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DOCKETED
USNRC

November 17, 2004 (3:43pm)

OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

November 17, 2004

Office of the Secretary of the Commission
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Attention: Rulemaking and Adjudications Staff

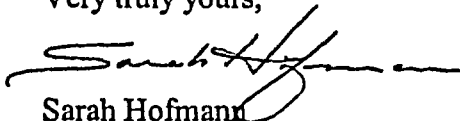
Re: Docket No. 50-271 -
ASLBP No. 04-832-02-OLA
Extended Power Uprate at Vermont Yankee Nuclear Power Station

Dear Sir/Madam:

Please find enclosed for filing an original and two copies of the Vermont Department of Public Service Reply to Answer of Applicant to the Department's Request for Leave to File a New Contention, Affidavit of William K. Sherman, Exhibit 40, Exhibit List, and Certificate of Service.

If you have any questions about this filing, please call me at 802-828-3088. Thank you for your assistance in making this filing.

Very truly yours,


Sarah Hofmann
Special Counsel

cc: As per Certificate of Service

Template = SECY-041

SECY-02

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November 17, 2004 (3:43pm)

UNITED STATES
NUCLEAR REGULATORY COMMISSION

OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

| | | |
|--|---|-------------------------|
| In the Matter of |) | |
| |) | Docket No. 50-271 |
| ENTERGY NUCLEAR VERMONT |) | |
| YANKEE LLC AND ENTERGY NUCLEAR |) | |
| OPERATIONS, INC. |) | ASLBP No. 04-832-02-OLA |
| (Vermont Yankee Nuclear Power Station) |) | |

VERMONT DEPARTMENT OF PUBLIC SERVICE
REPLY TO ANSWER OF APPLICANT TO THE
DEPARTMENT'S REQUEST FOR LEAVE TO FILE A NEW CONTENTION

INTRODUCTION

After a careful review of the proposed Sixth Contention and with the benefit of substantial knowledge of the technical and safety issues raised by the proposed contention, the NRC Staff has concluded that it "does not oppose the admission of DPS's late-filed contention". Not surprisingly given Applicant's interests in the proceeding, Applicant is adamantly opposed to the admission of the Department of Public Service's ("DPS") Sixth Contention. Because the NRC Staff does not oppose the admission of the DPS Sixth Contention, this Reply only addresses the Applicant's arguments.

The DPS Contention 6 meets all the criteria for admission and all the criteria for admission as a late-filed contention. Applicant's contrary arguments contain distortions of the facts and misrepresentations of the arguments advanced by DPS, and should not prevail.

RELEVANT LEGAL STANDARDS

The Department addressed the relevant legal standard for the filing of contentions in its Reply to Answers of Applicant and Staff filed October 7, 2004, and at Oral Argument in this proceeding on October 21 and 22, 2004 in Brattleboro, Vermont. In addition the DPS addressed the criteria for the filing of new contentions pursuant to 10 CFR §2.309(f)(2) in its Request for Leave to File a New Contention. The Department relies on and incorporates by reference these previous recitations of the relevant legal framework.

ARGUMENT

DPS Contention 6 states:

The Application for Amendment, Including All Supplements Thereto, Fails To Comply With 10 CFR 50 Appendix R, Specific Requirements, Paragraph L(2)(b) Because It Does Not Verify The Assumption, Used For Purposes of the Safe Shutdown Capability Analysis (SSCA), that the Reactor Core Isolation Cooling (RCIC) System Can Be Made Operable In Sufficient Time To Permit The Operator To Perform the Required Actions Before Core Uncovery.

Applicant asserts that DPS Contention 6 does not identify a genuine issue in dispute, that it lacks a factual and legal basis, and does not entitle DPS to any relief. The extent to which Applicant is forced to stretch facts and mischaracterize arguments advanced by DPS in making its assertions, is evidence of their lack of merit. DPS Contention 6 identifies a genuine disputed issue that has a factual and legal basis, and would entitle DPS to relief.

A. DPS Proposed Contention 6 Identifies a Genuine Issue in Dispute

Applicant contends that there is no real dispute, because Applicant has promised it will verify that it meets the regulatory time frames for taking certain actions, and thus no dispute exists. Applicant equates a commitment to perform verification with actually fulfilling the regulatory requirement. Applicant ignores the fact that the regulation in question, 10 CFR 50, Appendix R, L(2)(b) calls not for an assertion that verification will be performed but a demonstration by the Applicant that a safe shutdown will occur. Applicant concedes it has not yet conducted the necessary testing to demonstrate that a safe shutdown will occur. It is not clear that Applicant will be able to verify that operators can take the necessary actions to prevent core uncover. The commitment to perform a verification does not equate to a satisfactory result being found in such a verification.

