

Given the record before us, with no expressed opposition by Dr. Ben-Haim to the 120-day delay sought by the Staff, we have insufficient basis upon which we could reject the Staff's motion. Some delay is clearly warranted, and a 120-day delay has been characterized in another proceeding involving a federal investigation into possible criminal conduct as of "moderate duration." *Oncology Services Corp.*, LBP-93-10, 37 NRC 455, 460, *aff'd*, CLI-93-7, 38 NRC 44 (1993).

We would be remiss, however, in not noting our skepticism of the length of time requested. Although the Department states that it is "presently conducting a criminal investigation" (Levy Affidavit ¶12), it is our general understanding that the Department is merely considering at this time whether or not to undertake a formal criminal investigation. We have no information before us that would explain why that threshold decision could not be made in substantially less time than 120 days. We are concerned that additional, lengthy delay could have an unwarranted negative effect on Dr. Ben-Haim's interests by delaying inquiry into the merits of his suspension for insubstantial reasons.

Nonetheless, we are *granting* the Staff's request for a 120-day delay, measured from September 30, 1997, the date of the Staff's motion. The delay thus will extend to January 28, 1998, or such earlier date as the Staff may be notified that the Department of Justice will not pursue a formal criminal investigation.

To obtain a further extension beyond January 28, 1998, the Staff will be required to produce detailed reasons, including the status of the Department of Justice investigation and reasons why a continuation of the delay is warranted. Should such a request be filed, we may well convene a prehearing conference at which the Staff would be required to produce for Board questioning a Department of Justice representative for justification of any further delay.

IT IS SO ORDERED.

FOR THE ATOMIC SAFETY
AND LICENSING BOARD

Charles Bechhoefer, Chairman
ADMINISTRATIVE JUDGE

Rockville, Maryland
October 22, 1997

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

B. Paul Cotter, Jr., Chairman
Dr. Richard F. Cole
Dr. Thomas S. Elleman

In the Matter of

Docket No. 030-30691-CivP
(ASLBP No. 97-730-02-CivP)

BARNETT INDUSTRIAL X-RAY, INC.
(Stillwater, Oklahoma)

October 24, 1997

MEMORANDUM AND ORDER

(Approving Settlement Agreement and Dismissing Proceeding)

By letter dated June 16, 1997, Barnett Industrial X-Ray, Inc. ("Barnett"), appealed from a Nuclear Regulatory Commission (NRC) Order Imposing Civil Monetary Penalty issued May 23, 1997, by the Director of the Office of Enforcement. The Director charged three violations of NRC safety regulations governing radiographers and levied a fine of \$4000.00. Barnett, located in Stillwater, Oklahoma, sought a hearing to have the penalty remitted.

Following the establishment of this Board on July 14, 1997, the Board ordered the parties to file a Joint Prehearing Report. That Report, filed on August 19, 1997, stipulated the issues as to which there was no dispute, identified the central issues for litigation, as well as those amenable to a dispositive motion, and estimated the time needed for discovery and hearing. At a September 3, 1997 telephone prehearing conference the Board directed the parties, *inter alia*, to enter into settlement negotiations and advise the Board by October 22, 1997, of the result. On September 17, 1997, the Board issued a notice of hearing

based on the schedule agreed to at the prehearing conference as subsequently amended by the parties.

On October 17, 1997, the parties filed a Joint Motion for Approval of Settlement Agreement which attached a Joint Settlement Agreement. That agreement, before us now, provides that Barnett withdraws its request for hearing and sets out the terms and conditions whereby Barnett would pay a reduced civil penalty.

Once a hearing has been noticed, any negotiated settlement between the Staff and any of the parties subject to an enforcement order must be reviewed and approved by the Board pursuant to 10 C.F.R. § 2.203 (1997). *Sequoyah Fuels Corp.* (Gore, Oklahoma Site), CLI-94-12, 40 NRC 64, 71 (1994). At that point

the NRC Staff no longer has untrammelled discretion to offer or accept a compromise or settlement. In any pending proceeding, the presiding officer's approval of settlement is a matter that must give due consideration to the public interest.

Id.

Moreover, just as the Commission, as a matter of policy stresses that the fair and reasonable settlement of contested licensing proceedings is encouraged, so too, such settlements are equally desirable in other kinds of proceedings. *Cf. Philadelphia Electric Co.* (Peach Bottom Atomic Power Station, Unit 3), ALAB-532, 9 NRC 279, 283 (1979). The principle in *Peach Bottom* was reiterated in the Commission's *Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452, 456 (1981); *see also Advanced Medical Systems, Inc.* (One Factory Row, Geneva, Ohio 44041), LBP-94-10, 39 NRC 126 (1994).

We have reviewed the Settlement Agreement before us with those precepts in mind and find that the agreement is fair and reasonable. Accordingly, we find the agreement to be in the public interest and will approve it as requested by the parties.

Order

Upon consideration of the Joint Motion for the Approval of Settlement Agreement received by this Board on October 17, 1997, the Joint Settlement Agreement attached thereto, and the entire record in this matter, it is, this 24th day of October 1997, ORDERED

1. The Joint Settlement Agreement submitted by the parties, attached hereto and incorporated herein by reference, is approved as in the public interest.

2. Pursuant to 10 C.F.R. § 2.203 and in accordance with the terms of the Settlement Agreement, this proceeding is terminated and dismissed.

THE ATOMIC SAFETY AND
LICENSING BOARD*

B. Paul Cotter, Jr., Chairman
ADMINISTRATIVE JUDGE

Richard F. Cole
ADMINISTRATIVE JUDGE

Issued at Rockville, Maryland
October 24, 1997

*Administrative Judge Elleman was not available to sign this Memorandum and Order, but he was advised of its contents and approved of its issuance.

ATTACHMENT

**UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION**

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of

Docket No. 030-30691-CivP

**BARNETT INDUSTRIAL X-RAY, INC.
(Stillwater, Oklahoma)**

JOINT SETTLEMENT AGREEMENT

On May 23, 1997, the staff of the Nuclear Regulatory Commission (Staff) issued an "Order Imposing Civil Penalty" (Order) to Barnett Industrial X-Ray, Inc. (Barnett). 62 Fed. Reg. 30, 346. In its Order, the Staff charged three violations of the Commission's regulations governing radiography and levied a fine of \$4,000. On June 16, 1997, Barnett requested a hearing. On July 14, 1997, an Atomic Safety and Licensing Board (Board) was established to preside in the proceeding.

The Staff and Barnett agree that it is in their respective interests and in the public interest to settle the enforcement action and agree to the following terms and conditions:

1. Barnett withdraws its request for a hearing.
2. Barnett agrees to pay a civil penalty in the amount of \$2,500.00 in four installments, to be paid in accordance with paragraph 4 of this Settlement Agreement.
3. If any installment remains unpaid for a period of thirty (30) days or more, the Staff may, in its discretion, consider this Settlement Agreement as materially breached. In the event of a breach of this Settlement Agreement, the full amount of the civil penalty imposed on Barnett, \$4,000 (plus interest and administrative charges, less any payments already made hereunder), will become due. In this event, Barnett agrees to waive any right to contest or seek review of the imposition of the civil penalty before the NRC or in any court.
4. Barnett agrees to make payments in four installments, with an installment every six months. The first payment is to be received thirty days after this Settlement Agreement has become final agency action (unless such day falls on a Saturday, Sunday or federal holiday, in which case payment is to be received

by the next business day), plus interest on the unpaid principal balance accruing at the rate of 5 percent per year, as well as an administrative charge of \$10.00 per month. Subsequent payments shall be received by the first day of the month upon which payment is due as shown in the schedule in this paragraph. Payments shall be made payable to the United States Treasury and received at the address below until the principal sum and all interest and other charges assessed under the provisions of this Settlement Agreement have been fully paid.

Payments will be mailed or otherwise delivered to the following address:

U.S. Nuclear Regulatory Commission
 Office of Enforcement
 Attn: James Lieberman
 Mail Stop O-7H5
 Washington, DC 20555-0001

The following is a schedule of monthly installments:

BARNETT X-RAY
INVOICE NUMBER EA 96-502

Payment Number	Payment Date*	Total Payment	Interest Amount	Admin. Amount	Principal Amount	Remaining Balance
Beginning balance						\$2,500.00
1		725.00	10.42	60.00	654.58	1,845.42
2		725.00	7.69	60.00	657.31	1,188.11
3		725.00	4.95	60.00	660.05	528.06
4		590.26	2.20	60.00	528.06	0
Total		\$2,765.26	\$25.26	\$240.00	\$2,500.00	

*The payment dates will be determined when the Settlement Agreement is approved by the Licensing Board. At that time, the NRC Office of Enforcement will inform Barnett of the dates by letter.

5. In the event of a material breach of this Settlement, Barnett agrees to pay all reasonable collection costs, court costs, and attorney's fees incurred by the Nuclear Regulatory Commission and/or the United States for any appropriate collection actions taken by the Nuclear Regulatory Commission and/or the United States. However, in no event will these costs exceed 5% of the total civil penalty imposed.

6. Failure or failures by the Staff to exercise any right in this Settlement Agreement with respect to a material breach shall not be construed as a waiver of its right to exercise the same or any other right at any time thereafter.

7. The provisions of this Settlement Agreement may not be changed except by a prior written agreement which specifies the agreed-upon changes and which is signed by the Staff and Barnett.

8. The parties agree and understand that this Settlement Agreement is only binding on the NRC and Barnett and relates only to NRC's authority to take civil enforcement action. This Settlement Agreement shall be binding upon the legal representatives, successors and assigns of Barnett.

9. The Staff and Barnett shall jointly move the Atomic Safety and Licensing Board designated in the above-captioned proceeding for an order approving this Settlement Agreement and terminating the proceeding.

In Witness Whereof, the parties have caused this Settlement Agreement to be executed by their authorized representatives.

FOR BARNETT INDUSTRIAL X-RAY, INC.

FOR THE NRC STAFF

G. Michael Solomon
Counsel for Barnett Industrial X-Ray, Inc.

Richard G. Bachmann
Counsel for NRC Staff

Dated this 15th day of October 1997

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR REACTOR REGULATION

Samuel J. Collins, Director

In the Matter of

Docket No. 50-271
(License No. DPR-28)VERMONT YANKEE NUCLEAR
POWER CORPORATION
(Vermont Yankee Nuclear Power
Station)

October 8, 1997

By a petition dated December 6, 1996, submitted by the Citizens Awareness Network, Inc. (Petitioner or CAN), Petitioner requested evaluation of two enclosed documents relating to the Vermont Yankee Nuclear Power Station (Vermont Yankee facility) operated by the Vermont Yankee Nuclear Power Corporation (Licensee). The first document was a CAN memorandum raising a concern with corrective actions taken by the Licensee in opening the minimum flow valves at the Vermont Yankee facility to provide residual heat removal pump protection. Petitioner raised the concern that an unreviewed safety question may have been introduced. The second document was a CAN memorandum requesting review of certain licensee event reports (LERs) submitted by the Licensee.

Petitioner requested that the memoranda be evaluated by the NRC to see if enforcement action was warranted based on the information contained therein. The Director of the Office of Nuclear Reactor Regulation issued a Partial Director's Decision on October 8, 1997. The Petitioner's request was granted in that the NRC Staff has evaluated those issues raised in the CAN memoranda that have been closed by the Staff and the Staff has found that no further enforcement action is warranted. The three LERs that remain open and are still being evaluated by the NRC Staff will be addressed in a Final Director's Decision.

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

I. INTRODUCTION

On December 6, 1996, Mr. Jonathan M. Block, submitted a petition to the Office of the Secretary of the U.S. Nuclear Regulatory Commission (NRC) pursuant to section 2.206 of Title 10 of the *Code of Federal Regulations* (10 C.F.R. § 2.206). The petition was submitted on behalf of the Citizen's Awareness Network, Inc. (CAN or Petitioner), and contained two memoranda from CAN. The first memorandum enclosed with the petition is dated December 5, 1996. It reviews information presented by the Vermont Yankee Nuclear Power Corporation (Licensee) at a predecisional enforcement conference held on July 23, 1996, involving the minimum flow valves in the residual heat removal (RHR) system at the Vermont Yankee Nuclear Power Station (Vermont Yankee facility). CAN raises a concern that the corrective action taken by the Licensee in opening these valves may have introduced an unreviewed safety question with regard to containment isolation.

The second memorandum enclosed with the petition is dated December 6, 1996, and contains a review of certain licensee event reports (LERs) submitted by the Licensee in the latter part of 1996. Various issues are presented, such as fire protection, tornado protection, thermal protection for piping lines, equipment operability, and equipment testing. On the basis of its analysis of the LERs, CAN reaches certain conclusions regarding Licensee performance and actions that should be taken. In the petition, the Petitioner requested that the NRC evaluate these documents, pursuant to section 2.206, to see if enforcement action is warranted based upon the information contained therein.

On February 12, 1997, the NRC informed the Petitioner in an acknowledgement letter that the petition had been referred to the Office of Nuclear Reactor Regulation for the preparation of a Director's Decision and that action would be taken within a reasonable time regarding the specific concerns raised in the petition.

II. DISCUSSION

The NRC Staff evaluation of these documents follows.

A. The Residual Heat Removal System

The first document enclosed with the petition is a CAN memorandum dated December 5, 1996, that reviews information presented by the Licensee at a predecisional enforcement conference held on July 23, 1996, involving the minimum flow valves in the Vermont Yankee RHR system.¹ The Vermont Yankee RHR system consists of two loops. Each loop has two pumps that take suction from the suppression chamber. Each pump has a minimum flow line equipped with a minimum flow valve that returns flow to the suppression chamber. The RHR pumps start automatically to cool the reactor in case of a loss-of-coolant accident (LOCA). The minimum flow valves close to prevent flow from being diverted from the reactor core to the suppression pool when flow is being supplied from the RHR pumps to the reactor core, and open automatically on high pump discharge pressure to protect the RHR pumps if other valves between the RHR pumps discharge and the reactor core are not yet open.

The Licensee discovered a vulnerability to single failure that could prevent the minimum flow valves from opening to protect the RHR pumps during a LOCA. To resolve this concern, the Licensee changed the normal and failed positions of these valves from CLOSED to OPEN. The Petitioner is concerned that the corrective action taken by the Licensee in opening these valves may have introduced an unreviewed safety question with regard to containment isolation.² A pipe break outside containment would breach primary containment with an OPEN minimum flow valve.

This issue must be addressed in terms of the Vermont Yankee facility licensing basis. The basic design for early boiling-water reactors, including the Vermont Yankee facility which was reviewed and accepted by the NRC, considered the piping of the RHR and Core Spray (CS) Systems to be a closed extension of primary containment. Failure of the passive pressure boundary (piping) of these systems during either the short-term (injection phase) or long-term (recirculation phase) course of a design-basis accident (DBA) was not a design-basis assumption. As a result, the RHR and CS suction and minimum flow lines were not provided with containment isolation valves, or if valves were provided in these lines, they were not provided for the purpose of meeting

¹ Several statements in the December 5, 1996 memorandum are either unclear or incorrect. A single power supply failure does not prevent RHR minimum flow valves in both loops from operating, contrary to the statement on page 2 of the memorandum. Minimum flow valves in both loops will not remain open if a single power supply failure occurs, contrary to the statement on page 3 of the memorandum. Also, on page 4 of the December 5, 1996 memorandum, CAN questions the remote manual closure capability of the minimum flow valves. The minimum flow valves have remote manual closure and opening capability, but the pump protection logic will override any remote manual closure or opening signal.

² The NRC Staff assumes Petitioner's reference to an "unreviewed safety question" is in the context of the NRC's regulation 10 C.F.R. § 50.59, "Changes, Tests, and Experiments."

containment isolation requirements and thus were not classified as containment isolation valves. In most if not all cases, the penetrations of concern in the older plants were originally provided with at least one valve capable of performing the containment isolation function, and these valves are periodically tested under inservice testing (IST) program requirements. The Vermont Yankee minimum flow valves can be remotely closed and are periodically tested under the IST program.

For more recent facilities, emergency core cooling system (ECCS) closed systems outside containment are required to have at least one recognized isolation valve at each penetration. This is not the case for the Vermont Yankee facility.

In view of the licensing criteria applicable to the Vermont Yankee facility, maintaining the minimum flow valves of the RHR system in the OPEN position is permitted and acceptable. The Vermont Yankee final safety analysis report (FSAR) does not describe the minimum flow valves as being in the CLOSED position, and placing these valves in the OPEN position is not a change to the facility under the meaning of section 50.59 and no unreviewed safety question is presented. For the above reasons, no enforcement action is warranted with regards to this issue.

B. Licensee Event Reports

The second document enclosed with the petition is a CAN memorandum dated December 6, 1996, that contains a review of several LERs submitted by the Licensee in the latter part of 1996. Various issues are presented, such as fire protection, tornado protection, thermal protection for piping lines, equipment operability, and equipment testing. On the basis of its analysis of the LERs, CAN reaches certain conclusions regarding Licensee performance and actions that it believes should be taken. First, CAN requests that the NRC and the Licensee review all safety analyses conducted since initial startup of the Vermont Yankee facility with particular attention to their role in providing a complete and up-to-date FSAR. Second, the Licensee needs to correct serious deficiencies in its design change control process and should undertake a historical review of its design control documentation to verify its accuracy. Third, the Licensee should perform a global evaluation to determine how many modifications have been inadequately tested since startup. Fourth, the Licensee needs to initiate a thorough retraining program to review and emphasize the underlying safety purposes of Technical Specifications, the FSAR, design bases, and NRC regulations in relation to routine operation of the Vermont Yankee facility, emergency preparedness, and practical implementation of the NRC's "defense-in-depth" philosophy. Finally, CAN strongly recommends that the Licensee's

Vermont Yankee staff receive training on the proper use of the "Single Failure" criterion.

The LERs identified in the CAN memorandum are briefly discussed below.

1. LER 96-13: "Two fire suppression systems do not meet design requirements due to personnel error on the part of [the] vendor who designed and installed the systems"

CAN asserts that the LER did not address the cause and consequences of the foam suppression system deficiency, which is one of the two fire suppression systems addressed in this LER. CAN is correct in that the Licensee did not determine a precise root cause because such a long time had elapsed since the occurrence (1978). It is not unreasonable for a licensee to be unable to ascertain the exact root cause of a personnel error that took place many years before (18 years in this case). Key points that are considered in reviewing an LER are (1) whether the specific problem is being appropriately addressed; (2) whether the potential for a broader problem exists; and (3) if a broader problem exists, whether it is properly addressed. In this case, the Licensee reviewed its current design process and procedures and determined that a similar occurrence would not be expected to occur now, and the Licensee had two teams that were actively reviewing the fire protection design bases and searching for the types of problems reported in the LER. CAN is incorrect in stating that the consequences of the foam system deficiency were not discussed in the LER. The Licensee stated that any fire in the area would be contained and suppressed, preventing its spread to safety-related equipment.

Because the design deficiencies addressed in this LER were licensee-identified and corrected, they were treated as Noncited Violations in Inspection Report 50-271/96-05 in accordance with section VII.B.1 of the NRC's Enforcement Policy,³ and the LER was closed in Inspection Report 50-271/96-06. Further enforcement action is not warranted.

³The NRC's policy and procedures for determining the enforcement action that may be warranted for a violation are discussed in NUREG-1600, "General Statement of Policy and Procedures for NRC Enforcement Actions" (Enforcement Policy). Because regulatory requirements have varying degrees of safety, safeguards, or environmental significance, the first step in the enforcement process is to evaluate the significance of the violation and then assign a severity level to the violation. A violation is assigned one of four severity levels. As described in section IV of the Enforcement Policy, Severity Level I is assigned to violations that are the most safety significant and Severity Level IV is assigned to violations that are the least safety significant. Consistent with the recognition that violations have different degrees of safety significance, the Enforcement Policy recognizes that there are other violations of minor safety or environmental concern that are below the level of significance of Severity Level IV violations. These minor violations are not normally the subject of formal enforcement action and are not usually described in inspection reports. To the extent that such violations are described, they are usually described as "Noncited Violations."

2. *LER 96-14: "Failure to provide tornado protection for diesel generator rooms as specified in the Final Safety Analysis Report due to unknown cause"*

The FSAR states that large venting areas are provided to vent the diesel generator room in the event of a tornado to provide pressure equalization. The LER notes that the facility as constructed did not include venting. CAN asserts that "flaws in the FSAR cause serious, rippling effects throughout VY's [Vermont Yankee facility's] safety systems" and that the Licensee "must include assessments of the impact of the deficient conditions upon all affected programs."

The Licensee took immediate action to ensure emergency diesel generator (EDG) operability in the absence of the pressure relief panels. The Licensee took immediate compensatory measures which included blocking open the EDG room doors and posting fire and security watches. The Licensee took additional compensatory actions for the restoration of operability of the diesel and day tank enclosures during cold weather months when the EDG doors had to be shut. An NRC inspector verified that the recommended compensatory measures were properly implemented.

