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March 7, 2007

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RULES AND DIRECTIVES
 BRANCH
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Re: Vermont Yankee, 50-271 License Renewal
 Vermont Department of Public Service comments on the GEIS - Supplement 30

Dear Chief, Rules and Directives Branch:

Please find enclosed the comments of the Vermont Department of Public Service comments on the Draft Generic Environmental Impact Statement and the draft Environmental Impact Statement for License Renewal of Vermont Yankee Nuclear Power Station. These comments are provided in accordance with Federal Register Notice and the Notice provided to Mr. Michael Kansler of Entergy Nuclear Operations, Inc. dated December 13, 2006.

The Department of Public Service appreciates the opportunity to make these comments. Please feel free to call me if you have any questions.

Very truly yours,

Sarah Hofmann
 Director for Public Advocacy
 Vermont Department of Public Service

cc: Attached Service List

SONSE Review Complete

E-REDS = ADM-03
ada = R. Emsw
(PLE)

Template = ADM-013



March 7, 2007

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March 7, 2007

**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

**In Re: Entergy Nuclear Vermont Yankee)
 LLC and Entergy Nuclear)
 Operations, Inc.)
(Vermont Yankee Nuclear Power Station)**

**NRC Docket No. 50-271
ASLBP No. 06-849-03-LR**

**VERMONT DEPARTMENT OF PUBLIC SERVICE
COMMENTS ON DRAFT ENVIRONMENTAL IMPACT
STATEMENT FOR PROPOSED LICENSE RENEWAL**

INTRODUCTION

As presently drafted the GEIS and the Draft EIS conclude that the non-radiological impacts of on-site spent fuel storage at any nuclear plant, including Vermont Yankee, will be small. GEIS, Section 3.2; Draft EIS at 6-8. Neither document analyzes the impact on land use and land values for the facility land and adjacent land in the event that spent fuel is required to be maintained at the reactor site for an indefinite time but assumes that either an off-site temporary storage facility or a permanent disposal facility, with sufficient capacity to receive all spent fuel from all reactors now seeking license extensions, will exist no later than 30 years after reactor operations conclude under those extended licenses. GEIS, Sections 6.4.6.2, 3; Draft EIS at 6-8. Even if temporary storage of spent fuel at a reactor site for no more than 30 years after the reactor ceases to generate electricity would have approximately the same impact on land use and land values at every reactor site - an assumption that underlies the GEIS but is not analyzed in it - that assumption is demonstrably insupportable if the temporary spent fuel storage is indefinite, with no reliably predictable end. In such a case, the character of the land itself, the local and state laws relevant to the land and the impacts on local land use and land values will necessarily vary

from site to site. It is in this critical, site specific aspect, that the Draft EIS is seriously deficient.

Undeniably, the task of predicting the future for the handling, storage and disposal of high level nuclear wastes is fraught with uncertainty. Since this issue was first addressed by the NRC in developing the S-3 Table, no important prediction has proven accurate. The one common thread has been that no matter how cautiously the statement is worded, any prediction of an outer bound for the date by which high level nuclear waste would be disposed of in a permanent high level waste facility has been wrong. Repeated failure to correctly predict the date should have led to one of two conclusions:

1. No permanent high level nuclear waste facility and no off-site spent fuel storage facility of sufficient size and for a indefinite period of storage will ever exist and thus, evaluations of the environmental impact of storing spent nuclear fuel must at least evaluate the impact of indefinitely managing high level nuclear wastes at the reactor site until such time as the waste no longer poses any significant threat to the public health and safety; **or**
2. Although there is confidence that at some time in the future a permanent high level nuclear waste facility or off-site spent fuel storage facility of sufficient size and for a indefinite period of storage will exist, it is not possible to reasonably determine when such a facility will be operational and thus it is necessary to consider that the storage of high level nuclear wastes will continue indefinitely at the reactor site.

The State of Vermont (Vermont) through its Department of Public Service (DPS) has identified its concern with the uncertainty associated with the question of when, if ever, a permanent solution will be found to the spent fuel disposal or off-site storage problem in

numerous filings with the NRC, the most recent of which was its June 23, 2006 comments submitted regarding the scoping of the Draft EIS for the proposed 20 year extension of the operating license for Vermont Yankee. The comments contained extensive information and analysis demonstrating the error in the GEIS assumption that because spent fuel would not have to be stored at Vermont Yankee for more than 30 years after the reactor ceases to operate, there would be, at most, a small non-radiological impact from storage of spent fuel at the Vermont Yankee site. Notwithstanding this submission, no mention is made of the information submitted or the analysis provided in the draft EIS. Rather the draft EIS persists in quoting the now outdated and inaccurate assertion in the GEIS that spent fuel storage at the reactor site will be small "if a permanent repository or monitored retrievable storage is not available." Draft EIS at 6-8.

The draft EIS does not acknowledge that the quoted statement from the GEIS is based upon an assumption that the longest possible time that spent fuel would have to remain at a reactor site is 30 years after expiration of its license. GEIS, Sections 6.4.6.2, 3. The draft EIS does not address the fact that events that have arisen since that conclusion was reported in the GEIS, which events were neither anticipated or analyzed in the GEIS, have created a substantial possibility that the hoped for 30 year maximum storage time for spent fuel will not be achieved. GEIS, Section 3.2 (referring to GEIS Chapter 6); GEIS, Section 6.4.6.2. By ignoring this new and significant information the Draft EIS fails to comply with Commission regulations and the requirements of the National Environmental Policy Act (NEPA).

The only lawful manner in which the EIS can address these problems is to provide an in depth evaluation of the new and significant information offered by Vermont, to gather additional

evidence related to these issues in the possession of Entergy, the applicant in this proceeding, and others and, consistent with NRC regulations, to advise the Commission of these facts and recommend appropriate Commission action. Although Vermont believes this new and significant information requires a modification to the GEIS as well as changes in the proposed Supplement 30 for Vermont Yankee, it recognizes that the Staff may conclude that although there is new and significant information it does not warrant any modifications. Whether that position will withstand scrutiny cannot be determined until the Staff fulfills its legal obligation to evaluate the relevant data and provide a reasoned analysis of the bases for its conclusions.

DISCUSSION

NEPA imposes on every federal agency certain obligations to gather and analyze information in order to determine the environmental impacts of any proposed major federal action. 42 U.S.C. § 4332(2)(C). In this case that environmental analysis, with respect to the non-radiological impacts of on-site spent fuel storage was undertaken in the GEIS. The issue for consideration when a specific plant is seeking a specific license extension, is whether a supplemental impact statement is required. The NRC has determined, by rule, that supplementation is required when a specific application is being considered but has limited the scope of that review to certain issues that involve more than what it characterizes in the GEIS as small environmental impacts. The Draft EIS takes the position that the environmental impact of on-site spent fuel storage does not require any further environmental analysis because it has already been generically determined that such impacts will be small. However, that position cannot be sustained because, contrary to well-established law, even though there is new and significant information suggesting that the basis for the GEIS conclusion is no longer viable, the

Draft EIS does not even address, much less provide a reasoned analysis, of the new and significant information and its impact on the GEIS finding. In Marsh v. Oregon Natural Resources Council, 490 U.S. 360, 109 S.Ct. 1851 (1989) the Court concluded:

NEPA does require that agencies take a "hard look" at the environmental effects of their planned action, even after a proposal has received initial approval. . . . Application of the "rule of reason" thus turns on the value of the new information to the still pending decisionmaking process.

Id. 490 U.S. at 374, 109 S.Ct. at 1859. That same year the Court emphasized the importance of a full discussion of the potential environmental impacts as a vital prerequisite to a proper analysis of steps that could be taken to mitigate those impacts and alternative actions:

Implicit in NEPA's demand that an agency prepare a detailed statement on "any adverse environmental effects which cannot be avoided should the proposal be implemented," 42 U.S.C. § 4332(C)(ii), is an understanding that the EIS will discuss the extent to which adverse effects can be avoided. . . . More generally, omission of a reasonably complete discussion of possible mitigation measures would undermine the "action-forcing" function of NEPA. Without such a discussion, neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects. An adverse effect that can be fully remedied by, for example, an inconsequential public expenditure is certainly not as serious as a similar effect that can only be modestly ameliorated through the commitment of vast public and private resources. Recognizing the importance of such a discussion in guaranteeing that the agency has taken a "hard look" at the environmental consequences of proposed federal action, CEQ regulations require that the agency discuss possible mitigation measures in defining the scope of the EIS, 40 CFR § 1508.25(b) (1987), in discussing alternatives to the proposed action, § 1502.14(f), and consequences of that action, § 1502.16(h), and in explaining its ultimate decision, § 1505.2©

Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 351-52, 109 S.Ct. 1835, 1846-47 (1989)(citation omitted).¹

The Draft EIS takes no look, much less a "hard look", at the new and significant

¹ Because the Draft EIS does not consider the potential adverse impacts on land use and land value, it does not explore alternatives to indefinite on-site storage or mitigation measures.

information brought to its attention by Vermont in its comments on the scope of issues for the Draft EIS.² Because there is no discussion of the potential for indefinite storage of spent fuel on the land used by Vermont Yankee, there is no discussion of the environmental and economic impact of such indefinite use on the Vermont Yankee land or surrounding land nor of alternatives or mitigation measures. The Commission has made clear, in adopting the regulations that govern license extensions, that the Staff has a much greater responsibility when new and significant information is brought to its attention than what the Staff has undertaken in this case:

The major changes adopted as a result of these discussions are as follows:

1. The NRC will prepare a supplemental site-specific EIS, rather than an environmental assessment (as initially proposed), for each license renewal application. This SEIS will be a supplement to the GEIS. Additionally, the NRC will review comments on the draft SEIS and determine whether such comments introduce new and significant information not considered in the GEIS analysis. All comments on the applicability of the analyses of impacts codified in the rule and the analysis contained in the draft supplemental EIS will be addressed by NRC in the final supplemental EIS in accordance with 40 CFR 1503.4, regardless of whether the comment is directed to impacts in Category 1 or 2. Such comments will be addressed in the following manner:

- a. NRC's response to a comment regarding the applicability of the analysis of an

² By submitting its comments at an early stage in the process and not waiting for publication of the Draft EIS, Vermont was fulfilling its duty to alert the agency at an early date to relevant information that may impact on the decisionmaking process. This long-standing duty and its value in creating an iterative process was recently reconfirmed by the Supreme Court:

Persons challenging an agency's compliance with NEPA must "structure their participation so that it ... alerts the agency to the [parties'] position and contentions," in order to allow the agency to give the issue meaningful consideration. Vermont Yankee Nuclear Power Corp. v. Natural Resources Defense Council, Inc., 435 U.S. 519, 553, 98 S.Ct. 1197, 55 L.Ed.2d 460 (1978).

Department of Transp. v. Public Citizen, 541 U.S. 752, 764, 124 S.Ct. 2204, 2213 (2004). By ignoring Vermont's comments in its Draft EIS the Staff has frustrated the purpose of NEPA.

impact codified in the rule to the plant in question may be a statement and explanation of its view that the analysis is adequate including, if applicable, consideration of the significance of new information. A commenter dissatisfied with such a response may file a petition for rulemaking under 10 CFR 2.802. If the commenter is successful in persuading the Commission that the new information does indicate that the analysis of an impact codified in the rule is incorrect in significant respects (either in general or with respect to the particular plant), a rulemaking proceeding will be initiated.

b. If a commenter provides new information which is relevant to the plant and is also relevant to other plants (i.e., generic information) and that information demonstrates that the analysis of an impact codified in the final rule is incorrect, the NRC staff will seek Commission approval to either suspend the application of the rule on a generic basis with respect to the analysis or delay granting the renewal application (and possibly other renewal applications) until the analysis in the GEIS is updated and the rule amended. If the rule is suspended for the analysis, each supplemental EIS would reflect the corrected analysis until such time as the rule is amended.

c. If a commenter provides new, site-specific information which demonstrates that the analysis of an impact codified in the rule is incorrect with respect to the particular plant, the NRC staff will seek Commission approval to waive the application of the rule with respect to that analysis in that specific renewal proceeding. The supplemental EIS would reflect the corrected analysis as appropriate.

Statement of Considerations upon issuance of amendments to Part 51 addressing rules to apply in proceedings involving applications for license renewal (61 FR 28467, 28470 (1996)). Since the comments regarding the indefinite storage of spent nuclear fuel at the Vermont Yankee site were filed by Vermont with its comments on the proposed scope of the Draft EIS, the Staff should have addressed those concerns in the Draft, rather than seek to shut off a meaningful dialogue on the issues by either ignoring the matter completely or putting its comments into the Final EIS.

Federal case law underscores the duty of the NRC Staff to fully discuss, at the earliest point in the process, information brought to its attention regarding the potential environmental impacts of its proposed action. The Fifth Circuit underscored the important role that the NEPA

process plays in allowing a meaningful exchange of information between the agency and the public:

This case arises under the network of NEPA, a statute drafted to ensure that federal agencies "carefully consider detailed information concerning significant environmental impacts," and at the same time "guarantee[] that the relevant information will be made available to the larger audience that may also play a role in both the decisionmaking process and the implementation of that decision." Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 109 S.Ct. 1835, 1845, 104 L.Ed.2d 351 (1989); accord North Buckhead Civic Ass'n v. Skinner, 903 F.2d 1533, 1540 (11th Cir.1990). It is a procedural statute that demands that the decision to go forward with a federal project which significantly affects the environment be an environmentally conscious one.