Performing a verification is not the end in itself. If it were certain the verification would confirm the outcome, there would be no need for a verification in the first place. It is the results of a verification that are controlling, not that a verification is promised in the future. Certainly based on its initial uprate application filing, Applicant thought it had the bases to verify that operator action could be taken in sufficient time to prevent core uncover, but it turned out Applicant was wrong as evidenced initially by the need to file Supplement 17 (DPS Exhibit 38) on September 30, 2004, and now shown to be a result of the August 2004 NRC Engineering

Team Inspection (Preliminary Results attached hereto as Exhibit DPS-40¹ and only available since the DPS filed its Request for Leave to File a New Contention). In this instance, although the Applicant will perform a verification in the future, it is necessary to see if the verification process was properly conducted and to see if it demonstrates compliance with the regulatory standard. Until and unless that process is properly and favorably completed, a genuine dispute exists regarding Applicant's ability to comply with applicable regulations².

B. DPS Contention 6 Has a Firm Factual and Legal Basis that the Applicant seeks to Obfuscate

Applicant bases its argument that the Contention has no factual or legal basis by use of a disingenuous argument. It takes the plain meaning of the Applicant's Supplement to its application and uses distortions to attempt to show it does not prove the point being made by DPS. After correctly quoting from the DPS filing ("Applicant has now withdrawn the *bases upon which it assumed operator action* could be taken to prevent core uncovering." DPS Request at 2" (emphasis added here))(App. Opp. at 6), Applicant mischaracterizes this as a claim that it has withdrawn its "Application"(id. at 6-7). To buttress its rebuttal to this distortion of the DPS argument, Applicant underscores the language in Supplement 17 (Exhibit DPS-38) which self-

¹Exhibit DPS-40: Letter to Jay Thayer of Entergy from Wayne Lanning of the NRC dated November 5, 2004, "Vermont Yankee Nuclear Power Station - Preliminary Results of the August 2004, Engineering Team Inspection"

² Once the verification is completed, and assuming on its face it demonstrates compliance, there may be still be issues related to the verification process itself. There not only has to be a verification, but a properly conducted verification that would lead one to have confidence in the results.

servingly asserts that the Supplement “does not change the scope or conclusions in the original application” (App. Opp. at 7). Thus, Applicant attempts to mislead this Board into believing that DPS has argued that the “Application” was withdrawn when, in fact, DPS only claims, and Applicant does not rebut, that the bases for the assumption used to prove compliance with RCIC operation requirements have been withdrawn. Applicant’s only arguments are made against its distorted view of DPS’s contention. The interests of justice are not well served by an Applicant that so vigorously advocates its position that it mischaracterizes an opponent’s position.

As is plain on the face of Supplement 17.(Exhibit DPS-38) Applicant is withdrawing and changing the assumptions that went into the calculated time frames to core uncoverly as a result of extended power uprate. Failing to address that language explicitly, Applicant points to boiler plate language³ that appears in similar form in virtually all the Supplements filed by Applicant to show that it did not “withdraw” or “revise” its *Application*. Such characterizations of the filing provide no basis to reject the clear import of the filing. Applicant would not have filed Supplement 17 if it did not perceive a problem which needed correction. Whether it is called a withdrawal, revision, or amendment the plain meaning of Supplement 17 is that a problem existed with Safe Shutdown Capability Analysis, which was also discovered by the NRC

³ Similar language appears in almost all the Supplements filed by Applicant: “This supplement to the license amendment request provides additional information to update Entergy’s application for a license amendment and does not change the scope of conclusions in the original application, nor does it change Entergy’s determination of no significant hazards consideration.” In some instances the “additional information” language is not included in the boiler plate statement.

Inspection Team (See Exhibit DPS-40), associated with the initiation of a RCIC from alternate shutdown panels. To Applicant's credit, it is trying to find a solution to the problem and a proposed solution is contemplated in Supplement 17. It should not cloud the credit it is due for its candor in seeking to correct a problem by refusing to accept the logical consequence of its admission of a problem. Applicant admits it cannot now demonstrate compliance with the applicable regulation. Until and unless it does, a factual and legal basis exists for finding that DPS Contention 6 should be admitted.

Applicant also contends that DPS Contention 6 should not be admitted because the information upon which the new contention is based is not materially different than information previously available. 10 C.F.R. § 2.309(f)(2)(ii). Applicant once again relies on the self-serving boiler plate language in its Supplement to say the change is not material. This reliance ignores the underlying information itself which clearly demonstrates the materiality of the new information. The assumptions contained in the original Application have been found to no longer be supportable because, "[t]he analysis was found to be out of date and non-conservative, effectively reducing the margin available for event mitigation by 50%." Exhibit DPS-40 at A-7. Moreover, if there is no assurance that the RCIC will be operable in the time required, core uncovering could occur with potentially serious consequences. The RCIC system is used for reactor water level control in the event of a fire caused evacuation of the control room. The performance goal of the level control function is to maintain the reactor coolant level above the top of the core (Appendix R, §II L2b). The time for accomplishing RCIC initiation for the