The discrepancy between the actual plant design and the FSAR is a de facto change to the facility as described in the safety analysis report, and thus required an evaluation to meet the requirements of section 50.59. The failure to perform such a section 50.59 evaluation was categorized as a Severity Level IV violation, and was dispositioned in Inspection Report 96-11 as a Noncited Violation in accordance with section VII.B.1 of the Enforcement Policy.

Other plants have been found to have FSARs that do not properly describe the facilities. Consequently, for this reason and as a result of lessons learned from events at Millstone Nuclear Power Station and Maine Yankee Atomic Power Station, on October 9, 1996, the NRC requested information from all power reactor licensees, to verify, among other things, that the plant FSARs properly describe the facilities, and that the systems, structures, and components are consistent with the design basis. In conjunction with this request for information, and in order to encourage licensees to identify discrepancies, the Commission approved a modification to the NRC Enforcement Policy that allows the NRC Staff to exercise enforcement discretion for a period of 2 years for violations related to FSAR discrepancies identified by licensees. The policy revision was published in the *Federal Register* on October 18, 1996 (61 Fed. Reg. 54,461).

In the Licensee's response to this request for information, dated February 14, 1997, the Licensee committed to complete its FSAR verification program in 1998.

CAN raises a concern about a potential error in the Licensee's statement in this LER of no prior occurrences, based on a James A. Fitzpatrick Nuclear Power Plant report of a similar problem. Licensees are only required to report

prior similar occurrences at their facility, and not at any other facility. Therefore, the Licensee was accurately reporting that a similar event had not previously occurred at Vermont Yankee Nuclear Power Station.

This LER is closed. Further enforcement action is not warranted. The Licensee has issued a supplement to this LER to document the long-term corrective actions to vent the EDG room in the event of a tornado to provide pressure equalization. This LER supplement remains open pending NRC inspection of the Licensee's modifications to the EDG room to provide the required pressure equalization.

3. LER 96-15: "Original B31.1 ANSI Code section that required overpressurization relief for isolated piping sections was not considered during [the] original design"

Certain piping sections, which would be isolated after a LOCA, were found to lack overpressure protection, contrary to code requirements. The water in this piping could expand because of the high temperatures accompanying a LOCA and exceed the design pressure rating of the piping. CAN asserts that the Licensee failed to take advantage of earlier opportunities to identify this design error when making modifications to the six systems discussed in the LER. CAN is correct in that the LER represented the first discovery of this problem, although modifications had been made to the affected systems earlier. This potential overpressurization problem has been identified at other plants, as evidenced by the issuance of NRC Information Notice (IN) 96-49 on August 20, 1996, and NRC Generic Letter (GL) 96-06 on September 30, 1996. The Licensee did maintain an awareness of events in this area and identified this issue at its site before the generic communications referred to above were issued. The NRC Staff encourages licensee initiatives to identify and correct safety problems that may be generic to the industry in advance of generic NRC Staff communications to the industry. The Licensee's corrective actions included a design change that provided the required overpressure protection for the affected lines. The change was completed in the 1996 refueling outage.

This LER remains open. Responses from power reactor licensees to GL 96-06 were received by the NRC Staff in February 1997 and are undergoing review to ensure that the overpressure protection issue is being adequately addressed and resolved. Following this generic review, a determination will be made of whether enforcement action is warranted for specific plants. Information regarding the completion of this activity and any enforcement action taken will be publicly available in the plant-specific Inspection Reports. This LER will be further discussed in a Final Director's Decision when the LER is closed.

4. *LER 96-18: "Inadequate installation and inspection of fire protection wrap results in plant operation outside of its design basis, a single fire would impact multiple trains of safety-related equipment"*

CAN asserts that this deficiency had significant adverse safety implications. The reported deficiency consisted of a small gap in the fire barrier installed on a cable tray support. The cable tray contained wiring to support operation of the ECCS. The NRC Staff does not consider CAN's claim, that a fire could have rendered both divisions of the ECCS inoperable, credible. The Licensee's evaluation found that existing fire protection analyses were very conservative, and that, with the combustible loading and fire detection and suppression equipment in the area, no credible fire threat could challenge the functionality of the "as found," wrapped cable. The Licensee has acted appropriately to correct the fire barrier deficiency and to prevent similar problems in the future. With the combustible loading, fire detection, and suppression equipment in the area, the NRC Staff conceptually agrees with the Licensee's conclusion that no credible fire threat could challenge the functionality of the "as found" wrapped cable. Inspection activities were performed the week of August 18, 1997, to verify the Licensee's conclusion.

This LER remains open. Results of the inspection and any enforcement actions as a result of this inspection activity will be made publicly available through plant-specific Inspection Reports. This LER will be further discussed in a Final Director's Decision when the LER is closed.

5. *LER 96-19: "Half scram and group III containment isolation caused by loose Reactor Protection System breaker termination"*

The NRC Staff agrees with CAN that this event presented no significant risk to public health and safety. This LER is closed. No violation was involved; therefore the NRC Staff concludes that enforcement action is not warranted.

6. *LER 96-20: "Inadequate vendor [sic] design activity and Licensee design verification result in inability to demonstrate Fire Suppression System Operability"*

This LER involved the inability of the carbon dioxide fire suppression system to fully extinguish a deep-seated fire, as required. The Licensee stated in the LER that this event had no safety significance. The NRC Staff considered this LER to have little apparent actual or potential safety significance. This conclusion was based on the Licensee's analysis that although the carbon dioxide suppression systems might not fully extinguish a deep-seated fire, the suppression and detection systems would function. Fire detection would alert

the fire brigade, and because the carbon dioxide fire suppression system had reduced the fire, the fire brigade could extinguish the fire more easily. The NRC Staff closed this LER in Inspection Report 96-11. Pending inspector review of the Licensee's corrective actions, the unresolved item initiated for this issue in Inspection Report 96-08 (URI 96-08-01) was left open. As documented in Inspection Report 97-05, unresolved item 96-08-01 was closed and a Noncited Violation was issued, consistent with section VII.B.1 of the NRC Enforcement Policy. Further enforcement action is not warranted.

CAN asserts that this LER reveals a serious deficiency in the Licensee's design change control process, and that the Licensee should determine how many other modifications have been inadequately tested since startup. The NRC Staff agrees that this event demonstrated a weakness in the Licensee's modification and testing programs associated with fire protection. As noted under the discussion regarding LER 96-13, the Licensee has initiated reviews of the fire protection design bases to search for these types of problems, and believes that the current design process and procedures are adequate to prevent similar problems. As discussed earlier, by letter dated October 9, 1996, the NRC Staff requested information from all licensees, to verify, among other things, the adequacy of the design change control process and to determine the rationale for concluding that design-basis requirements are properly translated into operating, maintenance, and testing procedures. The Licensee responded by letter dated February 14, 1997.

7. *LER 96-21: "Inadequate procedural controls of MOV Limit Switch Settings result in a potential common cause failure mode with the capacity to affect multiple safety significant components"*

This LER involved two limit switches on shutdown cooling suction motor-operated valve (MOV) to the "D" RHR pump. The switches measure valve travel towards the open position. One open limit switch permits the pump motor to start after the valve position is sufficiently open, and the other limit switch stops valve travel so that the motor doesn't drive the valve too far and damage the valve. The Licensee identified that a modification to the valve's motor operator resulted in the improper setting of these two limit switches.

Inspector followup, as documented in Inspection Report 97-05, led to the conclusion that this error was of low safety significance. The failed start of the "D" RHR pump because of this limit switch error on the shutdown cooling suction valve affected only the shutdown cooling mode of operation of the RHR system. The failure did not impact the other modes of RHR system operation and the safety design bases functions of the RHR system. Further, prompt Licensee action was taken to check the other recently modified MOVs. Their limit switches were found to be properly set and therefore their safety functions

were unaffected. This licensee-identified and corrected violation resulted in the issuance of a Noncited Violation consistent with section VII.B.1 of the NRC Enforcement Policy. This LER is closed. Further enforcement action is not warranted.

8. *LER 96-22: "Combination of poor man-machine interface, an inadequate procedure, inadequate Operating Experience Review results in a common cause failure mechanism, and an Emergency Diesel Generator to exceed Tech Spec [sic] outage time"*

The output breaker for one emergency diesel generator (EDG) was found to be incapable of closing because of a missing cotter pin which was necessary for a mechanical linkage. As a result of the absence of this cotter pin, the breaker closing springs failed to recharge, rendering the breaker incapable of being closed from the control room. The only indication that the closing springs had failed to recharge was a mechanical flag indicator located behind the breaker cubicle door. No Licensee procedures required verification of the closing-spring status. The closing springs were apparently in an uncharged condition for over 3 weeks without discovery. Because the periodic surveillance interval for the breaker is greater than the EDG limiting condition for operation (LCO), the Licensee unknowingly operated in violation of its Technical Specification (TS) governing diesel generator operability. After reviewing the Licensee's root-cause analysis of this event, the NRC Staff determined that the missing cotter pin would not reasonably have been expected to be detected by the Licensee's existing quality assurance program or through other related control measures.⁴ The Licensee identified the EDG inoperability, investigated to determine when the problem arose, and reported that the LCO time was exceeded. The Licensee responded to the inoperable equipment when the inoperability was discovered. The Licensee did not intentionally exceed an LCO. Rather, the Licensee discovered an equipment problem caused by a malfunction beyond its control which meant that, in hindsight, an LCO had been exceeded. The Licensee is designing a modification for this and other circuit breakers of similar design to allow monitoring of the charging status of the closing springs without having to open the circuit-breaker cubicle door.

Because the EDG inoperability was not avoidable by reasonable Licensee quality assurance measures or management controls, the NRC did not issue a Notice of Violation for this issue. This is consistent with section VI.A of the

⁴ CAN asserts that the Licensee misconstrues the purposes of TS Limiting Conditions for Operation (LCOs) as part of a "chronic pattern of misunderstanding" of TS, FSAR design bases, and NRC regulations. For the reasons described herein, LER 96-22 does not provide a basis for this assertion.

Enforcement Policy. This LER is closed. The NRC Staff concludes that further enforcement action is not warranted.

9. LER 96-23: "Inadequate Surveillance Procedure results in failure to meet Technical Specification requirements for Radiation Monitor Functional Testing"

The reactor building and refueling floor radiation monitor test procedure did not verify the high alarm contact actuation as required by TS. The NRC Staff agrees with CAN that this event presented no significant risk to public health and safety. Considering that the monitors were verified to be fully functional, and were in the condition required by Plant Technical Specifications, this specific event appears to have been limited to an inadequate testing methodology. The Licensee's corrective actions included revising the deficient surveillance test procedure to properly test the high alarm output contacts.

However, the LER remains open as the NRC Staff has not completed its inspection activities related to this LER. The NRC Staff will look historically to see if this is an isolated case as part of the enforcement consideration. On January 10, 1996, the NRC issued Generic Letter (GL) 96-01, "Testing of Safety-Related Logic Circuits," that requested, among other things, that all power reactor licensees review their surveillance test procedures to ensure that all portions of the logic circuitry are being tested. The Licensee's response to GL 96-01, due to be sent to the NRC in September 1997, will be evaluated with respect to the Licensee's long-term corrective action for logic testing procedures, because any associated corrective action could be considered in determining whether enforcement action is warranted. Information regarding any enforcement action taken will be available publicly in plant-specific Inspection Reports. This LER will be further discussed in a Final Director's Decision when the LER is closed.

10. LER 96-25: "Inadequate testing leads to misadjustment of isolation valve mechanical stop and failure to meet Technical Specification leak rate limits for containment purge isolation valve"

This LER involved a containment isolation valve that leaked in excess of TS requirements. The amount of valve leakage was influenced by the direction in which the valve was leak tested and the adjustment of a mechanical stop. CAN's concern appears to be that the Licensee failed to apply the single-failure criterion in assessing the significance of the failure in its LER. Section 50.73(b)(3) requires that an LER contain an assessment of the safety consequences and implications of the event, including the availability of other

systems or components that would have performed the safety function of the failed system or component. In this case, the requirement is that the assessment include the availability of a redundant component (valve) that would have performed the safety function (torus isolation). Petitioner's issue is thus whether the LER should have, in addition, assessed the potential radiological consequences had a design-basis accident (DBA) occurred with failure of the redundant isolation valve. Compliance with section 50.73(b)(3) does not require that the assessment consider an additional single failure beyond the failure that forms the basis for the assessment. On the basis of required reporting, LER 96-25 was not deficient in omitting discussion of the potential consequences of failure of the redundant valve. Inspection Report 50-271/96-11 dispositioned this Severity Level IV TS violation as a Noncited Violation in accordance with the criteria for enforcement discretion in section VII.B.1 of the Enforcement Policy. Although the event was considered to be of more than minor safety significance, the outboard valves had successfully passed all previous tests, and thus the demonstrated containment integrity was always maintained for the two affected penetrations. This LER is closed. No further enforcement action is warranted.

C. Summary

In summary, with respect to CAN's concern that an unreviewed safety question with respect to containment isolation may have been introduced by Licensee actions in opening the RHR minimum flow lines, the NRC Staff determined that no unreviewed safety question was introduced and, therefore, no enforcement action is warranted. With respect to CAN's concerns related to the LERs, the NRC Staff finds that the Enforcement Policy has been applied consistently for the LERs that have been closed and further enforcement action is not warranted.

For those LERs that remain open, the inspection/enforcement process will continue until the Staff has completed its investigation and consideration of the issues involved. LER closure and enforcement action, as appropriate, will be documented publicly as is NRC Staff practice, and will be documented in a Final Director's Decision.

With regard to CAN's overall conclusions based on its analysis of the above LERs, the NRC Staff has reached the following conclusions:

With respect to CAN's conclusion that the NRC and the Licensee should review all safety analyses conducted since startup of the Vermont Yankee facility, with particular attention to their role in providing a complete and up-to-date FSAR, the NRC Staff has taken actions as noted in the discussion above related to LER 96-14 with respect to identifying and correcting FSAR inaccuracies. This action was taken in a request on October 9, 1996, to all licensees, including

Vermont Yankee, to provide the requested information. In addition, the NRC Staff has implemented a series of engineering design inspections, including an inspection to verify portions of the Licensee's design control process and maintenance of the Licensee's FSAR commitments. The results of the NRC design inspection conducted at Vermont Yankee were reported in Inspection Report 97-201 dated August 27, 1997.

With respect to CAN's conclusion that the Licensee needs to correct serious deficiencies in its design change control process and should undertake a historical review of its design control documentation to verify its accuracy, the NRC Staff has taken action as noted in the discussion related to LER 96-20 with respect to identifying and correcting design change control process deficiencies. In the October 9, 1996 letter to all licensees, including Vermont Yankee, the NRC Staff requested information to verify, among other things, the adequacy of the design change control process and to determine the rationale for concluding that design-basis requirements are properly translated into operating, maintenance, and testing procedures. As also noted in the discussion related to LER 96-20, the Licensee has undertaken a review of the fire protection design bases to search for the type of problems involved in LER 96-20, and believes that the current modification programs are adequate to prevent similar problems.

With respect to CAN's conclusion that the Licensee should perform a global evaluation to determine how many modifications have been inadequately tested since startup, as noted in the discussion related to LER 96-20, the Licensee has been required to provide verification of the design change control process, including among other things the rationale for concluding that design-basis requirements are translated into testing procedures.

With respect to CAN's conclusion that the Licensee needs to initiate a thorough retraining program to review and emphasize the underlying safety purposes of TSs, the FSAR, design bases, and NRC regulations in relation to routine operation of the Vermont Yankee facility, emergency preparedness, and practical implementation of the NRC's "defense-in-depth" philosophy, the NRC Staff disagrees. In the discussion related to LER 96-22, the NRC Staff addresses CAN's assertion that the Licensee misconstrues the purposes of TS LCO as part of a "chronic pattern of misunderstanding" of TS, FSAR design bases, and NRC regulations. The NRC Staff finds no basis to require such a retraining program.

Finally, CAN strongly recommends that the Licensee's Vermont Yankee staff receive training on the proper use of the "Single Failure Criterion." In the discussion related to LER 96-25, the NRC Staff addresses what seems to be the basis for CAN's recommendation: i.e., the perception that the Licensee failed to properly apply the Single Failure Criterion in assessing the significance of a leaking isolation valve in LER 96-25. Compliance with section 50.73 does not require that the assessment consider an additional single failure. The enforcement conference related to the minimum flow valves concerned a problem

in implementation of the Single Failure Criterion, not a misunderstanding of the requirements of the Single Failure Criterion. Because the Licensee did not err in the instance described in LER 96-25 and the petition provides no other instances in which problems were caused by a misunderstanding of the Single Failure Criterion, the NRC Staff finds no basis for requiring additional training.

III. CONCLUSION

The NRC Staff has reviewed the information submitted by the Petitioner. The Petitioner's request is granted in that the NRC Staff has evaluated the majority of issues and LERs raised in the memoranda provided by the Petitioner to see if enforcement action is warranted based on the information contained therein. The NRC Staff has discussed each memorandum above and described any related enforcement action taken for those issues and LERs that are closed. The NRC will continue the same process and consideration for the LERs that remain open and documentation of any inspection and/or enforcement action will be consistent with agency practices and will also be the subject of a Final Director's Decision.

As provided in 10 C.F.R. § 2.206(c), a copy of this Decision will be filed with the Secretary of the Commission for the Commission's review. This Decision will become the final action of the Commission 25 days after issuance, unless the Commission, on its own motion, institutes review of the Decision in that time.

FOR THE NUCLEAR
REGULATORY COMMISSION

Samuel J. Coilins, Director
Office of Nuclear Reactor
Regulation

Dated at Rockville, Maryland,
this 8th day of October 1997.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD PANEL

Before Administrative Judges:

Charles Bechhoefer, Presiding Officer
Dr. Peter S. Lam, Special Assistant

In the Matter of

Docket No. 40-8905-MLA
(ASLBP No. 97-728-04-MLA)
(Amendment to Source
Material License No.
SUA-1473)

QUIVIRA MINING COMPANY
(Ambrosia Lake Facility, Grants,
New Mexico)

November 4, 1997

The Presiding Officer denies a request for a hearing because the Petitioner lacks standing to participate in the proceeding.

**RULES OF PRACTICE: INTERVENTION/INFORMAL
PROCEEDINGS**

To become a party in a proceeding governed by 10 C.F.R. Part 2, Subpart L, a petitioner is required to set forth (1) its interest in the proceeding — i.e., its standing; (2) how that interest may be affected by the results of the proceeding; (3) its areas of concern about the licensing activity that is the subject matter of the proceeding; and (4) the timeliness of the petition. 10 C.F.R. § 2.1205(e).

**RULES OF PRACTICE: INTERVENTION/INFORMAL
PROCEEDINGS**

To admit a petitioner to a proceeding governed by 10 C.F.R. Part 2, Subpart L, a Presiding Officer must find that the petitioner's specified areas of concern

are germane to the subject matter of the proceeding, as well as the timeliness of the petition and that the petitioner has standing. 10 C.F.R. § 2.1205(h).

RULES OF PRACTICE: STANDING

The standing requirement in NRC's Rules of Practice arises from the hearing authorization in section 189(a)(1) of the Atomic Energy Act, providing a hearing "upon the request of *any person whose interest may be affected*" by a proceeding (emphasis supplied).

RULES OF PRACTICE: STANDING (INFORMAL PROCEEDINGS)

The same standing requirements govern Subpart L proceedings as govern formal, Subpart G proceedings.

RULES OF PRACTICE: STANDING

In determining standing, the Commission looks to "contemporaneous judicial concepts of standing." A contemporary delineation of those concepts appeared in *Bennett v. Spear*, 520 U.S. ___, 117 S. Ct. 1154, 1163 (1997), where the Supreme Court observed that constitutional minimum standards of standing are that (1) the plaintiff suffer injury in fact, both actual or imminent; (2) there is a causal connection between the injury and the conduct in question; and (3) the injury likely will be redressed by a favorable decision. In addition, a "prudential" standing requirement is that the plaintiff's grievance must arguably fall within the "zone of interests" protected or regulated by the statutory or constitutional provisions invoked in the suit.

RULES OF PRACTICE: STANDING (INJURY IN FACT)

For standing purposes, injury in fact need not be substantial. Although such injury must be "actual," "direct," and "genuine," it need not have already occurred. Potential or imminent injury is sufficient.

RULES OF PRACTICE: STANDING (INJURY IN FACT)

Potential competitive injury from a new facility has been recognized as a legitimate basis on which to assert injury in fact.

RULES OF PRACTICE: STANDING (INJURY IN FACT)

Although potential competitive injury may stem from operation of a facility and not technically from its licensing, such a rationalization invokes a distinction without a difference by ignoring the obvious fact that the claimed potential competitive injury could not and would not occur absent the licensing. Such potential injury may thus be used to establish injury in fact.

RULES OF PRACTICE: STANDING (ZONE OF INTERESTS)

Although competitive injury may constitute injury in fact in an NRC licensing proceeding, a party relying for its standing on such injury must also demonstrate that it arguably falls within the zone of interests protected or regulated by the Atomic Energy Act or the National Environmental Policy Act (NEPA).

