NUCLEAR REGULATORY COMMISSION ISSUANCES

April 1996

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NUCLEAR REGULATORY COMMISSION ISSUANCES

April 1996

This report includes the issuances received during the specified period from the Commission (CLI), the Atomic Safety and Licensing Boards (LBP), the Administrative Law Judges (ALJ), the Directors' Decisions (DD), and the 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 have any independent legal significance.

U.S. NUCLEAR REGULATORY COMMISSION

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Kenneth C. Rogers
Greta J. Dicus

B. Paul Cotter, Jr., Chief Administrative Judge, Atomic Safety and Licensing Board Panel

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COMMISSION

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Shirley Ann Jackson, Chairman
Kenneth C. Rogers
Greta J. Dicus

In the Matter of

Docket No. 50-029
(For Relief Under
10 C.F.R. § 2.206)

YANKEE ATOMIC ELECTRIC
COMPANY
(Yankee Nuclear Power Station)

April 1, 1996

The Commission reviews, *sua sponte*, the denial by the Director of the Office of Nuclear Reactor Regulation, under 10 C.F.R. § 2.206, of two emergency motions filed by Petitioners challenging activities by the Licensee in decommissioning the Yankee Nuclear Power Station. These petitions follow the Commission's reinstatement of its pre-1993 interpretation of NRC decommissioning regulations, which prohibit a licensee from undertaking "major" decommissioning activities pending NRC approval and prior to the opportunity for a hearing.

The Commission affirms the Director's Decisions, finding no abuse of discretion. The Commission issues this Memorandum Opinion to describe the reasons why it has decided not to disturb the Director's denial of the two petitions. The two decisions now become final agency action in this matter.

NRC: SUPERVISORY AUTHORITY

The Commission retains plenary authority to review Director's decisions. 10 C.F.R. § 2.206(c)(1).

NRC: SUPERVISORY AUTHORITY

NRC regulations specifically provide that the Commission will not entertain appeals from the Director's decision, *see* 10 C.F.R. § 2.206(c)(2) (1995); however, the Commission may undertake *sua sponte* review of each denial of a 2.206 petition to ensure that the Director has not abused his discretion. *See* 10 C.F.R. § 2.206(c)(1) (1995).

NRC: AUTHORITY

If the Commission takes no action to reverse or modify a Director's decision within twenty-five (25) days of issuance of the decision, it becomes final agency action. 10 C.F.R. § 2.206(c)(1).

NRC: AUTHORITY

The Commission can extend the *sua sponte* review time to consider whether it will take review of a Director's decision.

NRC: HEALTH AND SAFETY RESPONSIBILITIES

Where there is no evidence that potential small occupational exposures will violate Commission regulations in 10 C.F.R. Part 20, the Commission cannot find public health and safety hazards justifying an enforcement action to halt a licensee's decommissioning activities.

NRC: DECOMMISSIONING

It is clear from past Commission statements and from prior NRC Staff practice that some "preliminary" or "minor" activities have always been permitted in advance of NRC approval of a decommissioning plan.

NRC: DECOMMISSIONING

Although the Commission did not explicitly limit, in its Statement of Considerations accompanying the 1988 decommissioning rule changes, the scope of decontamination allowed, it is clear that a licensee may not complete decommissioning prior to NRC approval by simply "decontaminating" the entire facility. But, it is equally clear that some decontamination is allowed.

NRC: DECOMMISSIONING

While the Commission has not had occasion to define terms such as "major" dismantling in prior contested decommissioning cases, such as Shoreham and Rancho Seco, the Commission has consistently contemplated that a licensee could conduct a range of activities that were not "major" in advance of decommissioning plan approval.

NRC: DECOMMISSIONING

Actual pre-1993 practice at shutdown plants was the undertaking of some minor disassembly and decontamination prior to decommissioning plan approval, and the NRC elected not to interfere with those activities.

REGULATIONS: INTERPRETATION

Agency practice, of course, is one indicator of how an agency interprets its regulations. See *Power Reactor Development Co. v. International Union*, 367 U.S. 396, 408 (1961).

NRC: DECOMMISSIONING

The NRC's Statement of Considerations for the 1988 decommissioning rule and its pre-1993 decisions and practice contemplated that a licensee would be able to conduct some minor or preliminary work prior to approval of a decommissioning plan. Clearly, however, at some point such work is no longer "minor" or may vitiate decommissioning alternatives. At that point a licensee must cease work pending NRC approval of the decommissioning plan following any hearing that has been requested on the plan.

NRC: DECOMMISSIONING

Further Commission action to develop and enforce more precise guidelines on what activities can or cannot be done prior to decommissioning plan approval would not be an effective use of limited NRC resources, based on a single case and given the likely issuance in the near future of a new decommissioning rule.

NRC: DECOMMISSIONING

Where the estimated person-rem exposure from a licensee's minor decommissioning activities represents a reasonably small portion of the total estimated dose originally available for possible SAFSTOR treatment, the undertaking of

those decommissioning activities does not compromise a meaningful SAFSTOR option or the hearing process in which petitioners are participating.

NRC: DECOMMISSIONING

The Commission will halt decommissioning activities, "minor" or not, that individually or cumulatively threaten the continued viability of the SAFSTOR decommissioning alternative when it is the subject of an adjudicatory hearing.

MEMORANDUM AND ORDER

I. INTRODUCTION

This matter is before the Commission on *sua sponte* review of two Director's Decisions issued by the Director of the Office of Nuclear Reactor Regulation under 10 C.F.R. § 2.206 (1995). These two decisions are DD-96-1, 43 NRC 29 (1996), and DD-96-2, 43 NRC 109 (1996), as a supplement to DD-96-1. These decisions were in response to two pleadings¹ filed by the Citizens Awareness Network and the New England Coalition on Nuclear Pollution (collectively "Petitioners"), who have challenged the plan by which the Yankee Atomic Electric Company ("YAEC") proposes to decommission the Yankee Nuclear Power Station ("Yankee NPS"), located near Rowe, Massachusetts. YAEC has an NRC license to possess, but not operate, the Yankee NPS facility.

We referred both pleadings to the Staff for consideration under section 2.206. See Unpublished Orders in this docket dated January 23, 1996, and February 15, 1996. In the latter order we also declined to reverse the Staff's denial of emergency relief, dated February 2, 1996, which had been requested in the Petitioners' first pleading and the denial of which had been challenged in the Petitioners' second pleading.² In both orders we stated that we retained plenary authority to review the Director's Decisions, *see* 10 C.F.R. § 2.206(c)(1), and that we would take appropriate action if we found that our regulations were being violated.

¹ "Emergency Motion for Compliance with First Circuit Opinion," dated January 17, 1996; "Motion for Exercise of Plenary Commission Authority to Reverse NRC Staff 2.206 Decision, and Renewed Emergency Request for Compliance with Circuit Court Opinion," dated February 9, 1996. We will cite these pleadings as "Petitioners' Emergency Motion" and "Petitioners' Renewed Emergency Motion," respectively.

² In the second order, dated February 15th, we directed YAEC to provide at least 2 weeks' advance notice before engaging in any of the activities identified by Petitioners. YAEC promptly advised the Staff and Petitioners that it sought to start several of the activities. On March 1, 1996, the Staff issued a letter finding that these activities were permissible under the pre-1993 interpretation of the regulations and finding no reason to take emergency action to prevent these activities.

After due consideration, we have decided not to reverse or modify the Director's Decisions. But because of the novel nature of this case, we have decided to issue this Memorandum Opinion describing the reasons why we have decided not to disturb the Staff's denial of Petitioners' requests for relief.

II. BACKGROUND

The background of this controversy is set out at length in both the Director's Decisions and in prior Commission decisions and need not be repeated here. Suffice it to say that as a result of a decision by the U.S. Court of Appeals for the First Circuit, the Commission reinstated its pre-1993 interpretation of its decommissioning regulations. *See generally Yankee Atomic Electric Co.* (Yankee Nuclear Power Station), CLI-95-14, 42 NRC 130 (1995). Under the reinstated interpretation, YAEC is prohibited from undertaking "major" decommissioning activities pending NRC approval — after an opportunity for a hearing — of YAEC's proposed decommissioning plan for the Yankee NPS. *See generally* 42 NRC at 136.

The Petitioners alleged that YAEC is conducting activities that not only are "major" but also would foreclose the SAFSTOR option, thereby negating their right to a hearing on the proposed decommissioning plan. The Petitioners then identified five YAEC actions in their first pleading and seven YAEC actions in their second pleading that they allege are outside the scope of the pre-1993 interpretation of the regulations. *See generally* Petitioners' Emergency Motion at 13; Petitioners' Renewed Emergency Motion at 13.

Upon review, the Director determined that the activities identified by Petitioners' pleadings were within the scope of activities that were permissible under the pre-1993 interpretation of the NRC's decommissioning regulations. *See* DD-96-1, 43 NRC at 38-47; DD-96-2, 43 NRC 115-17. In addition, the Director found that five additional activities either proposed or already completed by YAEC were also permissible under the pre-1993 interpretation of the decommissioning regulations. *See* DD-96-2, 43 NRC 117-18. Accordingly, the Director declined to take enforcement action ordering YAEC to cease the ongoing contested activities or to impose sanctions against YAEC for those actions already completed. DD-96-1, 43 NRC at 49; DD-96-2, 43 NRC at 121.

III. COMMISSION REVIEW OF DIRECTOR'S DECISIONS

While our regulations specifically provide that the Commission will not entertain appeals from the Director's decision, *see* 10 C.F.R. § 2.206(c)(2) (1995), the Commission may undertake *sua sponte* review of each denial of

a 2.206 petition to ensure that the Director has not abused his discretion. *See* 10 C.F.R. § 2.206(c)(1) (1995). If the Commission takes no action to reverse or modify the Director's Decision within twenty-five (25) days of issuing the decision, it becomes final agency action. *Id.* Here, to allow us to review these two Director's Decisions together, we have extended the *sua sponte* review period for DD-96-1 for a brief period.³

IV. ANALYSIS

A. The Contested Activities Do Not Constitute a Threat to the Public Health and Safety

The Petitioners do not allege in either pleading that the contested activities constitute an imminent threat to the public health and safety. Moreover, it is clear from a review of the two Director's Decisions that the only potential radiation doses could come from small occupational exposure in the plant and from shipment of low-level waste to a disposal facility. There is no evidence that these exposures will violate Commission regulations in 10 C.F.R. Part 20, which specifies maximum limits for public and occupational exposure, or cause any imminent or substantial health and safety hazard. Accordingly, we find no public health and safety hazard justifying an enforcement action halting YAEC's activities.

B. The Director's Decisions Are Reasonable

One problem that faced the Director in considering the contested activities was the absence of clear prior Commission guidance on what specific activities are permissible prior to approval of a decommissioning plan. But it is clear from past Commission statements and from prior NRC Staff practice that some "preliminary" or "minor" activities have always been permitted in advance of NRC approval of a decommissioning plan.

First, the Statement of Considerations accompanying our 1988 decommissioning rule changes explicitly allowed licensees to "proceed with some activities such as decontamination [and] minor component disassembly . . . if those activities are permitted by the . . . license and/or § 50.59." 53 Fed. Reg. 24,018, 24,026 (June 27, 1988). However, we did not define the word "minor" and we did not place any explicit limit on the scope of "decontamination." Clearly, a licensee may not complete decommissioning prior to approval of a decommis-

³ *See* Unpublished Order in this Docket, dated March 18, 1996; Unpublished Order in this Docket dated March 25, 1996. These extensions were necessary because the review period for DD-96-1 would otherwise have expired on March 18, the same day that DD-96-2 was issued.

sioning plan by simply "decontaminating" the entire facility. But it is equally clear that some decontamination is allowed.

Second, while our pre-1993 guidance directed licensees to refrain from actions that would "materially and demonstrably" affect decommissioning options or "substantially increase" decommissioning costs, *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), CLI-90-8, 32 NRC 201, 207 n.3 (1990), we never have had occasion to define these terms. Likewise, while we held that "major dismantling and other activities that constitute decommissioning must await NRC approval of a decommissioning plan[.]" *see Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), CLI-91-2, 33 NRC 61, 73 n.5 (1991); *Sacramento Municipal Utility District* (Rancho Seco Nuclear Generating Station), CLI-92-2, 35 NRC 47, 61 n.7 (1992), we never have had occasion to define further what these phrases mean.⁴ But one thing is apparent: The Commission consistently contemplated that a licensee could conduct a range of activities that were not "major" in advance of decommissioning plan approval.

Third, as the Director has stressed, actual pre-1993 practice at shutdown plants such as Shoreham and Fort St. Vrain was to undertake some minor disassembly and decontamination prior to decommissioning plan approval. *See, e.g.,* DD-96-1, 43 NRC at 35-37; DD-96-2, 43 NRC at 113-15. The NRC saw no problem with such activities and elected not to interfere with them. The Director found that many of the activities reviewed in DD-96-1 and DD-96-2 are quite similar to the activities that the NRC did not halt in those earlier cases. *See, e.g.,* DD-96-2, 43 NRC at 116. Agency practice, of course, is one indicator of how an agency interprets its regulations. *See Power Reactor Development Co. v. International Union*, 367 U.S. 396, 408 (1961); *see also Martin v. OSHRC*, 499 U.S. 144, 156-57 (1991).

In sum, the Statement of Considerations for the 1988 decommissioning rule and our pre-1993 decisions and practice contemplated that a licensee would be able to conduct some minor or preliminary work prior to approval of a decommissioning plan. Clearly, however, at some point such work is no longer "minor" or may vitiate decommissioning alternatives. At that point a licensee must cease work pending NRC approval of the decommissioning plan following any hearing that has been requested on the plan.

Given this state of affairs, we conclude that the activities reviewed in the two decisions before us today may reasonably be viewed as within the scope of activities that are permissible under the pre-1993 interpretation of our regulations. The overall scope of the contested activities does not constitute

⁴ Of our two prior contested decommissioning cases, one (Shoreham) was settled before the scope of dismantling became a serious issue while in the other (Rancho Seco), the licensee chose SAFSTOR. Thus, defining these terms has never been required.

so large a portion of the overall decommissioning project that it compromises the decommissioning plan approval procedures. *See* Part C, *infra*. And, as the Director explained, these activities (individually and collectively) are quite minor and, indeed, very similar to those undertaken at Shoreham and Fort St. Vrain under the pre-1993 interpretation of the decommissioning regulations.

Further Commission action now to fine-tune the process would require development and enforcement of more precise guidelines on what activities can or cannot be done prior to decommissioning plan approval. But this would not be a sensible allocation of limited agency resources, given (1) the already-completed activities at Yankee NPS (during the time prior to the court of appeals decision and the Commission's response to it in CLI-95-14), and (2) the posture of the adjudication (with a Licensing Board decision dismissing Petitioners' contentions now on appeal to the Commission), and (3) the likely issuance in the near future of a new Commission rule substantially altering the process accompanying decommissioning.⁵ We are loath to expend additional Commission and Staff resources on a single case that raises no imminent public health and safety concerns. Such limited agency resources are far better used elsewhere, such as overseeing currently operating plants.

Thus, the Commission sees no need to second-guess the Staff's reasonable judgments in the peculiar circumstances of this case.

C. Despite the Denial of Relief, Major Decommissioning Activities Await Approval of the Decommissioning Plan

Neither DD-96-1 nor DD-96-2 relaxes the strict guidelines issued by the Staff to YAEC in the aftermath of CLI-95-14. Those guidelines expressly prohibit YAEC from dismantling those major systems or components still remaining at Yankee NPS, such as the main reactor coolant system, the lower neutron shield tank, and the reactor vessel itself. *See* Letter from Morton B. Fairtile, NRC, to James A. Kay, YAEC (Nov. 2, 1995). The Director reaffirmed those strict guidelines in his most recent decisions. *See* DD-96-1, 43 NRC at 35; DD-96-2, 43 NRC at 115, 120.

As the Director indicated in DD-96-2, the estimated dose from the YAEC activities that Petitioners contested in their Emergency Motion and Renewed Emergency Motion is approximately 65.3 person-rem, while the total estimated dose from all remaining decommissioning activities (prior to the start of the

⁵ The Commission is currently assessing public comments on a proposed new decommissioning rule. *See* 60 Fed. Reg. 37,374 (July 20, 1995).

contested activities) was approximately 358 person-rem.⁶ As the Director also pointed out, it is not at all clear how much of the 65.3 person-rem might be avoided even if YAEC and the NRC ultimately were to embrace the Petitioners' preferred SAFSTOR option. In our judgment, 65.3 person-rem represents a reasonably small portion — approximately 18% — of the total dose originally available for possible SAFSTOR treatment and, therefore, the contested activities do not compromise a meaningful SAFSTOR option or the hearing process in which Petitioners are participating.⁷

In short, despite the various minor activities YAEC has undertaken, a substantial portion of the remaining facility remains available for possible application of the SAFSTOR option, should that be the result of the Petitioners' challenge to YAEC's proposed decommissioning plan. Accordingly, we cannot accept Petitioners' claim that their hearing rights will be "eviscerate[d]," *See* Emergency Motion at 19, if YAEC conducts the contested activities.

D. Future YAEC Activities

For the reasons stated above, we agree with the Director that the activities he has found permissible may reasonably be termed "minor." In addition, they do not compromise decommissioning alternatives because they affect only a relatively small portion of the estimated remaining radioactive dose inventory. But it is also true that an accumulation of "minor" activities could so eviscerate the SAFSTOR option that a halt would be necessary.

⁶ *See* DD-96-2, 43 NRC at 120 n.12, for an explanation of the 358 person-rem estimate. *See also* note 5, *infra*. These numbers are based upon YAEC's submissions and are used here for enforcement purposes only. Petitioners contest some of these numbers in the adjudicatory proceeding now on appeal and our use of these numbers does not indicate in any way that we have prejudged that dispute. Similarly, any mention of SAFSTOR and DECON in this Order is not meant to prejudice any of the issues related to the YAEC's choice of decommissioning options.

⁷ The situation is complicated by Petitioners' recently filed "Third Request for Immediate Stay of Unlawful Decommissioning Activities and Renewed Emergency Request for Compliance with Circuit Court Opinion" (March 18, 1996). This pleading challenges a number of YAEC activities that Petitioners previously did not challenge. YAEC estimates that the radiation exposure involved in the newly contested five activities to be approximately 35.5 person-rem: 21.6 person-rem in preparation for decontamination of the main coolant system; 0.5 person-rem in removal of miscellaneous equipment outside the vapor container bioshield wall; 5.4 person-rem in removal of the primary auxiliary building tanks; 0.7 person-rem in removal of the spent fuel pool upender; and 7.3 person-rem in decontamination of the main coolant system. *See* Letter dated February 28, 1996, from Russell A. Mellor, YAEC, to Morton B. Fairtile, NRC. Accordingly, all of the activities now contested by the Petitioners involve a total of 100.8 person-rem, or approximately 28%, of the 358 person-rem in radiation exposure estimated for the remaining decommissioning activities.

With the exception of the decontamination of the main coolant system, the newly challenged activities were evaluated in DD-96-2. *See* DD-96-2, 43 NRC at 117-18. The Director did not address this activity in DD-96-2 because Petitioners expressly stated that "decontamination of the Main Coolant system . . . appears to be permitted by the 1988 decommissioning rule." *See* Petitioners' Renewed Emergency Motion at 13. This activity involves the flushing of pipes to remove materials contaminated with radiation from the inner surfaces of these components and is plainly the kind of minor decontamination permissible under the pre-1993 interpretation of our regulations. *See* DD-96-1, 43 NRC at 33, 35 n.1. In these circumstances, and in view of the lateness of Petitioners' change of position, we see no reason to refer the matter to the NRC Staff for yet another 2.206 decision. *See also* note 9, *infra*.

It is our understanding from our Staff that YAEC currently plans no further "minor" activities (with radioactive dose consequences) beyond those found permissible in the Director's Decisions. This understanding supports the conclusion that the SAFSTOR option remains viable pending final approval of YAEC's decommissioning plan. Should this understanding prove false, and YAEC propose additional activities, "minor" or not,⁸ that individually or cumulatively would threaten the continued viability of SAFSTOR, the Commission stands ready to call a halt to such activities.⁹

V. CONCLUSION

We hereby review and affirm DD-96-1 and DD-96-2, both of which now become final agency action. Commissioner Dicus has abstained from this decision and provided a separate statement which is attached.

It is so ORDERED.

For the Commission

JOHN C. HOYLE
Secretary of the Commission

Dated at Rockville, Maryland,
this 1st day of April 1996.

⁸The Commission expects YAEC to provide at least 2 weeks' advance notification to both the Staff and the Petitioners if it intends to undertake any additional activities prior to decommissioning plan approval.

⁹As noted, Petitioners recently filed a third pleading, 38 pages long, which appears to challenge the same YAEC activities addressed in the two Director's Decisions. See Petitioners' "Third Request for Immediate Stay of Unlawful Decommissioning Activities and Renewed Emergency Request for Compliance with Circuit Court Opinion," dated March 18, 1996. Because Petitioners' "Third Request" raises issues already decided (albeit with some revised argumentation), it is denied. See also note 7, *supra*.

SEPARATE STATEMENT OF COMMISSIONER DICUS

Given the extensive and lengthy litigative and technical history of this proceeding, the multiple technical issues involved in the current Order in this proceeding, and my relatively short time with the Commission, it would take me some time to become fully informed and act upon the issues in this Order, unlike several procedural issues in this proceeding on which I have previously participated. Because I would view it as a disservice to both Petitioners and the Licensee in this proceeding to delay a final decision on the Director's Decisions being addressed in the current Order, I have determined to abstain from voting on this particular Order.

Atomic Safety and Licensing Boards Issuances

ATOMIC SAFETY AND LICENSING BOARD PANEL

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LICENSING BOARDS

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. Peter S. Lam

In the Matter of

Docket No. 50-458-OLA
(ASLBP No. 93-680-04-OLA)

GULF STATES UTILITIES
COMPANY, *et al.*
(River Bend Station, Unit 1)

March 29, 1996

The Licensing Board grants a motion of the bankruptcy trustee of the Intervenor, Cajun Electric Cooperative, to terminate its litigation, without prejudice, contesting a license amendment requested by Gulf States Utilities.

**TERMINATION OF PROCEEDINGS: TERMINATION WITHOUT
PREJUDICE**

Under Rule 41 of the Federal Rules of Civil Procedure, a voluntary dismissal of a court action is generally without prejudice to the action being reinstituted at a later date. Although there is no provision in the Commission's Rules of Practice that corresponds to the voluntary dismissal procedure in Rule 41, the Board found that those provisions were applicable in this case, especially since the public interest theoretically would be served if Cajun could later establish that additional financial assurances were needed. Moreover, the Board found that it was unfair to impose a form of punishment, such as a bar of future action,

*This opinion was inadvertently omitted from the March Issuance.

against an Intervenor whose decisions were being directed by a person (the bankruptcy trustee) with legal responsibilities other than those that supported the original petition.

MEMORANDUM AND ORDER

(Grant of Motion to Terminate Proceeding)

BACKGROUND

On January 25, 1996, Ralph R. Mabey, the court-appointed Bankruptcy Trustee ("Trustee") for Intervenor Cajun Electric Power Cooperative, Inc. ("Intervenor"), filed with this Board a "Withdrawal of Contention and Motion for Termination of Hearing" ("Trustee's Motion").¹ The Motion seeks to withdraw the Intervenor's only contention and to terminate its litigation contesting a license amendment requested by Gulf States Utilities Company for its River Bend Station nuclear reactor.² The Motion seeks termination of the proceeding "without prejudice."

The NRC Staff supports the Trustee's motion insofar as it withdraws the admitted contention and asks that the hearing be terminated. However, the Staff takes exception to the Trustee's request that the contention be withdrawn without prejudice. The Staff does not believe that the Trustee can withdraw Cajun's contention without prejudice "given the posture of the proceeding before the Licensing Board."³ The Staff would have the Board dismiss the proceeding *with* prejudice.

In support of his request to withdraw Contention 2 without prejudice, the Trustee states that Cajun

is not withdrawing its Petition to Intervene, as amended and supplemented, or any of the other issues, matters or contentions contained therein

. . . Cajun continues to have concerns about EOI's lack of financial qualifications, although the Trustee does not wish to litigate the safety contention at this time. Withdrawal without prejudice is the standard at this Commission. See *Mississippi Power and Light Co.* (Grand Gulf Nuclear Station, Units 1 and 2), LBP-73-41, 6 AEC 1057 (1973). . . .