Sabine River Authority v. U.S. Dept. of Interior, 951 F.2d 669, 676 (5th Cir., 1992). By failing to address the concerns raised by Vermont in its comments on the scope of the proposed Draft EIS in the document itself, the Staff frustrates the ability of Vermont and others to "play a role in both the decisionmaking process and the implementation of that decision" because Commission rules restrict the ability of a party to present these considerations in the licensing proceeding. The Staff position also deprives the Staff of the benefit of feedback from Vermont and others with regard to its position on these important questions regarding the environmental impact of indefinite spent fuel storage at the Vermont Yankee facility.

Finally, the regulations promulgated by the President's Council on Environmental Quality (CEQ) governing implementation of NEPA, which are binding on all federal agencies (40 CFR Section 1500.3) and entitled to substantial deference (Robertson v. Methow Valley Citizens Council, 490 U.S. at 355-56, 109 S.Ct. at 1849), underscore the importance of an agency addressing new information.

c) Agencies:

1. Shall prepare supplements to either draft or final environmental impact statements if:

(ii) There are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.

40 CFR Section 1502.9(c); Marsh v. Oregon Natural Resources Council, 490 U.S. at 372, 109

S.Ct. at 1858. In addition, where, as here, the new information bears on an issue for which a

precise determination is not possible, the agency must meet additional obligations to disclose and

discuss such information. When "an agency is evaluating reasonably foreseeable significant

adverse effects on the human environment in an environmental impact statement and there is

incomplete or unavailable information" and

the information relevant to reasonably foreseeable significant adverse impacts cannot be obtained because the overall costs of obtaining it are exorbitant or the means to obtain it are not known, the agency shall include within the environmental impact statement:

- (1) A statement that such information is incomplete or unavailable;
- (2) a statement of the relevance of the incomplete or unavailable information to evaluating reasonably foreseeable significant adverse impacts on the human environment;
- (3) a summary of existing credible scientific evidence which is relevant to evaluating the reasonably foreseeable significant adverse impacts on the human environment, and
- (4) the agency's evaluation of such impacts based upon theoretical approaches or research methods generally accepted in the scientific community. For the purposes of this section, "reasonably foreseeable" includes impacts which have catastrophic consequences, even if their probability of occurrence is low, provided that the analysis of the impacts is supported by credible scientific evidence, is not based on pure conjecture, and is within the rule of reason.

40 CFR Section 1502.22(b). There is no question that there is a reasonably foreseeable adverse

environmental impact if spent fuel remains at the Vermont Yankee site long after the reactor has

ceased to operate. As noted in the several filings by Vermont and without contradiction from the

Staff or any party, there will be substantial impact on the use of this valuable land (bordering the Connecticut River, one of the most important natural resources enjoyed by Vermont residents and others) and on the land of adjacent property owners who cannot realize the full potential of their own land so long as the site is used for nuclear activities. Thus, once it becomes apparent that there is new and significant information that spent fuel storage may continue indefinitely at the site, CEQ regulations imposes on NRC a duty to fully discuss that information and to fully explore the nature of the uncertainty about when and whether spent fuel will ever be removed from the Vermont Yankee site. NRC may not, as the Draft EIS assumes, merely reference a now outdated conclusion that, because there has to be an off-site solution to the nuclear waste problem, there will be one. The events of the last decades demonstrate that such “necessity” has not produced a solution and those events strongly suggest that “necessity” may not ever produce a solution.

Contrary to all of these case, statutory and regulatory authorities, and although the Staff was fully aware of Vermont’s concerns about the environmental impacts of indefinite spent fuel storage at the Vermont Yankee site and the substantial body of new information that supports those concerns, there is not a single reference to this new information or to the issues raised by it in the Draft EIS. In derogation of the duties imposed by the Commissions own regulations, as fully explained in the Statement of Considerations accompanying those regulations, the Draft EIS totally ignores the significant new information that, at a minimum, throws considerable doubt on the validity of the prior assumption that spent nuclear fuel will not have to be stored at the Vermont Yankee site for more than 30 years after the reactor ceases operation. At a minimum the Draft EIS should have addressed the issue and the new information and presented, as a draft,

for further comment, the Staff's analysis of this information and the Staff's conclusion as to whether further action should be taken by the Commission.

To remedy the defect in the Draft EIS, the Staff must issue a supplement to the Draft EIS to enable Vermont, the Applicant and other interested parties to file comments on the Staff's tentative conclusions regarding the new and significant information presented by Vermont (and any other relevant of which the Staff is aware) and to comment on the Staff's tentative recommendations regarding the need for additional action by the Commission.

NEW AND SIGNIFICANT INFORMATION

The relevant new and significant information which should have been addressed in the Draft EIS is referenced and identified in the following documents which are attached to these comments and made a part of them:

1. June 23, 2006 letter and attachments from William K. Sherman, State Nuclear Engineer, to Chief, Rules and Directives Branch, Division of Administrative Services Office of the Administration of the NRC;
2. Vermont Department of Public Service Notice of Intention to Participate And Petition to Intervene in Entergy's application for License Renewal in Docket No. 50-271 filed on May 26, 2006 at pp. 12-31, including all attachments referenced in those pages;
3. Vermont Department of Public Service Reply to Answers of Applicant and NRC Staff to Notice of Intention to Participate and Petition to Intervene corrected copy filed July 6, 2006, at pp. 17-40, including all attachments referenced in those pages.

In addition, Entergy possesses substantial new information directly relevant to the issue of whether it will have to store spent fuel at the Vermont Yankee site for an indefinite period. As

Vermont observed in its Reply to Answers of Applicant and NRC Staff to Notice of Intention to Participate and Petition to Intervene:

In *Entergy Nuclear Generating Co. v. U.S.*, 64 Fed.Cl. 336 (2005) Entergy successfully sued the United States on the theory that DOE had breached a contractual duty to take possession of, and title to, spent nuclear fuel (SNF) within 63 months after a utility submitted a delivery commitment schedule (DCS) with regard to such SNF. In that suit, and at the urging of Entergy, the Court of Claims, in reliance on the stipulation of the parties and otherwise undisputed facts reached the following conclusion:

This aborted effort in 2004 to reinstitute the DCS process signals that no disposal of SNF will occur during 2010, taking into account the 63-month period between designation and collection, and moreover that disposal may not occur within any foreseeable time in the future. No repository is available.

Id. 64 Fed.Cl. at 340 (citation omitted)(the chaotic nature of the entire spent fuel storage management scheme is detailed in the Court's opinion at footnotes 3 and 4). Entergy was fully capable of setting forth these new and significant facts, plus we suspect much more information not readily available from the printed case, in order to meet its obligations under 10 CFR §51.53(c)(3)(iv) but failed to do so, thus depriving the NRC, potential intervenors, and this Board of the truth about the uncertainty in how Entergy will manage the spent fuel it proposes to generate over the extended 20 years of operation of VY.

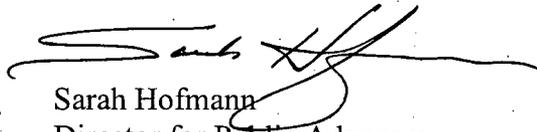
Id. at 21-2. As part of its NEPA responsibilities the Staff should obtain whatever information is available to Entergy and which supported its successful claim against the government and resulted in its obtaining a federal court ruling that “[off-site] disposal [of spent nuclear fuel] may not occur within any foreseeable time in the future. No repository is available.” Entergy Nuclear Generating Co. v. U.S., 64 Fed.Cl. at 340.

CONCLUSION

For the reasons stated above, we urge the Staff to issue a supplemental Draft EIS which fully discusses the new and significant information provided by Vermont and otherwise available

to the Staff, including information it seeks and obtains from Entergy, regarding whether spent fuel will have to be stored at the Vermont Yankee site indefinitely, the environmental impact of such indefinite spent fuel storage on land use and land values for the Vermont Yankee site and surrounding land, all is presented in more detail in the attached documents and references, and alternatives to avoid or mitigate these anticipated adverse impacts.

Respectfully submitted,



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Department of Public Service
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Dated this 7th day of March, 2007 at Montpelier, Vermont.

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**STATE OF VERMONT
DEPARTMENT OF PUBLIC SERVICE**

June 23, 2006

Chief, Rules and Directives Branch
Division of Administrative Services
Office of the Administration
Mailstop T-6D59
U.S. Nuclear Regulatory Commission
Washington D.C. 20555-0001

Re: Vermont Yankee, 50-271, License Renewal
Vermont Department of Public Service comments on the Environmental Report

Vermont Department of Public Service comments on the scope of issues to be addressed in the Environmental Impact Statement (EIS) are provided on Attachment A to this letter. These comments are provided in accordance with Federal Register Notice, Vol 71, No. 77, Friday April 21, 2006, pages 20733-20735.

The Department of Public Service appreciates the opportunity to make these comments. Please call if there are questions.

Sincerely,

A handwritten signature in black ink, appearing to read "William Sherman".

William Sherman
State Nuclear Engineer

Attachment A
Vermont Department of Public Service Comments
EIS for License Renewal for Vermont Yankee Nuclear Power Station

Category I item - Onsite Land Use

1. 10 C.F.R. §54.23 requires the Applicant to submit an environmental report that complies with Subpart A of 10 C.F.R. Part 51.

2. 10 CFR §51.53(c)(3)(iv) provides that the “[t]he environmental report must contain any new and significant information regarding the environmental impacts of license renewal of which the applicant is aware.”

3. New and significant information exists regarding the time for which onsite land will be removed from other uses, and whether such land use is irretrievable, which was not provided in the ER by the Applicant in accordance with 10 C.F.R. §51.53(c)(3)(iv). The current estimate in the Generic Environment Impact Statement (GEIS) is on-site storage of spent fuel will not last beyond 30 years after the end of the license period (including an extended license period). GEIS, Sections 6.4.6.2, 3.

4. The GEIS evaluates the impacts associated with onsite land use as Category 1, SMALL. The basis for this assessment is the assumption that the land used for storage of nuclear wastes at the reactor site will not exceed 30 years after the end of the license term. GEIS, Section 3.2 (referring to GEIS Chapter 6). That assumption, in turn, relies upon the assumption that a permanent high level waste repository, and perhaps even a second repository, will be in place by that time to receive the reactor wastes. GEIS, Section 6.4.6.2 Based on those assumptions the use of the reactor site for storing spent fuel, in this case for a period ending in 2062, has been deemed to be a small impact. GEIS, Section 3.2.

5. However, as summarized below, these assumptions are flawed. Recent evidence, not evaluated previously in the GEIS, now discloses that: 1) the likelihood that a permanent high level waste repository will be in place by 2062 is slight due to unanticipated technical problems uncovered at the Yucca Mountain site coupled with changes in national policy; 2) the only currently contemplated high level waste repository can accommodate the quantity of spent nuclear fuel expected to be produced by Vermont Yankee through the end of its originally licensed life, but it would not have space for at least a part of the additional spent nuclear fuel generated by VY during extended licensing; 3) no present plans exist for building a second high level waste repository nor has any site been identified for consideration for such a facility; 4) the United States is now embarking upon a changed policy for waste disposal which will make all the current schedules obsolete and for which there is no reliable time frame for its implementation; 5) there is not now nor has there been any reasonable prospect that the federal government or any third party will take title to the license-renewal spent fuel waste and remove it from the site; and 6) it follows that it is reasonable to expect that at least a part of spent fuel to be generated at VY during the period of an extended license will remain at the site for a much longer time than evaluated in the GEIS and perhaps indefinitely.

6. Since this new information, not available at the time of development of the GEIS, demonstrates that the commitment of onsite land for storage/disposal of spent nuclear fuel from license renewal will be substantially longer than assumed in the *GEIS*, and may be indefinite, this results in an irretrievable commitment of onsite land with a MODERATE or LARGE impact.

7. As demonstrated below, Vermont and its communities have firmly established values associated with land use such that the long-term or indefinite use of a portion of the VY site for spent nuclear fuel storage should clearly be evaluated as a MODERATE or LARGE impact in the VY supplement to the GEIS.

8. Entergy identifies in Environmental Report (ER) Section 6.4.2, that the land required to dispose of spent nuclear fuel as a result of operation during an extended license represents a irreversible and irretrievable commitment of resources. Entergy does not qualify the irreversible or irretrievable nature of this land use to a limited time period. Therefore, Entergy is identifying this use as indefinite. This identification is in conflict with the GEIS which does not identify such land use as irreversible and irretrievable. This difference from the GEIS requires should be addressed in the EIS for the impact of onsite land use.

9. In ER Section 4.0, Entergy refers to 10 CFR 51, Appendix B, Table B-1, which identifies onsite land use as Category 1, SMALL impact. But this identification only refers to the portion of land from license renewal as being "a small fraction of any nuclear power plant site," and does not include evaluation of the indefinite removal of the land from any beneficial use.

10. Entergy demonstrates in the Environmental Report (ER) Section 4.0 a flawed application of its obligations to identify new and significant information. Section 4.0 contains the statement,

"Entergy reviewed the NRC findings on these 52 issues and identified no new and significant information that would invalidate the findings for VYNPS."

The flaw is the identification of items in Table 4-2, which are purported to be the Category 1 issues applicable to VYNPS. *Land Use (license renewal period)* is listed in Table 4-2. But the adverse impact is from the land use beyond the license renewal period, caused by the actions during the license renewal period. If Table 4-2 has been stated correctly, then perhaps Entergy would have provided the new and significant information related to onsite land use.

11. The EIS should take into account that the nation's policy with regard to spent fuel management has changed since the GEIS. The current administration and Congress have

announced a major shift in policy called the Global Nuclear Energy Partnership (GNEP). Refer in general to the Administration's GNEP website - <http://www.gnep.energy.gov/> - which contains the announcement and much information regarding this new policy direction. Proponents of this new policy hope this new approach will not separate out plutonium products. However the referenced website shows that this technique has neither been developed nor demonstrated.