RULES OF PRACTICE: STANDING (ZONE OF INTERESTS)

The standing of a petitioner asserting a particular type of injury may be derived from a specific section of a statute pertinent to the litigation rather than from the statute as a whole.

RULES OF PRACTICE: STANDING (ZONE OF INTERESTS)

Although economic matters may not be generally comprehended by the Atomic Energy Act or NEPA (unless the economic injury stems directly from alleged radiation hazards or other environmental impacts of a project), economic injury may be comprehended in litigation under section 84 of the Atomic Energy Act, which was amended in 1983 to include economic considerations concerning the regulation of byproduct material.

RULES OF PRACTICE: STANDING (ZONE OF INTERESTS)

Although certain types of alleged economic injury are within the zone of interests protected under amended section 84 of the Atomic Energy Act, the legislative history of amended section 84 indicates that the amendment was designed to provide the NRC Staff more latitude in regulating byproduct material and was not intended to include injury to a competitor caused by the business activities of another competitor.

RULES OF PRACTICE: STANDING (INJURY IN FACT; ZONE OF INTERESTS)

Although matters such as groundwater contamination, seepage of waste material into the substrate, additional radioactive releases, and transportation of large volumes of byproduct waste material to a site fall within the zone of interests protected by NEPA, the impacts must themselves, in some manner, either economically or physically, have a direct impact on a petitioner in order for it to use those impacts to establish its standing.

RULES OF PRACTICE: STANDING (ZONE OF INTERESTS)

Economic injury resulting directly from the environmental impacts of a project may serve as a basis for a petitioner's standing under NEPA. Although NEPA does not encompass monetary interests alone, a petitioner is not precluded from asserting cognizable injuries to environmental values because his real or obvious interest may be viewed as monetary.

U.S. CONSTITUTION: EQUAL TREATMENT

ATOMIC ENERGY ACT: LICENSING STANDARDS

Although similarly situated licensees must be accorded equal treatment by the NRC, the law does not require consistency of treatment of two parties in different circumstances.

**MEMORANDUM AND ORDER
(Denying Request for Hearing)**

This proceeding involves an amendment to the source material license (SUA-1473) of Quivira Mining Company (QMC or Applicant) to permit it to receive defined quantities of section 11e(2) byproduct material from outside generators for disposal at its Ambrosia Lake uranium mill and tailings site, located near Grants, New Mexico.¹ It is being conducted pursuant to the Commission's informal hearing procedures, set forth in 10 C.F.R. Part 2, Subpart L.

¹That material is defined by section 11e(2) of the Atomic Energy Act of 1954, as amended, 42 U.S.C. § 2014(e)(2), as "the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content."

One timely request for a hearing (Request), submitted by Envirocare of Utah, Inc. (Envirocare or Petitioner), has been received. For reasons set forth herein, I am denying that request and terminating the proceeding.

A. Background

As set forth in my Memorandum and Order (Request for Hearing), dated June 20, 1997 (unpublished), Envirocare filed its Request on May 28, 1997. QMC and the NRC Staff (Staff) filed responses in opposition to Envirocare's Request, dated June 12 and 19, 1997, respectively.² Both of those responses were founded, in large part, on Envirocare's lack of demonstrated standing to participate.

In my June 20 Memorandum and Order, I noted that in Subpart L proceedings such as this one, a petitioner is required to set forth (1) its interest in the proceeding — i.e., its standing; (2) how that interest may be affected by the results of the proceeding; (3) its areas of concern about the licensing activity that is the subject matter of the proceeding; and (4) the timeliness of the petition. 10 C.F.R. § 2.1205(e). I also stated that to admit Envirocare, I must find that its specified areas of concern are germane to the subject matter of the proceeding, that its petition was timely, and that the Petitioner has standing. 10 C.F.R. § 2.1205(h).

In that Memorandum and Order, I went on to find that Envirocare's petition was timely submitted and that, as asserted by the Staff, certain (although not all) of its areas of concern are germane to the subject matter of the proceeding.³ But I determined that the Petitioner's statement of standing — particularly injury in fact — was not sufficiently specific for me to determine whether the relevant factors had been satisfied.

Accordingly, taking into account (1) in Subpart G proceedings there is a right for a petitioner to supplement its request for a hearing, (2) in Subpart L proceedings there is no bar to that practice, (3) the lack of local availability of information concerning the proceeding, and (4) the complexity of questions concerning standing and injury in fact, I permitted Envirocare to file a supplement to its petition (Supplement) and the Applicant and Staff to respond. Envirocare filed a timely Supplement on July 3, 1997, and the Applicant and Staff filed timely responses in opposition to Envirocare's Request on July 15, 1997 (Applicant's Supplemental Response, Staff's Supplemental Response).

²In its response (at 2), the Staff stated that, in accordance with 10 C.F.R. § 2.1213, it wishes to participate as a party. The Staff also stated (at 3 n.7) that, consistent with 10 C.F.R. § 2.1205(m), the license amendment was approved by the Staff on May 16, 1997; and that, as issued, the license amendment differs in certain respects from that applied for by QMC.

³In particular, taking into account Envirocare's supplementary statement, the adequacy of the environmental review carried out for this license amendment (Request at 18, ¶5.6.9) is clearly germane.

In my June 20, 1997 Memorandum and Order, I also indicated that I might convene a prehearing conference to resolve questions of standing either near the site (if a site visit would prove useful) or by telephone conference call. I invited suggestions from the parties and Petitioner. Envirocare did not comment. The Staff opined that a site visit would not be helpful in determining the issue of standing. The Applicant suggested that, because the legal issue of standing can be decided on briefs alone, such a conference would not be beneficial. In light of the issues before me at this time, I agree with these positions and accordingly am issuing this Order based on the various briefs (i.e., petitions and responses) to which I have referred.

B. Envirocare's Standing

The standing requirement in NRC's Rules of Practice — including that applicable in 10 C.F.R. Part 2, Subpart L proceedings such as this one⁴ — arises from the hearing authorization in section 189(a)(1) of the Atomic Energy Act of 1954, as amended, 42 U.S.C. § 2239(a)(1), providing a hearing “upon the request of *any person whose interest may be affected*” by a proceeding (emphasis supplied). Through a long series of cases, the Commission has held that, in determining standing, it will look to “contemporaneous judicial concepts of standing.” *Portland General Electric Co.* (Pebble Springs Nuclear Plant, Units 1 and 2), CLI-76-27, 4 NRC 610, 613-14 (1976); *see also Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), CLI-83-25, 18 NRC 327, 332 (1983); *id.*, CLI-85-2, 21 NRC 282, 316 (1985); *Sacramento Municipal Utility District* (Rancho Seco Nuclear Generating Station), CLI-92-2, 35 NRC 47, 56 (1992); *Envirocare of Utah, Inc.*, LBP-92-8, 35 NRC 167, 172 (1992).

As set forth by the Applicant (Supplemental Response at 3), a contemporary delineation of judicial concepts of standing appeared in a recent Supreme Court decision, *Bennett v. Spear*, 520 U.S. ___, 117 S. Ct. 1154, 1163 (1997) (citing *Lujan v. Defenders of Wildlife*, 504 U.S. 555, 560-61 (1992)). In *Bennett*, the Court observed that constitutional minimum standards of standing are that (1) the plaintiff suffer injury in fact, both actual or imminent, not conjectural or hypothetical; (2) there is a causal connection between the injury and the conduct in question; and (3) the injury likely will be redressed by a favorable decision. In addition, a “prudential” standing requirement is that the plaintiff’s grievance must arguably fall within the “zone of interests” protected or regulated by the statutory or constitutional provisions invoked in the suit (here, the Atomic

⁴The same standing requirements govern Subpart L proceedings as govern formal, Subpart G proceedings. *Chemtron Corp.* (Bert Avenue, Harvard Avenue, and McGean-Rohco Sites, Newburgh Heights and Cuyahoga Heights, Ohio), LBP-94-20, 40 NRC 17, 18 (1994).

Energy Act, the National Environmental Policy Act (NEPA), and Amendments V and XIV of the Constitution itself). 117 S. Ct. at 1160-61.

Commission decisions are consistent with these requirements. To satisfy "judicial" standing, the Commission has held that a petitioner must demonstrate, *inter alia*, that it could suffer an actual "injury in fact" to its interest, that the injury occur as a consequence of the proceeding, and that the petitioner's interest is "arguably" within the "zone of interests" to be protected by the statute(s) under which the petitioner seeks to intervene. *Georgia Power Co.* (Vogtle Electric Generating Plant, Units 1 and 2), CLI-93-16, 38 NRC 25, 32 (1993); *Rancho Seco*, CLI-92-2, *supra*, 35 NRC at 56. To conform to the "injury in fact" requirement, the injury must also be "concrete and particularized, fairly traceable to the challenged action, and likely to be redressed by a favorable decision." *Vogtle*, CLI-93-16, *supra*, 38 NRC at 32; *Envirocare*, LBP-92-8, *supra*, 35 NRC at 173; *Dellums v. NRC*, 863 F.2d 968, 971 (D.C. Cir. 1988). Each of these elements is in dispute here.

I. Envirocare's Position

Envirocare, which operates a waste disposal facility at Clive, Utah, some 500 miles from QMC's Ambrosia Lake facility, claims that it will suffer injury through the NRC's licensing of a facility that will be its competitor. It claims (Request at 3) to be "the first private facility in the United States to be licensed . . . to accept § 11e(2) material from outside generators for disposal." It alleges potential economic harm from the licensing of the Ambrosia Lake facility to accept the same type of byproduct waste material from outside generators that it now accepts at its Clive, Utah site.

In its Request (at 11), Envirocare claims an economic interest in ensuring that all licensees that propose to accept section 11e(2) byproduct material from other persons for disposal comply with applicable NRC standards. It adds (Request at 11-12) that if QMC need not comply with the same requirements as were imposed on Envirocare, then Envirocare will be placed at a "severe competitive disadvantage, because QMC's lower costs will allow it to attract customers away from Envirocare."

In its Supplement, Envirocare acknowledges that QMC is currently authorized to store certain specified section 11e(2) materials at the Ambrosia Lake facility. Envirocare, however, differentiates the limited, strictly defined authorization for disposal activities under QMC's license prior to this amendment (derived for the most part from in situ leach uranium facilities) with the amendment which allegedly "changed the nature of QMC's facility from a uranium mill to a commercial disposal facility" (Supplement at 3). Envirocare claims that this "fundamental" change was permitted by the NRC without requiring a full environmental review under NEPA, comparable to the full review previously

carried out for the Petitioner's own facility (*id.* at 3-4). It adds that no full environmental review was ever carried out for the QMC facility (Request at 5; Supplement at 3). Among impacts allegedly created or exacerbated by the amendment and never reviewed, Envirocare lists groundwater contamination, seepage into the substrate, additional radioactive releases and transportation of large volumes of section 11e(2) material to the site (Supplement at 8-9).

In sum, therefore, Envirocare relies for standing on alleged economic injury to its interests coupled with purported environmental impacts of the project that it does not appear to be claiming directly affect it. With respect to a causal connection with this proceeding, it asserts that a favorable decision by me — overturning the Staff's Finding of No Significant Impact (FONSI) and, as a result, requiring QMC to prepare an Environmental Report that would initiate further environmental reviews — will redress the injury both to itself and to the environment (Supplement at 12).

2. QMC and Staff Responses

QMC and the Staff directly controvert Envirocare's claims of injury in fact as well as its formulation of a causal connection. First, they assert that the additional storage authority is essentially a *de minimis* addition to amounts already authorized to be stored (although, admittedly, stemming from different sources).⁵ QMC faults Envirocare for failing to show a causal connection between the asserted economic injury and the allegedly deficient environmental review of the project, or any potential health and safety violation under the Atomic Energy Act (Applicant's Supplemental Response at 2, 5-7). The Staff asserts that the alleged environmental harm is "speculative, at best," that the economic harm is not a direct harm to Envirocare flowing from the physical or environmental effects of the project, and that Envirocare has not demonstrated that the alleged injuries can be fairly traced to the issuance of the license amendment under review (Staff Response at 10, 13, 15).

3. Economic Impacts

I turn first to whether Envirocare may suffer economic injury from the license amendment and conclude, for purposes of standing, that it has indeed demonstrated injury in fact. For standing purposes alone, such injury need not

⁵QMC asserts in its Response (at 2 n.2) that it had previously been authorized to accept source-specific section 11e(2) byproduct material for disposal at the Ambrosia Lake facility. In its license amendment application dated November 20, 1995 (forwarded to me on June 27, 1997, with copies to Envirocare and the Staff), QMC states that "[t]he addition of a generator's 10,000 [cubic] yard per year quantity is minimal in comparison to the 16 million tons of capacity available for storage . . . and in comparison to the 33 million tons of tailings material already at the site."

be substantial. *Houston Lighting and Power Co.* (South Texas Project, Units 1 and 2), LBP-79-10, 9 NRC 439, 447-48, *aff'd*, ALAB-549, 9 NRC 644 (1979). Although it must be "actual," "direct," and "genuine," *id.* at 448, it need not have already occurred. Potential or imminent injury is sufficient. There need only be a real possibility of concrete harm to a petitioner's interest as a result of the proceeding. *Nuclear Engineering Co.* (Sheffield, Illinois, Low-Level Radioactive Waste Disposal Site), ALAB-473, 7 NRC 737, 743 (1978).

Here, it is clear that the facility authorized by the instant license amendment might be a competitor to Envirocare's existing facility. There clearly is a real possibility, although not a certainty, that competition from the Ambrosia Lake facility will cause economic harm to Envirocare. Competitive injury such as this has been recognized as a legitimate basis on which to assert injury in fact. *UPS Worldwide Forwarding, Inc. v. U.S. Postal Service*, 66 F.3d 621, 626 (3d Cir. 1995), *cert. denied*, 116 S. Ct. 1261 (1996); *Panhandle Producers and Royalty Owners Association v. Economic Regulatory Administration*, 822 F.2d 1105, 1108 (D.C. Cir. 1987).

Given the realities of market competition, the possibility of economic harm appears to be stronger than "speculative." Moreover, although any such injury would stem from operation of the facility and not technically from its licensing (as claimed by the Applicant and Staff⁶), such a rationalization invokes a distinction without a difference by ignoring the obvious fact that the claimed potential competitive injury could not and would not occur absent the licensing. *Cf. Bennett v. Spear*, *supra*, 117 S. Ct. at 1163-64.

Accordingly, I conclude that injury in fact, as well as a causal connection to this proceeding, has been shown for standing purposes. The real standing question, to which I now turn, is whether that injury arguably falls within the "zone of interests" protected by the Atomic Energy Act or NEPA so as to be redressable here. *Rancho Seco*, CLI-92-2, *supra*, 35 NRC at 56. The Applicant and NRC Staff both claim that competitive injury is not within the zones of interests protected by any of these statutes, whereas Envirocare claims that it is.⁷

With respect to the Atomic Energy Act, Envirocare claims that one should inquire about the zones of interests to be protected by particular sections of a statute pertinent to the litigation, and not necessarily to the statute as a whole. It refers specifically to section 84 of the Atomic Energy Act, which was amended in 1983 to include language that permits consideration of economic matters and encompasses the section 11e(2) byproduct material at issue here. As further authority, Envirocare cites several cases under various environmentally oriented

⁶ Applicant's Supplemental Response at 6; Staff's Supplemental Response at 2.

⁷ Envirocare also makes certain economic standing claims based on purported constitutional violations. I deal with these assertions below.

statutes (including NEPA) that permit economic injury to serve as a basis for standing, in particular, a recent U.S. Supreme Court decision, *Bennett v. Spear*, *supra* (Endangered Species Act); and *Port of Astoria, Oregon v. Hodel*, 595 F.2d 467, 476 (9th Cir. 1979) (NEPA).

The Applicant and Staff each rely on a long series of Commission decisions to assert that economic matters are not comprehended by the Atomic Energy Act or NEPA (unless the economic injury stems directly from the alleged radiation hazards or other environmental impacts of the project). *See, e.g., Public Service Co. of New Hampshire* (Seabrook Station, Unit 2), CLI-84-6, 19 NRC 975, 978 (1984) (“[t]he zone of interests affected does not include general economic considerations”); *Gulf States Utilities Co.* (River Bend Station, Unit 1), CLI-94-10, 40 NRC 43, 48-49 (1994); *Rancho Seco*, CLI-92-2, *supra*, 35 NRC at 56-57. These decisions each involve the licensing of nuclear power reactors.

The licensing authority applicable to this proceeding stems from section 84 of the Atomic Energy Act which, as noted above, was specifically amended in 1983 to include economic considerations. *See Envirocare of Utah, Inc.*, LBP-92-8, *supra*, 35 NRC at 180-81. At least insofar as the Atomic Energy Act is concerned, the “zone of interests” affected by byproduct material regulated under section 84 of the Act (including the disposal of section 11e(2) wastes) is thus different from that protected under the sections of the Act regulating nuclear reactors or other production or utilization facilities.

Moreover, as the Petitioner claims, under current judicial authority standing may be derived from a specific section of the statute (i.e., § 84) rather than from the statute as a whole. *Bennett v. Spear*, *supra*, 117 S. Ct. at 1166-67. Decisions excluding all economic matters from the zone of interests protected by the Atomic Energy Act and based on regulation other than under the amended section 84 (most of the cases relied on by the Applicant and Staff) are therefore not relevant or applicable in this respect to a case such as this one arising under the amended section 84.

The one case involving standing under the amended section 84 opined (by way of dictum) that standing could arise from economic injury but rejected standing because the petitioner had failed to demonstrate injury in fact caused by the licensing action under review. *Envirocare*, LBP-92-8, *supra*. The Staff distinguishes LBP-92-8 from this proceeding on the ground that the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) liability invoked there by the petitioner (although held by the Licensing Board to have not been sufficiently demonstrated to satisfy injury-in-fact standards) would allegedly have resulted directly from the project’s asserted environmental and safety deficiencies (concerning the adequacy of material storage and isolation) and is different in substance from the competitive injury alleged here, which is not directly attributable to any of the project’s environmental or safety aspects (Staff Response at 11 n.11).

In my view, certain types of alleged economic injury are within the zone of interests protected under amended section 84 of the Atomic Energy Act. As outlined by the Applicant (Response at 9-10) and Staff (Response at 11), the legislative history of the 1983 amendment to section 84 suggests that it was designed to afford flexibility to the Staff to permit it to balance health and safety requirements with cost of compliance, so that cost of compliance would bear a reasonable relationship to expected benefits. As amended, section 84 contemplates that, in dealing with section 11e(2) byproduct material, the Staff will have somewhat more latitude than under other Atomic Energy Act licensing provisions to take into account the economic impact of regulatory compliance.

This, however, is very different from the competitive injury invoked by Envirocare, which apparently was not considered by Congress in amending section 84 and accordingly does not appear to be the type of economic injury that may form a basis for standing under amended section 84. Indeed, at its heart, Envirocare's economic argument is aimed at depriving the Staff of additional flexibility by making the precise licensing requirements governing its own facility the floor (rather than the ceiling) for any authorization that might be given to QMC. Ultimately, to rule that Envirocare has standing to obtain such a result would mean not only that any competitor of QMC anywhere in the country would also be entitled to such standing, but also would run contrary to the congressional purpose behind amended section 84 and would counter the zone-of-interests requirement's purpose to "exclude those [petitioners] whose suits are more likely to frustrate than to further" the statutory objectives. *Nevada Land Action Association v. U.S. Forest Service*, 8 F.3d 713, 716 (9th Cir. 1993).⁸

4. *Environmental Impacts Under NEPA*

I turn next to whether the alleged environmental impacts of the Ambrosia Lake facility, which surely fall within the zone of interests protected by NEPA, must affect the petitioner directly in order to serve as a foundation for injury in fact. I conclude they must.

In this connection, I am not dealing with the magnitude of the alleged impacts, or whether they are truly *de minimis*, as claimed by the Applicant and Staff, or to the adequacy of the Staff's environmental review. Those are matters for the merits, if the proceeding progresses that far. But my interpretation of the various cases cited by all parties or the Petitioner convinces me that the specific environmental or radiological impacts allegedly emanating from the project itself (listed, *supra*, at p. 264) must themselves, in some manner, either economically

⁸The Atomic Energy Act deals with certain antitrust aspects of the licensing of nuclear power reactors, but those provisions are specialized in their applicability and are of no relevance here.

or physically, have an impact on the Petitioner in order for it to use those impacts to establish its standing.

The case relied on most strongly by Envirocare in support of its position (see Supplement at 6, 8, 10, 11, 13 and 14) is *Port of Astoria, Oregon v. Hodel*, 595 F.2d 467, 476 (9th Cir. 1979). There, various plaintiffs, including a port district and the corporate owner of commercial radio facilities, brought suit under NEPA, claiming that an environmental impact statement (EIS) was required in connection with the execution of a power supply contract which obligated the Bonneville Power Administration to supply electrical power to a proposed aluminum reduction plant. The Court ruled the corporate sponsor of commercial radio facilities did have standing to bring suit, but the port district did not.