The Trustee requests that the ASLB terminate the hearing proceeding. Since Contention 2 is the only contention and Cajun is the only intervenor, withdrawal should bring this hearing proceeding to an end. . . . Since the Staff has advocated against Cajun's safety contention,

¹ On February 9, 1996, the Trustee filed a Supplement to Withdrawal of Contention and Motion for Termination of Hearing that confirmed his authority to act on behalf of Cajun in this proceeding.

² For the complete background in this proceeding, see this Board's decision on intervention reported in LBP-94-3, 39 NRC 31 (1994).

³ NRC Staff Response to Chapter 11 Trustee's Motion for Termination of Hearing, February 14, 1996 ("Staff Response") at 1.

no party remains which could assume Contention 2. Therefore, a hearin[g] [sic] on Cajun's Contention 2 would serve no purpose at this time.

Trustee's Motion at 7.

Countering the Trustee's position, the Staff argues that dismissal of the Intervenor's contention without prejudice is somehow beyond the Board's jurisdiction, which the Staff insists is limited to "considering Cajun's petition for intervention and rendering a decision on any contentions that might be admitted." Staff Response at 2. The Staff says *Grand Gulf*, relied upon by the Intervenor, is not apposite because that proceeding apparently continued after the intervenor in question withdrew its contention. The *Grand Gulf* Licensing Board ruled that, following a voluntary withdrawal, an intervenor may reinstitute its intervention upon "good cause shown," the same standard as that for untimely intervention found under 10 C.F.R. § 2.714(a). In other words, in an operating license proceeding, the intervenor, upon good cause shown, could again intervene in the ongoing proceeding. However, the Staff reiterates that "[t]his proceeding will not be an ongoing proceeding once the Trustee's contention is withdrawn." *Id.* at 3. The Staff argues that since withdrawal of the only admitted contention in a proceeding brings the proceeding to an end (citing *Houston Lighting and Power Co.* (South Texas Project, Units 1 and 2), ALAB-799, 21 NRC 360, 382 (1985)), "the Trustee's unopposed withdrawal of Cajun's contention must result in a Licensing Board decision granting the Trustee's request and terminating the proceeding *with* prejudice." *Id.* (emphasis supplied).

ANALYSIS

There is no guidance in Commission rules addressing the situation before us. It is clear that the Trustee desires, in the best interest of Cajun's bankruptcy, to end Cajun's involvement in this proceeding. And the Trustee clearly acknowledges his understanding that the withdrawal of the only contention submitted by the only intervenor in the proceeding "bring[s] this hearing proceeding to an end." Trustee's Motion at 7. However, it is also implicit in the Trustee's statements that the Trustee does not wish Cajun to be barred from litigating its concerns at some future time. Therefore, the Trustee expresses his desire to have the contention dismissed without prejudice. It appears that the Trustee is following the guidance of Rule 41 of the Federal Rules of Civil Procedure.

Under Rule 41 of the Federal Rules of Civil Procedure, a voluntary dismissal of a court action is generally without prejudice to the action being reinstituted at a later date. Although there is no provision in the Commission's Rules of Practice that corresponds to the voluntary dismissal procedure in a court action,

we see no good reason why those rules should not be applicable here, especially since the public interest theoretically would be served if Cajun can later establish that additional financial assurances are needed. Financial assurance is an issue of renewed current importance given the industry's transition to a more competitive environment.

Moreover, even if it were within our power to bar future action, there is a consideration of fairness at play here. Cajun is withdrawing its contention and seeking the termination of this proceeding under the duress caused by its own fiscal situation. As the Trustee stated in his Motion

I believe that the creditors of Cajun Electric's estate will be benefitted by the savings realized from terminating further participation in [this Board Proceeding] and by the dedication of the estate's limited resources, so far as practicable, to Cajun Electric's effective reorganization.

Trustee's Motion at 6. While the Trustee's current actions may be binding on Cajun in the event Cajun is returned to debtor-in-possession status, it would be unfair to impose a form of punishment, such as a bar of future action, against an Intervenor whose decisions are now being directed by a person with legal responsibilities other than those that supported the original intervention petition.

ORDER

For all the foregoing reasons and upon consideration of the entire record in this matter, it is, this 29th day of March 1996, ORDERED

That the motion of Cajun Electric Cooperative to withdraw its contention and terminate this proceeding, shall be, and it hereby is, granted and the proceeding is terminated without prejudice. ⁴

THE ATOMIC SAFETY AND
LICENSING BOARD⁴

B. Paul Cotter, Jr., Chairman
ADMINISTRATIVE JUDGE

Dr. Richard F. Cole
ADMINISTRATIVE JUDGE

Dr. Peter S. Lam
ADMINISTRATIVE JUDGE

Rockville, Maryland
March 29, 1996

⁴ Judge Cotter was not present for the signing of this Memorandum and Order, but concurs in it.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

James P. Gleason, Chairman
Richard F. Cole
Peter S. Lam

In the Matter of

Docket No. 50-245-OLA
(ASLBP No. 96-711-011-OLA)

NORTHEAST NUCLEAR ENERGY
COMPANY
(Millstone Nuclear Power Station,
Unit 1)

April 15, 1996

ORDER
(Terminating Proceeding)

By Memorandum and Order dated March 6, 1996 (unpublished), this Licensing Board granted two hearing requesters, We the People and Donald W. Del Core ("Petitioners"), an opportunity for hearing conditioned upon their filing at least one admissible contention by close of business on March 29, 1996.¹ As that date passed, no contention was received by the Board.

On April 9, 1996, the NRC Staff and Licensee Northeast Nuclear Energy Company filed a Joint Motion seeking termination of this proceeding on the basis of the Petitioners' failure to file a litigable contention. The Licensing Board was informed in the Motion that counsel for the Petitioners had confirmed upon inquiry that no contention would be filed. Subsequently, legal counsel for the

¹ This date was a 3-week extension of a prior established filing deadline.

Licensing Board telephoned counsel for the Petitioners to verify this statement.² Counsel for the Petitioners confirmed that no contentions would be filed in this matter and that further efforts to litigate issues surrounding the Millstone Plant would not be pursued due to a "lack of funds." Counsel for the Board was also informed that no response to the Joint Motion would be forthcoming and that the Board should take whatever actions were necessary to terminate the proceeding.

In light of the record before us, it is, this fifteenth day of April 1996, ORDERED that this proceeding is terminated.

FOR THE ATOMIC SAFETY
AND LICENSING BOARD

James P. Gleason, Chairman
ADMINISTRATIVE JUDGE

Rockville, Maryland
April 15, 1996

²Telephone conversation between Robert Pierce, ASLBP Senior Attorney, and Robert Backus, Counsel for the Petitioners, April 11, 1996.

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)
(Special Nuclear Material License)

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

April 26, 1996

In this Partial Initial Decision in the combined construction permit–operating license proceeding for the Claiborne Enrichment Center, the Licensing Board resolves in favor of the Applicant Intervenor's contentions H concerning the adequacy of the Applicant's emergency plan and L and M concerning the sufficiency of the Applicant's safeguards measures.

RULES OF PRACTICE: BURDEN OF PROOF

The Commission's rules of practice for the conduct of formal adjudicatory hearings provide in 10 C.F.R. § 2.732 that the applicant has the burden of proof in the proceeding. Thus, in order for the applicant to prevail on each contested factual issue, the applicant's position must be supported by a preponderance of the evidence. *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-819, 22 NRC 681, 720 (1985); *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-763, 19 NRC 571, 577 (1984). See 1 Charles H. Koch, Jr., *Administrative Law and Practice* § 6.44 (1985).

EMERGENCY PLAN(S): REQUIREMENT FOR MATERIAL LICENSE

Under the Commission's regulatory scheme for emergency planning at certain facilities possessing and using special nuclear material or source and byproduct material, an emergency plan for responding to the hazards of an accidental release constitutes one of the Applicant's procedures that must be found adequate under 10 C.F.R. §§ 40.32(c) and 70.23(a)(4) to protect health and minimize danger to life or property.

REGULATORY GUIDES: STATUS

A regulatory guide, however, only presents the Staff's view of how to comply with the regulatory requirements. Such a guide is advisory, not obligatory and, as the guide itself states at the bottom of the first page: "Regulatory Guides are not substitutes for regulations, and compliance with them is not required."

FUNDAMENTAL NUCLEAR MATERIAL CONTROL PLAN(S): ENRICHMENT FACILITIES

The Commission's material control and accounting regulations require that the licensee of an enrichment facility "shall establish, implement, and maintain a NRC-approved material control and accounting system," 10 C.F.R. § 74.33(a), through the creation of a fundamental nuclear material control plan. 10 C.F.R. § 74.33(b).

TECHNICAL ISSUES DISCUSSED

Emergency plan; safeguards procedures.

PARTIAL INITIAL DECISION (Resolving Contentions H, L, and M)

I.

This Partial Initial Decision resolves contentions H, L, and M filed by the Intervenor, Citizens Against Nuclear Trash ("CANT"), in this combined construction permit-operating license proceeding. The application of Louisiana Energy Services, L.P. ("LES" or "Applicant") seeks a license to possess and use byproduct, source, and special nuclear material in order to enrich uranium U²³⁵

to a maximum of 5% by weight. LES would provide enrichment services using a gas centrifuge process at the Claiborne Enrichment Center ("CEC") it intends to build in Claiborne Parish, Louisiana, on a site about 5 miles northeast of the town of Homer.

Pursuant to the amendments to the Atomic Energy Act ("AEA") contained in the Solar, Wind, Waste, and Geothermal Power Production Incentives Act of 1990, Pub. L. No. 101-575, 104 Stat. 2834, uranium enrichment facilities, with one exception not relevant here, are no longer licensed under chapter 10 of the AEA as production facilities. Rather, facilities such as the CEC now are licensed pursuant to chapter 6, section 53, and chapter 7, section 63, as licenses for source and special nuclear material. These amendments to the AEA also simplified the licensing process by requiring only the issuance of an environmental impact statement and a single formal adjudicatory hearing for construction and operation followed by an inspection to verify that the facility has been constructed properly.

In its initial notice and order for this proceeding, 56 Fed. Reg. 23,310 (1991), the Commission directed that the Licensing Board determine whether the application satisfies the standards set forth in 10 C.F.R. §§ 30.33, 40.32, and 70.23 as well as the requirements of 10 C.F.R. Part 51. Additionally, it ordered that certain special standards and instructions must be satisfied so that the Commission could determine whether the issuance of a license will be inimical to the common defense and security of the United States and will not constitute an unreasonable risk to the health and safety of the public. Those special standards and instructions include the draft General Design Criteria for uranium enrichment contained in the Advance Notice of Proposed Rulemaking in 53 Fed. Reg. 13,276 (1988); the criteria contained in NUREG-1391, "Chemical Toxicity of Uranium Hexafluoride Compared to Acute Effects of Radiation" (1991); the financial protection requirements of 10 C.F.R. §§ 140.15-.17 and Part 140, Appendix A; the creditor regulations in 10 C.F.R. § 50.81 dealing with the creation of creditor interests in a uranium enrichment facility; and the creditor regulations in 10 C.F.R. § 70.44 concerning the creation of creditor interests in special nuclear material.

The Commission's initial notice and order also directed that the proceeding be conducted pursuant to 10 C.F.R. Part 2, Subparts G and I. Among other things, the Subpart G rules of practice for the conduct of formal adjudicatory hearings provide in 10 C.F.R. § 2.732 that the applicant has the burden of proof in the proceeding. Thus, in order for the applicant to prevail on each contested factual issue, the applicant's position must be supported by a preponderance of the evidence. *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-819, 22 NRC 681, 720 (1985); *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-763, 19 NRC 571, 577 (1984). See 1 Charles H. Koch, Jr., *Administrative Law and Practice* § 6.44

(1985). Consistent with the Commission's burden of proof rule and pursuant to the stipulation of the parties, the applicant presented its case on the admitted contentions first, followed by the Intervenor, and then the NRC Staff.

II.

CANT's contention H concerns the adequacy of the Applicant's emergency plan for the CEC. Under the Commission's regulatory scheme for emergency planning at facilities possessing and using special nuclear material or source and byproduct material, an emergency plan for responding to the hazards of an accidental release constitutes one of the Applicant's procedures that must be found adequate under 10 C.F.R. §§ 40.32(c) and 70.23(a)(4) to protect health and minimize danger to life or property. The information that must be contained in the Applicant's emergency plan is set out in 10 C.F.R. §§ 40.31(j) and 70.22(i). Although the regulations do not require an emergency plan if the Applicant can demonstrate that the intake and dose to a member of the public from an accidental release would not exceed certain protective action guides, LES has not made such a showing in its license application. Accordingly, LES must demonstrate that the CEC emergency plan meets the requirements of the Commission's regulations.

In the statement of considerations accompanying the final emergency plan regulations for fuel cycle and other material licenses, the Commission set forth the rationale for the rule. That background material provides the proper context for understanding the regulatory requirements with respect to the information that must be included in the Applicant's emergency plan. In promulgating the regulations, the Commission indicated that for emergency planning purposes accidents at facilities with significant quantities of uranium hexafluoride such as the CEC were of greater concern than facilities that possessed only small quantities of that material. The Commission stated:

The rupture of a large heated cylinder of UF_6 is an exception in that both the probability of a large release and the consequences due to the chemical toxicity of the released material could be of greater concern than the radiation doses from other accidents at fuel cycle or other radioactive material facilities

Airborne releases due to a severe accident at these licensed facilities are likely to occur rapidly with little warning. The only types of accidents identified in NUREG-1140 for which protective action guide doses, or the 2 milligram soluble uranium intake, could theoretically be exceeded are a fire, a UF_6 cylinder rupture, and a criticality accident. Releases from a fire could start even before the fire is detected or shortly thereafter. Plume travel time to nearby people is likely to be no more than a few minutes. Releases would usually end when the local fire department has controlled the fire, generally within half an hour to an hour. Releases of UF_6 are likely to start without warning and be of short duration. Many other accidental releases could also start without warning and be of short duration. As a result,

protective actions would usually have to be taken very quickly to be effective. Protective actions could also be effective if the release were not as fast.

In view of two factors — (1) realistically, exposures should generally be low compared to protective action guides and (2) the fast-moving nature of accidents of concern — formal evacuation planning is not considered necessary, appropriate, or feasible. In particular, evacuation of neighborhoods before plume arrival would most often not be possible. Thus, the emphasis of the licensee's emergency preparedness should be on ending the accident as quickly as possible, reducing the quantity of material released, protecting workers onsite, recommending appropriate protective actions to offsite officials, notifying offsite response organizations of the accident, and promptly restoring the facility to a safe condition. Offsite, it would be appropriate for police and fire personnel to either move people out of areas of dense smoke or fumes or get them to seek shelter indoors. Such actions are routine for fires and chemical releases and would be expected whether the offsite response organizations had formal written emergency plans or not.

54 Fed. Reg. 14,051, 14,052 (1989).

In response to public comments to the effect that there was no need for emergency plans at material license facilities, that the proposed protective action dose guidelines were too conservative, that engineered safeguards could prevent accidents, and that compliance costs did not justify the benefits, the Commission determined that the rule nevertheless should be issued. Specifically, it stated:

Any system of engineered safeguards is considered to have some possibility of failure. No system could ever be perfect. Therefore, the NRC has decided to require another level of protection beyond engineered safeguards designed to prevent or mitigate an accident if releases could cause doses exceeding protective action guides. The NRC agrees that its dose calculations are very conservative and that doses from an actual accident are likely to be far lower than calculated. Nevertheless, the NRC considers the calculated doses to be possible even if improbable. The NRC recognizes that the costs to licensees tend to exceed the anticipated benefits. Nonetheless, in view of the uncertainties inherent in making the cost-benefit balance, and considering in any event the limited additional financial burden that would result from adoption of the rule, NRC concludes that the emergency planning measures are desirable to protect health. While the NRC agrees that in many instances it would not be possible to reduce exposures offsite because there would not be enough time, the NRC believes that in some instances there would be a possibility of reducing doses. The requirements are aimed at those potential dose saving situations. There is no requirement, stated or implied, that the emergency response would always be effective in reducing exposures offsite or that specified dose levels would not be exceeded. Instead, the requirement is that the licensee be prepared to take some practical steps that could, in favorable circumstances, reduce radiation exposure to the public.

Id. at 14,056.

Finally, in rejecting comments that offsite notification systems, informational brochures, emergency planning zones, and response guidelines should be adopted, the Commission remarked:

The NRC believes that the normally available capabilities of States and local governments for responding to industrial emergencies and the normally available radiological health capabilities of States will be adequate to deal with accidents at fuel cycle and other radioactive material licensees. These radiological emergencies would involve small (not life threatening) doses, small areas, and small numbers of people. The potential risks are much lower than the risks from accidents involving chemical plants or the shipping of hazardous chemicals, to which states and local governments routinely respond. In other words, the response to radiological accidents at fuel cycle and other radioactive materials licensees can and should be handled by State and local governments as part of their normal emergency response capability without additional resources.

In most situations, the NRC would expect the local authorities to handle public notification and response on an ad hoc basis, the way those authorities would handle a truck or rail accident in which hazardous chemicals had been, were being, or might be released. . . .

The NRC intentionally did not establish emergency planning zones, deciding instead to define the offsite response in terms of when offsite response organizations should be notified. The NRC concluded that dose projections during an accident would not be possible. Thus, the size of the response would be dictated mainly by the practicality of response actions. Because fires are the primary accident of concern, this would usually involve any actions offsite that could reduce the exposure of people to smoke from the fire

In general, the appropriate responses and distances are dictated by what is practical at the time the accident occurs. Police and emergency personnel have generally been quite proficient in handling similar types of emergencies, such as truck and rail accidents.

Id. at 14,057.

The NRC Staff has published guidance as to how to comply with the emergency plan regulations in Regulatory Guide 3.67, "Standard Format and Content for Emergency Plans for Fuel Cycle and Materials Facilities" (1992). That document, however, only presents the Staff's view of how to comply with the regulatory requirements. Such a guide is advisory, not obligatory and, as the guide itself states at the bottom of the first page: "Regulatory Guides are not substitutes for regulations, and compliance with them is not required." Thus, it is the Commission's emergency plan regulations by which the Applicant's emergency plan must be judged and it is the regulations, not the guide, that must be found to have been met in the first instance. See *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-644, 13 NRC 903, 937 (1981).

CANT's contention H asserts that the license application for the CEC does not provide reasonable assurance that the public health and safety will be adequately protected in the event of an emergency at the plant. Although CANT proffered numerous supporting bases for this contention, only ten were allowed — H2, H3, H4, H5, H6, H7, H10, H17, H20, and H23. Each of these bases will be addressed seriatim.

In support of its position on contention H, the Applicant presented the testimony of Peter G. LeRoy, the Licensing Manager of the CEC, who directed

the preparation of the Applicant's emergency plan and then reviewed and approved it. (LeRoy at 1 fol. Tr. 40.) In admitting his prefiled direct testimony, the Board found that Mr. LeRoy was qualified to testify as an expert on emergency planning. (Tr. 41.) Pursuant to a stipulation of the parties, the following Applicant exhibits were admitted into evidence: Applicant's Exhibit 1, the CEC License Application, through revision 9, January 7, 1994 (App. Exh. 1); Applicant's Exhibit 1(a), CEC Safety Analysis Report, through revision 19, January 7, 1994 (App. Exh. 1(a)); Applicant's Exhibit 1(c), CEC Emergency Plan, through revision 6, June 29, 1994 (App. Exh. 1(c)); and Applicant's Exhibit 2, letter from Kenneth W. Tanner, Chief, Claiborne Parish Fire District No. 6, to Louisiana Energy Services, L.P., July 13, 1994 (App. Exh. 2). (Tr. 30-33.)

CANT presented the testimony of Clifford J. Earl, the President of Resource Management Systems, Inc., a management and organizational consulting firm. (Earl at 1 fol. Tr. 80.) In admitting his prefiled direct testimony, the Board found that Mr. Earl was qualified by knowledge, experience, training, and education to testify as an expert on the adequacy of the Applicant's emergency plan. (Tr. 79.) Pursuant to the stipulation of the parties, Intervenor Exhibit 18, Regulatory Guide 3.67 (1992) (Int. Exh. 18) was admitted into evidence. (Tr. 81.)

The NRC Staff presented the testimony of Kevin M. Ramsey, a nuclear engineer in the Operations Branch of the Division of Industrial and Medical Nuclear Safety, Office of Nuclear Materials Safety and Safeguards, who was involved in the Staff review of the Applicant's emergency plan. (Ramsey at 1 fol. Tr. 155.) Although the Staff did not move the admission of Mr. Ramsey's testimony as that of an expert witness on emergency planning, he would qualify as such an expert by reason of his experience. Pursuant to a stipulation of the parties, NRC Staff Exhibit 1, NUREG-1491, "Safety Evaluation Report for the CEC, Homer, Louisiana" (1994) (Staff Exh. 1), was admitted into evidence. (Tr. 154.)

The Intervenor's basis H2 for contention H asserts:

LES has not identified primary routes for access of emergency equipment or for evacuation, as well as potential impediments to traffic flow (rivers, drawbridges, railroad grade crossings, etc.). Moreover, it has not specified whether fire stations, police stations, hospitals, and other offsite emergency support organizations are qualified to handle exposure to radioactive contamination or toxic chemicals.

The Commission's regulations for facilities licensed under Part 40 and Part 70 contain identical requirements concerning the information that must be included in the facility emergency plan. With respect to the features of the site, the regulations, 10 C.F.R. §§ 40.31(j)(3)(i) and 70.22(i)(3)(i), state that the plan must include the following: "Facility description. A brief description of the licensee's facility and area near the site." The statement of considerations accompanying the final emergency plan rule repeats this succinct regulatory

language and then states that "[t]he purpose is to provide the reader with enough basic information to evaluate the licensee's plan. Significant nearby facilities, such as schools, should be included in the site area description." 54 Fed. Reg. at 14,054.

In contrast to the brevity of the facility description provision of the emergency plan regulations, the Staff's Regulatory Guide 3.67 expands exponentially the information about the facility that should be included in the plan. That guidance first calls for a description of the licensed activities conducted at the facility including the type, form, and quantities of radioactive and other hazardous material present on the site. Next, it requires a description of the facility that includes a detailed scale drawing of a prescribed size containing five categories of geographical features plus a bar scale and compass indicating north. Finally, the guidance calls for a description of the area near the site that includes six categories of information located and identified on an area site map or an aerial site photograph. The third informational category calls for the identification of the primary routes for site access and evacuation and the identification of traffic flow impediments. The fourth informational category requires the "[l]ocations of fire stations, police stations, hospitals, and other offsite emergency support organizations (specify whether qualified to handle exposure to radioactive contamination or toxic chemicals)." (Int. Exh. 18: Reg. Guide 3.67 § 1.3.)

Contrary to the Intervenor's first claim in basis H2, the primary routes for access to the CEC and evacuation from the facility are included in the CEC Emergency Plan. (App. Exh. 1(c), Fig. 1.3-4; § 1.3; LeRoy at 13 fol. Tr. 40.) Further, the LES Licensing Manager, Mr. LeRoy, in his prefiled direct testimony indicated that there are no impediments to traffic flow. He also stated that the same type of emergency vehicles that would respond to the CEC in the event of an emergency regularly use the roads accessing the facility. (LeRoy at 13-14 fol. Tr. 40.) In like vein, the NRC Staff's witness, Mr. Ramsey, stated in his prefiled direct testimony that the CEC Emergency Plan description of the site area was adequate. (Ramsey at 4 fol. Tr. 155.) The Intervenor presented no evidence to support its claim. Thus, we find that LES has met its burden on this claim in basis H2 and this claim cannot be sustained.