12. This shift in policy will remove attention and resources from repository development such that the basis and conclusions that spent fuel will not have to be stored on site beyond 2062 are no longer valid. For example, see the report of comments below from Sen. Pete Domenici:

MOVEMENT OF SPENT FUEL IN THE US COULD BE FURTHER DELAYED, according to Senator Pete Domenici, the New Mexico Republican who chairs the Energy and Natural Resources Committee. Domenici indicated during a status hearing on DOE's repository program at Yucca Mountain, Nevada that it was unrealistic to proceed with a status-quo repository project and later factor in spent fuel reprocessing waste and recycling activities associated with DOE's new fuel-cycle initiative, the Global Nuclear Energy Partnership. It ought to be pretty clear to everyone that spent fuel rods won't be put into Yucca Mountain, Domenici said in an apparent reference to GNEP, which is aimed, in part, at closing the nuclear fuel cycle in the US and abroad. Recycling will determine what kind of repository the US needs, he added. "It's a mess," Domenici said, of the Yucca Mountain program as reporters approached him after the hearing. He said that he believes any legislation on Yucca Mountain would have to include language on spent fuel recycling. Draft legislation DOE sent to Congress last month did not include language on spent fuel reprocessing.

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13. In addition, the EIS should consider that the previous assumption regarding the suitability of Yucca Mountain as a permanent waste disposal site is no longer valid. At Yucca Mountain, contrary to the assumptions underlying the GEIS, it has been discovered that the disposal area is subject to water in-leakage. Therefore the design must be changed from that previously assumed and it is not clear a new design can be developed which will meet dose and integrity requirements. Partially in response to this discovery, DOE has abandoned previous cask designs and now proposes a concept called the TAD (transportation, aging and disposal) standard canister for which there is not presently even a preliminary design.

14. Further, the EIS should stated that these changes have occurred in an increasingly hostile political environment. Senate minority leader Harry Reid (D-NV) strongly opposes development of Yucca Mountain and is able to use his position as minority leader effectively to advance this opposition and would do so even more forcefully as majority leader if the Senate leadership changes parties. And, the Western Governor's Association (WGA) has the following active resolution (03-16):

On December 1, 1989, the Western Governors' Association adopted Resolution 89-024 which stated that spent nuclear fuel should remain at reactor sites until a state has agreed to storage and DOE provides reasonable transportation, safety, and emergency response assurances to the western states. The resolution was readopted in 1992, 1995, 1997, and 1999.

All of the new information identified above provides additional arguments and evidence to bolster the opposition of Senator Reid and the WGA and undercut the assumed completion date for a usable high level waste repository.

15. In addition, the EIS should evaluate, because the GEIS was prepared before September 11, 2001, it does not factor in the impact of viable terrorist threats into an evaluation of the socioeconomic impacts of indefinitely storing spent fuel at the reactor site. The extended long-term or indefinite presence of spent nuclear fuel at Vermont Yankee after permanent shutdown means a defined terrorist target will be present for the long-term or indefinitely. In its news release No. 03-053 (April 29, 2003), NRC stated:

The Commission believes that this DBT [Design Basis Threat] represents the largest reasonable threat against which a regulated private security force *should be expected to defend* under existing law.

(Emphasis added). The phrase, *should be expected to defend*, means there is a limit on the expectation on Entergy, and that state resources will be expected to provide additional security responses beyond Entergy's capability. The very presence of this target creates an effect on that land, contiguous lands, and the surrounding area, creating the need for continuous augmented emergency preparedness plans and security response from the State. The EIS should evaluate this increased, long term burden on state resources. See also the decision of *San Luis Obispo Mothers for Peace V. Nuclear Regulatory Commission*, U.S. Court of Appeals for the Ninth Circuit, No. 03-74628 (June 2, 2006).

16. Entergy has stated that all of the spent fuel projected to be generated by Vermont Yankee through the end of its current operating license (including increases of spent fuel from power uprate) will be within the 70,000 metric tons storage limits of the "first" repository. The

EIS should identify that at least some part of the spent fuel from license renewal will exceed the 70,000 metric ton limit (when all spent fuel being generated nationally is considered) and must go into a second repository, and that this entry of Entergy into the second repository is specifically the result of the license renewal.

17. The Massachusetts Institute of Technology (MIT), in 2003, performed a study: *The Future of Nuclear Power: An Interdisciplinary MIT Study*. Entergy should have identified that it sponsored the co-chair of the study, Dr. Ernest Moniz, Director of Energy Studies, Laboratory for Energy and the Environment, MIT Department of Physics, as a witness in PSB Docket No. 7082, regarding authorization for dry cask storage. In that docket, Dr. Moniz testified:

[T]he MIT Study argues that “interim” storage of spent fuel (which can be carried out either at reactor sites or in consolidated facilities, possibly under federal control) for fifty to seventy years is in any case a preferred approach for design of an integrated spent fuel management system.

The implication of Entergy’s testimony through Dr. Moniz is that the first repository will not be available for “fifty to seventy years.” If the schedule for the first repository is “fifty to seventy years,” a time period greater than evaluated in the GEIS, then the schedule for a second repository is indefinite at best, if such a repository could ever be built. The EIS should take note of this fact.

18. The EIS should identified how Vermont would evaluate the onsite land use which would occur if license renewal were granted. Vermont assigns a high value to land and its use within the state. The values are codified in the form of environmental protections in permitting criteria in 10 V.S.A Chapter 151, State Land Use and Development Plans (see Exhibit Vermont-5).

19. Criteria No. 7 of 10 V.S.A §6086 (a) states:

[Before granting a permit, the district commission shall find that the subdivision or development:]

(7) Will not place an unreasonable burden on the ability of the local governments to provide municipal or governmental services.

The long-term or indefinite storage of license renewal spent fuel at VY would trigger long-term burdens on local governments for emergency management and security services. It is highly likely that long-term or indefinite storage of the spent fuel created by license renewal would not

comply with Criteria No. 7. Therefore, this would suggest the impact of the proposed onsite land use should be determined to be LARGE in the VY supplement to the GEIS.

20. Criteria No. 8 of 10 V.S.A §6086 (a) states:

[Before granting a permit, the district commission shall find that the subdivision or development:]

(8) Will not have an undue adverse effect on the scenic or natural beauty of the area, aesthetics, historic sites or rare and irreplaceable natural areas.

Under this criteria, the District Environmental Commission would evaluate the effect of spent nuclear fuel being left long-term or indefinitely on a riverbank site that would otherwise be fully returned to greenfield condition. It is highly likely the long-term or indefinite presence of spent nuclear fuels following decommissioning of VY would be deemed to create an undue adverse effect. Considering this criteria, the proposed onsite land use should be evaluated as MODERATE or LARGE in the VY supplement to the GEIS.

21. In addition, Vermont's land use law requires a finding that land uses are in conformance with local or regional plans:

(10) Is in conformance with any duly adopted local or regional plan or capital program under chapter 117 of Title 24. In making this finding, if the district commission finds applicable provisions of the town plan to be ambiguous, the district commission, for interpretive purposes, shall consider bylaws, but only to the extent that they implement and are consistent with those provisions, and need not consider any other evidence.

10 V. S.A. §6086 (a)(10).

22. The Windham Regional Plan of October 30, 2001, which is applicable to VY, establishes land use requirements, and has the following provision:

LAND USE POLICIES

Rural Residential Lands

1. Ensure that any development of rural residential lands will be at densities that will serve to contain rural sprawl, and that are compatible with existing land uses and sensitive to the limitations of the land.

Once the bulk of the site is returned to a greenfield condition, it is doubtful that long-term or indefinite presence of spent nuclear fuel from license renewal would be considered "compatible with existing land uses". This provision suggests the onsite land use impact should at least be evaluated as MODERATE in the VY supplement to the GEIS.

23. The Windham Regional Plan also has the following provision:

COMMUNITY RESOURCE POLICIES

High Level Radioactive Waste

1. Encourage a requirement that permanent spent nuclear fuel (SNF) storage be resolved prior to any consideration of extending or reviewing the operating license of Vermont Yankee.

It is highly likely that a land use evaluation under 10 V.S.A. §6086 (a)(10) would find the proposal for long-term or indefinite storage of spent nuclear fuel from license renewal did not conform with the regional plan with regard to the item above. Thus, this provision suggests a LARGE impact from the onsite land use from the proposed license renewal.

24. There is also a Vernon Town Plan, Nov. 3, 2003, which is applicable to VY. This plan contains the following:

Section III: Resource and Economic Development

Recommendations:

- #3 The Town should pursue discussions with appropriate representatives of the Vermont Yankee Nuclear power Company regarding the possible re-use of the power plant site for other commercial and industrial development following decommissioning.

The long-term or indefinite presence of spent nuclear fuel from license renewal has the potential for preventing "other commercial and industrial development following decommissioning." If the spent fuel storage completely prevented the use of the site for other developments, it is highly likely the impact from license-renewal onsite land use would be LARGE. If the spent fuel storage allowed some additional development but hindered other possible commercial and industrial uses, the impact would likely be MODERATE.

25. The extended long-term presence of spent fuel will prevent use of the immediate land

it occupies and will deter other possible uses of larger contiguous areas because of societal and commercial concerns regarding the proximity of radioactive material. From the foregoing, it is shown that the EIS should identify that Vermont has existing land use evaluation criteria, which establish the basis under which the impact from additional long-term or indefinite onsite land use resulting from the spent nuclear fuel generated from license renewal should be evaluated as MODERATE or LARGE in the VY supplement to the GEIS.

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**STATE OF VERMONT
DEPARTMENT OF PUBLIC SERVICE**

May 26, 2006

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 - Application for License Renewal of 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 Notice of Intention to Participate and Petition to Intervene with Exhibits, Declaration of William K. Sherman, Notice of Appearance from Sarah Hofmann and Anthony Z. Roisman, and Certificates of Service.

Service may be made on the Vermont Department of Public Service at the following:

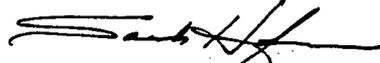
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May 25, 2006

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
Director for Public Advocacy
Vermont Department of Public Service

cc: Office of the General Counsel
Terrence A. Burke, Esq.
Jay E. Silberg, Esq.
Anthony Z. Roisman, Esq.

**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

**In Re: Entergy Nuclear Vermont Yankee)
 LLC and Entergy Nuclear)
 Operations, Inc.)**

**Docket No. 50-271
(License Renewal)**

NOTICE OF APPEARANCE

Pursuant to 10 CFR §2.314(b) Sarah Hofmann and Anthony Z. Roisman file this Notice of Appearance on behalf of the Vermont Department of Public Service, which is the single designated representative for the State of Vermont for the above-entitled proceeding:

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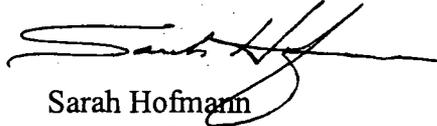
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Ms. Hofmann is an employee of the State of Vermont as the Director for Public Advocacy to the Department of Public Service. She is a an attorney at law in good standing admitted to practice in Vermont. Mr. Roisman is in private practice and is in

May 26, 2006

retained by the Department of Public Service to assist in this matter. He is a member in good standing admitted to practice in New York, the District of Columbia and Vermont.

Respectfully submitted,



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Director for Public Advocacy
Department of Public Service
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Anthony Z. Roisman
National Legal Scholars Law Firm
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Lyme, NH 03768

Dated: May 26, 2006

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)
)
ENTERGY NUCLEAR VERMONT) Docket No. 50-271
YANKEE LLC AND ENTERGY NUCLEAR) (License Extension)
OPERATIONS, INC.)
(Vermont Yankee Nuclear Power Station))

CERTIFICATE OF SERVICE

I hereby certify that copies of the Vermont Department of Public Service Notice of Intention to Participate and Petition to Intervene; Notice of Appearance; Declaration of William K. Sherman; and Cover Letter in the above captioned proceeding has been served on the following by electronic mail where indicated by an asterisk on this 26th day of May, 2006, and will be mailed by deposit in the United States Mail, first class, postage prepaid, on the 26th day of May, 2006.

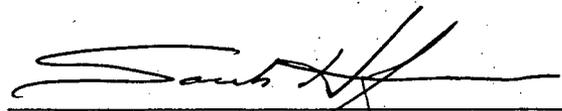
Office of the Secretary of the Commission*
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001
Attention: Rulemaking and Adjudications
Staff
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Sarah Hofmann, Director for Public Advocacy

**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

**In Re: Entergy Nuclear Vermont Yankee)
 LLC and Entergy Nuclear)
 Operations, Inc.)**

**Docket No. 50-271
(License Renewal)**

**VERMONT DEPARTMENT OF PUBLIC SERVICE
NOTICE OF INTENTION TO PARTICIPATE
AND PETITION TO INTERVENE**

Filed on May 26, 2006

**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

In Re: Entergy Nuclear Vermont Yankee)	
LLC and Entergy Nuclear)	Docket No. 50-271
Operations, Inc.)	(License Renewal)

**VERMONT DEPARTMENT OF PUBLIC SERVICE
NOTICE OF INTENTION TO PARTICIPATE
AND PETITION TO INTERVENE**

NOTICE OF INTENT TO PARTICIPATE

Pursuant to 10 C.F.R. §2.309 and the Notice of Consideration of Issuance of A Renewed License for Operating Vermont Yankee Nuclear Power Station (for an additional twenty (20) years) and Opportunity for a Hearing (Notice) Petitioner, the Vermont Department of Public Service (DPS) hereby submits contentions regarding Vermont Yankee Nuclear Power Station's (VY) application for renewal of its license to operate VY for an additional 20 years, or until 2032. As demonstrated below, these contentions should be admitted because they satisfy the NRC's admissibility requirements in 10 C.F.R. § 2.309.¹ Also, the State requests, and is entitled to a full adjudicatory hearing with all the rights of discovery and cross-examination provided by 10 CFR Subpart G. At a later date, to be set by the Atomic Safety and Licensing Board (ALSB) DPS will demonstrate that it meets the requirements of 10 CFR 2.310 (d).²

¹ Although these contentions meet the requirements of 10 CFR §2.309, DPS does not concede the procedures are lawful and reserves the right to challenge, in an appropriate legal forum, these procedures, as applied to DPS in this case, should that be necessary to permit DPS to present and fully adjudicate the important nuclear safety and environmental issues raised in its contentions.