proposed uprate is 21.3 minutes (reduced from 25.3 minutes at current power level) - see PUSAR, Table 6-5 (Exhibit DPS-39). Applicant has not shown that operators can perform this initiation within this time period. Failing this initiation, the core could be uncovered resulting in fuel damage and radiation release. Furthermore, at hearing DPS will contest the method Entergy uses to make it's determination. For example, Entergy does not use the 2-sigma value for decay heat uncertainty which it has stated it uses in other analyses. Nor does Entergy use the design basis value of 85 degrees F for initial service water temperature, but rather a less conservative value of 80 degrees F. At hearing DPS will show Entergy has even less time to perform the required actions than claimed.

Finally, Applicant returns to the issue of verification and contends that a license amendment cannot be rejected because of a pending verification. The Applicant perhaps misunderstands the DPS concern. The timeline for a safe shutdown associated with the initiation of RCIC from alternate panels, is what the Department is concerned about. The verification is part of the process to ensure that the Applicant has met its regulatory obligations but it is the regulatory obligation pursuant to 10 C.F.R., Appendix R, to ensure a safe shut down that is the heart of DPS Contention 6.

C. The Proposed Contention Would Clearly Entitle DPS to Relief

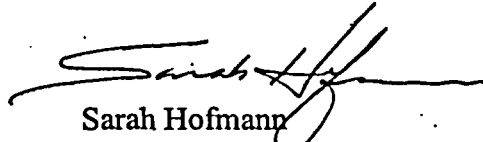
Applicant continues to revert to hanging its arguments on verification alone. It assumes that verification will prove that it meets the requirements, and, therefore failure to have performed the verification is of no consequence. This is not true. An analysis that is found to be

out of date and non-conservative, that reduces the time margins available for event mitigation by 50%, is definitely something the must either be remedied or the license amendment application must be denied. The DPS is not intent on the promise of verification but on the verification findings, and most importantly, on the results (see Argument A above). The DPS wants to know that a safe shutdown can be performed in a RCIC from alternate shutdown panels in a time frame that is safe and does not pose any significant hazards to the people of Vermont.

CONCLUSION

For all the reasons state here and provided in the Vermont Department of Public Service Request for Leave to File a New Contention, DPS urges the Board to admit DPS Contention 6, and grant the DPS a subpart G hearing to resolve the disputes that exist over the Applicant's Application, as previously argued by the DPS in our written filings and at oral argument.

Respectfully submitted,



Sarah Hofmann
Special Counsel
Department of Public Service
112 State Street - Drawer 20
Montpelier, VT 05602-2601

Anthony Z. Roisman
National Legal Scholars Law Firm
84 East Thetford Rd.
Lyme, NH 03768


Dated this 17th day of November 2004 at Montpelier, Vermont.

**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

| | |
|--|--------------------------------|
| In Re: Entergy Nuclear Vermont Yankee) | |
| LLC and Entergy Nuclear) | Docket No. 50-271 |
| Operations, Inc.) | |
| (Extended Power Uprate at VY)) | ASLBP No. 04-832-02-OLA |

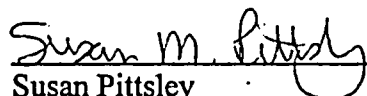
AFFIDAVIT OF WILLIAM K. SHERMAN

1. My name is William K. Sherman. I am employed by the Vermont Public Service Department ("Department") in the position of State Nuclear Engineer. I have held this position since November, 1988. My duties include ongoing State regulatory oversight of the Vermont Yankee Nuclear Power Station ("Vermont Yankee"), as well as advising the Department and other State agencies on issues related to Vermont Yankee and nuclear power. I previously submitted my resume with the Department's Notice of Intention to Participate and Petition to Intervene filed on August 30, 2004.
2. I assisted in the preparation of the Department's Reply to Answer of Applicant to the Department's Request for Leave to File a New Contention.
3. All of the technical information contained in the Department's Reply to Answer of Applicant to the Department's Request for Leave to File a New Contention is true and correct to the best of my knowledge.



William K. Sherman
State Nuclear Engineer

Subscribed and sworn to before me this 17th day of November, 2004.



Susan Pittsley
Notary Public
My commission expires February 10, 2007

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

| | | |
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| In the Matter of |) | |
| |) | Docket No. 50-271 |
| ENTERGY NUCLEAR VERMONT |) | |
| YANKEE LLC AND ENTERGY NUCLEAR |) | ASLBP No. 04-832-02-OLA |
| OPERATIONS, INC. |) | |
| (Vermont Yankee Nuclear Power Station) |) | |

CERTIFICATE OF SERVICE

I hereby certify that copies of the "Vermont Department of Public Service Reply to Answer of Applicant to the Department's Request for Leave to File a New Contention" in the captioned proceeding has been served on the following by deposit in the United States mail, first class, postage prepaid, and where indicated by an asterisk by electronic mail, this 17th day of November, 2004.