The Intervenor's second claim in basis H2, i.e., LES has not specified whether emergency organizations are qualified to handle radioactive contamination or toxic chemicals, also cannot be sustained. CANT's expert, Mr. Earl, identified 10 C.F.R. §§ 40.31(j)(3)(i) and 70.22 (i)(3)(i) and the Commission's brief statement about the facility description provision in its statement of considerations accompanying the promulgation of the emergency plan rule, *see infra* p. 148-49, as the foundation for the facility description requirement. He also asserted that Regulatory Guide 3.67 "prescribes the criteria for an 'acceptable' emergency plan." (Earl at 4 fol. Tr. 80.) Indeed, CANT's claim is taken directly from that

regulatory guide and parrots its language. But, as we have previously indicated, such Staff guidance is not a regulation and compliance with it is not mandatory. Rather, we must judge the adequacy of the CEC Emergency Plan by the requirements of the Commission's regulations. Here, we simply cannot find that the regulatory requirements of 10 C.F.R. §§ 40.31(j)(3)(i) and 70.22(i)(3)(i), which call only for "[a] brief description of the licensee's facility and area near the site," mandate that the CEC Emergency Plan must include qualification information about the ability of emergency support organizations to handle exposure to radioactive contamination or toxic chemicals. Even the NRC Staff, as the author of the guidance, concedes this point in its proposed findings when it states that "[a]lthough the regulatory guide suggests that Applicant specify whether the local fire stations, police stations, hospitals and other offsite emergency support organizations are qualified to handle exposure to radioactive contamination or toxic chemicals, the regulations call only for a description of the facility and area near the site." NRC Staff's Proposed Findings of Fact and Conclusions of Law Regarding Contentions H, L, and M (Oct. 21, 1994) at 20.

Moreover, the premise underlying the Commission's emergency plan regulations is that "the normally available capabilities of States and local governments for responding to industrial emergencies and the normally available radiological health capabilities of States will be adequate to deal with accidents at fuel cycle and other radioactive material licensees." 54 Fed. Reg. at 14,057. Further, the Commission stated that "[p]olice and emergency personnel have generally been quite proficient in handling similar types of emergencies, such as truck and rail accidents." *Id.* Thus, contrary to the Intervenor's claim, we cannot find that the CEC Emergency Plan does not comply with NRC regulations for not specifying the qualifications of emergency organizations when such information is not required by those regulations.

Nonetheless, even though the information called for in Regulatory Guide 3.67 is not required by the Commission's regulations to be included in a facility emergency plan, the Applicant has committed to meet the Staff's guidance. Mr. LeRoy stated unequivocally that "LES is committed to meet regulatory requirements and will conform to the guidance set forth in Reg. Guide 3.67." (LeRoy at 10 fol. Tr. 40.) Normally, an applicant's commitments are made to the Staff and, as such, are a matter for the Staff to enforce. Here, however, LES made this commitment before us as part of its evidentiary case in support of license authorization. In these circumstances, we cannot ignore the Applicant's commitment if we are to preserve the integrity of the hearing process. Thus, we must insist that the Applicant meet its voluntary commitment to exceed the requirements of the regulations on this matter and conform the CEC Emergency Plan to Regulatory Guide 3.67.

This agency guidance requires that an emergency plan include an area map or aerial photograph of the site indicating onsite and near site structures. On

this photograph or map the Staff guidance calls for the Applicant to include the locations of the various offsite emergency support organizations. (Int. Exh. 18: Reg. Guide 3.67 § 1.3.) Along with marking the locations of such emergency organizations on the map, it instructs the applicant to specify whether each organization is qualified to handle exposure to radiological contamination or toxic chemicals. Although the CEC Emergency Plan contains the requisite map locating the offsite emergency organizations, the map carries no legend or other marking denoting the qualifications of each offsite organization to handle radiological or toxic chemical exposure. (App. Exh. 1(c), Fig. 1.3-4.) The Applicant must, therefore, revise the CEC Emergency Plan to make this amendment so that the LES plan conforms to its voluntary commitment to us.

Rather than impose a license condition to ensure that the Applicant makes the necessary revision to the CEC Emergency Plan, we believe that it is more appropriate in the circumstances to request that the Staff issue a brief supplement to the SER before any license is issued indicating that the Applicant has made the appropriate amendment and thus met its voluntary commitment to us. Moreover, because the Applicant's commitment to conform its emergency plan to the Staff's regulatory guidance was not limited to this one matter, the Staff should ensure that the entire plan conforms in all respects to Regulatory Guide 3.67.

Even though the Applicant has not specifically noted on an area map whether the emergency response organizations are qualified to handle exposure to radioactive contamination or toxic chemicals as called for by the Staff guidance, we are satisfied that the CEC Emergency Plan contains sufficient information for us at least reasonably to infer that all emergency response organizations are qualified or, as a result of planned training, will be qualified to handle exposure to radioactive contamination or toxic chemicals by the time the facility commences operation. (*Id.* §§ 4.3, 5.5.1.1, 5.7, 7.2.3, 11.0; LeRoy at 15-16 fol. Tr. 40; Tr. 93, 96.) Further, the NRC Staff's witness, Mr. Ramsey, indicated that, under the training regimen of the plan, the emergency response organizations would all be qualified to handle radioactive and chemical contamination. (Tr. 165-66.)

Moreover, the Intervenor offered no evidence that the various offsite emergency response organizations were not qualified in this regard. Rather, the Intervenor's expert, Mr. Earl, testified that the applicable Staff guidance requires that the Applicant's emergency plan contain sufficient information about the knowledge, skills, and abilities of the personnel of such organizations to permit independent evaluation whether they can successfully perform their planned duties. The quantity and type of information that Mr. Earl seeks to have included in the emergency plan, however, is much more extensive than the simple notation of qualifications called for by Regulatory Guide 3.67 and far exceeds the Commission's regulatory requirements. Thus, rather than offer testimony or other evidence that the offsite emergency organizations are, in fact, not quali-

fied, or that the planned training will not make them qualified, the Intervenor merely claims there is not enough information or detail in the plan to determine qualifications. We do not agree that the information contained in the Applicant's emergency plan is insufficient to determine the qualifications of the emergency response organizations. In any event, the level of information in the emergency plan that CANT asserts is necessary is not the regulatory standard for judging the adequacy of the CEC Emergency Plan nor is it the standard of the NRC Staff guidance. We find, therefore, that the Intervenor's second claim in basis H2 cannot be sustained.

In basis H3, CANT asserts:

The Emergency Plan does not include the following items: a list of all hazardous chemicals used at the site, typical quantities possessed, and locations of use and storage; description of stack heights, typical stack flow rates, and the efficiencies of any emission control devices; or identification of communication and assessment centers, assembly and relocation areas, and process and storage areas.

Contrary to the assertions set forth in CANT's original basis H3, all of the missing items are now contained in the CEC Emergency Plan and that information has been found acceptable by the NRC Staff. (App. Exh. 1(c) § 1.2, Tables 1.2-1 to 1.2-4; LeRoy at 21-22 fol. Tr. 40; Ramsey at 5 fol. Tr. 155.) Thus, we find that LES has met its burden on the claims contained in basis H3 and these claims cannot be sustained.

In basis H4, the Intervenor asserts:

LES does not identify and describe each type of radioactive materials accident for which actions may be needed to prevent or minimize exposure of persons off-site to radiation or radioactive materials. For all accidents that are postulated pursuant to DG-3005 §§ 2.1.1 and 2.1.2, LES should meet the requirements of draft Regulatory Guide DG-3005, which include identifying the exposure levels at the site boundary (i.e., the levels potentially affecting persons off-site.) For criticality accidents, direct radiation exposure from postulated criticality accidents should be evaluated in addition to the dose from released radioactive materials.

With respect to the various types of accidents that may occur at a facility, the Commission's regulations, 10 C.F.R. §§ 40.31(j)(3)(ii) and 70.33(i)(3)(ii), require the facility emergency plan to provide "[a]n identification of each type of accident for which protective actions may be needed." In the statement of considerations accompanying the emergency plan rule, the Commission stated in regard to this provision that

[t]ypically, the accidents of concern are fires involving radioactive materials, releases of large quantities of uranium hexafluoride, and criticalities involving high-enriched uranium or

plutonium. Releases of hazardous chemicals that could affect the radiological safety of the facility and result in releases of or exposure to radioactive materials must also be considered.

54 Fed. Reg. at 14,054.

Contrary to the first claim in CANT's basis 4, the CEC Emergency Plan identifies and describes each type of accident with potential offsite consequences. The Applicant's listing of postulated accidents (i.e., those events involving UF_6 releases that could exceed NRC exposure guidelines) includes those caused by natural phenomena, a nuclear criticality event, and various other accident scenarios. The plan also includes a listing of abnormal operational events that could result in a release of UF_6 beyond the site boundary. (App. Exh. 1(c) §§ 2.1.1, 2.1.2; LeRoy at 24 fol. Tr. 40.) Additionally, the CEC Emergency Plan identifies the accident with the maximum exposure level at the site boundary as occurring from an autoclave heater malfunction accident. The plan states that maximum exposure from all other postulated accidents would be less than that occurring from this bounding accident. (App. Exh. 1(c) § 2.1; LeRoy at 24 fol. Tr. 40.) Finally, the Applicant's plan evaluates at the site boundary the direct radiation exposure and the dose from released radioactive material from a criticality event. (App. Exh. 1(c) § 2.1.1.2; LeRoy at 25 fol. Tr. 40.) Thus, the CEC Emergency Plan adequately identifies the type of accidents for which protective actions may be needed as required by the Commission's regulations. Additionally, the NRC Staff found that the Applicant's identification and description of accidents in the plan is adequate. (Ramsey at 5 fol. Tr. 155.)

The Intervenor presented no testimony to support its specific claims in basis H4. Rather, its expert, Mr. Earl, generally challenged the adequacy of the CEC Emergency Plan for not providing sufficient details about each postulated accident, including such information as the nature, location, timing, and consequences of the accident. He also criticized the Applicant's description of postulated accidents for failing to include the potential size and scope of the accident, the mitigating actions that would need to be undertaken, and the consequences of delay or failure to take timely mitigative actions. (Earl at 14-15 fol. Tr. 80.) Once again, however, Mr. Earl seeks a level of information well beyond what is required by the Commission's regulations or even the NRC Staff regulatory guidance for the identification and description of the type of accidents for which protective actions may be needed. Further, some of the information he seeks, such as that concerning mitigating actions, is required by other regulations and appears in other parts of the CEC Emergency Plan. (See 10 C.F.R. §§ 40.31(j)(3)(v) and 70.22(i)(3)(v); App. Exh. 1(c) § 5.3.) Most importantly, in his call for greater detail, Mr. Earl did not review or evaluate the Applicant's Safety Analysis Report, which is prominently referenced in the postulated accident identification section of the CEC Emergency Plan. (Earl Tr. 117-18.) The Applicant's SAR contains an analysis for each of the

postulated accidents set out in the emergency plan. That analysis includes a full description of the accident, its causes, and consequences. (App. Exh. 1(a) § 9.2.) The Commission's regulations do not require that the level of detail contained in the Applicant's SAR with respect to postulated accidents be set forth in the emergency plan. Indeed, the Staff's regulatory guidance specifically recognizes that such detailed information may be incorporated by reference in the emergency plan. (Int. Exh. 18: Regulatory Guide 3.67 at 1.) Accordingly, the Applicant has met its burden on the claims contained in basis H4 and these claims cannot be sustained.

CANT's basis 5 for contention H asserts:

LES has provided few details to meet the requirements of DG-3005 § 3.2. For example, it is unclear that state authorities will be notified within 15 minutes of declaration of a Site Area Emergency, and who will notify them; whether the NRC will be notified within 1 hour, and who will notify it; who has the authority to recommend and initiate on-site and off-site protective actions, and under what conditions these actions will be taken. As currently presented, the Emergency Plan seems designed to respond to only the most limited emergency situations.

The Commission's regulations, 10 C.F.R. §§ 40.31(j)(3)(viii) and 70.22(i)(3)(viii), require that the facility emergency plan include

[a] commitment to and a brief description of the means to promptly notify offsite response organizations and request offsite assistance, including medical assistance for the treatment of contaminated injured onsite workers when appropriate. A control point must be established. The notification and coordination must be planned so that unavailability of some personnel, parts of the facility, and some equipment will not prevent the notification and coordination. The licensee shall also commit to notify the NRC operations center immediately after notification of the appropriate offsite response organizations and not later than one hour after the licensee declares an emergency [footnote omitted].

Contrary to the various claims in Intervenor's basis H5, the CEC Emergency Plan contains all necessary information required by the Commission's regulations dealing with the notification of authorities. (App. Exh. 1(c) §§ 3.2.1, 3.2.2, 4.2.1, 4.3, 4.4, 5.4; LeRoy at 26 fol. Tr. 40.) The plan clearly identifies the CEC Emergency Coordinator as the LES official responsible for notifying state and local authorities and the NRC (App. Exh. 1(c) §§ 3.2.1, 3.2.2, 4.2.1; LeRoy at 26 fol. Tr. 40) and a current telephone listing of all offsite response organizations is maintained in the Emergency Plan Implementing Procedures ("EPIP") for the plan and verified and updated quarterly. (App. Exh. 1(c) §§ 4.3, 7.8.) The classification scheme covering all incidents at the facility establishes and clearly defines two categories of events, i.e., an alert and a site area emergency, based upon a threshold release of UF_6 . (*Id.* §§ 3.0, 3.1.) Upon the declaration of an alert or site emergency the plan requires that the CEC Emergency Coordinator

[n]otify the appropriate offsite assistance organizations and the Nuclear Regulatory Commission (NRC). The offsite organizations will be notified within 15 minutes of declaring an Alert. Immediately following notification of the offsite assistance organizations, the NRC will be notified. In all cases, the NRC will be notified within 1 hour of declaring an Alert.

(*Id.* § 3.2.1 at 3-5.) Further, the plan provides that the CEC Emergency Coordinator is responsible for recommending and initiating onsite protective actions and for recommending offsite protective actions to the appropriate state and local authorities. (*Id.* §§ 3.2.1, 3.2.2; LeRoy at 26 fol. Tr. 40.) Under the plan, initiation of offsite protective actions is left to the discretion of the appropriate offsite authorities. (LeRoy at 26 fol. Tr. 40; App. Exh. 1(c) § 3.3.) Leaving the responsibility for the initiation of offsite protective actions in the hands of state and local authorities is, of course, the premise underlying the Commission's emergency plan rule. See 54 Fed. Reg. at 14,052, 14,057. Finally, and contrary to the last claim in Intervenor's basis H5, the CEC Emergency Plan, taken as a whole, is designed to respond to the full range of potential events and accidents at the facility. (LeRoy at 27 fol. Tr. 40; App. Exh. 1(c).) In this regard, the NRC Staff's witness, Mr. Ramsey, stated that the Staff found that the provisions in the emergency plan for notifying offsite response organizations and recommending protective actions are adequate. (Ramsey at 5 fol. Tr. 155.) Based upon this evidence, we find that the Applicant has met its burden on the claims contained in basis H5 and that these claims cannot be sustained.

In his testimony, CANT's expert largely ignores the Intervenor's claims in basis H5 and the Intervenor presented no other testimony or evidence directly to support them. Rather, Mr. Earl asserts that the Applicant's plan fails to provide sufficient detail to demonstrate that offsite authorities can or will be notified within 15 minutes. Mr. Earl faults the plan for not providing the title of the state and local authorities who will receive notification from the CEC and, in the case of the Claiborne Parish Sheriff's Department, the title of the person who will retransmit the notification to the firefighters, hospital, or highway patrol. Additionally, Mr. Earl claims that the plan neither states nor demonstrates that the offsite personnel needed to respond to an emergency can be notified promptly or arrive at their duty stations in time. Similarly, he asserts that the emergency plan fails to demonstrate that notification for effective offsite protective actions can be accomplished in a timely fashion. (Earl at 17 fol. Tr. 80.)

The Commission's emergency plan regulations require the Applicant to provide "a brief description of the means to promptly notify offsite response organizations." 10 C.F.R. §§ 40.31(j)(3)(viii) and 70.22(i)(3)(viii). This regulatory requirement simply does not require the level of detailed information that the Intervenor's expert asserts is essential for an emergency plan. Nor does the Commission's regulatory requirement of "a brief description" require a *demonstration* that the Applicant's emergency plan will accomplish the various

notifications. Likewise, the agency's regulations do not require, as Mr. Earl would have it, that the Applicant's plan demonstrate that the offsite emergency response organizations can respond to their duty stations "in time." (Earl at 17 fol. Tr. 80.) We note, however, that even though such a demonstration is unnecessary, the evidentiary record amply supports the conclusion that Claiborne Fire District No. 6 volunteer firefighters can and will timely respond to the CEC and that the dispatch process through the sheriff's office is adequate. (LeRoy at 19-20 fol. Tr. 40; Tr. 82-95.) We have no basis to conclude, and the Intervenor has provided us none, that the CEC Emergency Coordinator will not make the required notifications in a timely manner as set forth in the Applicant's plan.

CANT's basis H6 asserts:

In much of its operation, the LES plant will be operating with a skeletal 4-6 person shift. It is unclear who will have emergency response authority when a full operating crew is not present. It is also unclear where emergency telephone numbers and other types of communication will be placed in the facility; whether all shift personnel will have had adequate training in emergency procedures; whether there will be shift personnel at all times with authority to undertake emergency measures.

The claims in Intervenor's basis H6 generally relate to the responsibilities of CEC personnel and the adequacy of the training of shift personnel. With respect to the former, the Commission's regulations, 10 C.F.R. §§ 40.31(j)(3)(vii) and 70.22(i)(3)(vii), provide that the emergency plan must include "[a] brief description of the responsibilities of licensee personnel should an accident occur, including identification of personnel responsible for promptly notifying offsite response organizations and the NRC; also responsibilities for developing, maintaining, and updating the plan." With regard to training, the Commission's regulations, 10 C.F.R. §§ 40.31(j)(3)(x) and 70.22(i)(3)(x), state that the facility plan must contain

[a] brief description of the frequency, performance objectives and plans for the training that the licensee will provide workers on how to respond to an emergency including any special instructions and orientation tours the licensee would offer to fire, police, medical and other emergency personnel. The training shall familiarize personnel with site-specific emergency procedures. Also, the training shall thoroughly prepare site personnel for their responsibilities in the event of accident scenarios postulated as most probable for the specific site, including the use of team training for such scenarios.

The Intervenor's assertions in basis H6 that the emergency plan fails to delineate who has emergency response authority when a full operating crew is not present and whether shift personnel have authority to undertake emergency measures are without merit. The CEC Emergency Plan provides that during nonregular hours, such as backshifts and weekends, when the full complement of station personnel are not present, the facility always is staffed with at least a shift

supervisor, four operators, and the requisite number of security personnel. (App. Exh. 1(c) § 4.2.) Because the number of security personnel on site at any given time is protected safeguards information, the emergency plan does not include this information. The plan provides, however, that under emergency conditions during nonregular hours the CEC Emergency Organization is staffed with the shift supervisor as the CEC Emergency Coordinator, who has the authority and responsibility unilaterally to initiate any emergency actions. (*Id.* §§ 4.2, 4.2.1.) Further, the plan provides that during an emergency the operators assume the mantle of CEC Operations Shift Technicians and the security personnel fulfill the CEC Emergency Organization's security functions. (*Id.* § 4.2.) The applicable organization chart in the plan for the CEC Emergency Organization indicates that the security personnel perform fire control, first aid, evacuation, and search and rescue duties during an emergency. (*Id.*, Table 4.2-1.) The plan also provides that in an emergency occurring during nonregular hours, the remainder of the CEC Emergency Organization is staffed by persons summoned to the facility and that the procedures for such staffing will be set forth in the EPIP. (*Id.* § 4.2.) According to the NRC Staff's witness, the Staff found that the Applicant's emergency organization staffing was adequate. (Ramsey at 6 fol. Tr. 155.) Thus, contrary to CANT's claims, the Applicant's plan meets the requirement of the Commission's regulations for "[a] brief description of the responsibilities of licensee personnel" in an emergency during nonregular hours. We find, therefore, that the Applicant has met its burden on these claims in basis H6 and these claims cannot be sustained.

In basis H6, the Intervenor also claims that the Applicant's plan fails to detail clearly where emergency telephone numbers and other types of communications will be placed in the facility. Additionally, CANT's expert, Mr. Earl, asserts in his prefiled direct testimony that the plan fails to describe communications channels to summon offsite assistance and that the plan provides insufficient detail to demonstrate that skeletal shifts will have the necessary qualifications to fight fires and prevent or mitigate accidents. (Earl at 18, 19 fol. Tr. 80.)

Contrary to these assertions, the Applicant's plan provides that the offsite telephone numbers of all emergency personnel that may be needed at the plant will be placed in the control room, which is the primary Emergency Operations Center, and also in the Administration building security station, which is the secondary Emergency Operations Center. (App. Exh. 1(c) § 4.2; LeRoy at 28 fol. Tr. 40.) The plan also details the four communications systems at the CEC: (1) the facility telephone system; (2) the public address system; (3) the alarm system; and (4) the two-way radios. It indicates that these systems are designed so that a single failure in one system does not leave the facility without communications capability. Further, the systems are designed with redundant devices for emergency conditions and backup power is supplied to essential devices to ensure communications during abnormal conditions. The plan states

that radios are the major communications equipment used during emergencies, that the CEC radios are compatible with those of offsite emergency response organizations, and that spare portable radios are maintained in the primary and secondary Emergency Operations Centers. Additionally, under emergency conditions, backup communications also are accomplished by mobile telephones. (App. Exh. 1(c) §§ 6.2, 4.2; LeRoy at 28 fol. Tr. 40; App. Exh. 1(a) § 6.4.8.1.) Finally, the emergency plan provides that alarm systems indicating abnormal operating conditions are part of the central control room for each plant unit and the control room has direct intercom equipment to all principal points within and outside the plant. The control rooms also have radio and public address audio communication with operators and supervisors in the operating areas of the plant. (App. Exh. 1(c) §§ 5.3, 6.1; LeRoy at 9 fol. Tr. 40; App. Exh. 1(a) § 6.4.8.1.) We find, therefore, that the description in the plan of the types and locations of communications equipment and the description of the telephone listings for emergency personnel and their locations is adequate.

Similarly, we find that the Applicant's plan sufficiently describes the communications channels to summon offsite assistance. The CEC Emergency Plan sets out the communications process for contacting offsite emergency response organizations and spells out the information to be communicated. (App. Exh. 1(c) §§ 3.3, 3.2.2.) As previously indicated, the plan describes the CEC emergency organization officials responsible for notifying the offsite emergency response organizations and the means available for such communications. (*Id.* §§ 4.2, 4.4, 5.2.)

The Applicant's plan also adequately describes the training of CEC personnel so that, once trained, skeletal shifts will be qualified to fight fires and prevent or mitigate accidents. The plan provides that all workers at the facility are trained in the physical characteristics and potential hazards involved with plant processes and materials so that in the event of an incident at the facility they know how to lessen their exposures to chemical and radioactive materials. (*Id.* § 2.1; LeRoy at 9 fol. Tr. 40.) The plan describes the LES training and training exercise program, including its frequency, for all onsite personnel as well as offsite emergency responders. That program includes provisions for evaluating, and critiquing training exercises. (App. Exh. 1(c) §§ 7.2, 7.3.) Although the Applicant's plan does not include any separate provisions concerning the specific training of the onsite fire brigade, a brief description of that training is set out in the CEC Safety Analysis Report. (App. Exh. 1(a) § 11.3.1.1.2.) Finally, the NRC Staff's witness indicated that the Staff found the Applicant's provision for training adequate. (Ramsey at 6 fol. Tr. 155.) Thus, with respect to training that will lead to qualified firefighters, we find that the Applicant's plan complies with the Commission's regulations which require "[a] brief description" of the training program. We find, therefore, that the Applicant has met its burden on CANT's claims in basis H6 and these claims cannot be sustained.

CANT's basis H7 asserts:

The list of participating government agencies in § 4.4 of the Emergency Plan does not include the Claiborne Parish Emergency Response Committee, the primary body responsible for coordinating and responding to emergencies in Claiborne Parish. Nor does the list include the Homer Fire Department, the largest and closest such agency in the jurisdiction.