² Although DPS meets the requirements of 10 CFR §2.310(d) for a full adjudicatory hearing on all contentions it raises, DPS does not concede the procedures of 10 CFR §2.310 which restrict use of full adjudicatory hearing procedures are lawful and reserves the right to

Vermont Yankee is located within the boundaries of the State of Vermont. DPS is the single representative of the State of Vermont for this Hearing. Therefore, pursuant to 10 CFR §2.309(d)(2), DPS is deemed to have standing for purposes of this proceeding and no further showing is required by DPS on that issue.

I. PARTICIPATION AS A MATTER OF RIGHT

The Atomic Energy Act, 42 U.S.C. §2021(l) specifies that “[w]ith respect to each application for Commission license authorizing an activity as to which the Commission's authority is continued pursuant to subsection (c) of this section”, which subsection includes a license authorizing, *inter alia*, “the construction and operation of any production or utilization facility”³ the NRC “shall afford reasonable opportunity for State representatives to offer evidence, interrogate witnesses, and advise the Commission as to the application”. 42 U.S.C.

challenge, in an appropriate legal forum, these procedures, as applied to DPS in this case, should that be necessary to permit DPS to fully adjudicate the important nuclear safety and environmental issues it raises.

³ There cannot be any serious question that the application now pending to extend the operating life of Vermont Yankee by 20 years is a request to authorize operation of the plant at and falls within the scope of 42 U.S.C. §2021(c)(1) and (l). There is no need at this time to address the question of whether this language applies equally to all operating license amendments regardless of whether they seek to extend the operating license. In addition, the provisions of 10 CFR §50.91, which impose certain restrictions on state participation, are inapplicable here. That Section is limited to a Notice of Proposed Action under 10 CFR §2.105 which is deemed by the Commission to present no significant hazards. This is a Notice of Hearing for Consideration of Issuance of Amendment under 10 CFR §2.104.

§2021(c)(1) and (l).⁴ 10 CFR §2.315(c) acknowledges these rights of a state in those cases where a hearing is being held. However, the statute extends the right to offer evidence and interrogate witnesses to all applications, even if pursuant to 10 CFR §2.309 no hearing will otherwise be held. Thus, in the case of a State and/or its designated representative, NRC must provide these rights of participation regardless of the existence of any “admissible contention” and include the right to present evidence and interrogate witnesses as to matters relevant to the application. DPS recognizes that without pre-filed contentions, witnesses may have difficulty preparing to answer questions posed and the Applicant, and Staff, if it participates, may have difficulty focusing their attention on the issues of concern to the State. For that reason DPS is submitting a statement of the contentions it now believes should be examined at the hearing and will supplement that list of contentions when and if new evidence becomes available.

DPS believes the most efficient manner by which these statutory rights can be exercised is to allow both depositions and live testimony to the extent the issues are not fully developed in the deposition, but should the NRC conclude all state interrogation must be conducted at a Board supervised hearing, DPS will conduct all of its interrogation of witnesses at that time. Although not specifically mentioned in §2021(l), DPS also believes that cross-examination of witnesses by it will be more efficient if DPS submits cross-examination outlines, five days before the

⁴ Thus, DPS should not be required in this case to separately demonstrate that the provisions of Subpart G should apply to any Contentions which are admitted. Nonetheless, out of an abundance of caution, DPS will provide that demonstration at an appropriate time.

examination, to alert each witness to the subjects which DPS will explore. Similarly, DPS should have the right to seek production of documents if for no other reason than that production of documents will facilitate interrogation of witnesses and narrow the scope of their examination. Otherwise, witnesses will be asked questions about issues which are addressed in documents which either are not present during the interrogation or the analysis of which will require a hiatus in the interrogation.

DPS realizes that it may have information which Applicant, Staff or any other parties which may be permitted hearing status will want to see and although not required to do so by statute, will respond to reasonable requests for production of documents and is willing to have its witnesses cross-examined by Applicant, Staff or any admitted party provided outlines of cross-examination are submitted at least five days in advance for the witness to be prepared to fully answer the questions posed.

The following discussion follows the provisions of 10 CFR §§2.309 and 2.310 for purposes of simplicity and to demonstrate that even if DPS were not entitled to an adjudicatory hearing as a matter of right as to all of its contentions, it would nonetheless be entitled to an adjudicatory hearing on all these contentions under the provisions relevant to other parties.

PETITION TO INTERVENE

I. INTRODUCTION

The State of Vermont has consistently pursued issues of nuclear safety and environmental

protection before the Nuclear Regulatory Commission (NRC) and other appropriate state and federal agencies. Among the issues of greatest concern to the State is the wise management of the energy resources to best advance the interests of Vermont residents and energy consumers in Vermont. To this end the State has enacted significant legislation addressed to its concern regarding the development of energy resources in Vermont. Among these measures are two recently enacted statutes that bear directly on the pending proceeding.

In the last month Vermont has adopted Senate Bill 124, An Act Relating to a Certificate of Public Good for Extending the Operating License of a Nuclear Power Plant. That legislation mandates a process of public engagement and fact-finding that includes assessing all practical alternatives to license extension that may be more cost effective or better promote the general welfare. Additionally, House Bill 859, An Act Relating to the Energy Security and Reliability Act, was passed. H.859 provides for a comprehensive statewide public engagement process focused on electric energy supply choices facing the state. In the last year Vermont has adopted two other bills that look to renewable energy alternatives. The first established the Vermont Clean Energy Development Fund, 10 V.S.A. § 6523, with money from Entergy to the State of Vermont established under a Memorandum of Understanding regarding the creation of a dry fuel storage facility at Vermont Yankee. The fund was created in large part to support investment in clean energy resources in order to ensure that the state's future power supply would be diverse, reliable, economically sound and environmentally sustainable. 10 V.S.A. § 6521. Also, last year

the General Assembly passed legislation promoting renewable energy. 30 V.S.A. § 8001 et. seq. These four statutes combined with existing state legislation demonstrate that Vermont has a strong preference for developing those energy resources that have the least impact on the environment and are the most economical. For example, 30 V.S.A. §248(b)(2) requires that prior to issuance of a certificate of public good for any generating facility, including a merchant plant like Vermont Yankee, the Public Service Board must make an affirmative finding that:

[the proposed facility] is required to meet the need for present and future demand for service which could not otherwise be provided in a more cost effective manner through energy conservation programs and measures and energy-efficiency and load management measures, including but not limited to those developed pursuant to the provisions of sections 209(d), 218c, and 218(b) of this title;

An example of the steps being taken by Vermont to carry out these obligations, is the ongoing Vermont PSB proceeding on the potential for and benefits of a greater commitment to energy efficiency measures in the state. *See Energy Efficiency Utility Budget Recommendation Hearings (Vermont PSB).*

The Nuclear Regulatory Commission (NRC) recognizes the primacy of the concerns of each state for the economic cost and generating mix of power facilities in that state and correctly leaves it to each state to determine whether an otherwise safe and environmentally acceptable nuclear power plant should be allowed to extend the operation of its facility beyond the originally approved license period:

The final amendment also eliminates NRC's consideration of the need for generating capacity and the preparation of power demand forecasts for license

renewal applications. The NRC acknowledges the primacy of State regulators and utility officials in defining energy requirements and determining the energy mix within their jurisdictions. Therefore, the issue of need for power and generating capacity will no longer be considered in NRC's license renewal decisions.

Environmental Review for Renewal of Nuclear Power Plant Operating Licenses (61 FR 28467 at 28468).

Nonetheless, the NRC, in individual proceedings, does make findings in which it evaluates environmental impacts of alternatives to the proposed extended license operation:

- (1) Neither the rule nor the GEIS would contain a consideration of the need for generating capacity or other issues involving the economic costs and benefits of license renewal and of the associated alternatives;
- (2) The purpose and need for the proposed action (i.e., license renewal) would be defined as preserving the continued operation of a nuclear power plant as a safe option that State regulators and utility officials may consider in their future planning actions;
- (3) The only alternative to the proposed action would be the "no-action" alternative, and the environmental consequences of this alternative are the impacts of a range of energy sources that might be used if a nuclear power plant operating license were not renewed;
- (4) The environmental review for license renewal would include a comparison of the environmental impacts of license renewal with impacts of the range of energy sources that may be chosen in the case of "no action"; and
- (5) The NRC's NEPA decision standard for license renewal would require the NRC to determine whether the environmental impacts of license renewal are so great that preserving the option of license renewal for future decisionmakers would be unreasonable.

Environmental Review for Renewal of Nuclear Power Plant Operating Licenses (61 FR 28467 at 28472).

There is a potential problem with this approach. First, in considering alternatives to the

proposed license extension, the NRC considers the merits of a number of energy generation alternatives and energy efficiency and demand side management. *See e.g.* Generic Environmental Impact Statement for License Renewal of Nuclear Plants Regarding Monticello Nuclear Generating Plant (Draft NUREG-1437 (Supplement 26) at 8-45 to 8-52 (January 2006). Second, because DPS is a party to this proceeding, other litigants in the future could try to assert that the DPS could be bound by any findings made either by the Board or the Staff on these issues. Although such a result would be contrary to the NRC's clear statement that it is up to each state to decide the issue of whether an alternative is preferable to the proposed extended license, absent some ruling to that effect DPS would subject itself to a risk of collateral estoppel.

However, at this time, the Staff has yet to develop a draft supplemental environmental impact statement (SEIS) and Entergy's presentation on alternatives does not take into account the State's position on alternatives. Thus, the State is unable to determine whether any findings proposed to be made on these issues will be contrary to the position the State believes is best or whether Entergy and the Staff would agree that no finding by the Board on the issues of alternative energy viability or impacts would be binding on the State in a proceeding before the PSB. For that reason the State cannot, at this time file any contentions related to energy alternatives but reserves the right to do so should filings by Entergy or the Staff require such action.

First Contention (Safety)

The Application must be denied because the Applicant has failed to provide the necessary information with regard to age management of primary containment concrete in accordance with 10 C.F.R. §54.21 such that the Commission cannot find that 10 C.F.R. §54.29(a) is met.

Basis

As shown by the supporting evidence below, the Applicant improperly excludes the attribute of *reduction of strength and modulus of the primary containment structure due to elevated temperature*. The Applicant claims this attribute is not an aging effect requiring management. However, the primary containment normal operating temperature limit is above the limit for excluding this attribute from consideration. The lack of consideration means the Commission cannot make the finding of acceptability in accordance with 10 C.F.R. §54.29(a).

Supporting Evidence

1. At 3.5-8 of the License Renewal Application (LRA), the Applicant includes the following statement:

3.5.2.2.1.3 Reduction of Strength and Modulus of Concrete Structures due to Elevated Temperature

ASME Code, Section III, Division 2, Subsection CC indicates that aging due to elevated temperature exposure is not significant as long as *concrete general area temperatures do not exceed 150 F* and local area temperatures do not exceed 200°F. During normal operation, areas within primary containment are within these temperature limits. Therefore, reduction of strength and modulus of

concrete structures due to elevated temperature is not an aging effect requiring management for VYNPS containment concrete.

Emphasis added.

2. At 2.4-3 of the LRA, the Applicant refers to Sections 5.1.2 and 5.2 of the UFSAR for a description of the primary containment.

3. At 5.2.-8 of the UFSAR, the Applicant has the following statement:

Normal environment in the drywell during plant operation is approximately 2 psig pressure and an ambient temperature of about 135°F to 165°F.

4. Since the normal environment maximum of 165°F is above the cut off limit of 150°F, and since the concrete surface behind the steel shell will closely match the drywell ambient temperature, the statement at 3.5-8 of the LRA is not accurate, and reduction of strength and modulus of concrete structures due to elevated temperature is an aging effect requiring management.

5. Using 3.5-18 of the LRA, the Applicant may hold that reduction of strength and modulus of concrete structures due to elevated temperature is not applicable because VYNPS is a Mark I steel containment. However, this also is not accurate. In the UFSAR, the Applicant takes credit for the strength and integrity of containment walls in a number of manners.

6. At 5.2-7 of the UFSAR, the Applicant states:

The drywell is enclosed in reinforced concrete for shielding purposes and to provide additional resistance to deformation and buckling of the drywell over areas where the concrete backs up the

steel shell.

7. At 5.2-23 of the UFSAR, the Applicant states:

The space between the containment vessel and the concrete is controlled such that in areas which are backed up by concrete and are subjected to jet forces, the integrity of the containment will not be violated.

8. Another example of crediting concrete stress is found at 12.2-23 of the UFSAR:

The concrete stresses and welding stresses were checked against the allowable stresses to determine if the skirt and the surrounding concrete can withstand the horizontal forces. The concrete stress is 638 psi, which is less than the 1,000 psi allowed by ACI 318, 1963. The unit shear stress on the skirt weld is 488 psi, which is small in comparison with the load-carrying capability of the weld.

9. Since the Applicant takes credit for containment wall concrete integrity and since the normal operating temperature may exceed 150°F, the attribute, *reduction of strength and modulus of the primary containment structure due to elevated temperature*, requires an age management program. The Commission cannot approve the LRA without such a program.