Alex S. Karlin, Chair*
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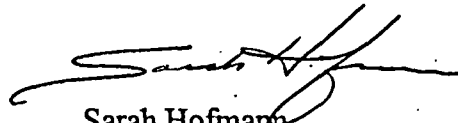
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Respectfully submitted,



Sarah Hofmann
Special Counsel

**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

In the Matter of

| | | |
|--|---|-------------------------|
| Entergy Nuclear Vermont Yankee |) | |
| LLC and Entergy Nuclear Operations, Inc. |) | Docket No. 50-271 |
| |) | |
| (Vermont Yankee Nuclear Power Station) |) | ASLBP No. 04-832-02-OLA |

**COMPLETE EXHIBIT LIST TO
VERMONT DEPARTMENT OF PUBLIC SERVICE
FILINGS AS OF NOVEMBER 17, 2004**

1. Draft general design criteria published July 11, 1967 (32 FR 10213)
2. NRC Regulatory Guide 1.82, Revision 3, *Water Sources for Long-Term Recirculation Cooling following a Loss-of-Coolant Accident*
3. Safety Guide (Regulatory Guide) 1.1
4. Regulatory Guide 1.82 (Rev. 0), June 1974, *Sumps for Emergency Core Cooling and Containment Spray Systems*
5. Unresolved Safety Issue (USI) A-43, *Containment Emergency Sump Performance*
6. NRC Bulletin 96-03, *Potential Plugging of Emergency Core Cooling Suction Strainers by Debris in Boiling-Water Reactors*
7. Generic Safety Issue (GSI) 191, *Assessment of Debris Accumulation on PWR Sump Pump Performance* (DPS Exhibit 7)
8. NRC Bulletin 2003-01, *Potential Impact of Debris Blockage on Emergency Sump Recirculation at Pressurized-Water Reactors*
9. ACRS Thermal-Hydraulic Phenomena Subcommittee transcript, August 20, 2003
10. ACRS Full Committee transcript, September 11, 2003
11. ACRS letter of September 30, 2003, *Draft Final Revision 3 to Regulatory Guide 1.82, "Water Sources for Long-term Recirculation Cooling Following a Loss-of-coolant*

Accident."

12. ACRS letter, May 19, 1999, *The Role of Defense in Depth in a Risk-informed Regulatory System*
13. DPS letter of December 8, 2003 to the NRC Staff
14. NRC June 29, 2004 letter to DPS, response to Dec 8 letter
15. Docket No. 6812, Prefiled Direct Testimony, DPS Witness William Sherman, May 9, 2003
16. Vermont Yankee Calculation VYC-0808, Rev. 6
17. RAI SPSB-C-25
18. Section 4.2.6 of Safety Analysis Report for Constant Pressure Power Uprate ("PUSAR")
19. DPS letter of June 8, 2004 to the NRC Staff
20. Vermont Yankee Calculation VYC-0808, Rev. 6, Change 5, July 1, 2004
21. Vermont Yankee Calculation VYC-0808, Rev. 6, Change 6, July 16, 2004
22. Regulatory Guide 1.183, *Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors*, July 2000
23. Unresolved Safety Issue Item A-40: *Seismic Design Criteria*
24. Vermont State Geologist letter of August 26, 2004, *Probability of Earthquake Induced Ground Accelerations at Vermont Yankee*
25. NUREG-0585, *TMI-2 Lessons Learned Task Force Final Report*, October 1979
26. NUREG/CR-1250, Vol. 1, *Three Mile Island, A Report to the Commissioners and the Public*, NRC Special Inquiry Group, Mitchell Rogovin, Director, circa. 1980
27. Vermont Yankee Calculation VYC-0808, Rev. 6, Change 4
28. Vermont Yankee Calculation VYC-2314, Rev. 0
29. RAI SPSB-C-22
30. *BWR ECCS Strainer Blockage Issue: Summary of Research and Resolution Actions*, LA-UR-01-1595, D.V.Rao, et al., March 21, 2001