Contrary to the Intervenor's original claims in basis H7, the list of participating government agencies in the CEC Emergency Plan now includes the Claiborne Parish Emergency Response Committee, which is the local representative of the Louisiana Emergency Response Commission. (App. Exh. 1(c) §§ 4.3, 4.4; LeRoy at 35 fol. Tr. 40.) The plan also includes an agreement letter with that committee confirming its participation with the Applicant in planning for and assisting in the management of any emergency at the CEC. (App. Exh. 1(c), Appendix at 11-9.) Further, because the CEC is located in Claiborne Parish Fire District No. 6, which includes the Lisbon Volunteer Fire Department, that nearby constituent fire department is the primary responder and it is included on the plan's list of participating government agencies. (*Id.* § 4.3.) The fire department in Homer, Louisiana, only provides backup to Claiborne Parish Fire District No. 6 so it is not included in the list of primary participating government agencies. (LeRoy at 30 fol. Tr. 40.) We find that the Applicant has met its burden on the claims contained in basis H7 and these claims cannot be sustained.

In basis H10, the Intervenor asserts:

For each participating government agency, § 4.4 of the Emergency Plan fails to describe the agency's authority and responsibility in a radiological or hazardous material emergency and its interface with others, if any; its specific response capabilities in terms of personnel and resources available; or what rumor control arrangements have been made with the agency or organization.

As in the case of CANT's bases H5 and H6 these claims largely implicate the responsibility and the notification and coordination provisions of the Commission's regulations, 10 C.F.R. §§ 40.31(j)(3)(vii), (viii), and 70.22(i)(3)(vii), (viii).

Contrary to the Intervenor's claims, the Applicant's emergency plan sets out the authority and responsibility of each participating government agency for a radiological or hazardous material emergency. (App. Exh. 1(c), Table 4.4-1.) The plan does not detail how those government agencies interface with each other but such interface is not a regulatory requirement or a required measure under the NRC Staff's regulatory guidance. (*See* 54 Fed. Reg. at 14,057; Int. Exh. 18: Regulatory Guide 3.67 § 4.4.) The Applicant's expert, Mr. LeRoy, testified that in responding to emergencies in Claiborne Parish it is the practice of the various emergency response organizations for each organization to operate within its own area of responsibility and that these organizations have had no

past problems coordinating their responsibilities with one another in such an ad hoc manner. (Tr. 94-95.) The plan also gives a brief description of the equipment and personnel response capabilities of each participating government agency. (App. Exh. 1(c), Table 4.4-1; LeRoy Tr. 88-92, 99-101.)

Finally, with regard to rumor control, the emergency plan provides that controls such as passwords and call-back verification procedures are used with offsite organizations to ensure that only real and accurate information is released to such organizations and the media. (App. Exh. 1(c) § 4.4; LeRoy at 30 fol. Tr. 40.) Additionally, the plan specifies that the LES Community Relations Coordinator is responsible for coordinating news releases. That official has a direct line of communication to the CEC Manager in order to ensure current and factual information. According to the plan, guidelines and provisions for media and public access to information are set out in the EPIP. In the event of an emergency at the facility, the plan states that the Community Relations Coordinator will notify designated media contacts and provide them by telecopier or by personal runner approved news releases and schedules for any news conferences. To help eliminate inaccurate information to the news media and the public, the plan contains a sample form news release. (App. Exh. 1(c) § 5.8, Figure 5.8-1; LeRoy at 30-31 fol. Tr. 40.) In light of these various provisions, we find that the Applicant has met its burden on the claims contained in basis H10 and these claims cannot be sustained.

In his prefled direct testimony, the Intervenor's expert, Mr. Earl, made a number of additional allegations that are generally related to the claims in basis H10. He asserts that the Applicant's plan lacks sufficient information about coordinating and interfacing offsite emergency organizations with onsite personnel. (Earl at 8, 21 fol. Tr. 80.) But the Applicant's emergency plan provides that during emergencies at the CEC all offsite assistance organizations called to the plant are met at the entrance gate by facility security personnel and immediately assigned an escort and that escort is in charge and responsible for directing and coordinating the offsite responder's activities. The plan specifically provides that this access procedure is practiced during emergency exercise drills and that CEC emergency organization personnel meet at least once a year with offsite assistance groups for training and to review matters of interest. (App. Exh. 1(c) §§ 4.3, 4.4; LeRoy Tr. 93-94.) Accordingly, we find that the Applicant's provision for coordinating the emergency activities of onsite CEC personnel with offsite assistance organizations is adequate.

Mr. Earl also variously asserts that the CEC Emergency Plan is unclear and contradictory with regard to firefighting responsibilities. (Earl Tr. 7, 9-11.) Contrary to the thrust of one of Mr. Earl's assertions, however, the fact that the Applicant's emergency plan contemplates that offsite emergency organizations, including offsite firefighters, may have responsibilities offsite for implementing certain protective actions in the event of a site area emergency and those same

organizations, including offsite firefighters, also may have responsibilities onsite at the facility to respond to a fire or other situation during that same site area emergency does not make the plan ambiguous or contradictory. (App. Exh. 1(c) §§ 3.1.2, 4.3.) The participating government agencies have the capability to perform both offsite and onsite functions and the Commission's regulations specifically anticipate that dual role for emergency response organizations. 54 Fed. Reg. at 14,052.

Mr. Earl also asserts that the Applicant's plan is ambiguous as to the onsite responsibility of offsite fire departments for fighting fires at the site. Although we do not find that the various provisions of the CEC Emergency Plan that Mr. Earl relies upon support his assertion, we are troubled by the testimony of the Applicant's expert, Mr. LeRoy, that appears to contradict statements in the CEC SAR and the Staff's SER and thereby introduces such an ambiguity. The Applicant's SAR states that "[t]he intent of the facility fire brigade is to be a first response effect designed to supplement the local fire department for fires at the plant and not to replace local fire fighters." (App. Exh. 1(a) § 11.3.1.1.2.) The Staff's SER copies this same statement. (Staff Exh. 1 § 10.4.3.) In his prefiled direct testimony, however, Mr. LeRoy stated that "the off-site fire fighting capability will be relied upon as a backup to on-site fire fighting capabilities." (LeRoy at 19 fol. Tr. 40.) Mr. LeRoy's testimony appears to contradict the statements in the Applicant's own SAR and the Staff's SER. This matter is important because the intended role of the onsite fire brigade may affect the number of fire brigade members needed and the kind of training the brigade should receive. To correct any ambiguity introduced by Mr. LeRoy's testimony regarding the role of the offsite fire departments, the Applicant shall amend the CEC Emergency Plan to include a clear statement of the function of the offsite fire department with respect to onsite firefighting responsibilities. If the function of the onsite fire brigade now differs from the role set forth in the SAR, the Applicant shall revise the SAR accordingly. Similarly, if additional training or the size of the brigade must be increased because of the changed role of the onsite brigade, the emergency plan should be revised to reflect this changed role. The Staff shall ensure that the SER, which it introduced into evidence, reflects the correct role of the onsite fire brigade. Any necessary changes should be included in a supplement to the SER. If the function of the onsite fire brigade differs from the role described in the SER, the Staff shall ensure that the size and training of the brigade are sufficient to meet such a differing role.

CANT's basis H17 asserts:

LES has provided no proposed measures for mitigating the consequences of accidents at the CEC for the off-site public. LES also fails to describe, in the event of a warning of impending danger, the criteria that will be used to decide whether a single process or the entire facility will be shut down and the steps that will be taken to ensure a safe orderly shutdown of equipment.

The Commission's regulations, 10 C.F.R. §§ 40.31(j)(3)(v) and 70.33(i)(3)(v), require the facility emergency plan to contain "[a] brief description of the means and equipment for mitigating the consequences of each type of accident, including those provided to protect workers onsite, and a description of the program for maintaining the equipment." The regulations, 10 C.F.R. §§ 40.31(j)(3)(xi) and 70.33(i)(3)(xi), further require that the plan include "[a] brief description of the means of restoring the facility to a safe condition after an accident."

Contrary to the claims in basis H17, the Applicant's emergency plan adequately describes the mitigating actions to be taken by plant operating personnel during an accident. (App. Exh. 1(c) § 5.3; LeRoy at 32 fol. Tr. 40.) The plan specifically provides that in the event of a situation where releases could reach offsite persons, the CEC Emergency Coordinator makes recommendations to offsite authorities concerning safeguards for offsite persons. Specific recommendations would depend upon the event in progress and meteorological conditions but, in the worst case, could include advising people to go indoors, close all doors and windows, and turn off any ventilating systems drawing air from the outside. In order to familiarize offsite persons with the potential hazards of the CEC and the implementation of emergency measures, a brochure is sent to each home within one mile of the facility describing the operation of the CEC and what could be expected during a serious emergency at the facility. (App. Exh. 1(c) § 5.44.) Under the provisions of the Applicant's emergency plan for the classification of accidents, the decision to shut down the facility or isolated systems and how that is done is left to the discretion of the CEC Emergency Coordinator. (App. Exh. 1(c) § 3.2; LeRoy at 32 fol. Tr. 40.) The NRC Staff's witness, Mr. Ramsey, indicated that the Staff found the Applicant's description of mitigating actions in the plan adequate. (Ramsey at 7 fol. Tr. 155.) The Intervenor presented no testimony in support of its claims in basis H10. We find that the Applicant's plan satisfactorily complies with the mitigation and shut-down requirements of the Commission's regulations. The Applicant has met its burden with respect to the claims contained in basis H17 and these claims cannot be sustained.

CANT's basis H20 alleges:

LES has not described the plans for ensuring that the equipment and instrumentation are in good working condition and that an adequate stock of supplies is maintained; nor has LES implemented procedures to ensure timely corrective actions are taken when deficiencies in supplies are noted, as required by DG-3005 § 7.6.

The claims raised in basis H20 also implicate the provisions of the Commission's regulations on the mitigation of the consequences of an accident.

The Intervenor offered no testimony in support of its claims in basis H20. Contrary to these claims, however, the CEC Emergency Plan specifically

describes the emergency equipment and supplies that are available at the facility and their locations. (App. Exh. 1(c) §§ 5.4.2, 6.4.4.) The plan also provides that the emergency equipment and supplies are inventoried and tested as appropriate once per quarter to ensure that the supplies and equipment are available in emergencies. (App. Exh. 1(c) §§ 5.4.2, 7.6; LeRoy at 33 fol. Tr. 155.) Additionally, the NRC Staff's witness, Mr. Ramsey, indicated that the Staff finds that the provisions in the plan for inventory and maintenance are adequate. (Ramsey at 7 fol. Tr. 155.) Although the Applicant's emergency plan does not contain any explicit procedures for corrective actions when deficiencies in emergency equipment or supplies are discovered, the Applicant's witness, Mr. LeRoy, stated in his prefiled testimony that LES will implement procedures to ensure timely corrective actions when deficiencies in emergency equipment or supplies are found. (LeRoy at 34 fol. Tr. 40.) In this regard, the NRC Staff's witness indicated that the Staff found it acceptable, and consistent with its regulatory guidance, for the Applicant to deal with corrective actions in the facility EPIP. (Ramsey at 7 fol. Tr. 155.) We find, therefore, that the Applicant's provisions in the plan for the inventory and maintenance of emergency equipment and supplies comply with the applicable requirements of the Commission's regulations. The Applicant has met its burden on these claims and the claims contained in basis H20 cannot be sustained.

The last admitted bases for contention H, basis H23, asserts:

The Appendix to the Emergency Plan lacks the following information:

a. The letter from Homer Memorial Hospital does not specify for how many people the hospital may be able to transport and provide emergency care, including decontamination. This information should be specified. If these facilities, coupled with those from North Claiborne Hospital, are inadequate to provide treatment for a credible number of contaminated or chemically injured individuals, then further medical services agreements should be supplied.

b. Agreement letters are not supplied from the Claiborne Parish Emergency Planning Committee; the Homer Fire Department (which is larger and closer to the plant site than the Lisbon department); the Homer Police Department; or the Louisiana Emergency Response Commission.

c. The available resources of the Lisbon Volunteer Fire Department, Claiborne Parish Sheriff's office, and the Louisiana Highway Patrol are not specified. Thus, it is impossible to ascertain whether these agencies are capable of responding adequately to an emergency, or whether they have the jurisdictional authority to adequately respond to an emergency.

The Intervenor's claims in basis H23 implicate portions of the notification and coordination provisions of the Commission's regulations, 10 C.F.R. §§ 40.31(j)(3)(viii) and 70.22(i)(3)(viii).

Although the agreement letter from Homer Memorial Hospital in the Applicant's emergency plan does not specify how many people the hospital can transport and treat in the event of an emergency at the CEC, that information is

provided elsewhere in the plan. The plan states that Homer Memorial Hospital is capable of handling five persons in its emergency room and the emergency room has a staging area with twelve overflow beds. (App. Exh. 1(c), Table 4.4-1; LeRoy Tr. 100.) The plan indicates that the hospital has six staff physicians and that five specialists are on call. (App. Exh. 1(c), Table 4.4-1.) The Applicant's expert, Mr. LeRoy, explained that the emergency room is always staffed with at least one physician, one registered nurse, one licensed practical nurse, and two nurses' aides. (LeRoy Tr. 99.) Additionally, the plan provides that physicians associated with the hospital and hospital personnel participate in annual training involving the transportation and treatment of radiologically contaminated patients and their role in providing emergency support. (App. Exh. 1(c) § 5.7.) The hospital agreement letter also states that the hospital will store near the emergency room the CEC-provided emergency supply kit and permit its quarterly inventory by CEC. (*Id.*, Appendix at 11-2.)

Further, the emergency plan indicates that two ambulances from Metro Ambulance are available to transport patients and that 17-minute helicopter service to Shreveport medical facilities is available. (*Id.*, Table 4.4-1.) The plan states that in the event of an injury to facility personnel, Homer Memorial Hospital is contacted and provides for ambulance transportation from the plant to the hospital. If the injured individual is radiologically contaminated, the person is accompanied to the hospital by a qualified health physics representative. (*Id.* § 5.6.) The plan also includes an agreement letter with Metro Ambulance. (App. Exh. 1(c), Appendix at 11-4.) The Applicant's expert, Mr. LeRoy, explained that Metro Ambulance always has two ambulances in Claiborne Parish, one in Homer and one in Haynesville, and that the company has more than 30 ambulances in northern Louisiana parishes that can be moved to provide coverage in an emergency. (LeRoy Tr. 100-01.)

We find that the Applicant has met its burden on the claims in basis H23a and these claims cannot be sustained. There is no regulatory requirement dictating the specific information that must be contained in the Applicant's agreement letters. Rather the Commission's regulations require that the emergency plan contain a commitment and brief description of the means to obtain offsite assistance for injured contaminated workers. Here, we find that the Applicant's plan, including the agreement letters, provides the necessary commitment and brief description for transporting and treating any credible number of contaminated injured individuals.

The Intervenor's claims in basis H23b also are without merit. Contrary to CANT's assertion, the Applicant's plan includes an agreement letter with the Claiborne Parish Emergency Planning Committee. That committee is the local representative of the Louisiana Emergency Response Commission. (App. Exh. 1(c), Appendix at 11-9; LeRoy at 35 fol. Tr. 40.) As previously indicated, Claiborne Parish Fire District No. 6, which includes the Lisbon Volunteer Fire

Department, has jurisdiction over the geographical area of the CEC and is the primary responder to fires at the facility. The Applicant's plan includes an agreement letter with that emergency response organization. (App. Exh. 1(c), Appendix at 11-6; App. Exh. 2.) The Homer Fire Department provides backup to the primary responder. Similarly, the Claiborne Parish Sheriff's Department, not the Homer Police Department, has jurisdiction over the geographical area of the CEC and the Applicant's plan includes an agreement letter with the Sheriff's Department. (App. Exh. 1(c), Appendix at 11-7.) Accordingly, we find that the Applicant has met its burden on the claims contained in bases H23b and these claims cannot be sustained.

Likewise, the Intervenor's claims in basis H23c are without merit. The Applicant's plan specifies the available resources of the Lisbon Volunteer Fire Department, which is a component of Claiborne Parish Fire District No. 6. (*Id.*, Table 4.4-1.) The response capabilities of the Claiborne Parish Sheriff's Department and Louisiana Highway Patrol are not included in the CEC Emergency Plan. The Applicant considers that information proprietary because it relates to the physical security of the facility. During the proceeding, the Intervenor failed to take the necessary steps to obtain that information so CANT cannot now be heard to complain that it lacks the necessary information to determine whether the capabilities of those responding agencies are adequate. We find, therefore, that the Applicant has met its burden on the claims contained in basis H23c and these claims cannot be sustained.

In addition to the foregoing findings on contention H, we have carefully considered all of the Intervenor's other claims and assertions concerning the CEC Emergency Plan and find them to be without merit. We conclude that the CEC Emergency Plan complies with the Commission's emergency plan regulations and that contention H cannot be sustained. With regard to those matters where the plan fails to comply with the Staff's regulatory guidance, the Staff shall ensure that the Applicant makes all appropriate additions and amendments to the plan and its implementing procedures before issuing any license. As previously indicated, in order that we may ascertain that the Applicant has met its commitment to us, we request that the Staff issue a brief supplement to the SER indicating the necessary amendments LES has made so that the CEC Emergency Plan fully conforms to the Staff's regulatory guidance.

III.

CANT's contentions L and M concern the adequacy of the Applicant's Fundamental Nuclear Material Control ("FNMC") Plan for detecting and preventing the unlawful production of enriched uranium at the CEC. In this regard, 10 C.F.R. § 70.22(b) provides that a license application to possess special nuclear

material or to operate a uranium enrichment facility must contain a full description of the applicant's program for control and accounting of the special nuclear material or any enrichment equipment in order to show how compliance with the Commission's material control and accounting ("MC&A") regulations will be accomplished.

The Commission's MC&A regulations require that the licensee of an enrichment facility "shall establish, implement, and maintain a NRC-approved material control and accounting system," *id.* § 74.33(a), through the creation of a fundamental nuclear material control plan. *Id.* § 74.33(b). That regulation further provides that the licensee's MC&A system must achieve nine enumerated performance objectives, including the ability to "[p]rotect against and detect production of uranium enriched to 10 percent or more in the isotope U²³⁵" and "[p]rotect against and detect unauthorized production of uranium of low strategic significance." *Id.* § 74.33(a)(2) and (3). To meet these general performance objectives, the regulation also requires that the licensee establish, document, and maintain, *inter alia*,

[a] detection program, independent of production, that provides high assurance of detecting:

(i) Production of uranium enriched to 10 percent or more in the U²³⁵ isotope, to the extent that SNM of moderate strategic significance could be produced within any 370 calendar day period;

(ii) Production of uranium enriched to 20 percent or more in the U²³⁵ isotope; and

(iii) Unauthorized production of uranium of low strategic significance;

Id. § 74.33(c)(5). Finally, in order to authorize a license for an enrichment facility, the Commission's regulations require that we find the applicant's MC&A plan adequate. *Id.* § 70.23(a)(6).

Because CANT's contentions L and M involve the same general safeguards subject matter, the contentions were combined for hearing. (Tr. 189-90.) The Intervenor's contention L asserts:

In order to provide reasonable assurance that gas centrifuge equipment at the CEC is not unlawfully diverted to the production of highly enriched uranium (HEU), the applicant's fundamental nuclear material control (FNMC) plan should require continuous or frequent online enrichment monitoring for all cascades. To ensure the effectiveness of such monitoring, the plan should stipulate minimum process pipe inner diameters of 110 millimeters or greater at all potential measurement points.⁴¹ The current design of the CEC does not meet these specifications.⁴²

⁴¹Minimum process pipe inner diameter should be 110 mm if uranium hexafluoride gas pressure in the pipe is relatively high, as at the Capenhurst plant in the United Kingdom. . . . Minimum process pipe inner diameters must be larger than 110 mm for pipes in which the uranium hexafluoride gas pressure is moderate or low. For example, if the gas pressure were one-half that in a typical corresponding pipe at the Capenhurst plant, then the minimum process pipe inner diameter should be the square root of the two times 100 mm [sic], or 155 mm.

⁴²The safeguards issues addressed in the following four contentions will also be raised in CANT's comments to the Commission regarding the proposed standards for the CEC.

In a similar vein to its first safeguards contention, CANT's contention M asserts:

In order to preclude or detect production of HEU by a batch recycling scheme involving misuse of sampling ports, process valves, and/or flanges, the applicant's FNMC plan should require effective monitoring by reliable technical means which accurately keep track of employee access to these process connection locations.

To support its position on contentions L and M, the Applicant presented the testimony of a two-witness panel comprised of Peter G. LeRoy and Erich F. Kraska. (LeRoy-Kraska fol. Tr. 194.) As Licensing Manager for the CEC, Mr. LeRoy directed the preparation of the CEC FNMC Plan and reviewed and approved it. Mr. LeRoy also is an NRC-authorized derivative classifier. (LeRoy-Kraska re L at 1-2 fol. Tr. 194.) Mr. Kraska is employed as a senior technical manager by Urenco Investments, Inc., one of the general partners of LES. He is responsible for ensuring that the CEC is designed in accordance with the information transferred to LES by Urenco. Mr. Kraska assisted in the development and review of the CEC FNMC Plan to ensure that the Applicant's safeguards program is consistent with equivalent security programs at Urenco's European facilities that are based on Euratom and International Atomic Energy Agency ("IAEA") requirements. Because Mr. Kraska does not have agency clearance for classified information developed in the United States, he has not had access to the classified portions of the CEC FNMC Plan. (LeRoy-Kraska re L at 2-3 fol. Tr. 194.)

Pursuant to a stipulation of the parties, the following Applicant exhibits were admitted into evidence: Applicant's Exhibit 1(b), the Classified Addendum to the CEC SAR (App. Exh. 1(b)); Applicant's Exhibit 1(d), the CEC FNMC Plan (App. Exh. 1(d)); Applicant's Exhibit 1(f), the CEC Physical Security Plan (App. Exh. 1(f)); and, Applicant's Exhibit 1(g), the CEC Security Plan for the protection of classified matter and information (App. Exh. 1(g)). (Tr. 31.) Each of these Applicant exhibits contains proprietary information pursuant to 10 C.F.R. § 2.790(d)(1), classified information, or both. Although these exhibits are part of the decisional record of the proceeding, they are not publicly available. In particular, all twelve chapters of the CEC FNMC Plan (App. Exh. 1(d)) contain proprietary information and, in addition, Chapter 9 describes the clandestine prevention program and is classified as confidential national security information.

The NRC Staff supported the position of the Applicant on contentions L and M and presented the testimony of a panel of witnesses made up of Donald R. Joy and Bruce W. Moran. (Joy-Moran fol. Tr. 243.) Mr. Joy is a senior physical scientist with the NRC in the area of material control and accounting, with experience in safeguards inspections of fuel fabrication facilities. He helped write the Commission's regulations on material control and accounting for enrichment facilities in 10 C.F.R. § 74.33 and the Staff guidance on those

requirements in Regulatory Guide 5.67 (1993). (Joy re L at 1, Attachment 1 fol. Tr. 243.) Mr. Moran is a program manager for national safeguards support, Safeguards Office, in the National Security Program Office of Martin Marietta Energy Systems, Inc. As the Program Manager for an NRC contract to provide technical assistance and an assessment of safeguards issues for licensing uranium enrichment facilities, he was one of the principal authors of NUREG/CR-5734, "Recommendations to the NRC on Acceptable Standard Format and Content for the Fundamental Nuclear Material Control (FNMC) Plan Required for Low-Enriched Uranium Enrichment Facilities" (1991), and has substantial experience in material control and accounting for DOE facilities. (Moran re L at 1 and Attachment 2 fol. Tr. 243; Moran Tr. 245.)

In support of contentions L and M, the Intervenor offered the testimony of Helen M. Hunt, an independent consultant on nuclear safeguards who has written extensively on safeguards issues and served as an expert for the United States Department of Energy. (Hunt at 1, 24 fol. Tr. 226.) The Applicant objected to Ms. Hunt testifying on the grounds that she lacked the necessary factual foundation to offer an expert opinion on the sufficiency of the CEC safeguards provisions because she had not had access to any of the proprietary or classified information on the CEC.