The port district was far removed from the facility site and claimed injury from the new facility only through losses of potential tax base and potential revenue. The Court commented that these alleged injuries "represent only pecuniary losses and frustrated financial expectations that are not coupled with environmental considerations" and thus are outside NEPA's zone of interests (595 F.2d at 475); it denied standing on that basis.

On the other hand, it granted standing to the corporate owner of broadcast facilities which alleged that the transmission lines to be built to service the new plant would interfere with its broadcast. The Court acknowledged that the injury was economic in nature — static caused by the transmission lines would cause economic injury to the radio station — and was the "immediate and direct result of the building of the [facility]." It added that this injury, unlike that of the port district, "[is] causally related to an act that lies within NEPA's embrace." *Id.* at 476. Thus, the corporate owner of the broadcast facilities was found to have standing whereas the port district was not.

Envirocare interprets this case to permit standing on the basis of economic injury in a proceeding subject to NEPA. It equates itself with the corporate owner of broadcast facilities. But it has not shown the direct injury alleged by the broadcast facilities arising from one of the environmental attributes of the project in question was crucial to the finding of standing. In my view, Envirocare in this proceeding is more equivalent to the port district that was found not to have standing than to the broadcasters who had standing.

This view is supported by *Western Radio Services Co. v. Espy*, 79 F.3d 896, 902-03 (9th Cir. 1996), *cert. denied*, 117 S. Ct. 80 (1996), also cited by Envirocare (Supplement at 6, 14). There, the Court denied standing to a radio communication company also asserting economic injury from a transmission tower. Before the trial court, the plaintiff had asserted only economic harm, and the appellate court refused to allow the plaintiff on appeal to characterize its injuries as environmental. It interpreted *Hodel* as permitting standing on the basis of economic injury that was "causally related" to the environmental

impacts of the facility. It characterized the alleged economic injury as "not one that NEPA aims to redress." 79 F.3d at 903.

Envirocare also cites *Overseas Shipholding Group, Inc. v. Skinner*, 767 F. Supp. 287 (D.D.C. 1991) (Supplement at 9, 14-15), for the proposition that asserting a competitive interest does not preclude a firm from falling within the zone of interests protected by NEPA. The case granted standing to a corporate shipholding group attempting to challenge a Department of Transportation/Maritime Administration rule for failing to follow NEPA requirements. Although the case does hold economic interests within the zone of interests protected by NEPA, as claimed by Envirocare, it involved economic claims resulting *directly* from the environmental impacts allegedly produced by the rule in question. This direct connection is what is lacking here, where there has not even been an assertion that the alleged environmental impacts of the Ambrosia Lake facility in any way directly affect Envirocare. As the Supreme Court has observed, standing is never allowed "solely on the basis of a 'procedural right' unconnected to the plaintiff's own concrete harm." *Lujan v. Defenders of Wildlife*, *supra*, 504 U.S. at 573 n.8.

County of Josephine v. Watt, 539 F. Supp. 696, 703-04 (N.D. Cal. 1982), another case cited by Envirocare (Supplement at 6, 11), supported standing on the basis of "direct use in a recreational or occupational sense of the areas and places" involved. Certain lumber plaintiffs were "causally affected by a matter of NEPA concern." This was not merely a case where, as asserted by Envirocare (Supplement at 11), the act that causes the economic harm (the licensing action) is also one that will harm the environment. A direct causal connection was also involved.

Similarly, *Lake Erie Alliance v. United States Army Corps of Engineers*, 486 F. Supp. 707, 712 (W.D. Pa. 1980) (Supplement at 6), found standing under NEPA to challenge the adequacy of an environmental impact statement for a complex steel production facility by individual steelworkers (among others) who might lose or be required to change their jobs because of the new facility. The court observed that NEPA does not encompass monetary interests alone but that a party is not precluded from asserting cognizable injuries to environmental values because his "real" or "obvious" interest may be viewed as monetary. It added:

While the "real" interest of the steelworkers before us is undoubtedly in job security, all live in or around the . . . area which will be affected environmentally by this project, and all have alleged a concern with those adverse environmental effects.

486 F. Supp. at 713. In other words, those found to have standing were directly affected not only economically but also by the environmental impacts of the project (alleged quality of air, water, lands, and wildlife in the region). This is

the direct connection to environmental impacts that Envirocare has not claimed here. To the same effect, *see Realty Income Trust v. Eckerd*, 564 F.2d 447, 452 (D.C. Cir. 1977) (Supplement at 14).

The Applicant points to another NEPA case where a direct causal connection to alleged environmental impacts was required for standing. Applicant's Supplemental Response at 7. Absence of a direct connection to potential harm to the plaintiff caused by the environmental impact in a case involving allegations of economic injury was crucial to the court's holding of lack of standing. *Clinton Community Hospital Corp. v. Southern Maryland Medical Center*, 374 F. Supp. 450, 455-56 (D. Md. 1974), *aff'd*, 510 F.2d 1037 (4th Cir.), *cert. denied*, 422 U.S. 1048 (1975).⁹

Envirocare cites several other cases which it characterizes as not requiring a direct link between economic injuries and environmental harm to the petitioner. *Port of Astoria*, *supra*; *Western Radio Services*, *supra*. (Supplement at 10.) As discussed earlier, however, Envirocare is misinterpreting these cases. A direct link was indeed required. Envirocare also tries to distinguish the results in cases requiring direct environmental injury (e.g., *Defenders of Wildlife*, *supra*, and *Florida Audubon Society v. Bentsen*, 94 F.3d 658 (D.C. Cir. 1996)) on the basis that those cases did not involve a combination of economic and environmental harm (Supplement at 10). Again, however, Envirocare has misconstrued the cases that did involve such a combination.¹⁰

Commission holdings under NEPA are consistent with the foregoing zone-of-interests and causal effect rulings. For example, in *Rancho Seco*, CLI-92-2, *supra*, the Commission indicated to be cognizable for standing purposes, economic harm under NEPA must be occasioned by the environmental impacts alleged: "NEPA does protect some economic interests; however, it only protects against those injuries that result from environmental damage." 35 NRC at 56. Economic standing based on loss of employment at a nuclear plant that was closing did not suffice.

In contrast, marina operators were admitted to a proceeding (and accordingly found to have standing) to complain of shipworms in the vicinity of their business, resulting from operation of a nuclear power plant. *Jersey Central*

⁹ It perforce does not follow, as claimed by Envirocare (Supplement at 11, 15), that requiring a direct connection to environmental impacts to support standing undercuts the informational and educational purposes served by NEPA.

¹⁰ Still other cases cited by Envirocare involve specific statutory provisions — not present here — allowing participation of competitors to further the intent of the particular statute to regulate a defined area of competition, without a direct connection to the physical or environmental impacts (if any) of the action under review. *Clarke v. Securities Industry Association*, 479 U.S. 388, 396 (1987) (National Bank Act); *First National Bank & Trust Co. v. National Credit Union Administration*, 988 F.2d 1272, 1277 (D.C. Cir.), *cert. denied*, 510 U.S. 907 (1993) (Federal Credit Union Act); *Schering Corp. v. Food and Drug Administration*, 51 F.3d 390 (3d Cir.), *cert. denied*, 116 S. Ct. 274 (1995) (Drug Price Competition and Patent Term Restoration Act). *Cf. Hazardous Waste Treatment Council v. Thomas*, 885 F.2d 918, 922-23 (D.C. Cir. 1989) (Resource Conservation and Recovery Act, standing denied to trade association facing competition as a result of new EPA rule).

Power & Light Co. (Forked River Nuclear Generating Station, Unit 1), ALAB-139, 6 AEC 535 (1973). And a commercial fisherman was found to have standing under NEPA to complain of the discharge of cooling water that might affect his catch. *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-223, 8 AEC 241 (1974). See also *Gulf States Utilities Co.* (River Bend Station, Unit 1), LBP-94-3, 39 NRC 31, 37-38, *aff'd*, CLI-94-10, 40 NRC 43, 47-48 (1994) (interest in protecting property from radiological hazards sufficient for standing).

In summary, the cases seem uniformly to hold that, to establish standing, there must be a direct connection between the environmental or physical injury alleged to emanate from the project and the plaintiff. Economic injury may be permissible, as long as the environmental or physical damage assertedly resulting from the activity directly affects the plaintiff (or, here, the Petitioner.) Because Envirocare cannot satisfy this aspect of standing, I am compelled to find that it does not have standing under the Atomic Energy Act or NEPA.

5. *Constitutional Basis for Standing*

Envirocare also claims that the competitive interests it asserts are cognizable under the Equal Protection and Substantive Due Process clauses of the fifth and fourteenth amendments of the Constitution, inasmuch as it has suffered injury in fact from the differing treatment accorded by NRC to QMC and itself. Envirocare also asserts that its interest in ensuring that the NRC consistently applies its regulations and standards to similarly situated licensees is within the zone of interests protected by those two clauses. Supplement at 27-28. The single case it cites, however, *Metropolitan Life Insurance Co. v. Ward*, 470 U.S. 869 (1985), concerns the differing applicability of certain state taxes to in-state and out-of-state companies and appears to have nothing to do with standing.

Moreover, Envirocare has failed to develop adequately its thesis that it in fact is similarly situated with QMC. That the two facilities may eventually be in competition for the same business and that they are governed by the same statutes is not sufficient; indeed, the very circumstance that Envirocare was involved in the first such facility may well constitute a difference, as might the circumstance that QMC will be using an existing facility for purposes similar to that for which the facility already is licensed.

Further, regulatory requirements, particularly with respect to impact statements, may well not be similar, because of the different years in which applications were submitted. As QMC observes, "the law does not require consistency in treatment of two parties in different circumstances." *Offshore Power Systems* (Floating Nuclear Power Plants), ALAB-489, 8 NRC 194, 222 (1978) (Applicant's Supplemental Response at 17 n.11.) Envirocare's assertions concerning

these clauses, therefore, do not provide an appropriate basis upon which I could found its standing.¹¹

6. Conclusion

Envirocare has not demonstrated standing to be granted the hearing it requests, and its request for a hearing must therefore be dismissed and the proceeding terminated.

C. Order

For the reasons stated, it is, this 4th day of November 1997, ORDERED:

1. The request for a hearing and petition for leave to intervene of Envirocare, Inc., is hereby *denied*.
2. This proceeding is hereby *terminated*.
3. This order is effective immediately and, absent appeal, will become the final order of the Commission thirty (30) days after the date of issuance. See 10 C.F.R. § 2.1251(a).
4. This Order is appealable to the Commission in accordance with the provisions of 10 C.F.R. § 2.1205(o). Any appeal must be filed within ten (10) days of service of this Order and may be taken by filing and serving upon all parties a statement that succinctly sets out, with supporting argument, the errors alleged. Any other party may support or oppose the appeal by filing a counter-statement within fifteen (15) days of the service of the appeal brief.

Charles Bechhoefer, Presiding Officer
ADMINISTRATIVE JUDGE

Rockville, Maryland
November 4, 1997

¹¹ Although Envirocare lacks standing to participate in this proceeding, it may not lack a remedy to correct what it may perceive as unequal treatment by the Staff. At least in terms of regulatory requirements currently being applied to operation of the two facilities, Envirocare is always free to seek to have its license amended to incorporate provisions similar to those it may perceive give QMC a competitive advantage. If denied by the Staff, Envirocare could request a hearing on the validity of the denial.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD PANEL

Before Administrative Judges:

Peter B. Bloch, Presiding Officer
Charles N. Kelber, Special Assistant

In the Matter of

Docket No. 40-8681-MLA-2
(ASLBP No. 98-733-01-MLA)
(Re: License Amendment)
(Alternate Feed Material)

INTERNATIONAL URANIUM (USA)
CORPORATION
(White Mesa Uranium Mill)

November 7, 1997

The Presiding Officer in this Subpart L proceeding held that: "Petitioners have failed to demonstrate grounds for their standing in this case. In particular they have not provided any plausible explanation of how the milling of Cabot Corporation Nuclear Waste by a licensed mill operator would cause Petitioners (or people they are authorized to represent) 'injury in fact.' Consequently, the request for a hearing shall be denied."

MEMORANDUM AND ORDER
(Denial of Petition for a Hearing)

Petitions for Leave to Intervene were sent on September 16, 1997, to Shirley Jackson, Chairman, Nuclear Regulatory Commission, by Norman Begay, White Mesa Utes; Lula J. K... Community Spokesperson for the Westwater Navajo Community; and William M. Mason, for Great Avikan House. The amendment sought by International Uranium (USA) Corporation in this case would permit it

to mill Cabot Corporation Nuclear Waste, at a facility that it is already licensed to mill uranium. Petitioners oppose this amendment.

In a Memorandum and Order of October 21, provision was made that "[a]mended petitions may be filed by 5 p.m. October 31, 1997." That date has come and gone with no amended petition being filed. As a result, Petitioners have failed to demonstrate grounds for their standing in this case. In particular they have not provided any plausible explanation of how the milling of Cabot Corporation Nuclear Waste by a licensed mill operator would cause Petitioners (or people they are authorized to represent) "injury in fact." Consequently, the request for a hearing shall be denied.

Order

For all the foregoing reasons and upon consideration of the entire record in this matter, it is, this 7th day of November 1997, ORDERED that:

The Petition for Leave to Intervene filed by Norman Begay, White Mesa Utes; Lula J. Katso, Community Spokesperson for the Westwater Navajo Community; and Winston M. Mason, for Great Avikan House *is denied*.

Peter B. Bloch, Presiding Officer
ADMINISTRATIVE JUDGE

Rockville, Maryland

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Thomas S. Moore, Chairman
Richard F. Cole
Frederick J. Shon

In the Matter of

Docket No. 70-3070-ML
(ASLBP No. 91-641-02-ML-R)
(Special Nuclear Material License)

LOUISIANA ENERGY SERVICES, L.P.
(Claiborne Enrichment Center)

November 13, 1997

In this Memorandum, the Licensing Board provides the additional explanation required by the Commission's remand order in CLI-97-11, 46 NRC 49 (1997) concerning one aspect of an issue decided in the Board's original findings on contentions B and J.3 set forth in LBP-97-3, 45 NRC 99 (1997).

MEMORANDUM
(Explanation Required by Remand)

In CLI-97-11, 46 NRC 49 (1997), the Commission remanded "one issue" from LBP-97-3, 45 NRC 99 (1997), for "further explanation." LBP-97-3 is a Partial Initial Decision containing the Board's findings of fact and conclusions of law on contentions B and J.3. Those contentions were filed by the Intervenor, Citizens Against Nuclear Trash ("CANT"), in this combined construction permit-operating license proceeding on the application of Louisiana Energy Services, L.P. ("Applicant"), for a 30-year materials license to build and operate the Claiborne Enrichment Center, a gas centrifuge uranium enrichment facility to

be located in Claiborne Parish, Louisiana. Intervenor's contentions B and J.3 are primarily economic cost contentions regarding the reasonableness of the cost estimates contained in the Applicant's Decommissioning Funding Plan and Environmental Report and the NRC Staff's Final Environment Impact Statement ("FEIS") for the disposal of the depleted uranium tails (DUF_6) from the enrichment process. 45 NRC at 100-01. This Memorandum provides the requested additional explanation.

I. BACKGROUND

As explained in LBP-97-3, the Commission's hearing notice initiating this licensing proceeding required the Applicant to develop a "plausible strategy" for disposing of the tails from the enrichment process — a requirement the Board interpreted as necessitating a reasonable or credible plan for disposing of DUF_6 tails. 45 NRC at 101, 105. In addition to that hearing notice requirement, the Commission's regulations further prescribe that an applicant's decommissioning funding plan contain reasonable cost estimates for the various components of the plan. *Id.* In LBP-97-3, the Board found that the Applicant's tails disposal plan of first converting depleted UF_6 to U_3O_8 and then transporting the U_3O_8 to a final site for deep land burial (such as in a deep mine) was a plausible strategy for purposes of estimating the Applicant's tails disposal costs. *Id.* at 108. With one exception not relevant here concerning the Applicant's failure to include in its cost estimate the substantial costs of neutralizing the byproduct hydrofluoric acid when converting DUF_6 to U_3O_8 , the Board found that the Applicant's estimates for transportation and disposal of U_3O_8 for disposal by deep burial were reasonable. *Id.* at 112, 113.

Along with its direct challenge to the Applicant's tails disposal cost estimate, CANT also challenged the Staff's analysis in the FEIS of deep burial of U_3O_8 . The Intervenor generally claimed that the Staff's analysis was so flawed that it could not support the conclusion that deep burial of U_3O_8 in an existing abandoned mine will adequately protect the health and environment, thereby mandating disposal in a geologic repository at much higher costs. *Id.* at 119-20. In this regard, because no deep burial site has been licensed for the disposal of depleted uranium tails, the Staff modeled two hypothetical sites in the FEIS making, *inter alia*, a number of assumptions about geologic and groundwater characteristics. From its analysis, the Staff concluded that the dose impacts for a deep disposal site are less than those set forth in the applicable regulations, 10 C.F.R. Part 61. *Id.* at 107-08.

In challenging the FEIS analysis, the Intervenor claimed, among other things, that the Staff used inappropriate and misleading values for groundwater regarding redox potential ("eH"), pH, and retardation factor. *Id.* at 119-21.

In each instance, the Board found that the Intervenor's challenge was without merit and that the representative values for groundwater generally selected by the Staff from a range of values with respect to eH, pH, and retardation factor were reasonable. *Id.* at 120-21. Further, the Board concluded, contrary to CANT's claim, that an uncertainty analysis to obtain upper and lower bounds for estimated doses was unnecessary for the Staff's evaluation of the impacts from two representative hypothetical disposal sites. *Id.* at 121-22.

In its remand order, the Commission sought a more detailed explanation of the basis underlying one aspect of the Board's finding that the Applicant's cost estimate for the deep burial disposal of U_3O_8 was reasonable. Specifically, the Commission questioned whether the Board had found that it was plausible that a deep mine will be available in the United States with the exact values selected by the Staff for each groundwater parameter or whether the Board instead had found that it was plausible there will be a mine in the United States with characteristics falling within the expected range. CLI-97-11, 46 NRC at 50. The Commission opined that it was most likely that the Board only relied upon the plausibility of the existence of a mine with characteristics lying within the potential range and, if so, it directed the Board "to discuss why it found that the Staff's dose impact calculations can be taken as representative of disposal in mines with groundwater characteristics that differ from the Staff's single set of values." *Id.* at 50-51. Further, the Commission noted that the Board had not identified the effect that varying the values within the expected range would have on dose impacts. *Id.* at 51.

In response to the Commission's remand order, the Board held a hearing conference and directed the parties to file new proposed findings addressing various Board questions as well as the matters raised in the Commission's remand order.¹ No party advocated that the Board reopen the record to take

¹ Along with the parties' proposed findings of fact filed in response to the Board's direction, the Applicant filed a motion to strike and the Intervenor filed a motion for leave to file surreply findings as well as a counter-motion to strike. See Applicant's Motion to Strike (Oct. 15, 1997); CANT's Motion for Leave to File Surreply Proposed Supplemental Findings (Oct. 16, 1997); CANT's Response to Louisiana Energy Services' Motion to Strike and Counter-Motion to Strike (Oct. 22, 1997). Each of these motions is denied.

Further, in its proposed findings on the matters remanded by the Commission, the Staff relied upon a previously filed affidavit, with attachments, that had been filed by the Staff after the close of the evidentiary record. See NRC Staff's Proposed Findings Addressing Issue in Commission Remand Order CLI-97-11 (Oct. 7, 1997). The Staff filed this material as part of its response to the Board's post-hearing directive that the parties file legal memoranda addressing, *inter alia*, the legal status of waste generated at the Claiborne Enrichment Center. In this regard, the Board inquired of the parties whether, under current law, the Applicant's waste must be disposed of in Louisiana or a state belonging to a compact with Louisiana and whether the characteristics of such locations were compatible with the Staff's two hypothetical sites modeled in the FEIS Order (March 24, 1995). As part of its response, the Staff filed an affidavit, with attachments, by its expert witnesses at the hearing to the effect that the states in the Central Interstate Compact contained layered-shale and granitic formations that are compatible with the hypothetical sites modeled in the FEIS. NRC Staff Memorandum in Response to Licensing Board Order Dated March 24, 1995 Regarding Legal Status of Depleted UF_6 Generated at the Claiborne Enrichment Center and Legal Standard for Assessing Financial Qualification (Apr. 21, 1995). In its reply to the Staff's memorandum, CANT objected to the Licensing Board making any

(Continued)

new evidence to respond to the Commission's order. Nor did any party object to the Board's decision not to accept any new evidence.

II. DISCUSSION

The Board's earlier findings in LBP-97-3 on contentions B and J.3 based on the original evidentiary record remain the Board's principal findings of fact on these contentions. This further explanation is intended to answer the Commission's inquiry and set forth in greater detail the basis for the Board's findings that the Applicant's cost estimate for the deep burial of U_3O_8 was reasonable and that the Intervenor's challenge to the Staff's dose estimate analysis in the FEIS was without merit.