31. *Knowledge Base for the Effect of Debris on Pressurized Water Reactor Emergency Core Cooling Sump Performance*, NUREG/CR-6808, LA-UR-03-0880, February 2003.
32. CR-VTY-2004-0918, Adverse Trend Common Cause Analysis Report, *MSIV As-Found LLRTs Show an Adverse Trend*, Vermont Yankee, May 5, 2004.
33. Pages A-66 and A-67 (*Pinch Point Summary - Torus Water Temp/ECCS Pump NPSH*) from *Vermont Yankee Nuclear Power Station Extended Power Uprate Feasibility Study*, June 28, 2002.
34. *Memorandum of Understanding on Cooperation, Notification, and Access Between Entergy Nuclear Vermont Yankee LLC and Vermont Department of Public Service for the Vermont Yankee Nuclear Power Station*, July 30, 2002.
35. *Guidance for Interim Implementation of NRC Policy on Cooperation with States - State Observation of NRC Inspections*, Signature by William K. Sherman, January 1, 1990. (Please note this is a retype of the original document which is illegible.)
36. Vermont Yankee letter of November 12, 1998, *Response to Generic Letter 98-04*.
37. Brief for the Federal Respondents filed on July 14, 2004 in *Citizens Awareness Network v. U.S. Nuclear Regulatory Commission*, Docket Nos. 04-1145 and 04-1395 (United States Court of Appeals for the First Circuit) (*CAN v. NRC*).
38. Supplement No. 17: Vermont Yankee Nuclear Power Station Technical Specification Proposed Change No. 263 - Supplement No. 17. Extended Power Uprate - Responses to Request for Additional Information related to the 10 CFR 50 Appendix R Timeline, September 30, 2004.
39. *Safety Analysis Report for Vermont Yankee Nuclear Power Station Constant Pressure Power Uprate*, Pages 6-11 to 6-19 (Redacted).
40. Letter to Jay Thayer of Entergy from Wayne Lanning of NRC dated November 5, 2004, *Vermont Yankee Nuclear Power Station - Preliminary Results of the August 2004, Engineering Team Inspection*

November 5, 2004

Mr. Jay K. Thayer
Site Vice President
Entergy Nuclear Operations, Inc.
Vermont Yankee Nuclear Power Station
P.O. Box 0500
185 Old Ferry Road
Brattleboro, VT 05302-0500

**SUBJECT: VERMONT YANKEE NUCLEAR POWER STATION - PRELIMINARY RESULTS
OF THE AUGUST 2004, ENGINEERING TEAM INSPECTION**

Dear Mr. Thayer:

During the period of August 9 through September 3, 2004, the US Nuclear Regulatory Commission (NRC) conducted a pilot team inspection at the Vermont Yankee Nuclear Power Station (VYNPS) in accordance with Temporary Instruction 2515/158, "Functional Review of Low Margin/Risk Significant Components and Human Actions." This pilot inspection incorporated the best practices of existing and past design and engineering inspections and was part of an effort to improve the effectiveness of the Reactor Oversight Program at identifying significant engineering issues. The NRC had planned to conduct a public exit meeting to discuss the results of the inspection on November 9, 2004. However, we had to postpone the public meeting upon the advice of local officials due to potential public safety concerns. We are working with local, State, and Federal officials to locate a suitable location and forum for a future public meeting. In response to stakeholder requests, NRC committed to publically release the preliminary results of the inspection prior to the public exit meeting.

The enclosure to this letter provides a summary of the inspection scope and preliminary inspection results in the areas reviewed. Please note that the final inspection results, including the number of findings and characterization of their significance, may change based on additional information and further review. The final inspection results will be documented in NRC Inspection Report 05000271/2004008.

The inspection focused on verifying that the plant's design bases were correctly implemented for a sampling of components across multiple systems, both under current licensing conditions and under your proposed extended power uprate (EPU) conditions. Overall, the team found that the components and systems reviewed would be capable of performing their intended safety functions and that you have implemented sufficient design controls for engineering work conducted at VYNPS, including your EPU request. However, the team identified eight findings of very low safety significance. None of the identified findings resulted in system inoperability, but several of the findings relate to specific degraded conditions and deficiencies in the design control processes used at VYNPS to ensure that the facility remains within its licensed and analyzed design envelope. The team also identified one unresolved item associated with electrical equipment that will be reviewed further for significance and site-specific applicability.

**NRC Docket No. 50-271
ASLBP No. 04-832-02-OLA
DPS Exhibit 40
12 Pages**

Limited extent of condition reviews, performed by the team, for several of the findings that could have been indicative of broader problems did not identify any additional findings, indicating that the original problems were not widespread and were likely not programmatic in nature. All of the team's findings are being shared with the NRC's technical staff conducting the EPU review. Four of the findings concern topics within the scope of the NRC's EPU review. Specifically, these findings are associated with station blackout capability, the Appendix R operator timeline, the accident analysis inputs, and the validation of motor-operated valve testing methodology. Submittal of additional information on these issues may be required to supplement the power uprate license amendment request.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its Enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is temporarily unavailable due to an ongoing security review; therefore, this document will also be posted on the NRC Web site at <http://www.nrc.gov/reactors/plant-specific-items/vermont-yankee-issues.html>.