The genesis of the Applicant's objection to the testimony of CANT's expert witness was an earlier discovery dispute. In resolving that matter, we found that the Intervenor had waived its right to obtain the proprietary portions of the CEC FNMC Plan and Physical Security Plan because CANT refused to participate in an in camera hearing session involving those documents. The Intervenor took the position that, as a public interest organization with the purpose of bringing important issues to public light, it would not participate in closed hearings. *See* Memorandum and Order (Ruling on Discovery Disputes Pertaining to Contentions L and M) at 15-16 (July 8, 1992). Similarly, none of CANT's attorneys or experts took the necessary steps under the Commission's regulations to obtain security clearances so that they could have access to the classified information concerning the CEC. *See* 10 C.F.R. Part 25. Accordingly, neither Intervenor's counsel nor Ms. Hunt had access to the Applicant's classified addendum to the CEC SAR (App. Exh. 1(b)), the CEC FNMC Plan (App. Exh. 1(d)), or the CEC Physical Security Plan (App. Exh. 1(f)). It was Ms. Hunt's lack of knowledge of these materials that formed the bases for the Applicant's objection.

In response to the Applicant's objection, the Intervenor argued that Ms. Hunt had sufficient facts about the CEC without resort to any classified information to offer her expert opinion that the Commission's safeguards regulations will not be satisfied with the technology LES proposes. According to CANT, the Applicant was not employing tamperproof, continuous, online enrichment monitoring and, therefore, "both factually and legally," the Applicant cannot comply with 10

C.F.R. § 74.33 without using such technology. (Tr. 216-18.) We overruled the Applicant's objection and admitted Ms. Hunt's prefiled direct testimony. In so ruling, we indicated that, consistent with Rule 703 of the Federal Rules of Evidence, the Applicant and the Staff could attempt to establish through cross-examination the lack of factual foundation for Ms. Hunt's expert opinion and that we would decide the appropriate weight to give her testimony. (Tr. 225-26).¹

In resolving contentions L and M, we initially turn to the case the Intervenor seeks to build from Ms. Hunt's testimony. Because CANT's argument is succinctly set out in its proposed findings, we address the argument it presents there.

The Intervenor first asserts that in promulgating 10 C.F.R. § 74.33 the Commission noted that the regulation "'was written with full consideration of IAEA agreements. . . .'" 56 Fed. Reg. 55,991, 55,992 (October 31, 1991)" and "[t]hus, an MC&A program which does not comply with IAEA agreements cannot comply with 10 C.F.R. § 74.33." CANT's Clarified Proposed Findings

¹ Pursuant to the stipulation of the parties, the following Intervenor exhibits pertinent to contentions L and M were also admitted into evidence: Intervenor's Exhibit 1, International Technology Programs Division, Martin Marietta Energy Systems, Inc., Safeguards Training Course, "Nuclear Material Safeguards for Enrichment Plants, Part 4. Gas Centrifuge Enrichment Plant: Diversion Scenarios and IAEA Safeguards Activities," Nov. 14-18, 1988; Intervenor's Exhibit 2, P. Ting and B. Moran, "Material Control and Accounting Requirements for Uranium Enrichment Facilities," *Proceedings of the 32nd Annual Meeting of the Institute of Nuclear Materials Management*, New Orleans, La., July 28-31, 1991, at 404-07; Intervenor's Exhibit 3, S. Baker, B. Dekker, P. Friend, and K. Ide, "Developments in Safeguards as Applicable to Urenco's Enrichment Plants — An Operator's Perspective," IAEA-SM-333/11 (1994); Intervenor's Exhibit 4, M. Benedict, T. Pigford, and H. Levi, *Nuclear Chemical Engineering* 644-85 (2d ed. 1981); Intervenor's Exhibit 5, International Technology Programs Division, Martin Marietta Energy Systems, Inc., Safeguards Training Course, "Nuclear Material Safeguards for Enrichment Plants, Part 2. Cascade and Centrifuge Separation Theory: Uranium Hexafluoride," Nov. 14-18, 1988, at 124-27; Intervenor's Exhibit 6, CEC SAR Table 4.3-2 at 6.3-13 to -15, 6.3-17, 6.3-20 (1991); Intervenor's Exhibit 7, K. van der Meer, "Enrichment Verification on UF₆ in Low Pressure Process Pipes: An Application of the Two Geometry Method," *Proceedings of the 11th ESARDA Symposium on Safeguards and Nuclear Material Management*, Luxembourg, May 30-June 1, 1989, at 177-88; Intervenor's Exhibit 8, H. Hunt, "Effective Go/No Go Enrichment Measurements," *Proceedings of the 13th ESARDA Symposium on Safeguards and Nuclear Material Management*, Avignon, France, May 14-16, 1991, at 363-69; Intervenor's Exhibit 9, A. von Baeckmann, "Implementation of IAEA Safeguards in Centrifuge Enrichment Plants," *Proceedings of the Fourth International Conference on Facility Operations-Safeguards Interface*, Albuquerque, N.M., Sept. 29-Oct. 4, 1991, at 185-90; Intervenor's Exhibit 10, T. Packer, "Continuous Monitoring of Variations in the ²³⁵U Enrichment of Uranium in the Header Pipework of a Centrifuge Enrichment Plant," *Proceedings of the 13th ESARDA Symposium on Safeguards and Nuclear Material Management*, Avignon, France, May 14-16, 1991, at 371-76; Intervenor's Exhibit 11, P. Evans and C. Rutherford, "A Uranium Enrichment Monitor for Surveillance of a Small Centrifuge Cascade," *Journal of Nuclear Materials Management* 34-39 (Apr. 1989); Intervenor's Exhibit 12, President William Clinton, Address to the 48th Session of the United Nations General Assembly (Sept. 27, 1993); Intervenor's Exhibit 13, H. Hunt, "Safeguards for Advanced Gas Centrifuge Uranium Enrichment Plants," *Proceedings of the 15th ESARDA Symposium on Safeguards and Nuclear Materials Management*, Rome, Italy, May 11-13, 1993, at 271-76; Intervenor's Exhibit 14, H. Hunt, "Transparency of National and Regional Safeguards Systems," *Proceedings of the 34th Annual Meeting of the Institute of Nuclear Materials Management*, Scottsdale, Ariz., July 18-21, 1993, at 791; Intervenor's Exhibit 15, D. Drayer, D. Mangan, C. Sonnier, and J. Lovett, "Authentication of Operator-Designed Monitoring Systems," *Proceedings of the 30th Annual Meeting of the Institute of Nuclear Materials Management*, Orlando, Fla., July 9-12, 1989, at 1044-49; Intervenor's Exhibit 16, C. Johnson, "Data Transmission Authentication Techniques for Use in Unattended Surveillance Systems," *Proceedings of the 30th Annual Meeting of the Institute of Nuclear Materials Management*, Orlando, Fla., July 9-12, 1989, at 1050-52; Intervenor's Exhibit 17, M. Canty, E. Hakila, and R. Weh, "The Third U.S.-German Workshop on Near-Real-Time Accounting for Reprocessing Plants," *Journal of Nuclear Materials Management* 14-15 (Feb. 1992).

of Fact and Conclusions of Law Pertaining to Contentions L and M (Oct. 24, 1994) at 2. Next, the Intervenor asserts that the LES license application is subject to the Agreement Between the United States of America and the International Atomic Energy Agency for the Application of Safeguards in the United States of America, Nov. 18, 1977, 32 U.S.T. 3062, that took effect in 1980 as part of the implementation of the Treaty on the Non-Proliferation of Nuclear Weapons, July 1, 1968, 21 U.S.T. 483. Citing article 72(b) of the IAEA Agreement, the Intervenor claims that "this treaty provides that the IAEA must be able to 'make *independent* measurement of all nuclear material subject to safeguards. . . .'" CANT's PF at 2-3 citing 32 U.S.T. at 3082. CANT then argues that the Applicant's classified information concerning the CEC safeguards provisions is irrelevant to evaluating compliance with IAEA safeguards "because it does not pertain to the IAEA's ability to independently verify the absence of HEU production." *Id.* at 4-5. According to CANT, only continuous on-line enrichment monitoring of each CEC cascade will permit "the IAEA to independently verify the absence of HEU production at the CEC." *Id.* at 7. Similarly, CANT declares that only tamperproof monitors with authenticated transmission to a central computer will permit "the IAEA . . . to be able to independently detect unauthorized patterns of valve manipulation which would indicate possible HEU production." *Id.* at 9.

CANT's entire argument fails, however, because it is footed on an erroneous premise. The Intervenor misreads and misapprehends article 72(b) of the IAEA Agreement, which is the cornerstone of its argument. Contrary to its assertions, that IAEA provision does not, through the mechanism of allowing the IAEA to make independent measurements of nuclear material subject to safeguards, mandate that the Applicant employ at its enrichment facility any particular design configuration or any specific hardware in order to provide the IAEA with an independent means of verifying that no HEU has been produced at the facility.

To make its argument, the Intervenor selectively quotes article 72(b) and adds language to its description of the provision to convey the meaning that the IAEA Agreement creates a design or hardware requirement. In describing article 72(b), CANT states that "[a]mong other things, this treaty provides that the IAEA *must be able to* 'make *independent* measurement of all nuclear material subject to safeguards. . . .'" *Id.* at 3-4 (first emphasis supplied). But the actual language of article 72 conveys no such meaning. It states:

For the purposes specified in Articles 69 through 71 [dealing with ad hoc inspections, routine inspections, and special inspections, respectively], the Agency may:

- (a) Examine the records kept pursuant to Articles 49 through 56;
- (b) Make independent measurements of all nuclear material subject to safeguards under this Agreement;

- (c) Verify the functioning and calibration of instruments and other measuring and control equipment;
- (d) Apply and make use of surveillance and containment measures; and
- (e) Use other objective methods which have been demonstrated to be technically feasible.

32 U.S.T. at 3082. The meaning of article 72 is further delineated by article 73, which states:

Within the scope of Article 72, the Agency shall be enabled:

- (a) To observe that samples at key measurement points for material balance accountancy are taken in accordance with procedures which produce representative samples, to observe the treatment and analysis of the samples and to obtain duplicates of such samples;
- (b) To observe that the measurements of nuclear material at key measurement points for material balance accountancy are representative, and to observe the calibration of the instruments and equipment involved;
- (c) To make arrangements with the United States that, if necessary:
 - (i) Additional measurements are made and additional samples taken for the Agency's use;
 - (ii) The Agency's standard analytical samples are analysed;
 - (iii) Appropriate absolute standards are used in calibrating instruments and other equipment;
 - (iv) Other calibrations are carried out;
- (d) To arrange to use its own equipment for independent measurement and surveillance, and if so agreed and specified in the Subsidiary Arrangements to arrange to install such equipment;
- (e) To apply its seals and other identifying and tamper-indicating devices to containments, if so agreed and specified in the Subsidiary Arrangements; and
- (f) To make arrangements with the United States for the shipping of samples taken for the Agency's use.

Id. As the language of these provisions makes clear, the authority of the IAEA pursuant to article 72(b) to make its own measurements of nuclear material subject to safeguards does not translate into a requirement that a facility subject to IAEA inspection must employ a particular design or a specific kind of hardware to provide the IAEA an independent and foolproof method of verifying that no HEU has been produced at the facility, as the Intervenor asserts.

Further, the Intervenor's case is not advanced by its argument that because the Commission's safeguards rule for enrichment facilities was written "with full consideration of IAEA agreements," an applicant's MC&A program compliance with the IAEA Agreement is central to its compliance with 10 C.F.R. § 74.33. Although CANT is correct that the Commission issued the safeguards rule "with full consideration of IAEA agreements," 56 Fed. Reg. at 55,992, contrary to the Intervenor's claim the IAEA Agreement does not prescribe any particular design configuration or specific hardware for the CEC to provide the IAEA

an independent method of verifying enrichment production. Because CANT's argument is based upon a misreading of the IAEA Agreement, the fact that the Commission issued the safeguards rule with full consideration of the IAEA Agreement provides no support for its position.

Indeed, in promulgating 10 C.F.R. § 74.33, the Commission expressly rejected the suggestion of a commenter with close ties to CANT that it should require that plant hardware be designed to permit and facilitate independent "go/no go" verification of the absence of unauthorized enrichment. *See* CLI-92-7, 35 NRC 93, 103 n.9 (1992). Similarly, the Commission rejected the suggestion that it should require that an applicant consult with the IAEA on plant hardware design. In the statement of considerations accompanying the final rule, it stated:

The Commission does not believe that the suggested hardware design is either necessary or practical. Based upon its experience with safeguarding SNM in licensed material activities, the Commission is convinced that a proper MC&A program can provide adequate protection against unauthorized enrichment, and assurance that should it occur, it will be detected in a timely manner. Therefore, the Commission does not believe it is necessary to impose such a requirement. Furthermore, as it is the NRC's responsibility to license the enrichment facility, its requirements for protection of health and safety of the public and common defense and security take precedence over IAEA inspection schemes and protocols. Nonetheless, these MC&A requirements were developed cognizant of IAEA programs because the U.S. is a member country of IAEA and complies with the IAEA requirements. Consequently, the suggestion of the commenter is refused.

56 Fed. Reg. 55,991, 55,995 (1991).

That the Intervenor's reading of the IAEA Agreement is erroneous also is evident from one of the Commission's rulings in this proceeding. In the notice initiating the proceeding, the Commission provided that any subsequently admitted party could seek reconsideration of the special licensing criteria that the Commission stated would be applicable to the CEC. The Intervenor sought reconsideration and, in its motion, complained of the lack of a safeguards design criterion applicable to the CEC. It requested a design criterion for the facility and its hardware conducive to the implementation of effective advanced national and international safeguards techniques and procedures. CANT also asked the Commission to impose licensing standards that would ensure effective monitoring of the CEC by the IAEA, including online enrichment monitoring and effective monitoring of all sampling ports, process valves, and flanges — the subject of CANT's contentions L and M. CLI-92-7, 35 NRC at 102.

In denying the Intervenor's request for a safeguards design criterion, the Commission stated that it already had addressed the need for safeguards against unauthorized activities by issuing 10 C.F.R. § 74.33. It also rejected CANT's call for licensing standards requiring online enrichment monitoring and effective monitoring of sampling ports, process valves, and flanges. The Commission indicated that the Intervenor's proposed licensing standards were "prescriptive"

and explained that, in promulgating the safeguards rule, it had made a reasoned policy choice to regulate by performance-based standards for MC&A programs. It added that "[l]icensees may, of course, choose or need to employ the CANT-suggested means to achieve an appropriate level of safeguards; however, those means are not necessarily the exclusive solutions to meeting the Commission's performance requirements." *Id.* at 104.

The Commission's statements denying CANT's reconsideration motion, taken in conjunction with the statement of considerations accompanying the final safeguards rule, make it clear that the Intervenor's reading of the IAEA Agreement is not shared by the Commission. In promulgating the safeguards rule, the Commission remarked that the rule was written with full consideration of IAEA agreements. Consistent with that statement, in denying CANT's reconsideration motion the Commission could not have rejected the Intervenor's suggested licensing standards on the ground that such standards were prescriptive, and hence incompatible with the performance-based standards of the safeguards rule, if those very same prescriptive standards were mandated by the IAEA Agreement.

Thus, as the Commission suggested, 10 C.F.R. § 74.33 is fully consistent with the IAEA Agreement and the Intervenor's reading of that Agreement is erroneous. Contrary to CANT's assertions, the IAEA Agreement, and hence the Commission's safeguards rule, simply do not impose on the Applicant a requirement that the CEC must employ a particular design configuration or a specific kind of hardware in order to provide the IAEA an independent and foolproof method of verifying that no HEU has been produced at the facility. Whether the Intervenor's position is viewed as a strictly legal argument that the IAEA Agreement requires, as a matter of law, continuous online enrichment monitoring and effective monitoring of sampling ports, process valves, and flanges, or whether CANT's position is viewed as a factual argument that these same methods are the only possible way to provide IAEA with an independent method of verifying that no HEU has been produced at the facility, the arguments fail because they are entirely based on CANT's incorrect assumption that IAEA safeguards provisions provide the baseline requirements needed to comply with NRC safeguards regulations. CANT's erroneous reading of the IAEA Agreement renders its contentions L and M meritless.

As the foregoing discussion demonstrates, the adequacy of the Applicant's safeguards measures to detect unauthorized production of enriched uranium must be determined under the Commission's safeguards rule. Pursuant to 10 C.F.R. § 74.33(c)(5), the CEC FNMC Plan must provide high assurance that the Applicant's detection program will detect the unauthorized production of enriched uranium. As previously indicated, the Intervenor's expert chose to forego reviewing of the proprietary and classified information on the Applicant's safeguards program. Additionally, the Intervenor took the position that such information was irrelevant for determining compliance with what it believed (albeit erroneously)

were the controlling IAEA safeguards requirements. Therefore, in providing her analysis of the Applicant's compliance with 10 C.F.R. § 74.33(c)(5) Ms. Hunt lacked complete, accurate, factual information about the Applicant's safeguards measures and the design and layout of the CEC, including the classified addendum to the CEC SAR (App. Exh. 1(b)), the CEC FNMC Plan (App. Exh. 1(d)), and the CEC Physical Security Plan (App. Exh. 1(f)). As a result, the quality of Ms. Hunt's analysis was seriously impaired. For example, Ms. Hunt did not know how the CEC centrifuges are interconnected to form cascades, how the cascades are controlled, or how many process valves are on each cascade. Similarly, the Intervenor's expert did not know whether the CEC cascades can be reconfigured and, if so, by what means, where the process valves are located, or what measures LES will employ to control personnel access to the centrifuges. (Tr. 231-36.) The proprietary and classified information in the Applicant's Exhibits 1(b), 1(d), and 1(f) are at the heart of the question of the adequacy of the Applicant's safeguards provisions and indispensable to any determination of whether the Commission's regulations have been met. Without knowledge of the relevant facts, CANT's expert did not have a sufficient foundation to reach an informed expert opinion on whether the Applicant's safeguards provisions provide high assurance of detecting the unauthorized production of enriched uranium. Hence, we can give Ms. Hunt's testimony no weight in considering contentions L and M.

Turning to the merits of CANT's contention L, it asserts that continuous online enrichment monitoring of all cascades, with minimum pipe diameters of 110 millimeters to support it, is necessary to provide reasonable assurance that gas centrifuge equipment is not unlawfully diverted to the production of HEU. In responding to contention L, the Applicant's expert witnesses, Mr. LeRoy and Mr. Kraska, stated in their prefiled direct testimony that continuous online enrichment monitoring is not necessary to prevent diversion of centrifuge equipment to the production of HEU at the CEC. (LeRoy-Kraska re L at 4, 12 fol. Tr. 194.) Mr. LeRoy indicated that the classified material in chapter 9 of the CEC FNMC Plan describes the Applicant's clandestine enrichment prevention program. This program is multifaceted and provides a number of means of preventing, detecting, and mitigating diversion of enriched uranium. (LeRoy-Kraska re L at 10-11 fol. Tr. 194.)

Because the CEC FNMC Plan (App. Exh. 1(d)), the CEC Physical Security Plan (App. Exh. 1(f)), and the classified addendum to the CEC SAR (App. Exh. 1(b)) that detail the Applicant's safeguards provisions are comprised of proprietary and classified information, and the Intervenor has chosen not to review this vital information, no purpose would be served by filing separate classified findings on CANT's contentions. It suffices to note generally that the Applicant's safeguards program works through the control of personnel access, the control of enrichment equipment, the control of UF₆ systems operations,

maintenance, testing, and the monitoring and inspection of UF₆ systems and UF₆ usage and storage areas. Through these methods various clandestine scenarios such as batch recycling will be prevented from occurring at the CEC. (LeRoy-Kraska re L at 13-14 fol. Tr. 194.) Mr. LeRoy concluded that the Applicant's safeguards measures, particularly the CEC design and the CEC FNMC Plan, as well as the proposed procedures, operating practices, and administrative programs for the facility, provide a high degree of assurance that clandestine diversion of enrichment will not occur at the CEC. (LeRoy-Kraska re L at 23 fol. Tr. 194.) Further, the NRC Staff's expert witnesses, Mr. Joy and Mr. Moran, stated in their prefiled direct testimony that continuous online enrichment monitoring is not necessary to detect unauthorized enrichment. (Joy-Moran re L at 7 fol. Tr. 243.) The Staff evaluated the Applicant's safeguards provisions and concluded that the CEC FNMC Plan provides the required assurance of detecting the unauthorized production of HEU at the facility and meets all NRC regulatory requirements. (Joy-Moran re L at 6-7 fol. Tr. 243; Tr. 247.)

Based upon the testimony of the expert witnesses for the Applicant and the Staff and the proprietary and classified information contained in Applicant's Exhibits 1(b), 1(d), and 1(f), we find that the CEC FNMC Plan meets the regulatory requirements of the Commission's safeguards regulations, particularly 10 C.F.R. § 74.33(c)(5). The Applicant has met its burden on CANT's contention L and that contention cannot be sustained.

CANT's other safeguards contention, contention M, asserts that in order to effectively preclude and detect production of HEU by batch recycling though the misuse of sampling ports, process valves, and flanges, the CEC FNMC Plan should require effective monitoring by reliable technical means, i.e., tamperproof controls, to track employee access to process connection locations. The Applicant's expert witnesses, Mr. LeRoy and Mr. Kraska, both testified that the tamperproof devices called for by CANT in contention M are not necessary to comply with the Commission's safeguards regulations. (LeRoy-Kraska re M at 4 fol. Tr. 194; Tr. 256.) Access to sampling ports, valves, and flanges is controlled at the CEC and the monitoring devices and methods employed by LES for sampling ports, process valves, and flanges will provide the high assurance required by 10 C.F.R. § 74.33(c)(5) for detecting unauthorized production of enriched uranium. (LeRoy-Kraska re M at 4, 8-9 fol. Tr. 194.) Chapters 2, 6, and 9 of the CEC FNMC Plan describe the devices, methods, and programs for controlling sampling ports, valves, and flanges. Specifically, the classified material in Chapter 9 contains, inter alia, the enrichment scenarios involving sampling ports, valves, and flanges that will be detected and prevented by the Applicant's program, including batch recycling. (LeRoy-Kraska re M at 8-11 fol. Tr. 194.) Further, the NRC Staff witnesses, Mr. Joy and Mr. Moran, indicated in their prefiled direct testimony that the Staff concluded that batch recycling through the use of sampling ports, valves, and flanges has been adequately

addressed by the Applicant and that compliance with the CEC FNMC Plan will provide adequate deterrence to, and detection of, unauthorized production of HEU. (Joy-Moran re M at 6-7 fol. Tr. 243.) Both Mr. Joy and Mr. Moran testified that they were satisfied that the CEC FNMC Plan meets all NRC regulatory requirements and provides the high assurance required by the regulations. (Tr. 247.)

Based on the testimony of the expert witnesses of the Applicant and the Staff and the proprietary and classified information contained in Applicant's Exhibits 1(b), 1(d), and 1(f), we find that the CEC FNMC Plan also meets the requirements of 10 C.F.R. § 74.33(c)(5). The Applicant has met its burden on CANT's contention M and that contention cannot be sustained.

IV.

For the foregoing reasons, we conclude that the CEC Emergency Plan and the CEC FNMC Plan comply with the Commission's applicable regulations and that CANT's contentions H, L, and M cannot be sustained. Pursuant to 10 C.F.R. § 2.760 of the Commission's Rules of Practice, this Partial Initial Decision will constitute the final decision of the Commission on these contentions forty (40) days from the date of its issuance unless a petition for review is filed in accordance with 10 C.F.R. § 2.786, or the Commission directs otherwise. Within fifteen (15) days after service of this Partial Initial Decision, any party may file a petition for review with the Commission on the grounds specified in 10 C.F.R. § 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 at the appropriate time. Within ten (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 10 C.F.R. § 2.786(b)(2)-(3).

It is so ORDERED.

THE ATOMIC SAFETY AND
LICENSING BOARD

Thomas S. Moore
ADMINISTRATIVE JUDGE

Richard F. Cole
ADMINISTRATIVE JUDGE

Frederick J. Shon
ADMINISTRATIVE JUDGE

Rockville, Maryland
April 26, 1996

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. 50-160-Ren
(ASLBP No. 95-704-01-Ren)
(Renewal of Facility
License No. R-97)

GEORGIA INSTITUTE OF
TECHNOLOGY
(Georgia Tech Research Reactor,
Atlanta, Georgia)

April 30, 1996

The Atomic Safety and Licensing Board issues a Prehearing Conference Order setting forth determinations made at a prehearing conference on April 24, 1996, including witness schedules and other matters bearing on the evidentiary hearing scheduled to commence on May 20, 1996.