A. Plausibility of Locating a Suitable Disposal Site

As previously mentioned, the Board found in LBP-97-3 that (1) the Applicant's tails disposal strategy, including the deep burial of U_3O_8 (such as in an abandoned mine), was a reasonable plan for purposes of estimating its tails disposal costs, and (2) its estimate for the deep burial of U_3O_8 was reasonable. Further, the Licensing Board found that (1) the Intervenor's challenge to the Staff's dose estimate analysis of two hypothetical burial sites in the FEIS was without merit, and (2) in each instance, the Staff's use of a representative value for eH, pH, and retardation factor of deep groundwater was reasonable. In making these findings the Licensing Board necessarily concluded that it was reasonable to assume that a mine can be located in the United States for U_3O_8 disposal that will have groundwater parameters sufficiently close to the representative values used in the Staff's analysis so that any deviation will not result in dose estimates exceeding the regulatory limits of 10 C.F.R. Part 61. Thus, the short answer to the initial question asked by the Commission in its remand order, as the Commission correctly discerned, is that the Licensing Board found that it is "plausible that there is a mine in the U.S. with characteristics falling within the expected range." CLI-97-11, 46 NRC at 50.

findings based on the Staff's new factual assertions regarding the geologic characteristics of any sites in the Central Interstate Compact. CANT's Response Memorandum Regarding Effects of Low Level Radioactive Waste Policy Act on Depleted Uranium Tails Disposal (May 8, 1995). Due to the intervening enactment of the USEC Privatization Act, 42 U.S.C. § 2297b-11, the Board did not reach any questions concerning the effect of the Low Level Radioactive Waste Policy Act, 42 U.S.C. § 2021b *et seq.*, on the Applicant's tails disposal strategy. See 45 NRC at 110 n.7. The Board, therefore, did not include in LBP-97-3 any ruling on the Intervenor's objection to the Staff's evidentiary material that was filed after the close of the hearing record. Because this Staff evidentiary material was filed after the close of the evidentiary record (Tr. 1243) and the Staff did not seek to reopen the record, the Staff's late-filed factual material is not properly part of the evidentiary record of the proceeding and it cannot now properly be used by the Board as the basis for any factual findings.

Further, in finding that each of the representative values for eH, pH, and retardation factor used by the Staff in its dose estimate analysis was reasonable, the Board clearly recognized that each of the Staff's chosen values, generally selected from a range of values, was not a worst case parameter but rather an acceptable compromise for assessing hypothetical sites — a situation necessitated by the fact that no licensed site for the deep disposal of enrichment tails exists. In this regard, the Board relied upon the Staff's assertions in the FEIS that "[t]he objective of [the Staff's] analysis is to develop estimates of impacts for conditions which may be expected to occur at a carefully selected site" (Staff Exh. 2, at Appendix A, at A-7), and that "[t]he characteristics of these sites are representative of natural variability and expected conditions for deep disposal." *Id.* at A-10. Moreover, in choosing the values for eH, pH, and retardation factor used in its analysis, the Staff's FEIS states that "[t]he literature values indicate that the selected groundwater analysis is representative of conditions expected for deep disposal locations." (*Id.* at A- 12.)

B. Reasonableness of Representative Values

1. Redox Potential

In finding that the redox potential value used by the Staff in its dose estimate analysis was reasonable, the Board's decision addressed the major arguments of Dr. Arjun Makhijani, the Intervenor's expert witness, and those arguments and findings need not be repeated here. It suffices to note that, as indicated in LBP-97-3, the basis for the Staff's selection of an eH value of minus 100 millivolts ("mV") is not explained in the FEIS. In the FEIS, the Staff only provides a range of values for the eH of uranium mine water and the FEIS contains no data at all with respect to the eH of deep groundwater. (Staff Exh. 2, at Appendix A, at A-12, Table A.5.) In his direct testimony, Dr. Makhijani, in effect, claimed that the Staff arbitrarily selected an eH value that fell outside the range of eH values of typical uranium mine water listed in the FEIS. According to Dr. Makhijani, this action minimized the amount of uranium in solution in the Staff's dose analysis because all of the eH values for uranium mine water set out in the FEIS would result in higher solubilities for uranium in groundwater. (Makhijani at 10-11 fol. Tr. 1081.) Further, he declared that notwithstanding one of the Staff's own expert's admissions that uranium is 3500 times more soluble at an eH of 50 mV (a value within the range of uranium mine water set out in the FEIS) than at an eH of minus 100 mV, the latter value was the one used by the Staff in its dose analysis. (*Id.* at 11-12.)

As the Staff's expert, Dr. Joseph D. Price, testified, however, the comparative eH values for uranium mine water set out in the FEIS likely do not represent the eH of waters in a closed uranium mine, in contrast to an uranium mine exposed

to the air, because reported studies show that once such a mine is closed and contact with the atmosphere is precluded, the mine returns to a reducing state. (Tr. 1147.) Further, as noted in LBP-97-3, Dr. Price explained that the Staff's analysis used an eH value of minus 100 mV because the comparative eH values for uranium mine water reproduced in the FEIS are not representative of eH values for deep groundwater. According to Dr. Price, reported experimental observations of deep groundwater show a range from minus 26 mV to minus 210 mV with some data going even lower. (Tr. 1148-49, 1118-19, 1146.) In light of these data, the Staff employed a redox potential value of minus 100 mV, which is an approximate mid-point negative eH value, because the majority of the range of available data for deep groundwater show reducing conditions. (Price Tr. 1119.) And, as found in LBP-97-3, Dr. Price indicated that depleted uranium tails only will be placed in a disposal site that has reducing conditions. (Tr. 1148.)

Moreover, in additional testimony that the Board found persuasive, Dr. Price explained that the maximum dose by many orders of magnitude over the next highest dose is received from the agricultural use of water from a nearby well and this critical dose, which is many orders of magnitude below the regulatory standard, is due to radium and its daughters, not uranium. (Tr. 1152; Staff Exh. 2, at Appendix A, at A-14, Table A.7.) Further, the critical radium dose is not sensitive to the solubility of uranium in groundwater. (Price Tr. 1152.) Stated otherwise, the solubility of uranium is largely irrelevant to the critical dose. Dr. Price also indicated that the Staff dose estimate calculation assumes that all the radium is "grown in" immediately at the disposal facility and, because radium has only a single valance state, it thus is not sensitive to eH. (*Id.*) Further, he indicated that the dose estimate coming from uranium, which is the eH sensitive element, is negligible in comparison to the dose that comes from radium. (*Id.*; Staff Exh. 2, at Appendix A, at A-14, Table A.7.) In other words, even if the solubility of uranium — the primary characteristic determining release rates — increased by a factor of 3500 in oxidizing conditions, that environment would not have a significant impact on the corresponding dose because the dose attributable to uranium is already infinitesimally small and would remain many orders of magnitude below the regulatory standard.

In this regard, the Board notes that in his testimony Dr. Makhijani nowhere claimed to have rigorously investigated the critical dose as eH is varied and he readily acknowledged that the "very back-of-the-envelope" figuring he had done could not be represented as "scientific work." (Tr. 1181.) Rather, his assertion that it is possible that the Staff may have incorrectly estimated the transport of uranium by "millions or tens of millions" of times is based almost entirely on his adjustment of the calculation of uranium solubility. (Tr. 1182; Makhijani at 12-14 fol. Tr. 1081.) Yet, as Dr. Price emphasized in testimony that the Board

credited in finding the Staff's use of an eH value of minus 100 mV reasonable, dissolved uranium is not what delivers the critical dose. (Tr. 1152.)

2. pH Value

In LBP-97-3, the Board indicated that the reference literature for deep groundwater pH showed a range of 7.2 to 8.5. It also found that the Staff's use of a mid-point value of 7.8 in the FEIS dose estimate analysis was appropriate and reasonable. 45 NRC at 120. In challenging the Staff's use of a pH value of 7.8, however, Dr. Makhijani claimed that the pH in the basalt rock formations at the Hanford reservation, a geologic characteristic similar to one of two hypothetical sites modeled in the FEIS, had been found to be greater than 9. He asserted that such pH variations could have a significant effect on the solubility and transport of uranium and, therefore, the calculated dose to the public. (Makhijani at 9-10 fol. Tr. 1081.) Specifically, Dr. Makhijani argued that the Staff's choice of a pH value appeared to be designed to yield low dose estimates because a 7.8 pH value is within the narrow range of values between 7 and 8 for which schoepite — one chemical form of uranium into which U_3O_8 might be transformed in some geologic environments — has its lowest solubility, while a change in pH from 8 to 9 would increase the solubility of schoepite by a factor of about 10. (*Id.* at 14-15.)

But as other parts of Dr. Makhijani's own direct testimony show, U_3O_8 converts to schoepite in oxidizing geologic conditions, not reducing conditions. (*Id.* at 8, 15). Moreover, as Staff expert Dr. Price testified, and the Board found in LBP-97-3, U_3O_8 will only be disposed of in a deep burial site with reducing conditions, not oxidizing conditions. (Tr. 1148.) Thus, Dr. Makhijani's challenge to the Staff's use of a representative pH value, much like his challenge to the Staff's representative eH value, is not based on rigorous investigation of the critical dose as pH is varied. Rather, he relied upon a single inappropriate and unpersuasive example. Indeed, in his criticism of the Staff's selection of a pH value, Dr. Makhijani appeared to have ignored completely the dominant effect of the radium dose. Accordingly, in finding the Staff's use of a representative pH value of 7.8 in its dose estimate analysis appropriate and reasonable, the Board found nothing in Dr. Makhijani's testimony that showed that the value selected by the Staff was far from what might plausibly be found in an appropriately selected site or that a modest change in pH would present significant problems.

3. Retardation Value

In LBP-97-3, the Board also found that the Staff's use in its dose calculation analysis of a retardation factor of 1200 for uranium was reasonable. This

value was based on actual experimental observations for a comparable medium reported in a 1978 Swedish study and was corroborated by additional experimental observations reported in a German study. 45 NRC at 121. Dr. Makhijani criticized the Staff's use of data from the Swedish study based on a 1983 report by the National Academy of Sciences ("NAS"). This NAS report contained retardation factor data for basalt and granite rock formations in the United States, the general geologic characteristics of the two sites modeled in the Staff analysis, that were lower than the value selected by the Staff. According to Dr. Makhijani, the NAS report listed retardation factors for granite of between 10 and 500 and for basalt of between 20 and 1000, with 50 being the recommended estimate if one number was to be used for both geologic settings. (Makhijani at 10 fol. Tr. 1081.)

As stated in LBP-97-3, the Board found the retardation factor value used by the Staff reasonable because it was selected from actual experimental observations for a comparable medium and corroborated by a second set of experimental observations. In reaching that conclusion, the Board also took into consideration Dr. Price's testimony that the Staff's primary reference source for retardation factor values presented two sets of values for both uranium and radium: one set was labeled "cautiously conservative" while the much higher second set was labeled "best estimate." For uranium, Dr. Price testified that the best estimate value was approximately 24,000, while the cautiously conservative value, and the one used by the Staff, was 1200. For radium, he stated that the best estimate value was in the range of 50,000, while the cautiously conservative value, and the one used by the Staff, was in the 1200 to 1800 range. (Tr. 1235.) Further, Dr. Price testified that the best estimate values were also corroborated by observations reported in a second study. (*Id.*) Additionally, Dr. Price stated that, while he and his colleagues were aware of the lower values in the report of the National Academy of Sciences, the text of that study "qualified" the values and provided no direct citations for them. For this reason, Dr. Price indicated that they used references for retardation factors that cited experimental data directly because it provided the most reliable data. (Tr. 1116-17.)

As a consequence, in finding the Staff's use of a retardation factor of 1200 for uranium reasonable, the Board essentially was confronted with differing professional opinions. The Staff's experts, after surveying all the data and selecting a conservative value, performed the calculations that produced a conservative result. The Intervenor's expert, on the other hand, cited another value without performing any calculations and neither convincingly stated why that value was preferable nor provided any direct experimental sources for the data. The Board was persuaded that the Staff's approach was the correct one.

C. Compliance with Regulatory Standards

Having thus rejected the Intervenor's challenge to the Staff's choice of values for eH, pH, and retardation factor and found those values reasonable, the Board necessarily concluded that deep burial of the enrichment tails would comply with the regulatory standards of 10 C.F.R. Part 61. This determination, in turn, was integral to the Board's finding in LBP-97-3 that deep burial was a plausible disposal strategy by which to judge the Applicant's tails disposal costs. In making these determinations, the Board also took into account the numerous conservatisms involved in the Staff's dose estimate analysis. As Dr. Price testified, the Staff's analysis did not take any credit for retardation and decay during vertical transport and it assumed that all radionuclides "grew in" at the disposal site instantaneously. Additionally, the dose calculation did not take into account resaturation time at the disposal site. (Tr. 1124-25.) Moreover, the various computer codes used in the Staff's dose estimate analysis (*see* Staff Exh. 2, at Appendix A, at A-8) are themselves inherently conservative. (Price Tr. 1125.) In light of these factors, the Board, like the Staff's expert who performed the analysis, reasonably concluded that the dose estimate analysis in the FEIS overestimates doses and that the projected doses from deep burial of enrichment tails are many orders of magnitude below the regulatory standard of 10 C.F.R. Part 61. (*See* Staff Exh. 2, at Appendix A, at A-12, Table A-7.) In this regard, the Board also was cognizant that the methodology, logic, approach, and major source documents used in the Staff's dose estimate analysis were reviewed by the Applicant's expert witnesses who concluded that "[t]his margin of safety provides confidence that a site can be located whose characteristics are similar enough to those of the generic sites analyzed in [FEIS] Appendix A to allow disposal in accordance with the Performance Objectives of Part 61." (Dubiel-Donelson at 14-15 fol. Tr. 1026.) They further concluded that, "[b]ecause resultant doses are projected to be several orders of magnitude below the Performance Objectives in 10 C.F.R. Part 61, it is reasonable to assume that sites can be located which will ensure that the Part 61 Performance Objectives are met." (*Id.* at 15.)

Finally, in determining on the basis of the Staff's dose estimate analysis that deep burial of enrichment tails would meet the standards of 10 C.F.R. Part 61, the Board rejected two additional Intervenor arguments. First, Dr. Makhijani argued that the Staff's dose estimates attributable to uranium were "unbelievably low" and "incredible" in comparison to routine groundwater samples. (Tr. 1182.) According to Dr. Makhijani, a well drilled into typical groundwater in the United States would yield water with a concentration of uranium many times the dose estimated by the Staff from the deep burial of pure depleted uranium. (*Id.*) As the FEIS makes clear, however, the Staff's dose estimates are only the projected doses from the deep disposal of U_3O_8 . (Staff Exh. 2, at 4-65.) Those

dose estimates, therefore, do not reflect background radiation. Furthermore, and contrary to the Intervenor's assertions, the Board had no reason to find it surprising, much less incredible, that the Staff dose estimates were far below regulatory limits. As the Staff dose estimate analysis demonstrated, U_3O_8 from depleted uranium tails is essentially insoluble and largely impervious to water transport when buried deep in appropriate granite or basalt rock formations.

Second, the Board rejected Dr. Makhijani's argument that the Staff should have performed an uncertainty analysis as part of its dose estimate analysis so that upper and lower bounds for doses could be obtained. 45 NRC at 121-22. In LBP-97-3, the Board found, based on Dr. Price's testimony, that an uncertainty analysis was unnecessary for the evaluation of the impacts of two hypothetical disposal sites. *Id.* at 122. As Dr. Price testified, an uncertainty analysis is useful and necessary in the analysis of an actual site when the range of parameters of site characteristics can be measured or carefully estimated. For the evaluation of a hypothetical site, however, he indicated that an uncertainty analysis was impractical and unnecessary due to the lack of specific site data on the various site parameters. (Tr. 1120-21.) The clear import of Dr. Price's testimony, with which the Board agreed, was that, for a hypothetical site analysis, the challenge was to select a reasonable value from a range of critical parameters for known sites that likely would be found in a reasonably thorough search for an actual site. In such circumstances, a worst case analysis would merely provide information about dose rates for sites that would not be considered in the "search" for an actual licensable site. As the Board found, therefore, such an analysis was unnecessary.

III. CONCLUSION

For the foregoing reasons, the Board concluded in LBP-97-3 that (1) it was plausible that a mine for the disposal of enrichment tails with characteristics within the range of parameters used by the Staff in its dose estimate analysis can be found in the United States; (2) the eH, pH, and retardation factor values used by the Staff in its dose estimate analysis were reasonable and representative values; and (3) given the extremely low doses calculated in the FEIS and the conservatism associated with those dose calculations, variations in the representative

values of those parameters within the expected range likely would not cause the overall dose estimates to exceed the regulatory standards of 10 C.F.R. Part 61.

THE ATOMIC SAFETY AND
LICENSING BOARD

Thomas S. Moore, Chairman
ADMINISTRATIVE JUDGE

Richard F. Cole
ADMINISTRATIVE JUDGE

Frederick J. Shon
ADMINISTRATIVE JUDGE

Rockville, Maryland
November 13, 1997

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Shirley Ann Jackson, Chairman
Greta J. Dicus
Nils J. Diaz
Edward McGaffigan, Jr.

In the Matter of

Ol Docket No. 3-97-022

ST. MARY'S MEDICAL CENTER

December 11, 1997

NRC: ENFORCEMENT OF SUBPOENAS

An NRC subpoena is enforceable if (1) it is for a proper purpose authorized by Congress; (2) the information is clearly relevant to that purpose and adequately described; and (3) statutory procedures are followed in the subpoena's issuance. *United States v. Powell*, 379 U.S. 48, 57-58 (1964); *United States v. Construction Products Research Inc.*, 73 F.3d 464, 469-71 (2d Cir.), cert. denied, 117 S. Ct. 294 (1996).

NRC: AUTHORITY TO INVESTIGATE

The NRC may begin an investigation "merely on suspicion that the law is being violated, or even just because it wants assurances that it is not." *United States v. Morton Salt Co.*, 338 U.S. 632, 642-43 (1950).

NRC: ENFORCEMENT OF SUBPOENAS

The NRC's subpoena power is essentially analogous to the broad subpoena powers accorded to a grand jury. *Powell*, 379 U.S. at 57; *Morton Salt Co.*, 338 U.S. at 642-43; *Oklahoma Press Co. v. Walling*, 327 U.S. 186, 209 (1946).

NRC: AUTHORITY TO INVESTIGATE (SUBPOENAS)

The instant subpoenas clearly identify the general area of investigation by the NRC — the termination of a named individual — but also limit the demand for document production to two clearly defined areas; accordingly, the subpoenas are not “vague and indefinite.”

NRC: ENFORCEMENT OF SUBPOENAS

Petitioners have not alleged that the subpoenas are unduly burdensome, which would require showing that “compliance would threaten normal operation of its business.”

NRC: ENFORCEMENT OF SUBPOENAS

The subpoenas clearly identify the area of investigation and the scope of document production; the area of inquiry is within the jurisdiction of the NRC; and the subpoenas are not unduly burdensome; accordingly, the subpoenas will be enforced.

MEMORANDUM AND ORDER

I. INTRODUCTION

This matter is before the Commission on a joint motion by six individual employees (“Petitioners”) of the St. Mary’s Medical Center in Evansville, Indiana, who each seek to quash a subpoena issued by the Office of Investigations (“OI”). The hospital joins the motion. For the reasons stated below, we deny the Petitioners’ joint motion and enforce the subpoenas.

II. FACTUAL BACKGROUND

St. Mary’s Medical Center is a hospital located in Evansville, Indiana, and holds an NRC license, issued under 10 C.F.R. Part 30, which authorizes the use of byproduct materials in the hospital’s nuclear medicine program. On or about April 10, 1997, the hospital terminated an employee who worked in administering that program. Subsequently, OI developed information indicating that the hospital may have terminated the employee in retaliation for raising safety concerns, a potential violation of 42 U.S.C. § 5851 and 10 C.F.R. § 30.7. When an OI investigator informally spoke to one of the former employee’s

supervisors in an attempt to schedule an interview, that individual claimed that the hospital had terminated the former employee "for cause." But both this individual and other hospital employees rejected OI requests for interviews and refused to speak further with OI investigators. Accordingly, on September 5, 1997, OI issued the six subpoenas in question here and served them on the hospital's attorney.

The six subpoenas are directed to: the hospital's Director of Human Services, who is responsible for personnel records at the hospital; two of the terminated employee's supervisors, the Director of Radiology and the Nuclear Medicine Supervisor; and three co-workers of the terminated employee, including a Nuclear Medical Technician, a part-time consultant and Radiation Safety Officer, and a part-time Nuclear Medical Assistant. Each of the six subpoenas recites that the respective individual has been subpoenaed "to testify in the matter of [the terminated employee] and St. Mary's Medical Center." The subpoena also directs each individual "to provide any and all documents related to the performance or termination of [the terminated employee]."