Second Contention (Environmental)

The Application must be denied because Applicant has failed to comply with the requirements of 10 CFR §51.53(c)(3)(iv) by failing to include new and significant information regarding the substantial likelihood that spent fuel will have to be stored at the Vermont Yankee site longer than evaluated in the GEIS and perhaps indefinitely and thus has failed to provide the necessary environmental information with regard to onsite land use in accordance with 10 C.F.R. §54.23 such that the Commission cannot

find that the applicable requirements of Subpart A of 10 C.F.R. Part 50 have been satisfied (10 C.F.R. §54.29(b)).

Basis

1. 10 CFR §51.53(c)(3)(iv) provides that the “[t]he environmental report must contain any new and significant information regarding the environmental impacts of license renewal of which the applicant is aware.”

2. 10 C.F.R. §54.23 requires the Applicant to submit an environmental report that complies with Subpart A of 10 C.F.R. Part 51.

3. New and significant information exists regarding the time for which onsite land will be removed from other uses, and whether such land use is irretrievable, which was not provided in the ER by the Applicant in accordance with 10 C.F.R. §51.53(c)(3)(iv). The current estimate in the Generic Environment Impact Statement (GEIS) is on-site storage of spent fuel will not last beyond 30 years after the end of the license period (including an extended license period). GEIS, Sections 6.4.6.2, 3.

4. The GEIS evaluates the impacts associated with onsite land use as Category 1, SMALL. The basis for this assessment is the assumption that the land used for storage of nuclear wastes at the reactor site will not exceed 30 years after the end of the license term. GEIS, Section 3.2 (referring to GEIS Chapter 6). That assumption, in turn, relies upon the assumption that a permanent high level waste repository, and perhaps even a second repository, will be in place by that time to receive the reactor wastes. GEIS, Section 6.4.6.2 Based on those assumptions the

use of the reactor site for storing spent fuel, in this case for a period ending in 2062, has been deemed to be a small impact. GEIS, Section 3.2.

5. However, as the evidence summarized below demonstrates, these assumptions are flawed. Recent evidence, not evaluated previously in the GEIS, now discloses that: 1) the likelihood that a permanent high level waste repository will be in place by 2062 is slight due to unanticipated technical problems uncovered at the Yucca Mountain site coupled with changes in national policy; 2) the only currently contemplated high level waste repository can accommodate the quantity of spent nuclear fuel expected to be produced by Vermont Yankee through the end of its originally licensed life, but it would not have space for at least a part of the additional spent nuclear fuel generated by VY during extended licensing; 3) no present plans exist for building a second high level waste repository nor has any site been identified for consideration for such a facility; 4) the United States is now embarking upon a changed policy for waste disposal which will make all the current schedules obsolete and for which there is no reliable time frame for its implementation; 5) there is not now nor has there been any reasonable prospect that the federal government or any third party will take title to the license-renewal spent fuel waste and remove it from the site; and 6) it follows that it is reasonable to expect that at least a part of spent fuel to be generated at VY during the period of an extended license will remain at the site for a much longer time than evaluated in the GEIS and perhaps indefinitely.

6. Since this new information, not available at the time of development of the GEIS,

demonstrates that the commitment of onsite land for storage/disposal of spent nuclear fuel from license renewal will be substantially longer than assumed in the *GEIS*, and may be indefinite, this results in an irretrievable commitment of onsite land with a MODERATE or LARGE impact.

7. As demonstrated by the evidence below, Vermont and its communities have firmly established values associated with land use such that the long-term or indefinite use of a portion of the VY site for spent nuclear fuel storage should clearly be evaluated as a MODERATE or LARGE impact in the VY supplement to the *GEIS*.

Supporting Evidence

1. There is new and significant information which the Applicant should have identified and described in its Environmental Report. If this information had been provided and evaluated properly, it would have changed the *GEIS* conclusions regarding onsite land use impacts.

2. The Applicant should have reported that the nation's policy with regard to spent fuel management has changed. The current administration and Congress have announced a major shift in policy called the Global Nuclear Energy Partnership (GNEP). Refer in general to the Administration's GNEP website - <http://www.gnep.energy.gov/> - which contains the announcement and much information regarding this new policy direction. Proponents of this new policy hope this new approach will not separate out plutonium products. The home page of the website referenced above contains the following statement:

Demonstrate More Proliferation-Resistant Recycling

Accelerate the development, demonstration and deployment of new technologies to recycle nuclear fuel that do not result in separated plutonium—a key proliferation risk of existing recycling technologies.

As shown by this statement, this policy is a shift to reprocessing of spent fuel that hopes to use a technique which has neither been developed nor demonstrated.

3. Further, this shift in policy will remove attention and resources from repository development such that the basis and conclusions that spent fuel will not have to be stored on site beyond 2062 are no longer valid. For example, see the report of comments below from Sen. Pete Domenici:

MOVEMENT OF SPENT FUEL IN THE US COULD BE FURTHER DELAYED, according to Senator Pete Domenici, the New Mexico Republican who chairs the Energy and Natural Resources Committee. Domenici indicated during a status hearing on DOE's repository program at Yucca Mountain, Nevada that it was unrealistic to proceed with a status-quo repository project and later factor in spent fuel reprocessing waste and recycling activities associated with DOE's new fuel-cycle initiative, the Global Nuclear Energy Partnership. It ought to be pretty clear to everyone that spent fuel rods won't be put into Yucca Mountain, Domenici said in an apparent reference to GNEP, which is aimed, in part, at closing the nuclear fuel cycle in the US and abroad. Recycling will determine what kind of repository the US needs, he added. "It's a mess," Domenici said, of the Yucca Mountain program as reporters approached him after the hearing. He said that he believes any legislation on Yucca Mountain would have to include language on spent fuel recycling. Draft legislation DOE sent to Congress last month did not include language on spent fuel reprocessing.

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4. In addition, the Applicant should have reported that the previous assumption regarding the suitability of Yucca Mountain as a permanent waste disposal site is no longer valid. At Yucca Mountain, contrary to the assumptions underlying the GEIS, it has been discovered that the disposal area is subject to water in-leakage. Therefore the design must be changed from that previously assumed and it is not clear a new design can be developed which will meet dose and integrity requirements. Partially in response to this discovery, DOE has abandoned previous cask designs and now proposes a concept called the TAD (transportation, aging and disposal) standard canister for which there is not presently even a preliminary design. Exhibit Vermont-2⁵.

5. Further, the Applicant should have stated that these changes have occurred in an increasingly hostile political environment. Senate minority leader Harry Reid (D-NV) strongly opposes development of Yucca Mountain and is able to use his position as minority leader effectively to advance this opposition and would do so even more forcefully as majority leader if the Senate leadership changes parties. And, the Western Governor's Association (WGA) has the following active resolution (03-16):

On December 1, 1989, the Western Governors' Association adopted Resolution 89-024 which stated that spent nuclear fuel should remain at reactor sites until a state has agreed to storage and DOE provides reasonable transportation, safety, and emergency response assurances to the western states. The resolution was readopted in 1992, 1995, 1997, and 1999.

⁵ Exhibit Vermont-2 consists of are slides from a recent presentation by Jay Jones of the Department of Energy's Office of Civilian Radioactive Waste Management that identify that DOE is, at this late date, changing its canister approach.

All of the new information identified above provides additional arguments and evidence to bolster the opposition of Senator Reid and the WGA and undercut the assumed completion date for a usable high level waste repository.

6. In addition, the Applicant should have reported that, because the GEIS was prepared before September 11, 2001, it does not factor in the impact of viable terrorist threats into an evaluation of the socioeconomic impacts of indefinitely storing spent fuel at the reactor site. The extended long-term or indefinite presence of spent nuclear fuel at Vermont Yankee after permanent shutdown means a defined terrorist target will be present for the long-term or indefinitely. In its news release No. 03-053 (April 29, 2003) (Exhibit Vermont-3), NRC stated:

The Commission believes that this DBT [Design Basis Threat] represents the largest reasonable threat against which a regulated private security force *should be expected to defend* under existing law.

(Emphasis added). The phrase, *should be expected to defend*, means there is a limit on the expectation on the Applicant, and the state resources will be expected to provide additional security responses beyond the Applicant's capability. The very presence of this target creates an effect on that land, contiguous lands, and the surrounding area, creating the need for continuous augmented emergency preparedness plans and security response from the State.

7. The statute sets the storage limit of Yucca Mountain to 70,000 metric tons of disposed quantity:

(d) Commission action. The Commission shall consider an application for a construction authorization for all or part of a repository in accordance with the

laws applicable to such applications, except that the Commission shall issue a final decision approving or disapproving the issuance of a construction authorization not later than the expiration of 3 years after the date of the submission of such application, except that the Commission may extend such deadline by not more than 12 months if, not less than 30 days before such deadline, the Commission complies with the reporting requirements established in subsection (e)(2). *The Commission decision approving the first such application shall prohibit the emplacement in the first repository of a quantity of spent fuel containing in excess of 70,000 metric tons of heavy metal or a quantity of solidified high-level radioactive waste resulting from the reprocessing of such a quantity of spent fuel until such time as a second repository is in operation.* Nuclear Waste Policy Act, as amended, Sec. 114 (d), emphasis added. Entergy

has stated that all of the spent fuel projected to be generated by Vermont Yankee through the end of its current operating license (including increases of spent fuel from power uprate) will be within the 70,000 metric tons storage limits of the “first” repository. See Entergy’s response to the DPS Discovery Request 1-11 in PSB Docket No. 7082 (Exhibit Vermont-4). ~~Therefore, the Applicant should~~ have identified that at least some part of the spent fuel from license renewal will exceed the 70,000 metric ton limit (when all spent fuel being generated nationally is considered) and must go into a second repository.

8. While many believe that the first repository can dispose of more than the statutory 70,000 MTHW, this presumption cannot be relied upon until and unless the law is changed.

9. Similarly, some may believe DOE will removed spent fuel from the Vermont Yankee site to an interim storage location, thus eliminating the MODERATE or LARGE onsite land-use impact. Vermont strongly supports this outcome. Vermont will show at hearing that attempts in

Congress to create such interim storage failed three times in the 1990's, and that this presumption cannot be relied upon until law is created to allow such interim storage.

10. Since VY's initial operation, when perpetual tank storage was envisioned, the federal government's attempts to fulfill its obligation to develop spent fuel disposal have been abysmal. For the past nineteen years efforts have focused at Yucca Mountain, but due to the changes identified above, the Administration currently does not even have a schedule for the completion of the first repository. The Massachusetts Institute of Technology (MIT), in 2003, performed a study: *The Future of Nuclear Power: An Interdisciplinary MIT Study*. The Applicant should have identified that it sponsored the co-chair of the study, Dr. Ernest Moniz, Director of Energy Studies, Laboratory for Energy and the Environment, MIT Department of Physics, as a witness in PSB Docket No. 7082, regarding authorization for dry cask storage. In that docket, Dr. Moniz testified:

[T]he MIT Study argues that "interim" storage of spent fuel (which can be carried out either at reactor sites or in consolidated facilities, possibly under federal control) for fifty to seventy years is in any case a preferred approach for design of an integrated spent fuel management system.

Prefiled direct testimony of June 16, 2005 at 13. The implication of the Applicant's testimony through Dr. Moniz is that the first repository will not be available for "fifty to seventy years." If the schedule for the first repository is "fifty to seventy years," a time period greater than evaluated in the GEIS, then the schedule for a second repository is indefinite at best, if such a

repository could ever be built.

10. Vermont assigns a high value to land and its use within the state. The values are codified in the form of environmental protections in permitting criteria in 10 V.S.A Chapter 151, State Land Use and Development Plans (see Exhibit Vermont-5).

11. Criteria No. 7 of 10 V.S.A §6086 (a) states:

[Before granting a permit, the district commission shall find that the subdivision or development:]

(7) Will not place an unreasonable burden on the ability of the local governments to provide municipal or governmental services.

The long-term or indefinite storage of license renewal spent fuel at VY would trigger long-term burdens on local governments for emergency management and security services. It is highly likely that long-term or indefinite storage of the spent fuel created by license renewal would not comply with Criteria No. 7. Therefore, this would suggest the impact of the proposed onsite land use should be determined to be LARGE in the VY supplement to the GEIS.

12. Criteria No. 8 of 10 V.S.A §6086 (a) states:

[Before granting a permit, the district commission shall find that the subdivision or development:]

(8) Will not have an undue adverse effect on the scenic or natural beauty of the area, aesthetics, historic sites or rare and irreplaceable natural areas.

Under this criteria, the the District Environmental Commission would evaluate the effect of spent nuclear fuel being left long-term or indefinitely on a riverbank site that would otherwise be fully

returned to greenfield condition. It is highly likely the long-term or indefinite presence of spent nuclear fuels following decommissioning of VY would be deemed to create an undue adverse effect. Considering this criteria, the proposed onsite land use should be evaluated as MODERATE or LARGE in the VY supplement to the GEIS.

13. In addition, Vermont's land use law requires a finding that land uses are in conformance with local or regional plans:

(10) Is in conformance with any duly adopted local or regional plan or capital program under chapter 117 of Title 24. In making this finding, if the district commission finds applicable provisions of the town plan to be ambiguous, the district commission, for interpretive purposes, shall consider bylaws, but only to the extent that they implement and are consistent with those provisions, and need not consider any other evidence.

10 V.S.A. §6086 (a)(10).

14. The Windham Regional Plan of October 30, 2001, which is applicable to VY, establishes land use requirements, and has the following provision:

LAND USE POLICIES

Rural Residential Lands

1. Ensure that any development of rural residential lands will be at densities that will serve to contain rural sprawl, and that are compatible with existing land uses and sensitive to the limitations of the land.

Once the bulk of the site is returned to a greenfield condition, it is doubtful that long-term or indefinite presence of spent nuclear fuel from license renewal would be considered "compatible with existing land uses". This provision suggests the onsite land use impact should at least be

evaluated as MODERATE in the VY supplement to the GEIS.