RULES OF PRACTICE: WITNESSES

The Rules of Practice do not permit particular Staff witnesses to be subpoenaed. But a licensing board, pursuant to 10 C.F.R. § 2.720(h)(2), may, upon a showing of exceptional circumstances, require the attendance and testimony of named NRC personnel. Where an NRC employee has taken positions at odds with those espoused by witnesses to be presented by the Staff, on matters at issue in a proceeding, exceptional circumstances exist. The Board determined that differing views of such matters are facts differing from those likely to be

presented by the Staff witnesses and, on that basis, required the attendance and testimony of the named NRC personnel.

THIRD PREHEARING CONFERENCE ORDER

On April 24, 1996, the Atomic Safety and Licensing Board conducted a prehearing conference in Atlanta, Georgia (Tr. 834-914).¹ Participating were representatives of Georgia Institute of Technology (Georgia Tech or Applicant), Georgians Against Nuclear Energy (GANE or Intervenor), and the NRC Staff. This conference served many of the purposes described in 10 C.F.R. § 2.752. Following are the specific matters considered.

A. Witness Schedules

The Board approved schedules for the appearance of particular witnesses at the hearing commencing on May 20, 1996. Previously, the Board had directed the parties to present the names of all of their witnesses at the prehearing conference. All of them did so.² Because much of Georgia Tech's case is likely to be rebuttal testimony, Georgia Tech was given the authority to identify additional rebuttal witnesses following the testimony of GANE's witnesses. (Georgia Tech in fact identified not only its direct witnesses but also certain potential rebuttal witnesses.) The schedules for particular witnesses are as follows:

1. Georgia Tech:
 - a. Dr. R.A. Karam May 29, 1996, 9:30 a.m.
 - b. Dr. Nicholas Tsoulfanidis
 - c. Dr. Rodney Ice

Rebuttal — above witnesses plus:

 - d. Dr. B.K. Revsin May 31, 1996, 9:00 a.m.
 - e. Dr. P. Michael O'Bannon (June 24, 9:30 a.m.,
 - f. Dr. Burnd Kahn if necessary)
2. GANE:
 - a. R.M. Boyd May 23, 1996, 9:00 a.m.
 - b. Glenn Carroll May 21, 1996, 9:30 a.m.

¹ Notice of this conference, dated March 25, 1996, was published in the *Federal Register* of March 29, 1996, 61 Fed. Reg. 14,164.

² The Applicant and Staff filed witness lists. GANE announced its witnesses during the prehearing conference (Tr. 847-49).

c.	Dr. Brian Copcutt	May 20, 1996, 1:00 p.m.
(May 21, 9:00 a.m.,
if necessary)
d.	John Galloway	May 21, 1996, 1:00 p.m.
e.	A.R. Long	May 24, 1996, 9:00 a.m.
3. NRC Staff:
a.	<i>Panel A:</i>
Douglas M. Collins
Paul E. Fredrickson
Albert F. Gibson
George B. Kuzo	May 22, 1996, 9:00 a.m.
b.	<i>Panel B:</i>
Craig H. Bassett
Edward J. McAlpine
Marvin M. Mendonca	May 30, 1996, 9:00 a.m.
c.	<i>Panel C:</i>
Alexander Adams, Jr.
Marvin M. Mendonca	May 30, 1996, following
Panel B

B. Subpoenas

As requested, the Board issued subpoenas for two GANE witnesses: Mr. Boyd and Dr. Copcutt. GANE also sought a subpoena for Staff Inspector A.R. Long. GANE's response to Staff and Georgia Tech discovery, dated February 22, 1996, at 18-19. The Rules of Practice do not permit particular Staff witnesses to be subpoenaed. 10 C.F.R. § 2.720(h)(1). GANE had earlier identified and has now listed as one of its witnesses Ms. Long. Ms. Long was not included in the three panels of witnesses proposed to be presented by the Staff.

Notwithstanding the Board's lack of authority to subpoena particular Staff witnesses, the Board, pursuant to 10 C.F.R. § 2.720(h)(2), may, upon a showing of "exceptional circumstances, *such as* a case in which a particular named NRC employee has direct, personal knowledge of a material fact not known to the witnesses made available by the [Staff] require the attendance and testimony of named NRC personnel" (emphasis supplied). GANE has identified Inspector Long as having taken positions at odds with other NRC personnel with respect to the conduct of Georgia Tech management. GANE has stated in its response to NRC discovery, dated February 22, 1996 (at 18), that Ms. Long brought a sex-discrimination suit against NRC "for chilling her investigation of the Georgia Tech Research Reactor, complaining of a good old boy network that was covering up Georgia Tech's mistakes."

GANE attached two newspaper articles (Attachment 6 of Discovery Response) describing in more detail Ms. Long's views. GANE has also filed a motion to compel, dated March 8, 1996, seeking Staff documents regarding Inspector Long, and the Board in large part granted that motion.

The Staff took the position that one of its witnesses (Albert F. Gibson) was well aware of the events about which Ms. Long would testify (Tr. 856) and that the Staff's selection of witnesses was adequate. The Board views this situation as comprising the exceptional circumstances referenced by the NRC rule, and it regards differing views of the adequacy of Georgia Tech's management as facts differing from those likely to be presented by the referenced NRC witness.

According to GANE, Ms. Long "still has some questions about oversight of Georgia Tech [by NRC]." Discovery Response, dated February 22, 1996, at 2. Ms. Long's view of the facts thus can reasonably be expected to differ significantly from views likely to be presented by the inspectors on NRC's witness panels. As set forth in one of the newspaper articles attached to GANE's February 22, 1996 discovery response (Attachment 6, *Atlanta Journal-Constitution* article), Ms. Long's disagreement with other NRC employees concerned an alleged "breakdown in management controls" at Georgia Tech — the very issue raised by GANE in this proceeding. Accordingly, the Board hereby requires the attendance and testimony of Ms. A.R. Long, on the schedule set forth above.

C. Local Public Document Room

The Board has long urged the establishment of a Local Public Document Room in the Atlanta, Georgia area. *See, e.g.*, LBP-95-6, 41 NRC 281, 297-98 (1995). Effective April 25, 1996, such a room was established, at the Decatur Library, 215 Sycamore Street, Decatur, Georgia 30030 (telephone (404) 370-3070). Hours of operation are 9:00 a.m. to 9:00 p.m. Monday through Thursday, 9:00 a.m. to 5:00 p.m. Friday and Saturday, and 1:00 p.m. to 5:00 p.m. Sunday. Paper copies of files relevant to this proceeding (from 1985 to date) are present at that location. (If any of the parties have questions concerning the Local Public Document Room, they may call NRC at 1-800-638-8081.)

D. Limited Appearance Sessions

The Licensing Board previously announced that it would hold at least two oral limited appearance sessions — a one-hour session on the opening day of the hearing, from approximately 10:00 a.m. to 11:00 a.m. on Monday, May 20, 1996, and a two-hour evening session, tentatively set for 7:00-9:00 on Wednesday, May 22, 1996. At the conference, the Board confirmed that the evening session

would be held on Wednesday, May 22, 1996, from 7:00 to 9:00 p.m., at the Student Center Theatre, Georgia Institute of Technology, Atlanta, Georgia. The Board also announced that, if there appeared to be sufficient interest or demand, it would hold a further session on Wednesday evening, May 29, 1996, from 7:00 to 9:00 p.m., at a location to be announced.

E. Marking of Exhibits

Exhibits are to be marked, at the time they are first identified for the record, in numerical sequence for each party sponsoring them — e.g., GT [Georgia Tech] Exh. 1, GANE Exh. 1, Staff Exh. 1. Each party should bring eight copies of each exhibit: three for the court reporter and one for each (other) party and Licensing Board member. Parties are encouraged to distribute copies of all exhibits to other parties at the outset of the initial evidentiary hearing session. The Board also encouraged the parties to stipulate to the authenticity and admission of as many exhibits as possible, as well as to past facts, where agreed upon. Such steps could save much hearing time. (Only the Staff, in its list of witnesses, also identified documents it would be presenting in its direct case. The Board had not previously directed the parties to identify documents of this type.)

IT IS SO ORDERED.

FOR THE ATOMIC SAFETY
AND LICENSING BOARD

Charles Bechhoefer, Chairman
ADMINISTRATIVE JUDGE

Rockville, Maryland
April 30, 1996

Directors'
Decisions
Under
10 CFR 2.206

DIRECTORS' DECISIONS

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR REACTOR REGULATION

William T. Russell, Director

In the Matter of

ALL REACTOR LICENSEES
WITH INSTALLED THERMO-LAG
FIRE BARRIER MATERIAL

April 3, 1996

By petitions dated September 26, 1994, from the Citizens for Fair Utility Regulation and the Nuclear Information and Resource Service, dated October 6, 1994, from the Maryland Safe Energy Coalition, dated October 21, 1994, from the GE Stockholders' Alliance and Dr. D.K. Cinquemani, dated October 25, 1994, from the Toledo Coalition for Safe Energy, dated October 26, 1994, from R. Beujan, dated November 14, 1994, from B. DeBolt, and dated December 8, 1994, from the Nuclear Information and Resource Service and the Oyster Creek Nuclear Watch, Petitioners requested that the U.S. Nuclear Regulatory Commission (NRC) take action with regard to the use of Thermo-Lag material by reactor licensees as fire barriers. Petitioners requested a variety of actions including immediate shutdown of reactors where Thermo-Lag material is used.

In a Director's Decision issued on April 3, 1996, the Director of Nuclear Reactor Regulation denied the relief sought by Petitioners. With regard to the requested shutdown of operating facilities using Thermo-Lag material, the Director concluded that fire watches permitted by the NRC requirements applicable to the facilities in question provided reasonable assurance of adequate protection of public health and safety. With regard to the remaining issues raised by Petitioners, the Director concluded that they are being addressed by licensees in a manner that ensures adequate protection of public health and safety.

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

I. INTRODUCTION

By letter dated September 26, 1994, the Citizens for Fair Utility Regulation and the Nuclear Information and Resource Service (NIRS), by press release dated October 6, 1994, the Maryland Safe Energy Coalition, by separate letters dated October 21, 1994, the GE Stockholders' Alliance and Dr. D.K. Cinquemani, by letter dated October 25, 1994, the Toledo Coalition for Safe Energy, by letter dated October 26, 1994, R. Benjan, by letter dated November 14, 1994, B. DeBolt, and by letter dated December 8, 1994, NIRS and the Oyster Creek Nuclear Watch (the Petitioners) requested that the U.S. Nuclear Regulatory Commission (NRC) take action with regard to the use of Thermo-Lag by reactor licensees and that their letters be treated as petitions pursuant to section 2.206 of Title 10 of the *Code of Federal Regulations* (10 C.F.R. § 2.206).

The Citizens for Fair Utility Regulation and NIRS requested that

- (1) Texas Utilities Electric Company (TU Electric), licensee of Comanche Peak Steam Electric Station, Unit 1, perform additional destructive analysis for Thermo-Lag configurations in proportion to the total installed amount of Thermo-Lag to determine the degree of "dry joint" occurrence;
- (2) the licensee perform fire tests on upgraded "dry joint" Thermo-Lag configurations for conduit and cable trays to rate the barrier as a tested configuration in compliance with fire protection regulations; and
- (3) the NRC immediately suspend the Comanche Peak Unit 1 license until the above corrective actions are taken.

The Maryland Safe Energy Coalition requested immediate shutdown of both reactors at the Peach Bottom plant until the risk of fire near electrical control cables due to combustible insulation is corrected.¹ Dr. Cinquemani and the Toledo Coalition for Safe Energy requested that the NRC immediately shut down all reactors where Thermo-Lag is used until it has been removed and replaced. The GE Stockholders' Alliance requested shutdown of all reactors where Thermo-Lag is used until it has been removed and replaced with fire-retardant material meeting NRC standards. R. Benjan requested immediate shutdown of all reactors where Thermo-Lag is used. B. DeBolt requested shutdown of all reactors in which Thermo-Lag is used until it has been removed and replaced. NIRS and the Oyster Creek Nuclear Watch requested that NRC immediately suspend GPU Nuclear Corporation's (GPUN's) operating license

¹ The petition submitted by the Maryland Safe Energy Coalition expressed several concerns in addition to the fire hazard issue. These other issues, that is, other than the fire hazard issue, will be the subject of a separate Director's Decision.

for Oyster Creek Nuclear Generating Station (OCNGS) until GPUN removes Thermo-Lag fire barrier material and replaces it with a competitive product that meets current NRC fire protection regulations.

As a basis for their requests concerning Thermo-Lag 330-1 fire barrier upgrades, the Citizens for Fair Utility Regulation and NIRS Petitioners stated that:

- (1) The licensee's records on the original installation of Thermo-Lag fire barriers on conduits and cable trays indicate that its contractor followed specifications for prebuttering all joints.
- (2) NRC Inspection Reports 50-455/93-42 and 50-446/93-42 found, based on destructive analysis documents, that a concern did exist where Thermo-Lag conduit joints fell apart easily and did not appear to have any residual material of a buttered surface, indicative of a joint that had not been prebuttered.
- (3) The "dry joint" deficiency appeared in Room 115A and other areas of the unit.
- (4) The licensee directly contradicts an NRC inspector's findings that were determined in part by destructive analysis.
- (5) The "dry joint" or absence of prebuttering of Thermo-Lag panels can be determined only by destructive analysis and cannot be determined by a walkdown visual inspection.
- (6) The findings reported in the Comanche Peak Unit 1 Region IV Inspection Reports 50-455/93-42 and 50-446/93-42, based on the limited amount of destructive analysis conducted at the unit, constitute a substantial documentation of installation deficiencies found in Thermo-Lag fire barriers as documented in NRC Information Notice (IN) 91-79, "Deficiencies in the Procedures for Installing Thermo-Lag Fire Barrier Materials," December 6, 1991, and IN 91-79, Supplement 1, "Deficiencies Found in Thermo-Lag Fire Barrier Installation," August 4, 1994.
- (7) Neither the NRC nor the industry, by its agent Nuclear Energy Institute (NEI), nor a utility, have conducted fire tests on dry-fitted or "dry joint" upgraded configurations of Thermo-Lag 330-1.
- (8) The presence of "dry joint" upgraded configurations in Comanche Peak Unit 1 constitutes an untested application of Thermo-Lag fire barriers.

As a basis for the requests concerning Thermo-Lag 330-1 fire barrier upgrades, the Maryland Safe Energy Coalition stated that the manufacturer of the flame retardant (Thermo-Lag insulation) was indicted on criminal charges (of falsifying tests of the effectiveness of the insulation as a fire barrier), and fire near the electrical control cables, due to combustible Thermo-Lag insulation, could cause a catastrophic meltdown.

As the bases for their requests, Dr. Cinquemani, the Toledo Coalition for Safe Energy, the GE Stockholders' Alliance, and R. Benjan stated either individually or collectively that:

- (1) The widespread use of Thermo-Lag in more than seventy reactors presents a safety crisis.
- (2) The NRC has known since 1982 that Thermo-Lag fails NRC performance standards for material that protects vital electrical cables for ampacity rating and fire resistance.
- (3) Thermo-Lag has failed not only NRC tests, but almost all other independent tests.
- (4) Thermo-Lag is combustible, contrary to NRC regulations, and is an ineffective fire barrier.
- (5) The use of Thermo-Lag could lead to shorts, to failure of the cables in an emergency, and to fire.
- (6) Thermo-Lag is faulty in that fraudulent ampacity ratings allowed utilities to use smaller cable than permitted by design requirements, causing the cable to overheat and its insulation to deteriorate.
- (7) The NRC has stated that fire at some nuclear power plants can contribute as much as 50% of the risk to a core meltdown, and a typical reactor will have three to four significant fires during its licensed lifetime.
- (8) Thermal Science, Inc. (TSI), the manufacturer of Thermo-Lag, and its President were indicted by a Federal Grand Jury on seven criminal charges related to conspiracy to defraud the U.S. government in regard to the effectiveness of Thermo-Lag.
- (9) The hourly fire watches at the Davis-Besse Nuclear Power Plant operated by Toledo Edison do not replace fire barrier material and do not prevent fires.

As the bases for his request, B. DeBolt stated that Thermo-Lag fails to meet NRC regulations concerning combustibility and that the manufacturer of Thermo-Lag was indicted for defrauding the government and the utilities. Among the many bases for their request, NIRS and the Oyster Creek Nuclear Watch stated that:

- (1) Southwest Research Institute (SwRI) conducted fire tests on Thermo-Lag 330-1 specimens for GPUN and reported that all specimens ignited approximately 2 seconds after being inserted into the furnace and failed specified criteria because of flaming after the first 30 seconds of testing, an outside temperature rise higher than 30°C, and a weight loss of 50%.
- (2) GPUN's operation of OCNGS with knowledge of the SwRI report is an example of GPUN's reckless disregard for fire protection and public safety.

- (3) In the event of fire, Thermo-Lag is likely to fail its intended function of protecting vital electrical cables running from the control room to plant safety systems used to shut down the reactor.
- (4) Current installations of Thermo-Lag are likely to fail in less time than 1 hour (when smoke detectors and automatic sprinkler systems are present) or 3 hours (when there are no fire detection and suppression systems) that NRC regulations require for fire barriers to withstand fire.
- (5) The NRC Inspector General issued a report in August 1992 condemning NRC's handling of the Thermo-Lag issue and documenting the NRC Staff's failure to understand the scope of the problem.
- (6) In April 1994, Industrial Testing Laboratories and its President pleaded guilty to five felony counts of aiding and abetting the distribution of falsified test data.
- (7) On September 29, 1994, the U.S. Department of Justice issued a seven-count indictment against the manufacturer of Thermo-Lag and its Chief Executive Officer for willful violations of the Atomic Energy Act, conspiracy to conceal material facts, and making false statements to defraud the United States in connection with \$58 million in fire barrier material.
- (8) GPUN has known since at least August 11, 1992, that Thermo-Lag 330-1 as a structural base material is combustible and that GPUN was in violation of Appendices A and R to 10 C.F.R. Part 50 and the NRC Standard Review Plan, NUREG-0800.
- (9) GPUN failed to report the SwRI test results in response to a request for additional information regarding Generic Letter (GL) 92-08 ("Thermo-Lag 330-1 Fire Barriers") of February 10, 1994, when asked to describe the Thermo-Lag 330-1 fire barriers installed as required to meet 10 C.F.R. Part 50, Appendix R.
- (10) Continued reliance on fire watches at OCNGS is an unreasonable and unnecessary hazard to the public health and safety because of an inoperable fire protection system for safe shutdown of the reactor and installed combustible material on the shutdown systems.

On November 7, 1994, I informed the Citizens for Fair Utility Regulation and NIRS that the request for an immediate suspension of the Comanche Peak Unit 1 operating license was denied. On December 2, 1994, I informed the Maryland Safe Energy Coalition that the request for an immediate shutdown of the Peach Bottom plant and for an immediate suspension of the Peach Bottom license was denied. On December 15, 1994, I informed the GE Stockholders Alliance, Dr. D.K. Cinquemani, the Toledo Coalition for Safe Energy, and R. Benjan that the immediate suspension of the operating licenses of all reactors where Thermo-Lag is used was denied. On January 3, 1995, I informed NIRS and

the Oyster Creek Nuclear Watch that the immediate suspension of the OCNGS operating license was denied. On January 19, 1995, I informed B. DeBolt that the request for immediate suspension of the operating licenses of all reactors in which Thermo-Lag is used was denied. The decisions were based on the following:

- (1) The Staff is addressing deficiencies in fire barriers constructed with Thermo-Lag material as part of a Commission-approved action plan and has issued several bulletins and a generic letter to the nuclear industry to provide information and guidance.
- (2) Fire barrier systems constructed with Thermo-Lag have been identified and declared inoperable.
- (3) Compensatory measures (fire watches) approved by the NRC have been instituted.

Additionally in the above correspondence, all Petitioners were informed that the petitions were being treated pursuant to section 2.206 and had been referred to this office for action pursuant to section 2.206 of the Commission's regulations and that appropriate action would be taken within a reasonable time.

For the reasons stated below, the petitions have been denied.

II. BACKGROUND

The picture painted by the Petitioners of inaction by the NRC Staff in responding to the issues presented by the use of Thermo-Lag is at odds with the facts. A review of the chronological development of the issues shows that the NRC Staff has been working diligently to resolve the issues and has consistently sought to ensure that there is adequate protection of the public health and safety. It is also inaccurate to contend that Thermo-Lag generic deficiencies have been known since 1982. As can be seen from the following information, the development of the Thermo-Lag issue has been evolutionary. Reports of problems regarding Thermo-Lag began to surface in the late 1980s when Gulf States Utilities, the licensee for River Bend Station, discovered some cracks and wear damage due to installation deficiencies (Licensee Event Report 87-005, March 25, 1987) and declared the material inoperable as a fire barrier. The licensee further discovered that stress skin was missing on all 3-hour Thermo-Lag fire barriers in the turbine building as a result of an installation error. In a series of plant-specific tests performed by Gulf States Utilities in 1989, Thermo-Lag barriers failed to meet the fire endurance test acceptance criteria. Gulf States Utilities categorized all 1-hour and 3-hour barriers as indeterminate and implemented compensatory measures in the form of fire watches. Other isolated plant-specific fire protection problems had been found during NRC inspections at various utilities as early as 1982 and had been acted on by the NRC Staff.

These problems were treated as plant-specific issues and were not considered as indications of generic problems.

In February 1991, the NRC received allegations that Thermo-Lag did not provide fire protection for electrical cables as claimed by the vendor. In response, in May 1991, the NRC visited River Bend Station to review the installation procedures and the failed fire endurance tests and concluded that a generic concern existed with 30-inch-wide cable trays. The NRC alerted the industry of the results of the test failures in IN 91-47, "Failure of Thermo-Lag Fire Barrier Material to Pass Fire Endurance Test," August 6, 1991.

In June 1991, the Office of Nuclear Reactor Regulation (NRR) established a special review team to investigate the safety significance and generic applicability of technical issues regarding allegations and operating experience concerning Thermo-Lag fire barriers. In its final report, which was issued with IN 92-46, "Thermo-Lag Fire Barrier Material Special Review Team Final Report Findings, Current Fire Endurance Testing, and Ampacity Calculation Errors," June 23, 1992, the special review team reached the following conclusions:

- The fire-resistive ratings and the ampacity derating factors for the Thermo-Lag fire barrier system were indeterminate.
- Some licensees had not reviewed and evaluated the fire endurance test results and the ampacity derating test results used as the licensing basis for their Thermo-Lag barriers to determine the validity of the tests and the applicability of the test results to their plant designs.
- Some licensees had not reviewed the Thermo-Lag fire barriers installed in their plants to ensure that they met NRC requirements and guidance, such as that provided in GL 86-10, "Implementation of Fire Protection Requirements," April 24, 1986.
- Some licensees used inadequate or incomplete installation procedures during the construction of their Thermo-Lag barriers.

After the special review team completed its charter, the NRC Staff prepared an action plan that provided a process to resolve technical issues identified with Thermo-Lag fire barrier systems. The NEI, formerly the Nuclear Management and Resources Council (NUMARC), agreed to coordinate industry efforts to resolve the issues.