On October 10, 1997, the Petitioners filed their joint motion, seeking to quash the subpoenas. First, after correctly quoting the subpoenas, the Petitioners allege that "[t]he subpoenas provide no additional information as to what specifically the NRC seeks nor do the subpoenas or any other document . . . put the [Petitioners] on notice of the specific allegations or charges being investigated by the NRC." Memorandum in Support of Motion to Quash ("Memo") at 1. Second, the Petitioners allege that they are entitled to "written notice of the specific claims asserted against [the hospital]" but that the NRC has not provided that notice, *id.* at 2, although the Petitioners fail to cite any case for the proposition that written notice is required. Finally, Petitioners argue that the subpoenas violate their Fourth Amendment rights because they "are too indefinite in scope to be enforceable. There is no specific description, limiting what is requested as to time and subject. The scope of each subpoena is limitless." Memo at 2, citing *United States v. Morton Salt Co.*, 338 U.S. 632 (1950), and *Donovan v. Lone Steer Inc.*, 464 U.S. 408 (1984).

III. ANALYSIS

A. Applicable Statutes and Regulations

In section 161c of the Atomic Energy Act ("AEA") of 1954, as amended, Congress explicitly provided that the NRC

is authorized . . . to make such studies and investigations, obtain such information . . . as the Commission may deem necessary and proper to assist it in exercising any authority provided in this Act, or in the administration or enforcement of this Act, or any regulations

or orders issued thereunder. For such purposes, the Commission is authorized . . . by subpoena to require *any person* to appear and testify, or to appear and produce documents, or both at any designated place.

42 U.S.C. § 2201(c) (emphasis added). Section 11s of the AEA, in turn, defines "person" as "(1) any individual, corporation, partnership, firm, association, trust, estate, public or private institution, group . . . and (2) any legal successor, representative, agent, or agency of the foregoing." 42 U.S.C. § 2014(s).

In addition, section 211 of the Energy Reorganization Act ("ERA") of 1974, as amended, provides specific guidelines for the protection of workers in nuclear-related activities. Specifically,

[n]o employer may discharge any employee or otherwise discriminate against any employee . . . because the employee . . . [inter alia] (A) notified his employer of an alleged violation of this Act or the Atomic Energy Act of 1954 (42 U.S.C. 2011 *et seq.*); (B) refused to engage in any practice made unlawful by this Act or the Atomic Energy Act of 1954, . . . (D) commenced, caused to be commenced, or is about to commence or cause to be commenced . . . a proceeding for the administration or enforcement of any requirement imposed under this Act or the Atomic Energy Act of 1954, as amended; . . . or (F) assisted or participated . . . in such a proceeding . . . or in any other action to carry out the purposes of this Act or the Atomic Energy Act of 1954, as amended.

42 U.S.C. § 5851(a)(1). An "employer," under the ERA, includes "a licensee of the Commission or of an agreement State" 42 U.S.C. § 5851(a)(2)(A).

The Commission has adopted regulations implementing section 161 of the AEA and section 211 of the ERA for each area of licensing activities that it regulates.¹ The regulation implementing employee protection for activities under Part 30 is found at 10 C.F.R. § 30.7, which prohibits "[d]iscrimination by a Commission licensee . . ." 10 C.F.R. § 30.7(a). "Discrimination includes [but is not limited to] discharge and other actions that relate to compensation, terms, conditions, or privileges of employment." *Id.*

(1) [P]rotected activities include but are not limited to:

(i) Providing the Commission or his or her employer information about alleged violations of either [the AEA or the ERA] . . . or possible violations of requirements imposed under either of those statutes;

(ii) Refusing to engage in any practice made unlawful under either of the statutes . . . or under these requirements if the employee has identified the alleged illegality to the employer;

¹ Section 30.7, like 10 C.F.R. § 50.7 and the other regulations governing employee protection, were adopted under both section 161 of the AEA and section 211 of the ERA. See *Five Star Products, Inc.*, CLI-93-23, 38 NRC 169, 177 n.2 (1993).

(iii) Requesting the Commission to institute action against his or her employer for the administration or enforcement of these requirements

10 C.F.R. § 30.7(a)(1).

B. Agency Subpoena Case Law

In general, an agency subpoena is enforceable if (1) it is for a proper purpose authorized by Congress; (2) the information sought is clearly relevant to that purpose and adequately described; and (3) statutory procedures are followed in the subpoena's issuance. *United States v. Powell*, 379 U.S. 48, 57-58 (1964); *United States v. Construction Products Research, Inc.*, 73 F.3d 464, 469-71 (2d Cir.), *cert. denied*, 117 S. Ct. 294 (1996) (enforcing NRC subpoena); *United States v. Comley*, 890 F.2d 539, 541 (1st Cir. 1989) (enforcing NRC subpoena); *EEOC v. Quad/Graphics, Inc.*, 63 F.3d 642, 645 (7th Cir. 1995); *Five Star Products*, CLI-93- 23, 38 NRC at 178. The NRC may begin an investigation "merely on suspicion that the law is being violated, or even just because it wants assurances that it is not." *United States v. Morton Salt Co.*, 338 U.S. 632, 642-43 (1950); *Construction Products Research*, *supra*, 73 F.3d at 470; *United States v. Oncology Services Corp.*, 60 F.3d 1015, 1019 (3d Cir. 1995) (enforcing NRC subpoena). In short, an agency's subpoena power is essentially analogous to the broad subpoena powers accorded to a grand jury. *Powell*, 379 U.S. at 57; *Morton Salt Co.*, 338 U.S. at 642-43; *Oklahoma Press Co. v. Walling*, 327 U.S. 186, 209 (1946).

C. Discussion

In the joint motion, Petitioners raise only one challenge to the subpoenas: that of vagueness or indefiniteness. However, this challenge approaches the frivolous. The subpoenas, on their face, clearly identify not only the general area of investigation by the agency — the termination of a named individual — but also limit the demand for document production to two clearly defined areas — documents related to that individual's "performance or termination." We cannot see how much more clearly the subpoena could define the target of the inquiry or the records required to be produced. It is true that there is no time frame expressed in the subpoena. But the employee was only terminated on one occasion — as far as we are aware — and the joint motion does not allege that production of her personnel file and related records (along with any other related

documents) would be unduly burdensome.² Moreover, federal district courts in Indiana have enforced subpoenas of this nature that had no greater precision were far more burdensome. See, e.g., *EEOC v. Gladieux Refinery, Inc.*, 631 F. Supp. 927 (N.D. Ind. 1986).

Furthermore, the cases cited by the Petitioners do not support their claim of "vagueness." As noted above, *Morton Salt* provides administrative agencies with broad subpoena powers. As we have noted, the subpoenas give Petitioners adequate notice of the scope of the agency's investigation: the job performance and termination of the named former employee. Moreover, as noted in both *Morton Salt* and *Construction Products Research*, the NRC can review this employee's termination simply for "assurance" that the hospital did not violate an NRC regulation when it terminated the employee. In fact, the subpoenas reviewed in *Construction Products Research* sought exactly the same kind of material at issue in this case for exactly the same reasons. Likewise, *Donovan v. Lone Steer*, 464 U.S. 408 (1984), does not support Petitioners' claim. In that case, the Supreme Court enforced an agency subpoena for payroll and sales records, holding that entry onto the grounds of the target company in order to serve the subpoena did not constitute an illegal search and seizure under the Fourth Amendment. The Supreme Court distinguished that case from an earlier case (which the Petitioners quote but misattribute to *Lone Steer*) in which the Court required a warrant for an administrative "search" on the nonpublic areas of a business.

In sum, we find no support for the Petitioners' claim that the OI subpoenas are vague and indefinite. The subpoenas clearly notify the Petitioners that the NRC is conducting an inquiry into the termination of a named employee. That inquiry is within the jurisdiction of the NRC. The Petitioners have not alleged any other defect with the subpoenas or that the subpoenas are unduly burdensome. Accordingly, the joint motion to quash will be denied.

IV. CONCLUSION

For the reasons stated above, the joint motion to quash is denied. The six subpoenas are hereby enforced. Because the return date originally set forth in the subpoenas has passed, we establish a new enforcement date 21 days from

²In order to show that the "subpoena is excessively burdensome, [the hospital] must show that compliance would threaten the normal operation of its business." *Quad/Graphics*, 63 F.3d at 648, citing *EEOC v. Bay Shipbuilding Corp.*, 668 F.2d 304, 313 (7th Cir. 1981).

the date of this Order. The Office of Investigations may reschedule that date in negotiations with the subpoenaed employees.

It is SO ORDERED.

For the Commission

JOHN C. HOYLE
Secretary of the Commission

Dated at Rockville, Maryland
this 11th day of December 1997.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Shirley Ann Jackson, Chairman
Greta J. Dicus
Nils J. Diaz
Edward McGaffigan, Jr.

In the Matter of

Docket No. 70-3070-ML

LOUISIANA ENERGY SERVICES, L.P.
(Claiborne Enrichment Center)

December 18, 1997

The Commission reverses the Atomic Safety and Licensing Board's decision on financial qualifications, LBP-96-25, 44 NRC 331 (1996), and finds Louisiana Energy Services financially qualified to construct and operate the Claiborne Enrichment Center. The Commission also imposes certain license conditions that require LES to fulfill financial commitments it has made in this proceeding.

**STATUTORY CONSTRUCTION OR INTERPRETATIONS:
GENERAL RULES**

The starting point in construing an NRC regulation is, of course, its "language and structure." *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), ALAB-900, 28 NRC 275, 288 (1988).

FINANCIAL QUALIFICATIONS: MATERIALS LICENSE

The shorter, more flexible language of Part 70, as compared to Part 50, allows a less rigid, more individualized approach to determine whether an applicant has demonstrated that it is financially qualified to construct and operate an NRC-licensed facility.

FINANCIAL QUALIFICATIONS: MATERIALS LICENSE

The regulatory history of the Part 70 and Part 50 regulations on financial qualifications supports the interpretation that a Part 70 applicant's financial qualifications should be judged on an individualized basis and not necessarily pursuant to the same standards and criteria as appear in Part 50.

FINANCIAL QUALIFICATIONS: MATERIALS LICENSE

"The fundamental purpose of the financial qualifications provision of . . . section [182a of the AEA] is the protection of public health and safety and the common defense and security." 33 Fed. Reg. 9704 (July 4, 1968).

FINANCIAL QUALIFICATIONS: MATERIALS LICENSE

The possibility that underfunding will lead to a health, safety, or a common defense or security risk is extremely unlikely in light of the extensive and detailed technical review applicants such as LES must undergo to ensure safe construction and operation. *See, e.g., Louisiana Energy Services, L.P.* (Claiborne Enrichment Center), LBP-96-7, 43 NRC 142 (1996).

FINANCIAL QUALIFICATIONS: MATERIALS LICENSE

The health and safety risks associated with uranium enrichment by gas centrifuge are less than with operation of nuclear reactors.

FINANCIAL QUALIFICATIONS: MATERIALS LICENSE

NRC inspections and enforcement action go a long way toward ensuring compliance with our requirements. *See All Chemical Isotope Enrichment, Inc.*, LBP-90-26, 32 NRC 30 (1990) (licensing board sustained the Staff's revocation of construction permits of a licensee that had failed to disclose its true financial condition during the original licensing proceeding).

LICENSE CONDITIONS: APPROPRIATENESS

It is appropriate for the Commission to impose commitments made by an applicant in the course of a licensing proceeding as license conditions. *See, e.g., Curators of the University of Missouri*, CLI-95-1, 41 NRC 71, 154-58 & n.139 (1995); *cf. Louisiana Energy Services, L.P.* (Claiborne Enrichment Center), CLI-96-8, 44 NRC 107, 109-10 (1996) (requiring LES to amend Emergency Plan and Safety Analysis Report to reflect litigation commitment).

MEMORANDUM AND ORDER (Resolving Financial Qualifications)

In this decision, the Commission considers appeals by Louisiana Energy Services (LES) and the NRC Staff challenging an Atomic Safety and Licensing Board finding that LES lacked financial qualifications to construct the proposed Claiborne Enrichment Center (CEC) near Homer, Louisiana. See LBP-96-25, 44 NRC 331, 375-404 (1996).¹ The sole intervenor, Citizens Against Nuclear Trash (CANT), opposes the appeals. An *amicus curiae*, the Nuclear Energy Institute, supports the appeals. For the reasons given below, we reverse the Board decision on financial qualifications and find LES financially qualified. We also impose certain license conditions that require LES to fulfill financial commitments it has made in this proceeding.

I. BACKGROUND

LES seeks an NRC license to construct and operate a uranium enrichment facility using a gas centrifuge process. The license would be for a term of 30 years. This is the first license application for a privately owned enrichment facility that the Commission has considered. Other domestic enrichment facilities have been operated exclusively by the Department of Energy and were not initially licensed by the NRC.

A. Statutory Scheme

In the late 1980s, Congress became aware of LES's interest in constructing and operating a privately owned enrichment facility and, in an attempt to "simplify and expedite the licensing process for uranium enrichment facilities[,]," amended the Atomic Energy Act (AEA). See 136 Cong. Rec. S17660, S17661 (Oct. 27, 1990) (comments of Senator J. Bennett Johnston). The procedural changes effectuated by the amendments were significant. If the AEA had been left unaltered, the application would have been subject to the full-scale licensing requirements of 10 C.F.R. Part 50 applicable to nuclear power reactors. However, because "a uranium enrichment facility is far less hazardous than a

¹ In LBP-96-25, the Board also ruled on various issues arising under the National Environmental Policy Act (NEPA), including the "need" for the facility, the "no-action alternative" and "secondary benefits." See 44 NRC at 336-75. LES and the NRC Staff attack these NEPA rulings on appeal, but we defer our decision on the NEPA aspects of LBP-97-25, pending completion of our consideration of two other Board decisions in the LES proceeding: LBP-97-3, 45 NRC 99 (1997) (ruling on waste disposal costs), and LBP-97-8, 45 NRC 367 (1997) (ruling on "environmental justice"). Those two decisions raise additional NEPA questions. We think it prudent to consider all NEPA issues together.

nuclear reactor[.]” a different licensing scheme seemed “justified.” *See* 136 Cong. Rec. H11922, H11924 (Oct. 23, 1990) (comments of Representative Miller). Accordingly, Congress amended the AEA to provide that enrichment facilities will be licensed pursuant to the NRC’s source and special nuclear material regulations, but subject to additional restrictions not applicable to other materials licenses. *See* Solar, Wind, Waste, and Geothermal Power Production Incentives Act of 1990, Pub. L. No. 101-575, § 5(e), 104 Stat. 2834 (amending the AEA by adding a new section 193, 42 U.S.C. § 2243). Specifically, the amendments provide that such facilities are to be licensed pursuant to sections 53 and 63 of the AEA, 42 U.S.C. §§ 2073 and 2093.

The practical effect of the new legislation was to require a single on-the-record adjudicatory hearing for construction and operation, rather than separate hearings that would have been required for licensing pursuant to Part 50. However, as in reactor licensing, and unlike materials licensing, the adjudicatory hearing must be held prior to construction and operation. *See* AEA § 193(b), 42 U.S.C. § 2243(b).

B. This Proceeding

At the time the Commission received the LES application (in 1991), it did not have in place regulations specifically addressing the licensing of enrichment facilities in accordance with the new legislation. Therefore, the Commission published a Notice of Hearing and a Commission Order setting forth special standards by which LES’s application would be judged and instructions for the hearing. 56 Fed. Reg. 23,310 (May 21, 1991). The Commission directed the Licensing Board to apply particular regulations, including Part 70’s general requirements for the approval of licenses, which include provisions on financial qualifications (10 C.F.R. § 70.23(a)(5)). *See id.* at 23,310. The Commission also directed that the LES licensing proceeding be conducted pursuant to 10 C.F.R. Part 2, Subparts G and I. *See id.*

On this appeal, we consider CANT’s Contention Q, which asserted that LES is not financially qualified to build and operate the CEC. All parties agreed that the applicant was subject to the financial qualification provisions of Part 70. However, the Licensing Board determined that the financial qualification provisions of Part 70 “crie[d] out for additional clarification or interpretation.” LBP-96-25, 44 NRC at 384. Thus, the Board looked to Part 50’s provisions on financial qualifications, which are more detailed than Part 70’s, especially with respect to “newly formed entities” such as LES. Tracing the regulatory history of the Part 50 and Part 70 rules in great detail, the Board concluded that the history “fully supports a parallel construction of those regulations in terms of the showing necessary to establish” financial qualifications. *Id.* at 392. Therefore, the Board applied the detailed Part 50 standards to this proceeding.

The Board then determined that LES had failed to meet the Part 50 criteria for newly formed entities because it had failed to provide concrete funding commitments. Specifically, the Board noted that LES's limited and general partners do not have the financial ability to fund the construction costs of the CEC and none of the corporate affiliates of LES's limited or general partners have provided such commitments. Nor, ruled the Board, had LES identified any lending banks that will provide funding. Therefore, the Board concluded that LES had failed to demonstrate that it is financially qualified. *See* LBP-96-25, 44 NRC at 396-404.

II. ANALYSIS

The central focus of the financial qualifications controversy is whether the LES license application is deficient because it does not contain firm commitments for funding construction and operation of the CEC similar or identical to those typically required for commercial power reactors under Part 50. The Board found as a matter of law that a funding plan such as LES's, filed pursuant to Part 70, is deficient if it does not meet the Part 50 financial qualification regulations. We disagree.

As we discuss in detail below, we find it inconsistent with the express language of the applicable financial qualification regulations in Part 70 and their regulatory history to hold that in every case a Part 50-type "commitments" requirement must be met as a prerequisite to licensing. We conclude that the Part 70 financial qualification regulations contemplate a case-by-case inquiry to determine whether an applicant "appears to be financially qualified." *See* 10 C.F.R. § 70.23(a)(5). Here, LES's financial plan, combined with financial commitments LES has made to the NRC in this proceeding, the nature of LES's proposed facility, and our regulatory oversight program, gives us a reasonable degree of confidence that if LES is able to move forward at all on the facility, it will have sufficient resources for safe construction and operation.

A. Must a Part 70 Applicant Meet Part 50 Financial Qualification Standards?

The Board determined that the financial qualification regulations of Part 50 and Part 70 have the same basic meaning and accordingly the Board found that it was required to apply strictly the particular criteria that appear only on the face of Part 50. In our view, the language and history of Part 70, along with the Notice and Commission Order establishing the LES proceeding, compel the opposite result — the NRC is not required as a matter of law to apply the strict financial qualification provisions of Part 50 to all Part 70 license applications. Instead,

Part 70 calls for a case-by-case inquiry into whether the applicant "appears to be financially qualified" to take safety measures necessary to assure that activities under the license will not create undue risk to public health and safety.

1. Express Language

The starting point in construing an NRC regulation is, of course, its "language and structure." *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), ALAB-900, 28 NRC 275, 288 (1988). Here, while the Board found that the Part 70 and Part 50 financial qualification regulations have "substantially the same meaning," it is immediately obvious that the express language of the Part 70 and Part 50 financial qualification regulations is quite different. The Part 70 financial qualification regulations, 10 C.F.R. § 70.23(a)(5) and the note following section 70.22(a)(8), are brief paragraphs. They contain no specific criteria or standards for determining whether an application is adequate. They contemplate that the provisions will not be applicable to every Part 70 application, and that even where they are applicable, the Commission may or may not require the applicant to file financial information.

Specifically, the financial qualification provisions of Part 70 apply only "[w]here the nature of the proposed activities is such as to require consideration by the Commission." 10 C.F.R. § 70.23(a)(5).² If applicable, section 70.23(a)(5) merely states that a license will be issued if the applicant "appears to be financially qualified." The language of the note following section 70.22(a)(8) is similarly unspecific. It states that when the applicant's financial qualifications are to be considered, "the Commission *may* request the applicant to submit information with respect to [its] financial qualifications" (emphasis added).

In contrast to the general language of the Part 70 financial qualification regulations, the Part 50 financial qualification regulations are far more detailed and comprehensive. They contain several paragraphs of requirements. See 10 C.F.R. § 50.33(f)(1)-(4). They also contain no equivalent of Part 70's "appears to be financially qualified" language but instead require every applicant at the construction stage to submit financial information demonstrating that it actually "possesses or has reasonable assurance of obtaining the funds necessary to cover estimated construction costs and related fuel cycle costs." 10 C.F.R. § 50.33(f)(1). Depending on the type of application and stage of the proceeding, additional information may be required. See 10 C.F.R. § 50.33(f)(2)-(4). If the applicant is a newly formed entity, for example, it must include information in its application showing (a) its relationship to its stockholders, (b) its ability to meet

²In this case, the hearing notice establishing this proceeding was silent as to whether LES must satisfy the financial qualification standards of Part 70, but the Staff required the applicant to do so. The Board found the Part 70 financial qualification provisions applicable and no party contests this finding.

contractual obligations (proposed or incurred), and (c) any other information the Commission may find pertinent. 10 C.F.R. § 50.33(f)(3)(i)-(iii). In addition to the detail in Part 50 itself, Appendix C to that part provides further guidance as to the type of financial information that will satisfy the Part 50 financial regulations.