15. The Windham Regional Plan also has the following provision:

COMMUNITY RESOURCE POLICIES

High Level Radioactive Waste

1. Encourage a requirement that permanent spent nuclear fuel (SNF) storage be resolved prior to any consideration of extending or reviewing the operating license of Vermont Yankee.

It is highly likely that a land use evaluation under 10 V.S.A. §6086 (a)(10) would find the proposal for long-term or indefinite storage of spent nuclear fuel from license renewal did not conform with the regional plan with regard to the item above. Thus, this provision suggests a LARGE impact from the onsite land use from the proposed license renewal.

16. There is also a Vernon Town Plan, Nov. 3, 2003, which is applicable to VY. This plan contains the following:

Section III: Resource and Economic Development

Recommendations:

#3 The Town should pursue discussions with appropriate representatives of the Vermont Yankee Nuclear power Company regarding the possible re-use of the power plant site for other commercial and industrial development following decommissioning.

The long-term or indefinite presence of spent nuclear fuel from license renewal has the potential for preventing "other commercial and industrial development following decommissioning." If the spent fuel storage completely prevented the use of the site for other developments, it is highly

likely the impact from license-renewal onsite land use would be LARGE. If the spent fuel storage allowed some additional development but hindered other possible commercial and industrial uses, the impact would likely be MODERATE.

17. The extended long-term presence of spent fuel will prevent use of the immediate land it occupies and will deter other possible uses of larger contiguous areas because of societal and commercial concerns regarding the proximity of radioactive material. From the foregoing, it is seen that Vermont has existing land use evaluation criteria, which establish the basis under which the impact from additional long-term or indefinite onsite land use resulting from the spent nuclear fuel generated from license renewal should be evaluated as MODERATE or LARGE in the VY supplement to the GEIS.

18. Even at the time of development of the GEIS Vermont urged the NRC to give greater credence to the real possibility that spent fuel generated by license extension would have to be stored at the reactor site more than 30 years after power generation had ceased. As noted above, that possibility has now risen to a probability. The failure of the NRC, during the GEIS development process, to even address the possibility that spent fuel would have to remain at the reactor site indefinitely, underscores the need to address those issues at this time in light of the new and significant evidence cited above. The following history of Vermont's participation in the GEIS process demonstrates this point:

A. The *Vermont GEIS Comments* (Exhibit Vermont-1), stated in Comment 13 (p. 10):

The permanence of land committed for radioactivity disposal deserves a separate categorization with different weighting than other permanent land uses. Land committed for radioactivity is essentially removed from use forever. Other "permanent land uses" can eventually be reclaimed with effort or after an amount of time. This separate categorization would make it clear that, for example, a small amount of land used for radioactivity disposal may be significantly less preferable than a larger amount of land disturbed by local strip mining which can be reclaimed if desired. . . . Finally, as evidenced by the difficulties and delays in both the high- and low- level radioactive waste disposal programs, it is not clear that such land for radioactive waste disposal is really available.

B. The *Vermont GEIS Comments* , stated in Comment 15 (p. 12):

Spent fuel issues cannot be considered resolved until covered by public laws and the disposal site is chosen and evaluated. This may be accomplished generally but is Category 3 at this time.

Land-use issues must be compared against specific alternatives. Thus, land-use issues must be evaluated as Category 3 for this reason.

Overall, the uranium fuel cycle categorization must be Category 3 because of unresolved spent fuel and land use issues.

C. The *Vermont GEIS Comments*, stated in Comment 19 (pp. 15-6):

This section [6.5] evaluates the impacts of temporary storage of spent fuel instead of permanent storage. For permanent storage, it is stated that a second high-level radioactive waste repository would be required (GEIS p. 6-35). The radiological and land-use issues surrounding this second repository are not evaluated clearly in GEIS, but these are central issues.

The effects of creation of 50% more spent fuel is evaluated incorrectly as a Category 1 issue (GEIS p. 6-36). While the spent fuel is properly generic, rather than plant specific, the issue cannot be considered resolved until a disposal location is selected and evaluated (and included within the scope of Public Laws). Lacking this, environmental impacts of spent fuel must be considered Category 3, not resolved for any plant.

D. The *Vermont GEIS Comments*, stated in Comment 29 (p. 23):

This assessment of commitment of resources [which stated in Section 10.2, p. 10-2: *Additional land and materials may be required for the storage of the additional spent fuel and low-level waste that are generated*] is inadequate for the purposes of NEPA. First, additional land will be required for high- and low-level radioactive waste disposal. For NEPA purposes, this section must:

- a. Assess the likelihood that such resources are available. It is not yet clear that locations can be found for present quantities of high- and low-level radioactive waste.
- b. Evaluate the aspect that such land, if located, is removed from social usefulness essentially forever. The permanency of this environmental impact must be considered to weigh heavily, when compared to more short-term impacts.

19. Vermont provided the *Vermont GEIS Comments* at the generic review stage both to convince the NRC to see that its optimistic view of the future was unwarranted and in order to preserve its rights of challenge at the site specific stage of license renewal.

20. As explained below, the NRC does not directly address, and therefore does not directly reject, Vermont's comments regarding land use associated with the spent fuel generated in license renewal either in its notes of consideration for the final rule for Environmental Review for Renewal of Nuclear Power Plant Operating Licenses (June 5, 1996, 61 FR 28467) or in its final GEIS, Section 3.2 (On-Site Land Use and Section 6.4.6 (Spent Fuel).

21. At 61 FR 28479, it is stated:

Table S-3 does not take into account long-term onsite storage of . . . spent fuel assemblies for longer than 10 years . . . The environmental impacts of these

aspects of onsite storage are also addressed in Chapter 6 of the final GEIS.

Therefore, Table S-3 does not consider Vermont's concern regarding onsite land use for spent fuel management for extended periods.

22. At 61 FR 28479, it is stated:

The only nonradiological effluent from waste storage is additional heat from the plant that was found to have a negligible effect on the environment.

While the only nonradiological effluent may be additional heat, this is not the only nonradiological effect resulting from the potential indefinite on-site land use from spent fuel management. This comment does not address Vermont's concerns.

23. At 61 FR 28479-28480, it is stated:

The environmental impacts of allowing onsite dry cask storage under a general license were assessed in an EA . . . Potential impacts that were assessed include . . . land use.

This statement is inadequate to address Vermont's concerns. While land use in general might have been considered in generic dry cask approvals, these generic approvals did not consider the impacts from potential indefinite land use associated with the spent fuel management problems caused by license renewal.

24. The GEIS further provides:

The GEIS addresses extended onsite storage of spent fuel during a renewal period of up to 20 years. (61 FR 28479)

* * *

Trends in onsite spent fuel storage capacity and the volume of spent fuel that will be generated during an additional 20 years of operation are considered in the GEIS. (61 FR 28480).

However, as the following statements in the GEIS demonstrate Vermont's comments regarding on-site land use were not addressed.

25. GEIS Section 3.2, On-Site Land Use states:

Changes in on-site land use at a nuclear plant could result if additional new spent fuel . . . facilities were required (Waste generation, handling, and disposal are discussed in Chapter 6). . . The U.S. Nuclear Regulatory Commission (NRC) has written a number of environmental assessments for on-site dry cask storage facilities and has reached a "finding of no significant impact" (FOSNI) for each. The FOSNI was reached considering the amount of land actually disturbed, the range of possible environmental impacts, and alternatives uses of the land. On-site land use impacts are expected to be of small significance.

From the first part of the above assessment, the NRC recognizes that license renewal may create changes in on-site land use for spent fuel management. Further comment in that regard is deferred to Chapter 6. Regarding the manner in which land use is described in the environmental assessments for dry cask storage, the GEIS gives the following example:

Using the Calvert Cliffs Nuclear Power Plant Site ISFSI EA as typical, the following impacts are evaluated. Land use is about six acres, which is within the owner-controlled area of 2300 acres. . . . The Commission believes that the impacts discussed above reasonably describe the impacts from existing dry cask storage facilities, as well as the likely impacts from those dry cask storage facilities that are expected to be constructed as a result of license renewal.

No part of this evaluation addresses Vermont's comments regarding onsite land use and the possible indefinite commitment of this land in Vermont.

26. The GEIS makes a statement about emergency preparedness:

From the standpoint of emergency preparedness, the impacts of dry cask storage installations should be minor for three reasons. First, because of the reduced radioactive inventory in the fuel stored in dry cask facilities, accidents involving such storage facilities are likely to develop more slowly than those involving the nearby operating reactors. Second, accident impacts should be low, again because of the reduced inventories of radioactive materials in the stored fuel but also because of the correspondingly reduced level of decay heat compared with fuel still in-reactor. Thus, emergency plans formulated for operating reactors should encompass accidents at dry cask storage facilities. Third, it is NRC policy that plants with dry cask storage facilities incorporate the potential sources of hazard from these storage facilities in their emergency plans, as well as the potential hazard from all radiological source terms at the plant site.

GEIS Section 6.4.6.1. This statement does not address Vermont's concerns regarding the indefinite nature of the commitment of land for spent fuel management, nor the threat from terrorist activities which was greatly increased after September 11, 2001.

27. The evaluation in GEIS Section 6.4.6 uses 2010 as the date a geologic repository will be available. The GEIS recognizes the need for a second repository:

Possible extensions or renewals of operating licenses also need to be considered in assessing the need for and scheduling the second repository. It now appears that unless Congress lifts the capacity limit on the first repository – and unless this repository has the physical capacity to dispose of all spent fuel generated under both the original and extended or renewed licenses – it will be necessary to have at least one additional repository. Assuming that the first repository is available by 2025 and has the capacity on the order of 70,000 MTHM, additional disposal capacity would probably not be needed before about the year 2040 to avoid storing spent fuel at a reactor for more than 30 years after expiration of reactor operating licenses.

GEIS Section 6.4.6.2.

28. Above we have shown that Vermont's comments about land use were not adequately addressed in the comment phase for the GEIS. On July 5, 1996, DPS commented:

The effect of . . . spent nuclear fuel generated from license renewal is ruled a resolved issue which cannot be raised in site-specific applications. This is lamentable . . . Congress has not appointed requested amounts for the federal spent nuclear fuel program. We have seen no progress in the spent nuclear fuel program which gives us confidence that a repository will become a reality. . . [R]adioactive waste disposal issues should not be sealed so they cannot be revisited by states in site-specific applications.

29. The Commission responded in part:

Also from a regulatory policy perspective, the Commission disagrees with the view of one state that each renewal applicant should come forward with an analysis of the HLW storage and disposal environmental effects. This is a national problem of essentially the same degree of complexity and uncertainty for every renewal application and it would not be useful to have a repetitive reconsideration of the matter.

61 FR 66538. Vermont agrees in concept with the Commission's statement. Vermont's concerns regarding disposal of spent fuel and the concomitant effect on land use in Vermont have not be adjudicated in any hearing. While this matter may not require adjudication in each application, the Commission must allow adjudication at least once to create fairness and public process. Since such adjudication has not been done heretofore, it should be granted in the instant proceeding.

Third Contention (Safety)

The Application must be denied because the Applicant has failed to fully identify plant systems, structures and components that are non-safety-related systems, structures, and components in the security area whose failure could

prevent satisfactory accomplishment of any of the functions of safety-related systems, structures and components in accordance with 10 C.F.R. §54.4(a)(2), such that the Commission cannot find that 10 C.F.R. §54.29(a) is met.

Basis

As shown by the supporting evidence below, the Applicant does not identify, for screening, security systems, structures and components required by 10 C.F.R. Part 73. These systems, structures, and components provide physical security and protect against terrorist activities which, if they fail, could result in the prevention of safety systems, structures and components to perform their safety functions. Among the systems, structures and components required by 10 C.F.R. Part 73 are those which require aging management review. The lack of this screening and aging management review prevents the Commission from completing its review of the requested license renewal in accordance with 10 C.F.R. §54.29(a).

Supporting Evidence

1. In the LRA, the Applicant does not identify security related systems, structures and components in its equipment screening in Chapter 2.
2. Plant systems, structures, and components within the scoping criteria of 10 C.F.R. §54.4 are not limited to systems, structures, and components required in accordance with 10 C.F.R. Part 50. Within the definition of current licensing basis in 10 C.F.R. §54.3, numerous Parts of 10 C.F.R. are identified, including 10 C.F.R. Part 73.
3. 10 C.F.R. Part 73 requires the Applicant to provide systems, structures and components for physical protection of plant and materials. Specifically, systems, structures and

components are required under Sections:

73.40 Physical protection: General requirements at fixed sites.

73.45 Performance capabilities for fixed site physical protection systems.

73.46 Fixed site physical protection systems, subsystems, components, and procedures.

73.51 Requirements for the physical protection of stored spent nuclear fuel and high-level radioactive waste.

73.55 Requirements for physical protection of licensed activities in nuclear power reactors against radiological sabotage.

4. At least some of the systems, structures and components required by 10 C.F.R. Part 73 meet the definition of 10 C.F.R. §54.4(a)(2)⁶. The failure of security systems, structures and components to fulfill their function of physical protection against terrorist activity can directly result in the prevention of safety systems to accomplish their functions⁷.

5. The Applicant must perform the 10 C.F.R. §54.4 screening for these systems and perform the required aging management review required by 10 C.F.R. §54.21.

6. Vermont realizes identification of Part 73 systems, structures and components will include safeguards information (see 10 C.F.R. §73.21).