Sincerely,

/RA/

Wayne D. Lanning, Director
Division of Reactor Safety

Enclosure: Summary of Inspection Scope and Preliminary Results

Docket No. 50-271
License No. DPR-28

cc w/encl:

M. R. Kansler, President, Entergy Nuclear Operations, Inc.
G. J. Taylor, Chief Executive Officer, Entergy Operations
J. T. Herron, Senior Vice President and Chief Operating Officer
D. L. Pace, Vice President, Engineering
B. O'Grady, Vice President, Operations Support
J. M. DeVincentis, Manager, Licensing, Vermont Yankee Nuclear Power Station
Operating Experience Coordinator - Vermont Yankee Nuclear Power Station
J. F. McCann, Director, Nuclear Safety Assurance
M. J. Colomb, Director of Oversight, Entergy Nuclear Operations, Inc.
J. M. Fulton, Assistant General Counsel, Entergy Nuclear Operations, Inc.
S. Lousteau, Treasury Department, Entergy Services, Inc.
Administrator, Bureau of Radiological Health, State of New Hampshire
Chief, Safety Unit, Office of the Attorney General, Commonwealth of Mass.
D. R. Lewis, Esquire, Shaw, Pittman, Potts & Trowbridge
G. D. Bisbee, Esquire, Deputy Attorney General, Environmental Protection Bureau
J. Block, Esquire
J. P. Matteau, Executive Director, Windham Regional Commission
M. Daley, New England Coalition on Nuclear Pollution, Inc. (NECNP)
D. Katz, Citizens Awareness Network (CAN)
R. Shadis, New England Coalition Staff
G. Sachs, President/Staff Person, c/o Stopthesale
J. Sniezek, PWR SRC Consultant
R. Toole, PWR SRC Consultant

ENCLOSURE

November 5, 2004

MEMORANDUM TO: Wayne Lanning, Director
Division of Reactor Safety
Region I

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SUBJECT: ENGINEERING INSPECTION PRELIMINARY RESULTS

Attached to this memorandum are the preliminary results from the pilot team inspection conducted at the Vermont Yankee Nuclear Power Station, from August 9 through 20 and August 30 through September 3, 2004. These preliminary results have been reviewed and are supported by all team members (both NRC and contractors). These preliminary results do not include issues that are of minor significance, some of which may be included in the final report in accordance with the Temporary Instruction guidance. We understand that these results will be released to the licensee and the public prior to the public exit meeting, in order to facilitate discussion at that meeting.

Attachment: As Stated

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Summary of Inspection Scope and Preliminary Results

A. Inspection Summary

During the period from August 9 through September 3, 2004, the NRC conducted a team inspection in accordance with Temporary Instruction 2515/158, "Functional Review of Low Margin/Risk Significant Components and Human Actions," at the Vermont Yankee Nuclear Power Station (VYNPS). The inspection was the first of four planned pilot inspections to be conducted throughout the country to assist the NRC in determining whether changes should be made to its Reactor Oversight Process (ROP) to improve the effectiveness of its inspections and oversight in the design/engineering area.

In selecting samples for review, the team focused on the most risk significant components and operator actions. The team selected these components and operator actions by using the risk information contained in the licensee's Probabilistic Risk Assessment (PRA) and the NRC's Simplified Plant Analysis Risk (SPAR) models. Consideration was also given to those components and operator actions most impacted by the licensee's request for an extended power uprate (EPU).

Many of the samples selected were located within the Reactor Core Isolation Cooling (RCIC), Main Feedwater, Safety Relief Valve, Onsite Electrical Power, and Offsite Electrical Power systems. In addition, inspection samples were added based upon operational experience reviews. The team also was briefed by the NRC's technical staff currently conducting the EPU licensing review, concerning issues that had arisen during their reviews or areas that might warrant additional inspection. A total of 91 samples were chosen for the team's initial review.

A preliminary review was performed on the 91 samples to determine whether any low margin concerns existed. For the purpose of this inspection, margin concerns included original design issues, margin reductions due to the proposed EPU, or margin reductions identified as a result of material condition issues. Consideration was also given to the uniqueness and complexity of the design, operating experience, and the available defense in depth margins. Based upon these considerations, 45 of the original 91 samples were selected for a more detailed review.

B. Preliminary Inspection Results

1. Electrical Power Sources

The team reviewed the adequacy of the onsite and offsite electrical power sources that supply power to the safety related components chosen for detailed review. Particular focus was paid to the offsite power sources and grid stability,

as they would be impacted by an EPU. The team performed a detailed review of the ability of the Vernon Hydro-Electric Station to supply emergency power to VYNPS in the event of a station blackout caused by a disturbance in the electrical distribution system (grid).