The fact that the Part 70 and Part 50 financial qualification provisions are written so differently is significant. Had the Commission intended the Part 50 standards and criteria to apply to all Part 70 applicants filing financial information, as the Board apparently believed, the regulations would have either restated the Part 50 criteria or incorporated them by reference.³ Part 70 does neither. Its shorter, more flexible language instead allows a less rigid, more individualized approach to determine whether an applicant has demonstrated that it is financially qualified to construct and operate an NRC-licensed facility.

2. Regulatory History

The regulatory history of the Part 70 and Part 50 regulations on financial qualifications supports the interpretation that a Part 70 applicant's financial qualifications should be judged on an individualized basis and not necessarily pursuant to the same standards and criteria as appear in Part 50.

The Commission's authority for reviewing license applicants' financial qualifications rests on section 182a of the Atomic Energy Act of 1954, as amended. 42 U.S.C. § 2232(a). That section gives the Commission discretion to determine by rule or regulation the information that is necessary to determine if a license applicant is financially qualified. See *New England Coalition on Nuclear Pollution v. NRC*, 582 F.2d 87, 93 (1st Cir. 1978). Pursuant to this authority, in 1956 the Commission promulgated the original Part 50 and Part 70 financial qualification regulations. See 21 Fed. Reg. 355 (Jan. 19, 1956) and 21 Fed. Reg. 764 (Feb. 3, 1956).

After 1956, the most significant change in financial qualification regulations came in 1968, when the Commission amended section 50.33 to include explicit criteria and associated guidance (Appendix C) for reactor license applicants to demonstrate financial qualifications pursuant to Part 50. 33 Fed. Reg. 9704 (July 4, 1968). Before this change the wording of the Part 50 and Part 70 financial qualification provisions was essentially the same. See LBP-96-25, 44 NRC at

³ Although section 70.23, which addresses the requirements for approval of a license, incorporates by reference certain Part 50 licensing standards, it contains no reference to Part 50's financial qualification standards. Footnote 3 to Section 70.23(b) states that the Commission will use the quality assurance program criteria in Appendix B of Part 50 to determine the adequacy of the applicant's program. Section 70.23(a)(5), which addresses financial qualifications, has no similar language. Section 70.22, which provides general requirements for contents of applications, contains a similar incorporation of Part 50 quality assurance standards, but the subsection addressing financial qualifications does not mention Part 50. Compare 10 C.F.R. § 70.22(f) n.2 to the note following section 70.22(a)(8).

386-87. Neither part specified the particular information necessary to establish the financial qualifications of an applicant. *See id.*

The Licensing Board placed great weight on the similarity in language of the two provisions prior to 1968 and minimized the effect of the later changes. The Board concluded that because in 1968 the critical language of the two parts' provisions was "nearly identical," they had the same basic meaning and required the same showing to demonstrate financial qualifications. LBP-96-25, 44 NRC at 391-92. As support for this finding, the Board cites a 1966 NRC Director of Regulation's response to a congressional inquiry, in which the Director stated that the Commission applied "the same principles of financial analysis" to all license applications.⁴

But additional statements in that same congressional response undermine rather than support the conclusion that the information or level of commitments required was the same for Part 70 and Part 50 applicants. The Director of Regulation's response stated that:

our regulations do not prescribe the detailed or specific criteria or standards against which the applicant's financial qualifications will be judged, because of the variability in the significance of specific financial factors and indicators which exist in the financial arrangements involved in each case. In all cases we employ conventional principles of financial analysis in evaluating the financial qualifications of applicants. We are exploring, however, the feasibility of setting forth in the regulations general standards that must be met and describing in the regulations the kinds of documents and information to be furnished in various types of cases (e.g., applicants that are newly formed entities).

JCAE letter at 348. This discussion suggests that although the same general principles may have been applied to all applications in 1966, the specific criteria and standards that were applied varied from case to case.

Even if the financial qualification criteria applicable to both Part 70 and Part 50 applicants were the same prior to 1968, the 1968 rule change specifying requirements for reactor applicants but not materials applicants had the effect of breaking any link that existed. Starting then, Part 50 (but not Part 70) imposed particular criteria and standards, including (eventually) the advance commitments for new entities that the Board stressed in its opinion below. Essentially ignoring the 1968 rule change, the Board concluded that "the essence of the Part 70 and Part 50 regulations with respect to construction financing and the standard the Commission *must* apply in granting a license under these Parts has not significantly changed since the initial issuance of the regulations." LBP-96-25, 44 NRC at 391 (emphasis added). But the standard that the Commission *must*

⁴ LBP-96-25, 44 NRC at 388 (quoting letter from Harold W. Price, Director of Regulation, U.S. Atomic Energy Commission, to John T. Conway, Executive Director, Joint Committee on Atomic Energy, Congress of the United States (Nov. 28, 1966), reprinted in *Licensing and Regulation of Nuclear Reactors: Hearings Before the Joint Committee on Atomic Energy*, 90th Cong., 1st Sess. 347, pt. 1, Appendix 12 (1967) (hereinafter JCAE Letter).

apply changed significantly after 1968 for Part 50 applicants. Prior to that time both Part 50 and Part 70 permitted a considerable case-by-case flexibility. After the 1968 changes, a Part 50 applicant (but not a Part 70 applicant) was bound to supply various pieces of information required by the regulation. See 10 C.F.R. § 50.33(f)(1997).

Over the years after 1968 further changes to Part 50 financial qualification regulations indicate that the Commission was continuing to look at what information should be required by blanket rule, versus what information should be requested on a case-by-case basis. In its discussion of the regulatory history, the Board briefly referred to several amendments to Part 50 in the years after 1968. See LBP-96-25, 44 NRC at 391. The net effect of these changes was to add what is now section 50.33(f), requiring particular information from newly formed entities, and to exclude public utility applicants for an operating license from the financial qualification requirements.⁵ Neither the Board nor the parties cited any affirmative statements in the regulatory history of the post-1968 rule changes to support the Board's theory that the Part 50 requirements must be applied equally to Part 70 applicants.

For these reasons, we conclude that the regulatory history supports a case-by-case analysis of financial qualifications under Part 70. However, we by no means suggest that the Commission is precluded from applying Part 50 standards to a Part 70 applicant if particular circumstances warrant this approach. The general language of Part 70 leaves the Commission free to review the reasonableness of an applicant's financial plan in light of all relevant circumstances. In some cases this review might lead the Commission to apply any or all of the criteria imposed by Part 50.

3. Notice of Hearing and Commission Order

Nothing in the Notice and Commission Order setting forth the particular standards and criteria to apply to the LES license application compels us to apply the Part 50 standards to Part 70 license applicants. We did not specifically address the issue of financial qualifications in the Notice. However, we directed the Board to apply 10 C.F.R. § 70.23, the general provision on requirements for the approval of special nuclear material licenses, which includes the financial qualifications requirements in section 70.23(a)(5). For certain other licensing

⁵ LBP-96-25, 44 NRC at 391. The Board discussed briefly several changes to section 50.33: In 1982 what is now section 50.33(f)(3) was added requiring newly formed entities to submit additional information, 47 Fed. Reg. 13,750, 13,754 (March 31, 1982), and electric utility applicants for construction permits or operating licenses were excluded from having to meet section 50.33, 47 Fed. Reg. at 13,750-51; and in 1984, the exclusion for construction permit applicants was repealed, 49 Fed. Reg. 35,747, 35,752 (Sept. 12, 1984), corrected 53 Fed. Reg. 24,018 (June 27, 1988).

requirements, we specifically directed that Part 50 standards be applied.⁶ Our Hearing Order's silence as to Part 50 financial qualification standards supports the position we take today — that we are not bound as a matter of law to apply Part 50 financial qualification provisions to LES's Part 70 application.

B. Does the Applicant "Appear To Be Financially Qualified"?

We turn next to the issue of whether in the circumstances of this case LES "appears to be financially qualified" to engage in the "proposed activities" for which it is seeking a license. 10 C.F.R. § 70.23(a)(5). As we have stated in other contexts, "[t]he fundamental purpose of the financial qualifications provision of . . . section [182a of the AEA] is the protection of public health and safety and the common defense and security." 33 Fed. Reg. 9704 (July 4, 1968).

LES's financial plan addresses its financial qualifications both to construct and to operate the CEC, and both were fully litigated before the Board. But once the Board found that LES was not financially qualified to construct the CEC, it never decided whether LES met the financial qualification standards for operation. See LBP-96-25, 44 NRC at 404. As LES seeks a combined license in our proceeding, we consider both aspects of financial qualifications together. The Commission has examined the record compiled below and finds that LES appears to be financially qualified to construct and operate the CEC.⁷

1. LES's Financial Plan for Construction and Operation

LES has described its plan "as a venture project, where the decision to go forward is constantly reassessed."⁸ LES has four general partners responsible for the overall management, operation, and control of the business and seven limited partners who will contribute equity but have no management control of the business.⁹ Although LES itself is a newly formed entity, the parents and corporate affiliates of its partners have extensive experience at building gas

⁶See, e.g., 56 Fed. Reg. 23,310, 23,312 (May 21, 1991) (specifically requiring application of the creditor regulations in section 50.81).

⁷The Commission has long held that it has inherent supervisory power to decide any matter itself, rather than remanding an issue to a board for resolution in the first instance. See *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), CLI-90-3, 31 NRC 219, 228-29 (1990) (citing *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), CLI-77-8, 5 NRC 503, 516 (1977)), *aff'd sub nom. Massachusetts v. NRC*, 624 F.2d 311 (D.C. Cir.), *cert. denied*, 502 U.S. 899 (1991); *United States Energy Research and Development Administration* (Clinch River Breeder Reactor Plant), CLI-76-13, 4 NRC 67, 75-76 (1976).

⁸Applicant's Response to the Commission's Order of July 8, 1997, at 5 n.7 (Aug. 1, 1997).

⁹LES's four general partners are (1) Urenco Investments, Inc.; (2) Claiborne Fuels, L.P.; (3) Claiborne Energy Services, Inc.; and (4) Graystone Corporation. The seven LES limited partners are (1) Louisiana Power and Light Company; (2) Urenco (Investments US) Ltd.; (3) GmV Gesellschaft für nukleare Verfahrenstechnik mbH; (4) UCN Deelnemingen B.V.; (5) Claiborne Energy Services, Inc. (also a general partner); (6) Le Paz, Inc.; and (7) Micogen Limited III, Inc. LBP-96-25, 44 NRC at 378-80.

centrifuge enrichment plants overseas, and construction and operation of nuclear and other large industrial facilities in the U.S.¹⁰ LES drafted its financial plan relying on this experience. See Applicant's Brief in Support of Its Petition for Review of LBP-96-25 at 24 (Mar. 13, 1997) (hereinafter LES Brief on Appeal).

At this time, none of the LES partners have entered contractual commitments to provide funding for the CEC project. Similarly, no financial lending institution has agreed to fund any portion of the project. But the LES financial plan is not based on prelicensing funding commitments from either the LES partners or lending institutions. LES candidly points out that its plan, in part, is to use the license itself to encourage investment in the project.

Even though LES cannot now point to financial backing, LES has promised repeatedly that it will not proceed with the project unless it obtains advanced funding commitments. In its appellate brief, for example, LES emphasized that under the financial plan "[t]here is no scenario in which construction of the CEC could commence before funding is fully committed." LES Brief on Appeal at 27 n.29.

The financial plan contemplates that before construction begins the limited partners of LES will contribute the desired equity (the limited partners will obtain funding from their corporate parents and affiliates). The LES plan relies on equity contributions of 30 to 40% of the project costs. The other 60 to 70% of funding for the project will likely come from major lending institutions.¹¹

To facilitate the arrangement of this debt financing and the eventual commitment of its corporate parents, LES has stated that it "will not proceed with the project unless it has in place enrichment contracts with prices sufficient to cover both construction and operating costs, including a return on investment." LES Brief on Appeal at 27. According to the testimony below, the advance contracts will be long term, for a duration of 5 years, and will be at prices sufficient to cover both the construction and operating costs incurred during the term of the contract, but they will not cover the remaining construction costs or costs of continuing operation after these initial contracts expire.¹²

¹⁰ Final Environmental Impact Statement for the Construction and Operation of Claiborne Enrichment Center, Homer, Louisiana, NUREG-1484, U.S. NRC, Staff Exhibit 2, Vol. 1, at 4-34 through 4-85 (August 1994).

¹¹ *Id.* at 25, citing CANT Exhibit 1-DO-33, entitled "Attachment D: LES Project Financial Plan (Non-Proprietary)" (hereinafter "LES Financial Plan") at D-1 through D-16. See also Safety Evaluation Report for the Claiborne Enrichment Center, Homer, Louisiana, NUREG-1491, U.S. NRC, Staff Exhibit 1 at 13-1, ¶ 13.2.2 (January 1994) (hereinafter SER, Staff Exhibit 1); Prepared Testimony of James T. Doudiet and W. Howard Arnold at 9, 20-21, 29-32, following Hearing Transcript at 563.

¹² See Hearing Transcript, Testimony James T. Doudiet at 660-61 and 663. The number of advance contracts the CEC will obtain depends on its production capacity. The CEC has a maximum production capacity of 1.5 million separative work units (SWUs) of enriched uranium per year. After the first phase of construction, LES's production capacity would be 500,000 SWUs. Capacity would be 1 million after the second phase, and 1.5 million at completion. LES Financial Plan at D-11 through D-12; LES Brief on Appeal at 25. LES does not plan to proceed with the first phase of construction or operation unless it has in place enrichment contracts for all, or at

(Continued)

Because there are no advance equity commitments, it is possible that one or all of the limited partners affiliated with domestic utilities will withdraw from the project before contributing any funds for construction or operation.¹³ LES, however, has promised that it will not go forward unless it has a minimum of 30 to 40% equity contribution from its limited partners. If LES attempts to add a new partner, it will have to obtain a license amendment¹⁴ and ensure that the new limited partner contributes any deficiency in equity. On the other hand, if no new partner is brought in and some or all of the current partners cover the void in funds by each contributing a larger share, no amendment is necessary, but these partners will be held to the financing terms of the present plan and any condition the Commission places on the license.

In sum, if a smaller number of existing partners contribute the necessary equity, no new issue would be raised about the terms of funding the project under the current plan, and if it turns out that the existing partners cannot themselves contribute the equity, the project cannot go forward unless new partners are brought in to cover the deficiency in equity.

As a practical matter LES must obtain sufficient commitments from its parents or affiliates, existing or new, to attract debt financing for the project. The current parents and their affiliates are entities of substantial net worth and there seems to be no dispute that the parents are capable of contributing the necessary equity for the project to go forward.¹⁵ However, as the Board found, at this time the parents and other corporate affiliates of LES's general and limited partners are not responsible for the indebtedness or obligations of the LES partnership. LBP-96-25, 44 NRC at 402 n.30. Because it is LES's worth that the commercial lenders will look to when determining whether to provide financing, the commercial lenders will rely on the financial capability of affiliated companies only to the extent such entities have committed to guarantee the loan or otherwise legally committed themselves to a project. LBP-96-25, 44 NRC at 402 n.31. Therefore, if the corporate parents do not commit themselves to this project, either by making themselves legally liable, or by making LES a partnership of sufficient

least two-thirds (1 million SWUs), of the plant's capacity. Applicant's Proposed Findings of Fact and Conclusions of Law in the form of Concluding Partial Initial Decision at 204 (May 26, 1995) (citing Testimony of Doudiet at Tr. 761). See also LBP-96-25, 44 NRC at 397.

¹³ LBP-96-25, 44 NRC at 400 n.28; Applicant Response to the Commission Order of July 8, 1997 (Aug. 1, 1997) (discussing Graystone Corporation's request to withdraw from the partnership). Attached to this filing is a Motion for Leave to Extend the Page Limitation Specified in Commission Order Dated July 8, 1997. This motion is granted. The partners have not determined whether to permit Graystone to withdraw from the partnership. *Id.*

¹⁴ See LBP-96-25, 44 NRC at 399 n.27 (citing Testimony of Staff's Witness Wood at 8, following Transcript at 721).

¹⁵ SER, Staff Exhibit 7 at 13-3 through 13-4; CANT's Opposition Brief on Appeal of LBP-96-25 at 45 n.46 (Apr. 30, 1997) ("it should be noted that, given their financial strength and relationships with lenders, had the LES parent companies themselves elected to be the entities seeking the license, rather than setting up new, virtually assetless entities to do so, financial qualifications may well not even be an issue in these proceedings") (hereinafter CANT Brief on Appeal).

worth, LES will not be able to obtain the necessary debt financing to proceed under the terms of its plan and as a result would not construct the CEC.

The Licensing Board did not question LES's hard construction cost estimate for the facility, \$816 million.¹⁶ The Board stated that "[n]either the method by which the Applicant estimated the CEC construction costs nor the reasonableness of the Applicant's cost estimates is disputed." LBP-96-25, 44 NRC at 396 (citation omitted).

Finally, LES's financial plan projects that operating costs and debt amortization will be covered by operating revenue with sufficient profits to cover contingencies during operation after full production is reached. Prior to full production, contingencies will be covered by insurance, indemnification agreements, reserves, or additional capital draws on the equity investors. The permanent debt estimate to complete the plant includes coverage for a debt service reserve fund and working capital from lenders.¹⁷

2. Financial Qualification Review Determination

Under the circumstances of this case we determine that LES "appears to be financially qualified" to construct and operate the CEC in a safe manner. Our determination rests on several factors. First, LES's financial plan and its commitments not to proceed absent adequate funds provide considerable assurance that if the project goes forward, sufficient funds will be available. Second, the possibility that underfunding will lead to a health, safety, or a common defense or security risk is extremely unlikely in light of the extensive and detailed technical review applicants such as LES must undergo to ensure safe construction and operation. See, e.g., *Louisiana Energy Services, L.P.* (Claiborne Enrichment Center), LBP-96-7, 43 NRC 142 (1996). Third, the health and safety risks associated with uranium enrichment by gas centrifuge are less than with operation of nuclear reactors.¹⁸ Finally, in the end, NRC

¹⁶ Hard construction costs of the CEC are in 1992 dollars and include the cumulative construction costs of the centrifuges, and owners' costs back to the beginning venture phase. The amount does not include the interest accrued during construction, escalation costs, financing costs, and decommissioning costs. These cost estimates are proprietary and as a result were not made public, but are part of the record. LES Project Financial Plan at D-11 through D-13 (compare Project Financial Plan (Proprietary), CANT Exhibit I-DO-33, Attachment E at E-11 through E-13).

¹⁷ See LES Project Financial Plan at D-15.

¹⁸ When Congress was considering the legislation to amend the AEA to provide that uranium enrichment facilities would be licensed consistent with special nuclear material requirements, and not as nuclear reactors, the Commission informed Congress that nuclear reactors "are entirely different from uranium enrichment facilities in concept, complexity, and degree of risk." *Licensing Uranium Enrichment Plants: Oversight Hearing Before the Subcomm. on Energy and the Environment of the House Comm. on Interior & Insular Affairs*, 101st Cong., 2d Sess. 13 (1991). Emphasizing this point, the Director of the NRC Office of Nuclear Materials Safety and Safeguards informed Congress that "hazards posed by this process [uranium enrichment] are much less than those potentially represented by nuclear power plants which have large inventories of radionuclides and the stored energy for dispersing them." *Id.* at 129.

inspections and enforcement action go a long way toward ensuring compliance with our requirements. See *All Chemical Isotope Enrichment, Inc.*, LBP-90-26, 32 NRC 30 (1990) (Licensing Board sustained the Staff's revocation of construction permits of a licensee that had failed to disclose its true financial condition during the original licensing proceeding).

LES's financial strategy provides reasonable assurance that financial difficulties, should they arise, will not lead to safety problems. Under LES's financing plan construction will not even begin until the necessary funding is fully committed. It is reasonable to assume that the advance funding commitments will cover costs of construction, because the hard construction cost estimate provided by LES is reasonable. See p. 308, *infra*. This indicates that LES understands its funding commitment and has seriously considered the factors that will contribute to the expense of the project it is undertaking. It is also an indication that LES will be in a position to recognize promptly any unforeseen difficulty that may escalate the project's costs, allowing it time to take steps to maintain its financial qualification. In view of LES's reasonable construction cost estimate and its advance funding commitment, we see little or no risk that lack of financing might lead to construction of an unsafe plant.

As for operation, the NRC Staff emphasized LES's commitment that "operations will not begin until firm supply contracts with utility customers are in place." SER, Staff Exhibit 1 at 13-2, ¶ 13.2.3. These contracts will be at "prices sufficient to cover both construction and operating costs, including a return on investment." LES Brief on Appeal at 27. If LES cannot attract investors at reasonable interest rates, so that it can keep prices low enough to obtain contracts for at least the first several years of operation, or if for other reasons its price is too high to attract customers in the first place, it cannot begin construction or operation. If LES never begins operation, there is no risk whatever to public health and safety.