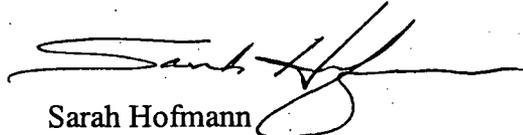
⁶ Vermont has not identified specific systems, structures and components required by 10 C.F.R. Part 73 in order to avoid a Nuclear Safeguards Information designation. Vermont reserves its rights, under a rebuttal of lack of specificity on this contention, to file a list of systems, structures and components required by 10 C.F.R. Part 73 that require aging management review under 10 C.F.R. §54.21. Petitioner has access as identified by 10 C.F.R. §73.21(c)(iii).

⁷ It would be reasonable to expect that a terrorist, upon successful intrusion, would disable safety-related systems.

CONCLUSION

The issues raised in the State's contentions are material to the findings the NRC must make to support the applicant's request. For all the reasons stated, the State of Vermont, acting through its Department of Public Service requests that its contentions be admitted and the State be granted party status.

Respectfully submitted,



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March 16, 1992

Mr. Samuel J. Chilk
Secretary of the Commission
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Attention: Docketing and Service Branch

Dear Mr. Chilk:

Attached are comments of the State of Vermont on the Nuclear Regulatory Commission's proposed rule on the environmental review of applications for renewal of nuclear power plant operating licenses (10 CFR Part 51). These comments include the following documents, which are attached:

Attachment 1 - Specific Comments on the Proposed Rule and Generic Environmental Impact Statement.

Need for and Alternatives to Nuclear Plant License Renewal, DPS Technical Report No. 23, March 13, 1992.

Vermont Alternatives to Nuclear Plant License Renewal, Vermont Department of Public Service, March 13, 1992.

Also, the State of Vermont's Attorney General has endorsed the following comments which are incorporated here by reference:

Comments of Hubert Humphrey III, Attorney General, State of Minnesota, March 13, 1992.

In addition, the Vermont State Nuclear Advisory Panel has offered the following resolution regarding nuclear license renewal:

The Panel encourages the Department to pursue and to complete a strong statement of exceptions and opposition to the Generic Environmental Impact Statement (GEIS). And furthermore, the Panel expresses its concern that the GEIS, in combination with the standardized plant and combined construction/operating license features of the license reform proposal, represents a trend toward increased centralized control over the commercial nuclear power plant licensing process that significantly impedes the participation of citizens and the states in the process.

Finally, as discussed with Mr. Spiros Droggitis, of the NRC Staff, it is requested that these comments be accepted after the March 16, 1992 deadline. The submittal was delayed when State offices in Montpelier were closed on March 11-12, 1992, due to flooding.

If you or your staff need further information regarding our comment, please contact me.

Sincerely



Richard P. Sedano
Commissioner

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Attachments

**state of Vermont Specific Comments on the Proposed Rule
and
General Environmental Impact Statement**

1. Proposed Rule and GEIS Statement

56 FR 47028-35 (Appendix B and Table B-1, which is reproduced from GEIS Table 10.1).

Vermont Comment

Table B-1 (and GEIS Table 10.1) summarizes the categorizations proposed by NRC into three categories:

- Category 1: for which a generic conclusion has been reached for all affected nuclear power plants,
- Category 2: for which a generic conclusion has been reached for all plants that fall within defined bounds, and
- Category 3: for which a generic conclusion was not reached for any plant.

As stated in and supported by these comments, Vermont concludes the following issues should be evaluated differently than stated in Table B-1:

<u>Issue</u>	<u>Table B-1</u>	<u>Vermont Evaluation</u>
Need for Generating Capacity via License Renewal	Category 1	Category 3
Advance of Alternatives to License Renewal	Category 1	Category 3
Refurbishment Costs	Category 1	Category 3
Fuel Costs	Category 1	Category 3

<u>Issue</u>	<u>Table B-1</u>	<u>Vermont Evaluation</u>
Operation and Maintenance Costs	Category 1	Category 3
Electromagnetic Fields, Chronic Effects	Category 1	Category 3
Radiation Exposures to the Public (Operation)	Category 1	Category 3
Radiological and Non-Radiological Impacts (Uranium Fuel Cycle)	Category 1	Category 3
Low-Level Radioactive Waste Disposal	Category 2	Category 2 (w/elaboration)
Mixed Waste	Category 1	Category 2
Spent Fuel	Category 1	Category 3

2. Proposed Rule Statement

56 FR 47028: (I) The nuclear power plant will have access to a low-level radioactive waste disposal facility through a low-level waste compact or an unaffiliated State. If no such demonstration can be made, a presentation of capability and plans for interim waste storage must be provided with an assessment of potential ecological habitat destruction caused by construction activities.

Vermont Comment

The NEPA issue in question is the environmental impacts of low-level radioactive waste disposal. While properly classified as Category 2, the requirement stated above is not appropriate. The requirement should be revised as follows:

- (I) The nuclear power plant will have access to a low-level radioactive waste disposal facility through a low-level waste compact or an unaffiliated State. If no such demonstration can be made, certification must be presented from an appropriate jurisdiction or agency that such access will be available for the period of license renewal. In addition, a presentation of capability and plans for interim waste storage must be provided with an assessment of potential ecological habitat destruction caused by construction activities.

The NEPA determination should not be considered as complete until the nuclear plant can demonstrate that it will have access to a low-level radioactive waste facility. It is not proper to assume NRC may complete a NEPA evaluation as acceptable, using the *Low-Level Radioactive Waste Policy Amendments Act of 1985*, in order to place an additional 20-year disposal burden upon states, for which such states may not agree.

The statement above from the proposed rule is inconsistent with the finding in the GEIS, which states at 6-26, "[a]lternately, the consummation of an agreement with a respective compact or unaffiliated State for interim storage could suffice."

3. Proposed Rule Statement

56 FR 47028: (J) The replacement of equivalent generating capacity by a coal-fired plant has no demonstrated cost advantage over the individual nuclear power plant license renewal. If no such demonstration can be made, a justification for choosing the license renewal alternative must be provided.

Vermont Comment

1. The limitation of alternatives to only "a coal-fired plant" in this statement in the rule neither agrees with the supplementary notes (at 47019 - "The most reasonable replacement alternative") nor the GEIS, which concludes

("These alternatives would include oil, gas and new nuclear." - at 9-41).

2. Notwithstanding the above, as stated in *Need for and Alternatives to Nuclear Plant License Renewal*, variations of possible alternatives, the inadequacy of the conclusions in the GEIS, and uncertainties of economics regarding alternatives render it impossible to reach a generic conclusion for any plant. The subject of alternatives must be considered on a plant-specific basis (Category 3).
3. And finally, notwithstanding either of the above comments, as stated in *Vermont Alternatives to Nuclear Plant License Renewal*, the Vermont electrical generation system is such that the Vermont Yankee nuclear plant does not fit within the generic envelope postulated by GEIS. There appear to be alternatives to Vermont Yankee license renewal which are environmentally preferable, and therefore alternatives to Vermont Yankee license renewal must be considered specifically.

4. **Proposed Rule Statement**

56 FR 47028: Proposed § 51.53 (c)(4)

Vermont Comment

This section should include the following wording which appears in existing § 51.53(b), *Postoperating license stage* (renumbered in the Proposed Rule as § 51.53(d) at 47028):

[The Supplement should] reflect any new information or significant environmental change associated with the applicants proposed [license renewal] activities.

Furthermore, the rule must include guidance on interpreting the term, "significant environmental change".

It is worth noting that the notes to the Proposed Rule, at 47019, include the following:

However, the adoption of the proposed amendments would not preclude reopening environmental issues if

significant new information becomes available. A petition to amend 10 CFR, Part 51, will be acted upon if new information warrants reopening of issues.

This requirement to amend the rule is contrary to the purposes of efficiency stated as the reason for the rule (at 47017). As stated in *Need for and Alternatives to Nuclear Plant License Renewal*, it is greatly unreasonable to expect there will not be changes to the GEIS conclusions over such a long period. To levy the requirement of rule amendment on the party wishing to put forward this information is greatly burdensome.

There is no reason the precedent established in the existing rule, § 51.53(b), should not be carried over to license renewal—that any new or significant information be required for the plant-specific environmental review.

5. Proposed Rule Statement

56 FR 47029: Proposed § 51.95(c) - Unless otherwise determined by the Commission, the environmental assessment or the supplemental environmental impact statement will address only the matters in § 51.53(c) of this part. A supplemental environmental impact statement is required if significant impacts are found in the environmental assessment.

Vermont Comment

These requirements must be modified in accordance with the comments for proposed § 51.53(c)(4).

6. Proposed Rule Statement

56 FR 47029 - Appendix B to Subpart A: The Commission will periodically review the material in this appendix and update it if necessary.

Vermont Comment

This statement is repeated in the notes to Proposed Rule at 47019. As stated in these comments, conditions for twenty or more years in the future are so uncertain that the value of this generic rulemaking is questionable. Rather than committing to

periodical updates, the NRC should give consideration to returning to the plant-specific method for the NEPA determination.

However, if this generic approach is pursued, the periodicity of review and update should be stated in the rule. (It is noted the statement in Table S-3 to 10 CFR, Part 51, for Radon-222 and Technetium-99, "Currently under consideration by the Commission", has long remained unchanged.)

Considering the fact that the economics of the GEIS are dated even now, as stated in *Need for and Alternatives to Nuclear Plant License Renewal*, the periodicity of update must be no greater than two years. (With this necessary update requirement, it is expected that the expected efficiencies stated as the reason for the Generic NEPA evaluation (at 47016) will not be realized.)

7. GEIS Statement

Section 2.4.1: For the purpose of analysis in this document, it is assumed that plant modifications undertaken specifically for license renewal would be accomplished within normal outage cycles beginning 8 years before expiration of the original license and doing one 9-month refurbishment outage immediately before the old license expires.

Vermont Comment

The 8 year duration and 9-month major outage assumptions are used as a basis for development of costs and for determination of specific plant application scheduling setbacks.

These assumptions do not have firm and sufficient basis and yet have a significant impact on the evaluation. Some plants may require more refurbishment work, others less. This assumption, for both cost and schedule, should be a plant-specific assumption based on the plant-specific application in accordance with 10 C.F.R. 54. The use of the 8 year and 9-month assumptions in this report on a generic basis is not valid.

8. GEIS Statement

Table 2.7 (p. 2-33); Table B-6 (p. B-28); Section B.4.1.2., p. B-29: The waste volumes shown in the table [Tables 2-7 and B.6] include all types of low-level radioactive waste generated as a result of incremental license renewal and plant life extension activities.

Vermont Comment

Table 2.7, which is repeated as Table B.6 (see also Table 6.5) does not envelope expected low-level radioactive waste volume or costs for Vermont Yankee. At present rates, Vermont Yankee generates approximately 6,000 cu. ft. of low-level radioactive waste per year. This would result in 120,000 cu. ft. in 20 years of operation with a renewed license. Assuming other volumes in the table are correct, this would result in 154,000 cu. ft. of wastes instead of 62,000 cu. ft. of wastes. Using a disposal cost of \$300 per cu. ft., the disposal costs alone would exceed \$46 million. It is not clear whether this cost is accounted for or whether Vermont Yankee fits within the assumed envelope.

In the past 5 years, Vermont Yankee has employed waste volume techniques to reduce its volume significantly.

It is not clear that an assumed additional reduction of 10% (p. B-29) is valid for Vermont Yankee. This fact is corroborated by GEIS Tables 6.4 and 6.7.

9. GEIS Statement

Section 3.8.2, p. 3-38: Section on Occupational Dose.

Vermont Comment

Section 3.8.2.1 states that following post TMI modifications in the early 1980s there has been a decreasing occupational dose and implies that the trend will continue downward or remain at low levels. It is likely that currently unexpected circumstances will change exposure assumptions during the future 20 year period in question. It would be helpful if NRC addressed at least the following postulated situations:

1. New, extensive backfitting requirements caused by "lessons learned" from a future TMI - like accident.
2. Lowering of the Maximum Permissible Dose. The last significant change of the MPD about thirty years ago was done because it was feasible within the context of actual exposure (consistent with ALARA) and not because of any specific radiobiology information. A similar reduction in the next 20 years is probable.

10. GEIS Statement

Section 4.5.4, p. 4-56: Section on Transmission Lines - Human Health.

Vermont Comment

Effects on humans from exposure to electromagnetic fields from transmission lines are still not completely understood. Consequently, few regulatory requirements exist. Requirements for transmission lines from nuclear power plants should be identical to requirements placed on transmission lines from any type of generator facility. This issue should not be classified as Category 1, but rather Category 3, not resolved for any plant.

11. GEIS Statement

Section 4.6: Section on Radiological Impacts of Normal Operation.

Vermont Comment

This section does not adequately accommodate for the results of BEIR V or other recent studies (see *Vermont Alternatives to Nuclear Plant License Renewal*) to arrive at a generic conclusion for plant decisions twenty years or more in the future. The results of these studies indicate a high probability that acceptable radiation standards will be lowered and that health effects are greater than considered in present standards. Therefore, this issue should not be classified as Category 1, but rather Category 3, not resolved for any plant.

12. GEIS Statement

Sections 4.6, 4.8, 6.3 and 6.5: Sections on Radiological Impacts of Normal Operation, Nuclear Fuel Cycle, and Low- and High- Level Radioactive Waste Disposal.

Vermont Comment

The radiological evaluations from these sections, all evaluated as Category 1, are performed in a manner which specifically obscures the central issue of this NEPA evaluation.

While acknowledging the over-simplicity of this statement, the basic determination in this NEPA evaluation is an environmental preferability determination between radiological impacts of nuclear plants versus the environmental impacts of alternatives. This is essentially a radioactivity versus air emission comparison (and in Vermont, at least, a radioactivity versus allowed-impacts-from-importation comparison).