In regard to the Petitioners' allegations of NRC's inaction in responding to the issues presented by the use of Thermo-Lag, the significant progress made by the NRC Staff and the nuclear reactor licensees in resolving Thermo-Lag issues speaks to the contrary. The NRC Staff has issued a number of generic communications related to Thermo-Lag, which include the following:

- (1) Two bulletins: BUL 92-01, "Failure of Thermo-Lag 330 Fire Barrier System to Maintain Cabling in Wide Cable Trays and Small Conduits Free from Fire Damage," June 24, 1992; and BUL 92-01,

- Supplement 1, "Failure of Thermo-Lag 330 Fire Barrier System to Perform Its Specified Fire Endurance Function," August 28, 1992.
- (2) Two generic letters: GL 92-08, "Thermo-Lag 330-1 Fire Barriers," December 17, 1992, and GL 86-10, Supplement 1, "Fire Endurance Test Acceptance Criteria for Fire Barrier Systems Used to Separate Redundant Safe Shutdown Trains Within the Same Fire Area," March 25, 1994.
 - (3) Twelve information notices: IN 91-47; IN 91-79; IN 91-79, Supplement 1; IN 92-46; IN 92-55, "Current Fire Endurance Test Results for Thermo-Lag Fire Barrier Material," July 27, 1992; IN 92-82, "Results of Thermo-Lag 330-1 Combustibility Testing," December 15, 1992; IN 94-22, "Fire Endurance and Ampacity Derating Test Results for 3-Hour Fire-Rated Thermo-Lag 330-1 Fire Barriers," March 16, 1994; IN 94-86, "Legal Actions Against Thermal Science, Inc., Manufacturer of Thermo-Lag," December 22, 1994; IN 95-27, "NRC Review of Nuclear Energy Institute, Thermo-Lag 330-1 Combustibility Evaluation Methodology Plant Screening Guide," May 31, 1995; IN 95-32, "Thermo-Lag 330-1 Flame Spread Test Results," August 10, 1995; IN 95-49, "Seismic Adequacy of Thermo-Lag Panels," October 27, 1995; and IN 94-86, Supplement 1, "Legal Actions Against Thermal Science, Inc., Manufacturer of Thermo-Lag," November 15, 1995.

The NRC Staff, the nuclear industry, and others have expended much time and many resources to address and resolve the Thermo-Lag issues. The NRC Staff developed comprehensive fire test guidance and acceptance criteria and worked with industry to improve existing ampacity test procedures. The NRC Staff and industry performed about 100 fire endurance and ampacity derating tests of Thermo-Lag fire barrier materials and full-scale test assemblies. The fire endurance tests established the limitations and the true fire-resistive capabilities of certain Thermo-Lag fire barrier configurations, without relying on the fire endurance test data supplied by TSI, the manufacturer of Thermo-Lag. On the basis of some of these tests, the NRC Staff concluded that existing Thermo-Lag barriers could be upgraded with some additional Thermo-Lag material to satisfy NRC regulations. Precluding all use of Thermo-Lag materials for current and future fire barrier installations would remove a realistic option for resolving safety issues. Therefore, the NRC Staff does not object to the use of Thermo-Lag in specific applications, where, through upgrades, NRC requirements are satisfied. The NRC Staff issued three requests for additional information (RAIs) regarding GL 92-08 to each licensee using Thermo-Lag to obtain information on the specific Thermo-Lag material installed at each plant. The NRC Staff reviewed and approved comprehensive Thermo-Lag fire barrier programs proposed by TU Electric for Comanche Peak Steam Electric Station,

Unit 2, and by Tennessee Valley Authority (TVA) for Watts Bar Nuclear Plant, Unit 1, which attests to the fact that Thermo-Lag barriers can meet NRC fire protection guidelines and requirements. The NRC Staff completed toxicity tests of Thermo-Lag material. The NRC Staff and the industry completed chemical composition, combustibility, and flame spread tests of Thermo-Lag materials. Finally, the NRC Staff reassessed previous technical conclusions to determine the extent to which the NRC Staff and industry relied on information supplied by TSI to reach these conclusions. The Staff had concerns about the reliability of information and data supplied by TSI that have been or could be used to make judgments regarding Thermo-Lag materials. The NRC Staff identified and categorized the issues and previous conclusions and used the results of the industrywide testing program regarding the chemical composition of Thermo-Lag, as discussed below, to determine if the in-plant Thermo-Lag materials were consistent. The results of this reassessment indicated that previous technical conclusions were valid independent of the information provided by TSI. The Staff therefore concluded that additional action to reassess the issues or reverify the previous conclusions was not needed.

The NEI testing program on the chemical composition of Thermo-Lag analyzed samples from eighteen utilities representing twenty-five nuclear power plants. The samples represented Thermo-Lag material manufactured between 1984 and 1995. NEI performed pyrolysis gas chromatography evaluation of 169 samples to assess organic chemical composition and performed energy-dispersive x-ray spectroscopy of 33 samples to assess inorganic chemical composition. On the basis of the tests, NEI concluded that (1) all of the samples contained the constituents identified by TSI as essential to fire barrier performance; (2) the composition of the samples was consistent; and (3) the test results provided a basis on which to close NRC questions about chemical composition and product consistency and for utility use of generic test data relative to fire endurance ratings, flame spread, heat release, ampacity derating, and other material properties.

The NRC Staff test program on the chemical composition of Thermo-Lag was conducted by the National Institute of Standards and Technology (NIST) during 1992 and 1995. NIST analyzed twenty-one samples that were either collected by the Staff during site visits to plants and test laboratories or provided by TVA, Gulf States Utilities, Commonwealth Edison Company, and NEI. The analysis included elemental and ammonia analysis, pyrolysis, gas chromatography, mass spectrometry, and x-ray fluorescence. These analytical techniques indicated that all of the samples were similar in their bulk chemical composition. These results were consistent with the results of the NEI chemical testing program pertaining to the chemical composition and uniformity of Thermo-Lag.

Industrywide progress has generally been commensurate with the complexity of the plant-specific issues and the amounts of Thermo-Lag installed at the

individual plants. Several licensees have initiated programs to replace Thermo-Lag and are performing plant-specific tests of other fire barrier materials such as Mecatiss (Florida Power & Light for Crystal River Unit 3) and Darmatt KM-1 (Carolina Power & Light for Brunswick, IES Utilities for Duane Arnold Energy Center, Commonwealth Edison Company for LaSalle County Station, and Northern States Power Company for Prairie Island Nuclear Generating Plant). The NRC Staff is reviewing the plant-specific fire endurance test programs and has recently approved the plant-specific application of Darmatt KM-1 fire barrier at the LaSalle plant. The remaining licensees have submitted to the NRC Staff detailed plans and schedules for resolving the issues at their plants. Most licensees are pursuing a combination of such options as upgrading existing Thermo-Lag fire barriers to meet NRC fire barrier requirements, replacing Thermo-Lag fire barriers with another type of fire barrier, reducing or eliminating reliance on Thermo-Lag fire barriers by relocating equipment and cables and by postfire safe-shutdown reanalysis, installing additional fire protection features such as automatic sprinkler systems, and requesting configuration-specific exemptions when such exemptions are allowed by NRC regulations and are technically justified to provide a level of safety equivalent to that prescribed by the regulations. The NRC Staff has completed its review of the plans for resolving fire protection issues that were proposed by most of the licensees. As with any issues as technically complex, challenging, and resource intensive as those presented by Thermo-Lag barriers, some plant-specific questions remain. However, the number of issues has steadily declined. The NRC Staff and the licensees will continue to address the residual questions on a case-by-case basis as they arise, and the NRC Staff will continue to follow up with individual licensees on their corrective actions, as appropriate. Every licensee with Thermo-Lag fire barriers will continue to maintain NRC-approved compensatory measures, such as fire watches, until its permanent corrective actions are implemented. Therefore, the public health and safety are protected.

The NRC's "defense-in-depth" fire protection concept relies on protecting safe shutdown functions by achieving a balance among three echelons or levels of protection, which are (1) fire prevention activities; (2) the ability to rapidly detect, control, and suppress a fire; and (3) physical separation of redundant safe shutdown functions. Weaknesses found in one area may be dealt with by enhancing the protection capabilities of the remaining areas.² The NRC foresaw cases in which fire protection features would be inoperable and required licensees, through technical specifications or approved fire protection plans controlled by license conditions, to provide compensation for the deficient condition. The concept of allowing alternative actions to compensate for an

² The "defense-in-depth" concept is detailed in the NUREG-0800, "NRC Standard Review Plan," § 9.5.1, "Fire Protection Program," at 9.5.1-10.

inoperable condition or component is used in various programs associated with the operation of nuclear power plants and has long been an integral part of NRC regulatory requirements.³

The fire endurance test results contained in NRC BUL 92-01 and NRC BUL 92-01, Supplement 1, confirmed that certain Thermo-Lag fire barrier configurations compromise one facet of the fire protection defense-in-depth concept. In response to NRC BUL 92-01 and its supplement, the licensees for plants using Thermo-Lag fire barriers established fire watches in accordance with their technical specifications or license conditions as a compensatory measure. Fire watches are personnel trained by the licensees to inspect for the control of ignition sources, fire hazards, and combustible materials; to look for signs of incipient fires; to provide prompt notification of fire hazards and fires; and to take appropriate actions to begin fire suppression activities. Generally, therefore, by providing additional fire prevention activities through enhanced detection capabilities to find fire hazards and in the case of a fire, augmented suppression activities before a barrier's ability to endure a fire is challenged, fire watches compensate for degraded fire barriers.

The NRC Staff has carefully evaluated the issues associated with continued use of Thermo-Lag material, including the use of fire watches to compensate for any degradation in the effectiveness of required fire barriers. Such compensatory actions provide an adequate level of fire protection without an undue risk to the health and safety of the public. Licensees have established fire watches to compensate for degraded and possibly inoperable fire barriers. Also, licensees rely on a defense-in-depth concept that incorporates multiple safety measures. Automatic fire detection and suppression systems are provided in most areas that have safe shutdown equipment. Trained fire brigades are required 24 hours a day at all plants. All areas that have safe shutdown equipment have manual fire suppression features. Fuels that can feed a fire and ignition sources to start a fire are controlled. The combination of fire watches and the defense-in-depth fire protection features provides an adequate level of fire protection until licensees implement permanent corrective actions.

Taken together, these factors represent an adequate means of fire protection at the plants using Thermo-Lag to ensure, with margin,⁴ that operation can be conducted without an undue risk to the health and safety of the public. Nevertheless, with these considerations in mind, the NRC Staff addressed below the Petitioners' specific concerns to demonstrate that no substantial health and safety issue has been raised.

³ NRC GL 91-18, "Information to Licensees Regarding Two NRC Manual Sections on Resolution of Degraded and Nonconforming Conditions and Operability," issued November 7, 1991, and *NRC Inspection Manual*, Part 9900, "Resolution of Degraded and Nonconforming Conditions," issued October 31, 1991.

⁴ The fact that Thermo-Lag barriers, as installed, will provide protection for some period of time is supported by, among others, the fire endurance test results documented in IN 92-55.

III. RESPONSE TO SPECIFIC CONCERNS

The Petitioners alleged that

- (1) The NRC has been slow to enforce its own regulations.
- (2) Fire watches do not replace fire barriers and continued reliance on fire watches is an unreasonable and unnecessary hazard to the public health and safety because of an inoperable fire protection system for safe shutdown of the reactor and installed combustible material on the shutdown systems.
- (3) Utilities are in violation of NRC requirements because Thermo-Lag is combustible and could contribute to a fire instead of protecting from it, and, in spite of the danger, the NRC allows continued use of Thermo-Lag.
- (4) Faulty ampacity ratings could result in the use of inappropriate cables, which, if undersized, could overheat and cause its insulation to deteriorate.
- (5) The licensee for Oyster Creek did not report to the NRC its findings regarding the combustibility of Thermo-Lag.
- (6) The Thermo-Lag barriers have been improperly installed at Comanche Peak Unit 1, which contributes further to the poor performance of Thermo-Lag.

The NRC Staff acknowledged and has stated that certain Thermo-Lag fire barrier configurations have failed to demonstrate the ability to perform their fire resistance functions. In this regard, the NRC Staff, in BUL 92-01, Supplement 1, has stated that Thermo-Lag fire barriers should be treated as inoperable until licensees can declare the fire barriers operable on the basis of successful, applicable tests. Given the foregoing deficiencies identified for Thermo-Lag, the NRC Staff concluded that compensatory measures are necessary until a licensee can declare fire barriers operable on the basis of applicable tests that demonstrate successful barrier performance.

The Petitioners also asserted that (1) the NRC should have protected the public and not Rubin Feldman, the President of the company manufacturing Thermo-Lag, and (2) public safety has been compromised by NRC's seeming complicity with utilities.⁵

⁵ These statements could be interpreted as the appearance of unwarranted favoritism toward the manufacturer of Thermo-Lag and complicity with utilities. Therefore, the petitions were referred to the NRC Office of the Inspector General.

A. Regulatory Compliance

The NRC Staff acknowledges that certain fire endurance tests have demonstrated that Thermo-Lag barriers may not meet the fire endurance rating criteria set forth in section III.G of Appendix R to 10 C.F.R. Part 50. This acknowledgment does not mean, however, that there no longer is reasonable assurance of protection of the public health and safety or that such actions as the shutdown of all reactors using Thermo-Lag and the suspension of Comanche Peak, Peach Bottom, and Oyster Creek operating licenses are warranted.

It should first be noted that Appendix R, which sets forth criteria for specific fire protection features to protect safe shutdown systems, is applicable only to facilities that commenced operation prior to 1979. Facilities commencing operation on or after January 1, 1979, although not bound by Appendix R, generally are bound by licensing commitments to follow the criteria set forth in Appendix R through license conditions.⁶

Even assuming that all of the plants in which Thermo-Lag is installed and that commenced operation prior to 1979 are not in compliance with Appendix R, it does not follow that the failure to comply with a regulation indicates the absence of adequate protection. The Commission has explained that

[W]hile it is true that compliance with all NRC regulations provides reasonable assurance of adequate protection of the public health and safety, the converse is not correct, that failure to comply with one regulation or another is an indication of the absence of adequate protection, at least in a situation where the Commission has reviewed the noncompliance and found that it does not pose an "undue risk" to the public health and safety.

(*Ohio Citizens for Responsible Energy*, DPRM-88-4, 28 NRC 411 (1988).)

All the plants using Thermo-Lag have instituted fire watches as required by their action statements regarding inoperable barriers contained in their technical specifications or fire protection programs subject to license conditions. Generally, action statements provide alternative remedial actions to shutting down a plant when limiting conditions for operation are not met. Compliance with the required remedial actions provides reasonable assurance that the public health and safety is protected notwithstanding the plant's continued operation and its failure to meet the respective limiting condition for operation. Here, since all of the plants using Thermo-Lag have implemented the required fire watches in accordance with plant-specific requirements, their continued operation does not pose an undue risk to the public health and safety.

⁶In addition, there are a very limited number of plants that commenced operation on or after January 1, 1979, that are not subject to specific license conditions but whose licensees have made commitments to comply with NRC fire protection requirements, including section III.G of Appendix R. The NRC is elevating these commitments to license conditions.

The Petitioners assert that fire watches do not replace fire barriers and continued reliance on fire watches is a hazard to public safety. The NRC Staff acknowledges that fire watches do not replace fire barriers. However, as will be discussed in greater detail later in this Decision, fire watches are judged by the NRC to be acceptable compensatory measures and are legally sanctioned remedial actions based on 10 C.F.R. § 50.36(c)(2).⁷

In sum, notwithstanding the failure to have operable fire barriers meeting the fire endurance rating criteria specified by section III.G of Appendix R, a plant is not necessarily unsafe to continue operation. To the contrary, fire watches are judged by the NRC to be adequate remedial measures that provide reasonable assurance that the public health and safety is protected. By reason of compliance by all facilities using Thermo-Lag with their technical specifications or fire protection program action statements requiring the implementation of fire watches, protection of the public health and safety is still reasonably ensured for such plants. Because the Commission has discretion regarding enforcement of its regulations, and given the circumstances here in which no significant health and safety issues have been raised, enforcement action of the nature requested by the Petitioners is not warranted.

B. Ability of Fire Watches to Compensate for a Degraded Barrier

One of the Petitioners' allegations is that the measures taken by licensees to compensate for degraded barrier conditions, specifically fire watches, are not adequate to protect the public health and safety. The Petitioners have questioned the continued reliance on fire watches in the light of an inoperable fire protection system for safe plant shutdown and the combustibility of Thermo-Lag. In addition, the Petitioners claim that a fire watch does not replace a fire barrier in that fire watches are not preventive.

Despite the acknowledged shortcomings identified with certain Thermo-Lag fire barriers and after fully considering the arguments presented by the Petitioners regarding the ability of fire watches to provide adequate compensation, the NRC Staff has determined that compensatory measures using fire watches are adequate and acceptable to ensure public health and safety until permanent corrective measures are implemented.

The use of fire watches in instances of degraded or inoperable barriers is an integral part of NRC-approved fire protection programs. In general, these NRC Staff-approved compensatory measures specify the establishment of a continuous fire watch or an hourly fire watch in cases in which automatic detection systems

⁷ In instances in which fire protection programs have been moved from technical specifications and are now subject to license conditions, the NRC's approval of the fire protection programs subject to license conditions provides the legal basis for the implementation of fire watches as a remedial measure.

protect the affected components. Although it is true that Thermo-Lag is intended as a barrier and fire watch personnel cannot act as physical shields, a fire watch provides more than simply a detection function. Personnel assigned to fire watches are trained by the licensee to inspect for the control of ignition sources, fire hazards, and combustible materials; to look for signs of incipient fires; to provide prompt notification of fire hazards and fires; and to take appropriate action to begin fire suppression activities. Fire watch personnel are capable of determining the size, the actual location, the source, and the type of fire — valuable information that cannot be provided by an automatic fire detection system.

During a plant fire, compartment temperatures are likely to be less severe at the early stages. On the basis of enhanced capabilities provided by fire watches and notwithstanding that the level of barrier-type protection may be reduced, the NRC Staff has determined that there is an adequate margin of safety to ensure protection in cases in which fire watches are approved.

The goal of the NRC Staff's Thermo-Lag Action Plan is directed toward restoring the functional capability of fire barriers as soon as practicable. There is not a time limit associated with the use of fire watches as a compensatory measure. Given the margin of safety a fire watch brings to a fire protection program, as discussed above, the NRC Staff has determined that continuing the use of fire watches while barriers are inoperable is acceptable. However, the NRC believes that notwithstanding interim reliance on compensatory measures, appropriate actions must be taken by licensees to restore operability of Thermo-Lag barriers. Individual licensees have provided schedules for restoring operability and these are being tracked by the NRC Staff.

The NRC Staff has carefully evaluated the use of fire watches to compensate for any degradation in the effectiveness of required fire barriers and has concluded that fire watches continue to ensure protection of the public health and safety. Therefore, the Petitioners' assertion that the measures taken by licensees to compensate for degraded fire barrier conditions, specifically fire watches, are a hazard is without merit.

C. Combustibility

The Petitioners alleged that, contrary to NRC regulations, Thermo-Lag is combustible.

The NRC Staff recognizes that Thermo-Lag is combustible. To assess Thermo-Lag combustibility, the NRC Staff conducted a testing program at NIST based on the American Society for Testing and Materials (ASTM) Standard E-136. Under this testing standard, the material is considered to be "combustible" if three out of four samples tested exceed the following criteria: (1) the recorded temperature of the specimen's surface and interior thermocouples,

during the test, rises 54°F (30°C) above the initial furnace temperature; (2) there is flaming from the specimen after the first 30 seconds of irradiance; and (3) the weight loss of the specimen, due to combustion during the testing, exceeds 50%. Of the four Thermo-Lag specimens tested, all experienced a weight loss of greater than 50% and flaming continued in excess of 30 seconds. IN 92-82, which provided licensees with the results of the E-136 tests and confirmed the combustibility of Thermo-Lag, restated the NRC fire protection requirements of section III.G of Appendix R to 10 C.F.R. Part 50 and asked that licensees review the information for applicability to their facilities.

The NRC's basic fire protection regulation for commercial nuclear power plants is section 50.48 of 10 C.F.R. Part 50 "Fire protection." Section 50.48 references General Design Criterion (GDC) 3 of Appendix A to 10 C.F.R. Part 50, "Fire protection," Appendix R to 10 C.F.R. Part 50 "Fire Protection Program for Nuclear Power Facilities Operating Prior to January 1, 1979," and various NRC fire protection guidance documents. Specifically, 10 C.F.R. § 50.48(a) states that each operating nuclear power plant must have a fire protection plan that satisfies GDC 3, and 10 C.F.R. § 50.48(b) states that Appendix R to 10 C.F.R. Part 50 establishes fire protection features required to satisfy GDC 3 with respect to certain generic issues for nuclear power plants licensed to operate prior to January 1, 1979.⁸ These issues are addressed in section III.G, "Fire protection of safe shutdown capability," section III.J, "Emergency lighting," and section III.O, "Oil collection system," of Appendix R. Of these three sections of Appendix R, section III.G addresses the use of fire barriers to protect one train of systems necessary to achieve and maintain hot shutdown conditions in the event of a fire and, therefore, is the regulation of interest here.

Section 50.48(a) notes that fire protection guidance for nuclear power plants is contained in two NRC documents. These are (1) Branch Technical Position (BTP) Auxiliary Power Conversion Systems Branch (APCSB) 9.5-1, "Guidelines for Fire Protection for Nuclear Power Plants," for new plants docketed after July 1, 1976; and (2) Appendix A to BTP APCS 9.5-1, "Guidelines for Fire Protection for Nuclear Power Plants Docketed Prior to July 1, 1976." These two NRC documents specify preferred methods for fire protection program design including the use of fire barriers to satisfy section III.G of Appendix R. Fire barriers that meet the criteria of section III.G of Appendix R to 10 C.F.R. Part 50 and these NRC guidance documents satisfy GDC 3. NUREG-0800, "Standard Review Plan" (SRP) § 9.5-1, "Fire Protection Program," incorporates the guidance of BTP APCS 9.5-1 and Appendix A to BTP APCS 9.5-1 and the criteria of section III.G of Appendix R to 10 C.F.R. Part 50. Therefore,

⁸ While Appendix R is applicable only to facilities that commenced operation prior to January 1, 1979, as discussed earlier in this Director's Decision, facilities commencing operation on or after January 1, 1979, are bound to satisfy the criteria of Appendix R through license conditions or licensing commitments.

fire barriers that meet the guidelines of SRP section 9.5-1 also satisfy 10 C.F.R. § 50.48 and GDC 3.

As stated in section 50.48(a), the purpose of the fire protection plan is "to limit fire damage to structures, systems, or components important to safety so that the capability to safely shut down the plant is ensured." In general, a fire protection plan consists of administrative controls and procedures, personnel for implementing the plan and for fire prevention and manual fire suppression activities, fire detection systems, automatic and manually operated fire suppression systems and equipment, and fire barriers.

Section III.G of Appendix R to 10 C.F.R. Part 50 is the only part of the fire protection regulations that addresses the use of fire barriers. It addresses the use of fire barriers to protect one train of systems necessary to achieve and maintain hot shutdown conditions in the event of a fire. Fire barriers are required to have either a 1-hour or 3-hour rating depending on the specific requirement. However, section III.G does not provide acceptance criteria for fire barriers, nor does it address the combustibility of fire barrier materials. The criteria are set out in BTP APCSB 9.5-1, Appendix A to BTP APCSB 9.5-1, and SRP § 9.5-1. These NRC documents do not preclude the use of combustible materials for construction of fire barriers required to have a 1-hour or 3-hour rating. On March 25, 1994, the Staff consolidated and clarified in Supplement 1 to Generic Letter (GL) 86-10, the fire barrier criteria specified in the BTPs and the SRP. This GL supplement provides detailed Staff guidelines for assessing the combustibility of fire barrier materials, but it does not preclude the use of combustible materials for fire barriers required to satisfy a 1-hour or 3-hour rating. In fact, the fire barrier criteria are appropriately focused on the performance of the fire barrier and its ability to achieve its intended design function, that is, its ability to limit temperature rise within the barrier enclosure and to prevent the passage of flame or gases hot enough to adversely affect the functionality of the safe shutdown components (e.g., cables) enclosed within the fire barrier.

Thermo-Lag 330-1 is a sacrificial material. When it is exposed to elevated temperatures, such as those experienced during a fully developed room fire, it sublimates and transitions from a solid to a vapor. The vapors go through an endothermic decomposition process (pyrolysis) that absorbs heat from the fire. As a result of the pyrolysis, the unreacted Thermo-Lag material is replaced by an insulating char layer which is composed of small interconnecting cells having a large surface area. The char layer reradiates energy and limits heat transfer through the Thermo-Lag material. The low thermal conductivity of the char layer provides additional thermal insulation. Therefore, even though Thermo-Lag is classified as a combustible material when testing in accordance with the guidance of Supplement 1 to GL 86-10, properly designed, qualified, and installed Thermo-Lag can yield fire barriers with a 1-hour or 3-hour rating that

will protect safe shutdown components from the effects of the fire. Therefore, such barriers can satisfy the requirements of section 50.48 and GDC 3.