We recognize that LES's commitment to obtain the advance contracts does not *guarantee* sufficient financial resources for the full 30 years of operation, because the advance contracts would cover only the period for which the initial long-term contracts are in place. But obtaining advance contracts will result in LES establishing itself as a market participant, a status that will help in the future to secure financing and new contracts, and it will provide LES a return on its investment for the term of the contracts. Any return on investment could be used to further solidify LES's financial position. Moreover, LES has developed a reasonably sophisticated financial plan that projects sufficient operating funds for the CEC over the course of time.¹⁹ And, of course, during the entire course of

¹⁹ LES Financial Plan at D-1 through D-16, CANT Exhibit I-DO-43, LES Financial Planning Model, proprietary. Prepared Testimony of James T. Doudiet and W. Howard Arnold at 13-19 following Hearing Transcript at 563.

operation, the Commission's inspection and enforcement tools provide further assurance that operation will not jeopardize public health and safety.²⁰

In short, we find that LES "appears to be financially qualified." CANT's arguments to the contrary essentially amount to a contention that the CEC is not a good investment. CANT maintains that LES's plan to finance construction and operation is inadequate because investors will not be found at reasonable interest rates to finance full capacity, "[a]nd substantially higher interest rates make it unlikely that the project will be feasible."²¹ According to CANT, at less than full capacity LES will need to charge too high a price for enriched uranium to cover its fixed costs and remain viable and will not be able to market its enriched uranium even to its utility partners, because the price will be so high that it will be rejected by the Public Utility Commissions that regulate these partners. See CANT FOF at 51-54; CANT Brief on Appeal at 51. Thus, CANT concludes that LES must attempt to build "a larger facility (i.e., at LES's projected maximum output of 1.5 million SWU's)." CANT FOF at 53.

CANT's prediction of economic doom for the LES venture may or may not be borne out. But if CANT is correct and the project proves a failure in the marketplace, the lack of economic success will have no adverse effect on the public health and safety or the common defense and security. Under the commitments LES has made to the Commission, if the market does not allow LES to raise sufficient capital for construction or to obtain the promised advance purchase contracts, LES will not build or operate the CEC.

3. Conditions on Any LES License

LES has made several financial commitments in its pleadings before the Commission and Licensing Board when explaining the nature of its financing plan. In particular, LES has promised unequivocally not to proceed with the project in the absence of sufficient advance funding commitments (equity and debt) and advance purchase contracts. See LES Brief on Appeal at 25-27; LES Financial Plan at D-11. We think it appropriate to impose these two commitments as license conditions, an approach we have taken in other litigated cases. See, e.g., *Curators of the University of Missouri*, CLI-95-1, 41 NRC 71, 154-58 & n.139 (1995); cf. *Louisiana Energy Services, L.P.* (Claiborne

²⁰ If LES's license application is approved, LES will be required to submit annually to the NRC its financial statements, any changes to construction or operating budgets, and any change in ownership. LES Exhibit 1E, LES Claiborne Enrichment Center Proposed License Conditions § 1, ¶ 1.6 at p. 1-9.

²¹ CANT's Proposed Findings of Fact and Conclusions of Law Regarding Contention Q, Financial Qualifications of LES at 45 (May 26, 1995) (hereinafter CANT FOF); CANT Brief on Appeal at 50-51. According to CANT, there are a number of factors that will make it extremely unlikely that LES will be able to attract capital on competitive terms, including a low 30 to 40% equity, high decommissioning costs, a highly competitive enrichment market, and foreign currency exchange rates that will affect the ultimate price of centrifuges. CANT Brief on Appeal at 50-51.

Enrichment Center), CLI-96-8, 44 NRC 107, 109-10 (1996) (requiring LES to amend Emergency Plan and Safety Analysis Report to reflect litigation commitment).

Accordingly, LES must meet the following conditions prior to constructing or operating the CEC facility:

1. Construction of the CEC shall not commence before funding is fully committed. Of this full funding (equity and debt), LES must have in place before constructing the associated capacity: (a) a minimum of equity contributions of 30% of project costs from the parents and affiliates of the LES partners (e.g., in escrow, on deposit, etc.); and (b) firm commitments ensuring funds for the remaining project costs.
2. LES shall not proceed with the project unless it has in place long-term enrichment contracts with prices sufficient to cover both construction and operating costs, including a return on investment, for the entire term of the contracts.

III. CONCLUSION

For the foregoing reasons, the Licensing Board's ruling on financial qualifications in LBP-96-25 (44 NRC at 375-404) is *reversed* and LES's financial qualifications are *approved*. LES must meet the financial qualifications conditions set out in this opinion.

IT IS SO ORDERED.

For the Commission

JOHN C. HOYLE
Secretary of the Commission

Dated at Rockville, Maryland,
this 18th day of December 1997.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD PANEL

Before Administrative Judges:

B. Paul Cotter, Jr., Presiding Officer
Thomas D. Murphy, Special Assistant

In the Matter of

Docket No. 40-8968-ML
(ASLBP No. 95-706-01-ML)

HYDRO RESOURCES, INC.
(2929 Coors Road, Suite 101
Albuquerque, NM 87120)

December 18, 1997

MEMORANDUM AND ORDER
(Lifting Hearing Suspension and Schedule for
Filing Amended Hearing Petitions)

On December 5, 1997, the Staff of the Nuclear Regulatory Commission notified the Presiding Officer that it had issued the Safety Evaluation Report (SER) for the proposed Crownpoint Uranium Solution Mining Project, Crownpoint, New Mexico, attached a copy of the SER, and stated that it "had decided to issue a license to HRI in 30 days." Issuance of the SER completed the hearing file for the captioned proceeding originally noticed for hearing on December 21, 1994. 10 C.F.R. § 1231 (1997).

Because this proceeding has been held in abeyance for 2 years while the hearing file was being completed, the Presiding Officer is now allowing the Petitioners to amend their hearing requests on the basis of any new information found in the SER,¹ the Final Environmental Impact Statement (FEIS) released

¹ The SER may be found at <<http://www.nrc.gov/opa/reports/hriser.htm>>

in February 1997, and other documents exchanged between the Applicant and the NRC Staff.

Amended hearing requests shall adhere strictly to the requirements of 10 C.F.R. § 2.1205(e) and should address the determinations the Presiding Officer is required to make by 10 C.F.R. § 2.1205(h) in deciding whether to admit a petitioner as a party to this proceeding.

On December 15, 1997, Petitioners ENDAUM and SRIC faxed to the Presiding Officer a Notice of Resubmission of Second Amended Request and Motion to Amend. In response to the notice and Memorandum and Order of September 19, 1997, these materials shall be treated as filed effective December 18, 1997. These Petitioners may amend that filing in accordance with this Memorandum and Order.

By letter dated October 3, 1997, Counsel for Eastern Navajo Allottees Association declared his intent to file a petition to intervene in this proceeding at such time as the NRC Staff completed its review of the HRI license application. Such a petition, if filed, would be late under the provisions of 10 C.F.R. § 2.1205(d) and (k) and would therefore be required to meet the late-filed criteria of 10 C.F.R. § 2.1205(l)(1)(i) and (ii).

Order

For all the foregoing reasons, it is, this 18th day of December 1997,
ORDERED

1. That Petitioners' amended hearing requests shall be received by the Presiding Officer and those on the official service list by close of business, Friday, January 16, 1998;

2. That Applicant Hydro Resources, Inc., shall have its response to the amended hearing requests in the hands of the Presiding Officer and those on the official service list by close of business, Friday, February 6, 1998; and

3. That the NRC Staff shall have its response to the amended hearing requests in the hands of the Presiding Officer and those on the official service list by close of business, Friday, February 20, 1998.²

B. Paul Cotter, Jr., Presiding Officer
ADMINISTRATIVE JUDGE

Rockville, Maryland
December 18, 1997

²In addition to the foregoing paper filings, all potential parties are requested to submit copies of their pleadings in WordPerfect 6.1 on computer diskette to the Presiding Officer.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR REACTOR REGULATION

Samuel J. Collins, Director

In the Matter of

Docket No. 50-271
(License No. DPR-28)VERMONT YANKEE NUCLEAR POWER
CORPORATION
(Vermont Yankee Nuclear Power
Station)

December 29, 1997

By a petition dated December 6, 1996, submitted by the Citizens Awareness Network, Inc. (Petitioner or CAN), Petitioner requested evaluation of two enclosed documents relating to the Vermont Yankee Nuclear Power Station (Vermont Yankee facility) operated by the Vermont Yankee Nuclear Power Corporation (Licensee). The first document was a CAN memorandum raising a concern with corrective actions taken by the Licensee in opening the minimum-flow valves at the Vermont Yankee facility to provide residual heat removal pump protection. The second document was a CAN memorandum requesting a review of certain licensee event reports (LERs) submitted by the Licensee. Petitioner requested that the memoranda be evaluated by the NRC to see if enforcement action was warranted based on the information contained therein.

The Director of the Office of Nuclear Reactor Regulation (NRR) issued a Partial Director's Decision on October 8, 1997, responding to the majority of issues raised by Petitioner. However, three LERs remained open at that time and Petitioner was informed that, upon completion of the NRC Staff evaluation of these remaining LERs, a Final Director's Decision would be issued. On December 29, 1997, the Director of NRR issued the Final Director's Decision. The Petitioner's request was granted in that the NRC Staff has evaluated the three remaining LERs and has concluded that no further enforcement action is warranted.

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

I. INTRODUCTION

On December 6, 1996, Mr. Jonathan M. Block submitted a petition on behalf of the Citizens Awareness Network, Inc. (CAN or Petitioner), and included two memoranda from CAN. The first memorandum, dated December 5, 1996, reviews information presented by the Vermont Yankee Nuclear Power Corporation (Licensee) at a predecisional enforcement conference held on July 23, 1996, involving the minimum-flow valves in the residual heat removal (RHR) system at the Vermont Yankee Nuclear Power Station (Vermont Yankee facility). The second memorandum, dated December 6, 1996, contains a review of certain licensee event reports (LERs) submitted by the Licensee in the latter part of 1996. The Petitioner requests that the NRC evaluate these documents, pursuant to 10 C.F.R. § 2.206, to determine if enforcement action is warranted on the basis of information contained therein.

On February 12, 1997, the NRC informed the Petitioner in an acknowledgment letter that the petition had been referred to the Office of Nuclear Reactor Regulation (NRR) for the preparation of a Director's Decision and that action would be taken within a reasonable time regarding the specific concerns raised in the petition. On October 8, 1997, the NRC issued a Partial Director's Decision that responded to the first memorandum concerning the RHR system and all but three of the LERs listed in the second memorandum. This Final Director's Decision addresses the NRC Staff's conclusions regarding the three remaining LERs that were still being evaluated at the time the Partial Director's Decision was issued.

On November 7, 1997, CAN submitted a letter to the Director of NRR commenting on the Partial Director's Decision. CAN raised a concern that the Partial Director's Decision did not adequately address concerns raised in its petition of December 6, 1996. In a response from the NRC Staff dated November 28, 1997, CAN was informed that its letter provided no new or additional information that would warrant a review of the Partial Director's Decision. In its November 7, 1997 letter, CAN also raised a concern about asserted "systematic mismanagement" at the Vermont Yankee facility and requested certain NRC actions. The Petitioner was informed that this specific concern would be treated as a supplement to the original petition and is addressed in this Final Director's Decision.

II. DISCUSSION

The NRC Staff's evaluation of the three remaining LERs and the Petitioner's supplemental request for action follows.

A. Licensee Event Reports

A CAN memorandum dated December 6, 1996, included with the petition contains a review of several LERs submitted by the Licensee in the latter part of 1996. On the basis of its analysis of the LERs, CAN reaches certain conclusions regarding Licensee performance and actions that it believes should be taken. The Partial Director's Decision evaluated LERs 96-13, 96-14, 96-19, 96-20, 96-21, 96-22, and 96-25 and provided a response to CAN's overall conclusions regarding Licensee performance and requested actions. LERs 96-15, 96-18, and 96-23 were still open at the time the Partial Director's Decision was issued. The Staff has completed its evaluation of these three LERs and its conclusions are presented below.

1. *LER 96-15: "Original B31.1 ANSI Code Section That Required Overpressurization Relief for Isolated Piping Sections Was Not Considered During [the] Original Design"*

Certain piping sections that would be isolated after a loss-of-coolant accident (LOCA) were found to lack overpressure protection, contrary to code requirements. The water in this piping could expand because of the high temperatures accompanying a LOCA and exceed the design pressure rating of the piping. CAN asserts that the Licensee failed to take advantage of earlier opportunities to identify this design error when making modifications to the six systems discussed in the LER. CAN is correct in that the LER documented the first discovery of this problem, although modifications had been made to the affected systems earlier. This potential overpressurization problem has been identified at other plants, as evidenced by the issuance of NRC Information Notice 96-49 on August 20, 1996, and NRC Generic Letter (GL) 96-06 on September 30, 1996. The Licensee was aware of events in this area and identified this issue at its site before the generic communications previously referred to were issued. The Licensee's corrective actions included a design change that provided the required overpressure protection for the affected lines. The change was completed in the 1996 refueling outage conducted during the period of September 6, 1996, to October 30, 1996.

Because the Licensee identified the design deficiency described in this LER by other than routine quality assurance or surveillance activities and has

implemented appropriate corrective actions to resolve the discrepancy, this "old design issue" was not cited in accordance with NRC Enforcement Policy, section VII.B.3.¹ The LER was closed in Inspection Report 50-271/97-11.

2. ***LER 96-18: "Inadequate Installation and Inspection of Fire Protection Wrap Results in Plant Operation Outside of Its Design Basis; A Single Fire Would Impact Multiple Trains of Safety-Related Equipment"***

CAN asserts that this deficiency had significant adverse safety implications. The reported deficiency consisted of a small gap in the fire barrier installed on a cable tray support. The cable tray contained wiring to support operation of the emergency core cooling system (ECCS). The NRC Staff does not consider CAN's claim that a fire could have rendered both divisions of the ECCS inoperable credible. The Licensee's evaluation found that existing fire protection analyses were very conservative and that with the combustible loading and fire detection and suppression equipment in the area, no credible fire threat could challenge the functionality of the "as found" wrapped cable. The Staff agrees with the Licensee's analysis as documented in the LER and has found that the Licensee acted appropriately to correct the fire barrier deficiency and to prevent similar problems in the future.

The NRC Staff found that the deficiency described in this LER was a violation of NRC requirements of 10 C.F.R. Part 50, Appendix R, § III G. However, in accordance with the provisions of NRC Enforcement Policy, section VII.B.4, no notice of violation was issued in this case because the deficiency (1) was identified by the Licensee as part of the corrective actions for a previous issue related to Appendix R, (2) had the same root cause as the previous issue, (3) did not substantially change the safety significance or the character of the regulatory concern arising out of the initial action, and (4) the deficiency was corrected within a reasonable time following identification. The LER was closed in Inspection Report 50-271/97-80.

3. ***LER 96-23: "Inadequate Surveillance Procedure Results in Failure To Meet Technical Specification Requirements for Radiation Monitor Functional Testing"***

The reactor building and refueling floor radiation monitor test procedure did not verify the high alarm contact actuation as required by the Vermont Yankee Technical Specifications. The NRC Staff agrees with CAN that this event presented no significant risk to public health and safety. Considering

¹General Statement of Policy and Procedures for NRC Enforcement Actions, NUREG-1600 (Enforcement Policy).

that the monitors were verified to be fully functional and were in the condition required by plant Technical Specifications, this specific event appears to have been limited to an inadequate testing methodology. The Licensee's corrective actions included revising the deficient surveillance test procedure to properly test the high alarm output contacts.

Because the deficiency identified in this LER was of minor safety significance and was identified and corrected by the Licensee, it was treated as a noncited violation in accordance with NRC Enforcement Policy, section VII.B.1. The LER was closed in Inspection Report 50-271/97-08.

B. Supplemental Request for Action

On November 7, 1997, CAN submitted a letter that raised a concern about asserted "systematic mismanagement" at the Vermont Yankee facility and requested that three actions be taken. In its response to the Petitioner, the NRC Staff indicated that this concern would be considered as a supplement to the petition.

The requested actions, along with the NRC Staff's evaluation, are discussed below.

1. An NRC team in conjunction with an outside contractor conduct a review of a second system, the ventilation system.

From May 5 through June 13, 1997, the NRC Staff performed a detailed design inspection of the low-pressure coolant injection and RHR service water systems at the Vermont Yankee facility. The inspection team consisted of a team leader from the NRC and five contractor engineers from Stone & Webster Engineering Corporation. The systems were chosen on the basis of their importance in mitigating design-basis accidents at Vermont Yankee. The purpose of the inspection was to evaluate the capability of the selected systems to perform the safety functions required by the design bases and the consistency of the as-built configuration and system operations with the Final Safety Analysis Report (FSAR). Overall, the inspection team concluded that the two systems were capable of performing their intended safety functions. However, the team identified some issues that indicated potential programmatic concerns extending beyond the two systems that were inspected. Specifically, the team identified the following issues that indicated potential programmatic concerns: (1) several examples which indicated the Licensee's correction of licensing documentation was not timely; (2) when rendering equipment inoperable for surveillance testing, the Licensee's practice concerning entry into the limiting condition of operation (LCO) was not consistent with the guidance provided in GL 91-18, "Resolution of Degraded and Nonconforming Conditions"; (3) deviations

from the licensing commitments made in response to GL 89-13, "Service Water System Problems Affecting Safety-Related Equipment"; (4) weaknesses in the development and control of calculations, and the review and approval process for calculations; and (5) weaknesses concerning the Licensee's translation of design criteria and design bases into detailed operating instructions. The results of this inspection were documented in Inspection Report 50-271/97-201.

By letter dated October 27, 1997, the Licensee provided a schedule and detailed the plans to complete the corrective actions required to resolve the broader programmatic issues listed in the inspection report. In its letter, the Licensee listed several initiatives it has undertaken to improve its performance. These initiatives include: (1) a re-engineering of the corrective action program, (2) a large-scale program to develop design-basis documents for the twenty-three most risk-significant systems, (3) initiation of a design-basis validation program, (4) conversion of the plant's Technical Specifications to the Standard Technical Specification format, (5) a large-scale instrument setpoint calculation and verification program, (6) a large-scale effort to re-engineer the configuration management program, and (7) creation of a System Engineering Department.

The NRC Staff has concluded that the Licensee's proposed actions and schedule are acceptable and that the facility may be operated while the Licensee works to resolve these issues. The Staff will continue to follow the Licensee's progress to improve the facility's design-basis documentation and implement the initiatives outlined in its October 27, 1997 letter through the normal inspection process. A detailed design inspection by the NRC Staff of an additional safety system is not warranted at this time.

2. NRC with an outside contractor and VY [Vermont Yankee] conduct a review of all backup safety systems to assure adequacy of these systems in order to protect worker and public health and safety.

As stated in the reply to item 1, above, the NRC Staff has conducted a detailed design inspection of two selected systems at the Vermont Yankee facility. The inspection team found the two systems capable of performing their intended design functions. As discussed in item 1, above, the inspection report also documented several issues of programmatic concern. The NRC Staff has determined that the Licensee's response to these programmatic concerns is acceptable and implementation of the Licensee's actions will be assessed during followup inspections. Overall, the Staff finds that the detailed design inspection and the followup inspection activities provide adequate assurance of public health and safety and that a design review inspection of additional safety systems is not warranted at this time.

3. Given the lack of thoroughness by the licensee and significant flaws in the FSAR and design basis evaluation, CAN questions Region I staff's competence to effectively oversee reactors under its authority. We therefore request that the archive of NRC's oversight failures at VY [Vermont Yankee] be added to the Inspector General's investigation of complicity and systematic failure to enforce NRC regulations by NRC staff in Region I and Project Directorates.

With regard to this request, CAN's letter has been forwarded to the Office of the Inspector General.

III. CONCLUSION

The NRC Staff has reviewed the information submitted by the Petitioner. The Petitioner's request is granted in part in that the NRC Staff has evaluated all of the issues raised in the two memoranda and the supplemental letter provided by the Petitioner to see if enforcement action is warranted on the basis of the information contained therein. In the Partial and the Final Director's Decision, the NRC Staff has discussed each memorandum and the supplemental letter and described any related enforcement action that was taken. The Petitioner's supplemental request that the NRC, in conjunction with an outside contractor, conduct additional review of safety systems at the Vermont Yankee facility is denied. With respect to the supplemental request for an investigation of NRC oversight of the Vermont Yankee facility, the Petitioner's supplemental letter was forwarded to the Office of the Inspector General.

As provided in 10 C.F.R. § 2.206(c), a copy of this Decision will be filed with the Secretary of the Commission for the Commission's review. This Decision will constitute the final action of the Commission 25 days after issuance, unless the Commission, on its own motion, institutes review of the Decision in that time.

FOR THE NUCLEAR
REGULATORY COMMISSION

Samuel J. Collins, Director
Office of Nuclear Reactor
Regulation

Dated at Rockville, Maryland,
this 29th day of December 1997.

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