Results

The team found that, overall, the design, operation, maintenance and material condition of the offsite and onsite electrical power sources were adequate to support the operation of safe shutdown equipment under the range of current and proposed EPU design bases conditions. However, the team identified the following findings:

Availability of Power from Vernon Station

The team identified that the licensee had not demonstrated that the alternate alternating current (AC) power source would be available within the time required following a loss of all AC power (station blackout). Specifically, for conditions where the loss of AC power could occur due to a grid collapse, VYNPS's alternate AC source, the Vernon Hydro-Electric Station, would separate from the grid and shutdown. During the inspection, the licensee estimated it would take between 20 minutes and 2 hours to restart the Vernon Station and configure the Vernon switchyard to supply emergency power to VYNPS. In 1992, as part of its submittal to the NRC regarding VYNPS's compliance to the station blackout rule, the licensee stated that the Vernon station would be available within one hour. The licensee had not demonstrated by test that the alternate AC source would be available within one hour, and had not completed a coping analysis for the period of time the alternate source would be unavailable. The finding is of very low safety significance because the licensee's draft coping analysis, performed during the inspection, indicated the facility could cope without electrical power for at least two hours. This issue is within the scope of NRC's EPU review.

Procedures for Assessing Offsite Power Operability

The team identified that the licensee had not provided adequate procedures for the loss of the 345/115 kilovolt (kV) auto transformer. Specifically, procedures failed to provide criteria for determining the operability of the 115 kV Keene line, which is designated as an alternate immediate access power source. The finding is of very low safety significance because the team did not identify any instances where the lack of procedural guidance had resulted in inoperability of the electrical system.

Degraded Voltage Relay Setpoint Calculations

The team identified that the licensee had not properly analyzed whether the minimum Technical Specification setting for the degraded voltage relay dropout function was sufficient to ensure that adequate voltage would be available to safety related electrical equipment. The finding is of very low safety significance because the team did not identify any instances where the degraded voltage relay dropout setting had resulted in inoperable equipment.

Vulnerabilities Due to Ungrounded Electrical System

The team identified an unresolved item associated with the potential for an arcing ground to propagate from non-safety-related to safety-related electrical equipment. The inability of the existing protective devices, in each switchgear, to detect and interrupt electrical malfunctions may be inconsistent with the VYNPS design bases as specified in the VYNPS Updated Final Safety Analysis Report (UFSAR). This issue will be reviewed further by NRC to determine applicability and safety significance.

2. Reactor Core Isolation Cooling System

The team reviewed selected components of the Reactor Core Isolation Cooling (RCIC) system to ensure the system and components would be capable of performing their required design functions for both current licensing basis conditions and the proposed EPU conditions.

Results

Based on review of selected system components, including the RCIC pump and turbine, auxiliary equipment, various system valves, and instrumentation and controls, the team found that the RCIC system could perform its required functions for both the current and the proposed EPU licensing and design bases conditions. However, the team identified the following findings:

Control Valve for RCIC Lube Oil Cooler

The team identified that the installed RCIC system design did not comply with the UFSAR because it was not independent of the instrument air system. As a result, a loss of the non-safety related instrument air supply to pressure control valve PCV-13-23 could have overpressurized the RCIC pump lube oil cooler and could have diverted RCIC system flow from the reactor vessel during transient conditions. The finding is of very low safety significance because the analysis, completed by the licensee during the inspection, showed the system would have been able to perform its intended function under such conditions.

Degraded RCIC Pressure Control Valve

The team identified that the licensee failed to correct a long-standing deficiency in the operation of PCV-13-23, the control valve that supplies cooling water to the RCIC lube oil cooler. The team determined that during initial start-up testing,

problems were identified with operation of this valve, which affected its ability to properly supply cooling flow to the lube oil cooler. During the inspection, the licensee could not demonstrate that this issue had been entered into its corrective action program prior to the inspection, as necessary to address this problem and correct the deficiency. This finding is of very low significance because the licensee had implemented changes to its operating procedures to compensate for the deficiency by implementing manual actions.

3. Residual Heat Removal Pumps

The team reviewed the Residual Heat Removal (RHR) pumps to ensure the pumps would be capable of performing their required design functions for both the current and the proposed EPU licensing and design bases conditions. In its EPU submittal to the NRC, the licensee stated that credit for the containment overpressure that would exist under postulated accident conditions would be needed to ensure adequate net positive suction head (NPSH) to the RHR pumps. Therefore, the inspection scope included specific reviews of the licensee's NPSH calculations for the RHR pumps. Although the team did not review whether crediting containment overpressure was appropriate, the team performed an independent review to ensure adequacy of the licensee's NPSH calculation.

Results

Based on review of selected system components, the team found that the RHR pumps could perform their required functions for both the current and the proposed EPU licensing and design bases conditions. The team had no significant findings associated with these components.

4. Safety Relief Valves and Code Safety Valves

The team reviewed analyses and modification packages associated with the safety relief valves (SRVs) and code safety valves needed to support the proposed EPU.