To provide reasonable assurance that Thermo-Lag fire barriers installed in the nuclear power plants can meet their intended function, representative Thermo-Lag fire barrier assemblies have been subjected to full-scale qualification-type fire endurance tests conducted in accordance with the guidance of Supplement 1 to GL 86-10. This guidance provides standard and uniform test methods and acceptance criteria for assessing the fire-resistive capabilities of these barriers. The Staff has found the use of Thermo-Lag acceptable as a fire barrier material when it is used in accordance with existing NRC regulations and guidance and where supported by appropriate tests and analyses.

However, there are two types of applications where the use of Thermo-Lag material is not appropriate. These are (1) enclosing combustible materials (e.g., insulated cables) within Thermo-Lag fire barriers to eliminate the combustible materials as a fire hazard and (2) using Thermo-Lag as radiant energy heat shields inside noninerted containments.

Section III.G of Appendix R (and the equivalent SRP guidance) specifies three options for protecting redundant trains of systems necessary to achieve and maintain hot shutdown conditions located within the same fire area outside of containment. Two of the three options (sections III.G.2.a and c) rely on the use of fire barriers with a 1-hour or 3-hour rating, as discussed above. The third option, section III.G.2.b, specifies the separation of redundant safe shutdown trains by a horizontal distance of more than 20 feet with no intervening combustibles or fire hazards. (A typical example of intervening combustibles is a cable tray loaded with cables, because cable jacket materials are combustible.) Therefore, spacial separation, and not fire barriers, are used to meet section III.G.2.b. However, to meet this requirement, some licensees have enclosed combustibles that are installed between redundant shutdown trains within a fire barrier. In theory, the fire barrier prevents an exposure fire from igniting the intervening combustible materials and spreading along them from one redundant train to the other. Thus the fire barrier effectively eliminates the intervening combustible as a fire hazard. If the fire barrier itself is noncombustible and the redundant safe shutdown trains are separated by a horizontal distance of more than 20 feet, then the configuration meets section III.G.2.b of Appendix R. However, if the fire barrier material used to enclose the intervening combustibles is also combustible, such as Thermo-Lag, then the licensee has simply installed one combustible material over another and has not eliminated the intervening fire hazard. In a limited number of cases, licensees have enclosed intervening combustibles within Thermo-Lag fire barriers under the incorrect assumption that the Thermo-Lag fire barrier would eliminate the intervening combustibles as a fire hazard. Corrective actions will be required in these cases.

As an alternative to the three options discussed above, section III.G.2.f of Appendix R (and the equivalent SRP guidance) provides a fourth option for noninerted containments, that is, the separation of redundant safe shutdown components with noncombustible radiant energy heat shields. Thermo-Lag is classified as a combustible material when tested in accordance with the guidance of Supplement 1 to GL 86-10. Therefore, it does not meet the criteria for radiant energy heat shields. Licensees using Thermo-Lag in this fashion will also be required to take corrective action.

To ensure that corrective actions are taken in these cases, the NRC Staff issued IN 95-27. In that IN, the Staff addressed enclosing combustible materials within Thermo-Lag fire barriers in an attempt to eliminate the combustible materials as a fire hazard and using Thermo-Lag to construct radiant energy heat shields inside noninerted containments. The Staff identified such solutions for reevaluating the use of Thermo-Lag for these applications as: (1) reanalyzing postfire safe shutdown circuits inside containment and their separation to determine if the Thermo-Lag radiant energy shields are needed, (2) replacing Thermo-Lag barriers installed inside the containment with noncombustible barrier materials, (3) replacing Thermo-Lag barriers used to create combustible-free zones with noncombustible barrier materials, (4) rerouting cables or relocating other protected components, or (5) requesting plant-specific exemptions where technically justified.

One of the Petitioners also asserted that subsection 5a(3) of section 9.5-1 of the SRP states that fire barrier designs "should utilize only non-combustible materials." This section of the SRP does not apply to fire barriers that are used to separate redundant safe shutdown components located *within* a nuclear power plant fire area. Rather, it applies to fire barrier penetration seals, which are typically installed in fire area boundaries. Thermo-Lag 330-1 is not used in such applications.

The principal consideration for 1-hour and 3-hour rated fire barriers installed to meet NRC fire protection requirements and guidelines is that they can achieve their intended design function. That is, that they can limit temperature rise within the barrier enclosure and prevent the passage of flame or gases hot enough to adversely affect the functionality of the safe shutdown components enclosed within the fire barriers. The fact that Thermo-Lag material is combustible does not preclude Thermo-Lag fire barriers from achieving the intended function of preventing fire damage if the fire barriers are properly designed, qualified, and installed. The Petitioners' contention that Thermo-Lag material should not be used because it is combustible is without basis.

D. Ampacity Derating

The Petitioners assert that Thermo-Lag could contribute to starting a fire instead of protecting from it. They further alleged that faulty ampacity derating factors could result in the use of inappropriate cables that, if undersized, could overheat and cause its insulation to deteriorate.

Ampacity derating is the lowering (derating) of the current-carrying capacity of power cables enclosed in electrical raceways protected with fire barrier materials because of the insulating effect of the fire barrier material. This insulating effect may reduce the ability of the cable insulation to dissipate heat. If not accounted for in the plant design, the increased cable insulation temperature could lead to premature insulation failure. Other factors also affect ampacity derating, including the extent of cable fill in the raceway, cable type, raceway construction, and ambient temperature. The National Electrical Code, Insulated Cable Engineers Association (ICEA) publications, and other industry standards provide ampacity derating factors for open-air installations. These standards do not provide derating factors for fire barrier systems. Although a national standard test method is in the process of being developed but has not yet been established, ampacity derating factors for raceways enclosed with fire barrier material are determined by testing for the specific installation configurations.

TSI, the manufacturer of Thermo-Lag, has documented a wide range of ampacity derating factors that were determined by testing, for raceways enclosed within Thermo-Lag fire barrier materials. On October 2, 1986, TSI informed its customers that, while conducting tests in September 1986 at Underwriters Laboratories, Inc. (UL), it found that the ampacity derating factors for Thermo-Lag barriers were greater than previous tests indicated. However, the cable fill and tray configurations were different for each test than those tested previously. In addition, the NRC Staff learned that UL performed a duplicate cable tray test that resulted in an even higher derating factor. The NRC Staff also learned of the determination of other derating factors during its review of other tests conducted at Southwest Research Institute (SwRI).⁹

⁹ The test procedures and test configurations differed among the testing laboratories. Therefore, the results from the different ampacity tests may not be directly comparable to each other.

The NRC Staff is concerned that the ampacity derating factors, as determined in UL tests for Thermo-Lag barrier designs, are inconsistent with TSI results for similar designs because different times were allowed for the temperature to stabilize before taking current measurements. Inconsistent stabilization times would call into question the validity of previous TSI results. The NRC also noticed during the review of the Industrial Testing Laboratories (ITL) test reports that ambient temperature and maximum cable temperature were allowed to vary widely for some tests. Therefore, those tests in which the ambient and maximum cable temperatures were not maintained within specified limits may be questionable. Additionally, a licensee discovered a mathematical error for the ampacity derating factor published in an ITL test report. A preliminary assessment of the use of a lower-than-actual ampacity derating factor indicates that higher-than-rated cable temperatures are possible for Thermo-Lag installations. Higher-than-rated cable temperatures could accelerate the aging effects experienced by the cable.

The NRC special review team concluded that the ampacity derating test results completed at the time of the review, including the UL test results, were indeterminate. This conclusion was based on observed inconsistencies in the derating test results of the various testing laboratories. The special review team found that there was no national consensus test standard (e.g., Institute of Electrical and Electronics Engineers (IEEE) or American National Standards Institute (ANSI)) for conducting these tests, and that some licensees had not adequately reviewed ampacity derating test results to determine the validity of the tests and the applicability of those test results to their plant design. The special review team recognized that, in hypothetical cases, nonconservative ampacity derating factors could have been instrumental in the installation of inappropriate cables, which as a result, could suffer premature cable jacket and cable insulation failures over a period of time. However, since that time, the NRC Staff has determined that in practice the ampacity derating factor resulting from Thermo-Lag insulating properties represents only one of many variables used in determining the design ampacity for power cable systems and that, as discussed below, sufficient margin exists in this area to preclude any immediate safety concerns.

For actual installations, various derating factors are typically applied to the ICEA ampacity values provided for each cable size. In general, the cables typically used in actual installations have higher current-carrying capacity than the ICEA ampacity values.¹⁰ Also, cables are sized based on full-load current plus a 25% margin to account for starting current requirements of the load. Given the short duration of typical equipment starts, this margin is available to compensate for any errors in ampacity derating. Further, use of a cable size larger than normal may be required as a result of voltage drop considerations for long circuit lengths. In typical applications this also provides additional current-carrying capacity. Given these conservatisms inherent in the design ampacity of cable systems and in addition the fact that most power cables required for safe shutdown are not normally energized, but are typically operated during surveillance testing for short time periods, the likelihood that cables could ignite as a result of Thermo-Lag ampacity derating errors has been judged by the NRC Staff to be unlikely. In addition, based on these conservatisms and the currently available information on existing plants, ampacity design, and operating history, the NRC Staff believes that the ampacity derating issue is not an immediate safety issue but rather is an aging issue to be resolved over the long term.¹¹

¹⁰ ICEA ampacity values include conservatisms to compensate for skin and proximity effects and shield and/or sheath losses that may or may not apply in specific situations.

¹¹ Generic Letter 92-08 requires licensees to review the ampacity derating factors used for all raceways protected by Thermo-Lag 330-1 (for fire protection of safe shutdown capability or to achieve physical independence of electrical
(Continued)

E. Oyster Creek Failed to Report Test Results on Combustibility to the NRC

The Petitioners requested that Oyster Creek's license be suspended based on the following:

- (1) SwRI conducted fire tests on Thermo-Lag 330-1 specimens for GPUN, the licensee for Oyster Creek, and reported that all specimens ignited approximately 2 seconds after they were inserted into the furnace and failed specified criteria because of flaming after the first 30 seconds of testing, an outside temperature rise higher than 30°C, and a weight loss of 50%.
- (2) GPUN's operation of Oyster Creek with knowledge of the SwRI report is an example of GPUN's reckless disregard for fire protection and public safety.
- (3) In the event of fire, Thermo-Lag is likely to fail its intended function of protecting vital electrical cables running from the control room to plant safety systems used to shut down the reactor.
- (4) Current installations of Thermo-Lag are likely to fail in less time than the 1 hour (when smoke detectors and automatic sprinkler systems are present) or 3 hours (when there are no fire detection and suppression systems) that NRC regulations require for fire barriers to withstand fire.
- (5) The NRC Inspector General issued a report in August 1992 condemning NRC's handling of the Thermo-Lag issue and documenting the NRC Staff's failure to understand the scope of the problem.
- (6) In April 1994, ITL and its President pleaded guilty to five felony counts of aiding and abetting the distribution of falsified test data.
- (7) On September 29, 1994, the U.S. Department of Justice issued a seven-count indictment against the manufacturer of Thermo-Lag and its Chief Executive Officer for willful violations of the Atomic Energy Act, conspiracy to conceal material facts, and making false statements to defraud the United States, in connection with \$58 million in fire barrier material.
- (8) GPUN has known since at least August 11, 1992, that Thermo-Lag 330-1 as a structural base material is combustible and that it was in violation of Appendices A and R to Part 50 of Title 10 of the *Code of Federal Regulations* (10 C.F.R.) and the NRC Standard Review Plan, NUREG-0800.

systems) and to determine whether the ampacity derating test results relied upon are correct and applicable to the plant design. Presently, the Staff is conducting reviews of followup actions to close out ampacity derating concerns with licensees pursuant to GL 92-08.

- (9) GPUN failed to report the SwRI test results in response to GL 92-08 of February 10, 1994, when asked to describe the Thermo-Lag 330-1 fire barriers installed as required to meet 10 C.F.R. Part 50, Appendix R.
- (10) Continued reliance on fire watches at Oyster Creek is an unreasonable and unnecessary hazard to the public health and safety because of an inoperable fire protection system for safe shutdown of the reactor and installed combustible material on the shutdown systems.

Several of the issues listed above have been addressed earlier in this decision. Therefore, the NRC Staff will only address below the remaining plant-specific issues. As discussed earlier in this Decision, the NRC issued IN 92-82 to inform the industry of the results of combustibility tests performed by NIST in early August 1992. These tests confirmed the combustibility of Thermo-Lag. As a result of discussions with the NRC Staff on the subject of Thermo-Lag combustibility, GPUN decided to independently verify the results of the E-136 tests performed by NIST and contracted SwRI to perform the E-136 tests. The results of these tests, as documented by the telecopy transmittal sheet submitted with the petition, confirmed the combustibility of Thermo-Lag. Contrary to the Petitioners' allegations, the NRC Staff does not require that licensees report the results of their independent testing. It should be noted here that, prior to the SwRI testing that confirmed combustibility, the NRC was aware of the combustibility of Thermo-Lag and that the NRC was also well aware of the results of the E-136 tests performed by GPUN through telephone conversations with GPUN personnel, even though there was no requirement for GPUN to report these test results.

The Petitioners also alleged that GPUN did not report to NRC its findings of the SwRI test results in its "Response to Request for Additional Information Regarding Generic Letter 92-08, 'Thermo-Lag Fire Barriers,'" (RAI) dated February 10, 1994.

The RAI quoted by the Petitioners did not request that GPUN report to NRC its findings of the SwRI test results and, in addition, the NRC Staff does not require that licensees report the results of their independent testing. Therefore, the NRC Staff has concluded that, contrary to the Petitioners' allegation, GPUN did not have to report to the NRC its findings of the SwRI test results.

For the reasons stated above, the suspension of Oyster Creek's license, as requested by the Petitioners, is not warranted.

F. Dry-Joint Issue at Comanche Peak Unit 1

The Petitioners requested that

- (a) the Comanche Peak Unit 1 license be suspended,

- (b) the licensee perform additional destructive analysis for Thermo-Lag configurations, and
- (c) the licensee perform fire tests on upgraded "dry-joint" Thermo-Lag configurations based on the following:
 - (1) The licensee's records on the original installation of Thermo-Lag fire barriers on conduits and cable trays indicate that its contractor followed specifications for prebuttering all joints.
 - (2) NRC Inspection Report Nos. 50-445/93-42, 50-446/93-42 found, based on destructive analysis documents, that a concern did exist where Thermo-Lag conduit joints fell apart easily and did not appear to have any residual material of a buttered surface, indicative of a joint that had not been prebuttered.
 - (3) The "dry joint" deficiency appeared in Room 115A and other areas of the unit.
 - (4) The licensee directly contradicts an NRC inspector's findings that were determined in part by destructive analysis.
 - (5) The "dry joint" or absence of prebuttering of Thermo-Lag panels can be determined only by destructive analysis and cannot be determined by a walkdown visual inspection.
 - (6) The findings reported in the Comanche Peak Unit 1 Region IV Inspection Reports 50-445/93-42 and 50-446/93-42, based on the limited amount of destructive analysis conducted at the unit, constitute a substantial documentation of installation deficiencies found in Thermo-Lag fire barriers as documented in NRC IN 91-79 and Supplement 1.
 - (7) Neither the NRC nor the industry, by its agent NEI, nor a utility, have conducted fire tests on dry fitted or "dry joint" upgraded configurations of Thermo-Lag 330-1.
 - (8) The presence of "dry joint" upgraded configurations in Comanche Peak Unit 1 constitutes an untested application of Thermo-Lag fire barriers.

These allegations were based on the Petitioners' interpretation of NRC Inspection Report 93-42 issued on February 21, 1994. By letter of November 29, 1994, TU Electric, the licensee for Comanche Peak Unit 1, sent a letter to the NRC Staff responding to the Petition.

The term "joint" refers to the interface between two adjacent Thermo-Lag surfaces. Comanche Peak Unit 1 installation procedures for Thermo-Lag fire barriers specify that, during the initial installation process, the joints should be prebuttered (or covered) with Thermo-Lag trowel-grade material before the mating surfaces are joined to ensure adhesion of the surfaces. The term "dry joint" refers to the lack of Thermo-Lag trowel-grade material in a joint. The failure to prebutter a joint with trowel-grade Thermo-Lag could result in a

weakening of the joint during a potential fire exposure and could provide an exposure path in the fire barrier envelope. The NRC performed an inspection at Comanche Peak Unit 1 on November 2-5 and 23-24, 1993, and January 26-28, 1994, to compare the Thermo-Lag test specimens with the upgraded Thermo-Lag configurations on site. The results of this inspection are documented in NRC Inspection Report 93-42. The report stated that there appeared to be a large number of deficiencies with the installed fire barriers and that an example of these deficiencies involved dry joints on conduit overlays installed on pedestal hangers. The NRC inspector did not personally observe the dry joints in question. His statements were based on observations made by TU Electric and documented in an Operations Notification and Evaluation (ONE) form. However, the ONE form in question did not identify a dry joint. Instead, the ONE form identified a condition that was conservatively reported as an apparent dry joint. Upon further evaluation of the ONE form, TU Electric determined that the joint in question had in fact been prebuttered with trowel-grade Thermo-Lag. These facts are discussed in more detail below.

On November 25, 1992, a speed memo was written by a TU Electric contractor identifying "apparent unsatisfactorily conditions on Unit 1 commodities." This memorandum identified "an apparent" dry joint on an oversize coupling section (on top of a pedestal hanger). The speed memo also stated that, "we have decided that the best vehicle to call attention to these apparent deficiencies would be a letter to your attention for further evaluation of the situation. . . ." The letter was forwarded to the appropriate TU Electric engineering section.

The cognizant TU Electric engineer performed a walkdown of the described areas and evaluated the commodities. He conservatively initiated a ONE form (the process used by TU Electric to report problems and develop resolution for the identified problems). A comprehensive evaluation of this condition determined that the joint had been prebuttered. Therefore, the engineering resolution for this condition was that "this is not a deficient condition, and there are no generic implications."

The originator of the speed memo initially believed that the condition in question was a dry joint because of the appearance of the joint. During alignment of Thermo-Lag panels, the leading edge of one panel contacts the outer edge of a preceding panel and forces most of the trowel grade along the initial contact edge toward the inside of the Thermo-Lag envelope. Subsequent shrinkage of the trowel grade in the joint can give the appearance of a dry joint because the trowel-grade material is not visible. Therefore, contrary to the Petitioners' allegation, there was no "dry joint" deficiency on the pedestal hanger.

The Petitioners also alleged that dry joints appear in other Thermo-Lag installations at Comanche Peak Unit 1. In response to the petition, TU Electric performed an electronic search of its ONE-form data base. The search did identify additional ONE forms related to dry joints. However, Thermo-Lag

rework crews and the quality control inspectors at Comanche Peak Unit 1 have used the term "dry joints" and "no visible trowel-grade material" synonymously. Upon further investigation of these ONE forms, it was determined that trowel-grade material had in fact been applied to the joints in question. Therefore, these ONE forms were also dispositioned as "not a nonconforming condition." These findings support the NRC Staff's conclusion that, contrary to the Petitioners' allegations, there is no evidence of dry joints at Comanche Peak Unit 1. The Petitioners' allegations regarding dry joints at Comanche Peak Unit 1 are based on premises that are faulty and contrary to the information contained in Inspection Report 93-42.

In regard to the Petitioners' request that the licensee perform fire tests on upgraded "dry joint" Thermo-Lag configurations and additional destructive analysis, the NRC Staff has reviewed the documentation provided by the licensee in response to the RAIs regarding GL 92-08 and concluded that the licensee's quality assurance program gave adequate confidence that the as-installed Thermo-Lag configurations at Comanche Peak Unit 1 conform with NRC specification requirements for both material and installation attributes.

Accordingly, suspension of the Comanche Peak Unit 1 license, as requested by the Petitioners, is not warranted.

G. Protection of Rubin Feldman

The Petitioners assert that, rather than protecting the public, the NRC is protecting Rubin Feldman, President of the company that manufactures Thermo-Lag.

As discussed earlier, the NRC received allegations in 1991 that questioned the adequacy of Thermo-Lag fire barriers. In response, (1) the Office of the Inspector General (OIG) and the Office of Investigations (OI) formed a joint task force to investigate the allegations, and (2) the Office of Nuclear Reactor Regulation (NRR) established a special team to review the safety issues raised by the allegations. Throughout its review, the special team gave expert technical advice and assistance to the OIG/OI task force. The Director of NRR tasked the NRR Staff to resolve the technical issues raised by the special team. The NRC Staff continued to cooperate fully with the investigative task force. Further, the NRR Staff carried out a full-scale test program and developed other technical data and information for the investigative task force. These NRC Staff efforts contributed significantly to a referral to the Department of Justice of possible wrongdoing by TSI. The referral resulted in a seven-count criminal indictment of TSI, the manufacturer and supplier of Thermo-Lag fire barriers and of its President, Rubin Feldman, by a Federal Grand Jury. The NRC Staff continued

to support the Department of Justice throughout the criminal case.¹² In addition, throughout the trial, the NRC Staff continued to pursue corrective actions consistent with its action plan for the resolution of the Thermo-Lag issues. The above facts contradict the Petitioners' assertion that the NRC was protecting Rubin Feldman.

H. NRC Seeming Complicity with Utilities

The Petitioners also assert that there is seeming complicity between the NRC and the licensees and that licensees seek to avoid costly replacement of the Thermo-Lag.

In May 1991, the NRC Office of the Inspector General performed an inspection of the NRC's Staff performance in regard to Thermo-Lag barriers and found indications of inadequate performance by the NRC Staff in the acceptance and review of Thermo-Lag barriers. Subsequently, the NRC Staff initiated an aggressive program of corrective actions to rectify the deficiencies identified in the review and response process, as summarized earlier in this decision.

In addition, the Staff has expended considerable time and effort to address and resolve Thermo-Lag issues to ensure that licensees return to compliance with existing NRC fire protection requirements. The NRC Staff issued three requests for additional information regarding GL 92-08 to each licensee using Thermo-Lag to obtain information on the specific Thermo-Lag material installed at each plant, details about the corrective actions each licensee intended to take to return to compliance with NRC fire protection requirements, and schedules for the implementation of these corrective actions. The response of each licensee was evaluated by the NRC Staff. As a consequence of this substantial NRC Staff effort, a number of licensees have already returned to compliance with NRC requirements by a variety of means which include replacing, rerouting, or upgrading existing Thermo-Lag barriers, performing postfire safe shutdown reanalysis, and installing additional fire detection and suppression features. All of these measures involve some burden on licensees. In addition, some licensees have initiated costly programs to perform plant-specific fire endurance tests of other fire barriers with the intention of replacing Thermo-Lag with these barriers. All licensees who utilize Thermo-Lag will need to expend resources commensurate with their reliance on Thermo-Lag to come into compliance with NRC fire protection requirements. NRC Staff oversight will ensure that this is the case.

The Petitioners' assertion of seeming complicity with utilities on the part of the NRC Staff is unfounded in the light of the significant NRC Staff efforts

¹² The jury returned a verdict of "not guilty" on all counts of the indictment against TSI and Mr. Feldman.

to ensure that licensees expend the resources necessary to return to compliance with NRC requirements.

IV. CONCLUSION

The Petitioners request that the NRC order the immediate shutdown of all reactors using Thermo-Lag and the suspension of Oyster Creek, Peach Bottom Units 1 and 2, and Comanche Peak Unit 1 operating licenses.

For the reasons discussed above, I find no basis for taking such actions. Rather, on the basis of the review efforts by the NRC Staff, I conclude that the issues raised by the Petitioners are being addressed by licensees in a manner that ensures adequate protection of the public health and safety. Accordingly, the Petitioners' requests for action pursuant to section 2.206 are denied.

A copy of this Decision will be placed in the Commission's Public Document Room, Gelman Building, 2120 L Street, NW, Washington, DC, and at the Local Public Document Room for the named facilities. A copy of this Decision will also be filed with the Secretary for the Commission's review as provided in 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

William T. Russell, Director
Office of Nuclear Reactor
Regulation

Dated at Rockville, Maryland,
this 3rd day of April 1996.