Results

The team found that the analysis and modification package for the installation of an additional code safety valve was adequate to support the increased steam flow expected to result from the proposed EPU conditions. Additionally, the team

found that the modified back-up nitrogen bottle system provided an adequate supply of nitrogen to the SRVs. The team had no significant findings associated with these components.

5. Reactor Feedwater and Condensate Components

The team reviewed selected components of the Reactor Feedwater and Condensate systems to ensure the components would be capable of performing their required design functions for both current licensing basis conditions and the proposed EPU conditions.

Results

Based on review of selected components, including the feed pumps and associated controls, feed and condensate flow controls, and feedwater piping and thermal sleeves, the team found that the increased feedwater flow resulting from the proposed EPU would not adversely affect the capability of the Feedwater and Condensate system components to perform the risk significant functions of these maintenance rule systems. The team had no significant findings associated with these components.

6. Reactor Building to Torus Vacuum Breakers

The team reviewed selected components of the Reactor Building-to-Torus Vacuum Breaker system and associated components to ensure the components would be capable of performing their required design functions for both current licensing basis conditions and the proposed EPU conditions.

Results

Based on review of selected system components, the team found that the Reactor Building-to-Torus Vacuum Breaker system could perform its required functions for both the current and the proposed EPU licensing and design bases conditions. The team had no significant findings associated with this system.

7. Review of Analysis Inputs

The team reviewed a sample of plant parameters and design inputs to the VYNPS accident and transient analyses to ensure that the analysis inputs were technically correct and valid under current and proposed EPU design bases conditions.

Results

The team found that, in general, plant parameters and design inputs used in the accident and transient analysis were valid under current and proposed EPU conditions. However, the team identified the following finding:

Condensate Storage Tank Temperature Control

The team identified that the licensee failed to take measures to ensure the condensate storage tank (CST) temperature was maintained within the values assumed in the facility's accident and transient analysis. As a result, the team found that actual CST temperature during certain periods of plant operation had exceeded the values assumed in the analysis. This finding is of very low safety significance because sufficient margin remained to ensure equipment supplied by the CST could perform its intended function. This issue is within the scope of NRC's EPU review.

8. Review of Operating Experience and Generic Issues

The team reviewed selected operating experience issues that had occurred at other facilities for their possible applicability to VYNPS. Several issues that appeared to be applicable to VYNPS were selected for a more in-depth review. Additional consideration was given to those issues that might be impacted by the licensee's proposed EPU.

Results

Except for some deficiencies noted with the licensee's implementation of the motor operated valve periodic verification program, the team did not identify significant issues relative to VYNPS's actions to review and address operating experience issues. However, the team identified the following finding:

Motor Operated Valve Periodic Verification Program

The team identified that the diagnostic tests of motor operated valves at VYNPS were conducted using procedures that did not include adequate acceptance limits or trending requirements and were conducted using a test methodology that had not been adequately validated to demonstrate that the tested MOVs would be capable of performing satisfactorily under design basis conditions. This finding is of very low safety significance because no examples of degraded or inoperable valves were identified during the inspection. This issue is within the scope of NRC's EPU review.

9. Review of Operator Actions

The team reviewed risk significant, time critical operator actions that presented little margin between the time required and time available to complete the action. For each selected operator action scenario, the team verified that operating procedures were consistent with operator actions for a given event or accident condition and that the operators had been adequately trained and evaluated for each action. Control room instrumentation and alarms were also reviewed by the team to verify their functionality and to verify alarm response procedures were accurate to reflect current plant configuration. Additionally, the team performed a

walkdown of accessible field portions of the reviewed systems to assess material condition and to verify that field actions could be performed by the operators as described in plant procedures.

The team also reviewed each operator action to assess the impact the proposed EPU could have on further reducing the margin available for task completion and to verify that the associated EPU plant modifications would be reviewed by the licensee for any affect on the operators ability to complete the critical actions within the required time parameters.

Results

In general, the team concluded that the plant procedures, operator training, plant instrumentation and alarms, and analyzed timelines would allow operators to take the actions required to respond to design bases events and accident conditions. The critical operator actions had been evaluated or were scheduled for evaluation of the time margins available for task completion under proposed EPU conditions. However, the team identified the following finding:

Timeline for Shutdown Outside the Control Room

The team identified that the Safe Shutdown Capability Analysis associated with the initiation of RCIC from alternate shutdown panels (outside the control room) during an Appendix R fire scenario had not been updated to account for increased operator action times associated with new electrical safety requirements. The analysis was found to be out of date and non-conservative, effectively reducing the time margin available for event mitigation by 50%. This finding is of very low safety significance because under current licensed operating conditions, sufficient margin would remain to ensure that the core would not be uncovered during the analyzed event. This issue is within the scope of NRC's EPU review. Had this finding not been identified, the loss of margin may have prevented the operators from initiating the RCIC system in sufficient time to prevent core uncover under EPU conditions.