Each of the GEIS sections identified above uses established NRC mechanisms to declare various radiological impacts as insignificant. This fractioning avoids the conclusion that license renewal radioactivity would result in real health impacts and real irretrievable resource commitments which may clearly be less preferable than alternatives. Furthermore, these sections are referenced in the discussion of alternatives (GEIS p. 9-36 and p. 9-37 by inference in the reference to Table S-3 of 10 CFR Part 51).

Because the radiological impacts in these sections are only valid in comparison with alternatives, and because alternatives are plant-specific, the radiological conclusions of these sections must be evaluated as Category 3, and must be reserved for specific plant applications.

13. GEIS Statement

Section 4.8.1, p. 4-101: Considering common classes of land use in the United States, fuel-cycle land-use requirements to support the Model 1000 MW_(e) LWR do not represent a significant impact.

Vermont Comment

The above statement, from the Table S-3 evaluation (see 46 FR 15163), does not adequately consider the permanent commitment of land as compared with other options. Passage of the *Low-Level Radioactive Waste Policy Amendments Act of 1985* and the possibility of a second high-level radioactive waste repository (GEIS, p. 6-35) significantly alter permanent land-use weighting in any environmental balance.

The permanence of land committed for radioactivity disposal deserves a separate categorization with different weighting than other permanent land uses. Land committed for radioactivity is essentially removed from use forever. Other "permanent land uses" can eventually be reclaimed with effort or after an amount of time. This separate categorization would make it clear that, for example, a small amount of land used for radioactivity disposal may be significantly less preferable than a larger amount of land disturbed by local strip mining which can be reclaimed if desired.

Furthermore, the Table S-3 evaluation seems to compare nuclear fuel cycle land uses with coal cycle land uses (see GEIS p. 4-101 and 46 FR 15163). As stated in *Need for and Alternatives to Nuclear Plant License Renewal* and *Alternatives to Nuclear Plant License Renewal*, different alternatives exist for which the adverse land-use effect of radioactive waste disposal is much more pronounced than the coal cycle.

Finally, as evidenced by the difficulties and delays experienced in both the high- and low-level radioactive waste disposal programs, it is not clear that such land for radioactive waste disposal is really available.

By attempting to use Table S-3 conclusions, the GEIS evaluation significantly obscures the land use environmental impact and cannot be considered adequate.

14. GEIS Statement

Section 4.8.6, p. 4-110: For low-level waste disposal at land-burial facilities, Commission notes in Table S-3 that there will be no significant radioactive releases to the environment.

Vermont Comment

Table S-3 is not an adequate basis upon which to evaluate that there will be no significant radioactive releases to the environment from license renewal from disposal of low-level radioactive wastes. The disposal of low-level radioactive waste required by the *Low-Level Radioactive Waste Policy Amendments Act (LLRWPA) of 1985* is greatly different than assumed for Table S-3.

Table S-3 assumes disposal by shallow land burial at six established sites. Its conclusions are based in part on the successful operation of these sites. Since evaluation for Table S-3, three of the six disposal sites have been closed due to leakage of radioactivity into the environment.

In NUREG-0116, the base document for Table S-3, assumptions are stated which were used to assess impacts from low-level radioactive waste disposal. A partial list of these assumptions are (at 4-123, 124):

- Usable disposal site is 100 acres
- Regional water table is about 50 feet from the surface
- Regional water table fluctuates only a few feet annually
- Unconsolidated material is sufficiently uniform
- The material is sufficiently absorptive
- There is no nearby use of groundwater downstream

Unless court challenges result in changes, the *LLRWPA of 1985* makes Vermont responsible for low-level radioactive waste. It is not clear whether a disposal site can be developed in Vermont. While statewide screening is not complete, it is highly likely that a site meeting the assumptions of Table S-3 cannot be found. Thus, Table S-3 conclusions cannot be considered valid, at least not for Vermont and Vermont Yankee.

In addition, the understanding of the effects of radioactivity have changed significantly since establishing Table S-3. The results of BEIR-V, identified in *Vermont Alternatives to Nuclear Plant License Renewal*, must be considered, as well as later studies. The radiological evaluation of low-level radioactive waste disposal must also consider the uncertainties linked with understanding of radiological effects, and the

possibility that unfolding understanding will result in significantly higher impacts than now envisioned. Finally, the fact that all long-lived low-level radioactive waste from license renewal may become part of the biosphere after 300 years or less must be considered. The impact of the cumulative effect of this added biosphere radioactivity burden may be significant.

For these reasons, environmental conclusions for radiological consequences cannot be made at this time and must be reserved for the plant-specific application.

15. GEIS Statement

Section 4.8.9, p. 4-110: The NRC staff analysis of the uranium fuel cycle did not depend on the selected fuel cycle (no recycle or uranium-only recycle), because the data provided in Table S-3 include maximum recycle option impact for each element of the fuel cycle and therefore the environmental impacts of the fuel cycle are not affected by the specific fuel cycle selected. This issue is therefore a Category 1 issue and need not be evaluated in each individual license renewal application.

Vermont Comment

As stated for GEIS Sections 4.8.1, 4.8.6, 6.3 and 6.5, the land-use and radiological impacts of the fuel cycle cannot be considered resolved.

Spent fuel issues cannot be considered resolved until covered by public laws and the disposal site is chosen and evaluated. This may be accomplished generically but is Category 3 at this time.

Land-use issues must be compared against specific alternatives. Thus, land-use issues must be evaluated as Category 3 for this reason.

Radiological consequences of low-level radioactive waste disposal is dependent on the availability of access to disposal sites. This issue is thus Category 2.

Overall, the uranium fuel cycle categorization must be Category 3 because of unresolved spent fuel and land use issues.

16. GEIS Statement

Section 6.3.3.3, p. 6-25: All LLW compacts and declared unaffiliated states are planning to accommodate anticipated waste streams from license-renewal-associated refurbishment and an additional 20 years of normal operations (Table 6.8).

Vermont Comment

The GEIS Statement is not true for Vermont.

Since the above GEIS statement is assumed to be true, certain critical NEPA determinations are bypassed. The GEIS and Proposed Rule must deal with the problem of an environmental determination when there is no commitment for disposal access. At the minimum, the following must be considered:

1. The likelihood that a disposal facility will be available.
2. The propriety of reliance on the *Low Level Radioactive Waste Policy Amendment Act of 1985* (see p. 6-22) to impose an additional 20-year disposal burden on states.

The following statement at p. 6-26 (which is not reflected in the Proposed Rule) may be the best solution:

Alternatively, the consummation of an agreement with a respective compact or unaffiliated state for interim storage could suffice.

17. GEIS Statement

Section 6.4.3, p. 6-28 (Mixed Waste): The license renewal action will not increase the small but continuing potential for exposure from mixed waste to the environment at any plants.... The impact need not be evaluated in individual license applications and is therefore a Category 1 issue.

Vermont Comment

The Proposed Rule and GEIS treatment of mixed waste suffers from the same problem as low-level radioactive waste. The siting of disposal facilities for mixed waste is even lagging behind low-level radioactive waste disposal facilities. The specific plant-application should be required to demonstrate that a mixed

waste disposal facility is available, or alternately, provide certification from an appropriate agency that a mixed waste disposal facility will be available for the period of license renewal. This issue should be classified as Category 2.

18. GEIS Statement

Section 8.5 (Conclusions -- Need for Power), p. 8-15: [T]he staff has determined that it is reasonable to make a generic conclusion that there is a need for generation capacity potentially available through the license renewal of all 118 nuclear power plants. Therefore, this is a Category 1 issue and need not be evaluated in each individual license renewal application.

Vermont Comment

Need for power should not be excluded for consideration for each plant. Rather, need for power should be designated as Category 3, to be evaluated separately for each plant. This Category 3 designation should be given because:

1. The need for power showing is not complex or burdensome.
2. A conclusion based on uncertain assumptions so far in advance of specific applications is not necessary or desirable.

Even if NRC does not accept our comment that need-for-power should be designated Category 3, the need for power issue for Vermont Yankee has not been shown to be within the generic envelope for the reasons stated in *Vermont Alternatives to Nuclear Plant License Renewal*. Need for power must be left for a plant-specific issue for Vermont Yankee.

The need for power showing is not complex or burdensome.

The operative statements in the GEIS are simple:

It is assumed that license renewal of a nuclear plant is needed if it would avoid the necessity of adding new capacity. (Lines 15-16, page 8-1)

Therefore, it seems reasonable to assume that capacity that has been used for 40 years has been needed and, if it were retired, would have to be replaced with new capacity. (Lines 39-40, p.8-14)

In addition, electrical generation supply and demand data are provided. This type of data will be readily available to the applicant at the time of plant-specific information. If demonstrated by the data, the conclusions will be simply drawn. The simplicity of making this showing does not justify a decision on untimely, uncertain and non-specific utility service area data.

A conclusion based on uncertain assumptions so far in advance of specific applications is not necessary or desirable.

Historically, long-term projections have a demonstrated low-accuracy rate, primarily as a result of nonconceivable circumstances. Unforeseen events have drastically altered electrical demand and energy mix.

In addition, the "finality" of the rulemaking process precludes a non-burdensome recourse if a state wishes to demonstrate that need does not exist for license renewal. The apparent recourse is to petition for rulemaking to change the rule at the time of plant-specific application. Otherwise, need for power cannot be considered. This is a far-too-burdensome consequence for making determinations from untimely and uncertain data.

19. GEIS Statement

Section 6.5: Section on Spent Fuel

Vermont Comment

This section evaluates the impacts of temporary storage of spent fuel instead of permanent storage. For permanent storage, it is stated that a second high-level radioactive waste repository would be required (GEIS p. 6-35). The radiological

and land-use issues surrounding this second repository are not evaluated clearly in GEIS, but these are the central issues.

The effects of the creation of 50% more spent fuel is evaluated incorrectly as a Category 1 issue (GEIS p. 6-36). While the spent fuel issue is properly generic, rather than plant-specific, the issue cannot be considered resolved until a disposal location is selected and evaluated (and included within the scope of Public Laws). Lacking this, environmental impacts of spent fuel must be considered Category 3, not resolved for any plant.

20. GEIS Statement

Section 9.3, p. 9-5: This section describes alternative energy resources and their potential, to replace generating capacity that would be lost through denying a license renewal.

Vermont Comment

1. As stated in *Vermont Alternatives to Nuclear Plant License Renewal*, importation of foreign generation capacity is an alternative for Vermont and should be considered in this section.
2. As stated in *Vermont Alternatives to Nuclear Plant License Renewal*, the non-utility generation sector appears viable and robust both now and in the future. Non-utility generation should specifically be discussed among the alternatives.
3. As stated in *Need for and Alternatives to Nuclear Plant License Renewal*, GEIS demand side management (DSM) forecasts are pessimistic. DSM should be considered as an alternative to license renewal.

21. GEIS Statement

Section 9.3.4, (Hydropower), p. 9-15: Therefore, staff concludes that, because of its limited availability and other constraints, hydropower would not be a preferred

alternative to license renewal and need not be considered in individual licence renewal applications.

Vermont Comment

As stated in *Vermont Alternatives to Nuclear License Renewal*, hydropower forms a portion of the capacity which will likely be developed to meet future need. Hydropower must be considered in conjunction with other viable alternatives and therefore cannot be dismissed based on "limited availability and other constraints."

22. GEIS Statement

Section 9.3.6, (Biomass Energy), pp. 9-18, 19: Overall, the projected biomass generating capacity in 2020 would be only one-fourth of the aggregate nuclear capacity that would be lost if nuclear plant licenses were not renewed.... Biomass power is a source of baseload capacity that could be used to replace or offset nuclear capacity, where it is found to be economical. However, biomass power production does not offer a significant environmental or economic advantage over license renewal. Therefore, biomass power is not clearly a preferred near-term alternative to license renewal and need not be considered in individual license renewal applications.

Vermont Comment

As stated in *Vermont Alternatives to Nuclear License Renewal*, renewable generation from wood forms a portion of the capacity which will likely be developed to meet future need. Also stated in that report, it appears that wood gasification technology may prove to be environmentally preferable to nuclear license renewal. No data is provided in the GEIS to compare nuclear versus wood gasification environmental impacts. Also, as shown in *Need for and Alternatives to Nuclear Plant License Renewal*, costs have been so variable, especially nuclear costs, that elimination of biomass on economic grounds cannot be reasonably concluded at this time.

23. GEIS Statement

Section 9.4.2, p. 9-27: The generic impacts of construction of new nuclear, coal, oil and natural gas power plants compared to the refurbishment of existing nuclear baseload capacity are listed in Table 9.1.

Vermont Comment

In order to be meaningful, Table 9.1 must be expanded to include evaluation of generic impacts from purchased power from Canada, and aggregates of smaller renewable and non-utility generation sources.

24. GEIS Statement

Section 9.4.3.4, p. 9-33: Health impacts of coal and nuclear fuel cycles (including plant operation) estimated in NUREG-0332 are listed in Tables 9.2 and 9.3, respectively. (Similar data are not available for oil and gas fuel cycles.)

Vermont Comment

Health impacts must be provided for oil, gas, importation from Canada, and aggregates of smaller renewable and non-utility generation sources. If this data cannot be provided, health impacts of alternates may not be considered resolved generically, but must be considered on a plant/alternative specific basis.

As stated in *Vermont Alternatives to Nuclear Plant License Renewal*, health impacts of the nuclear option are likely understated. NEPA impacts from imported Canadian power appear to be small or nil.

25. GEIS Statement

Section 9.4.5.2, pp. 9-39, 40: The economic cost of new natural gas capacity may be relatively attractive as a source of new generation. Significant expansion of natural gas capacity has been projected for the 1990s.... However, the economics of gas-fired capacity constructed after 2000 will become increasingly less competitive relative to coal-fired technologies.

Vermont Comment

As stated in *Need for and Alternatives to Nuclear Plant License Renewal*, natural gas prices tend to follow oil prices in the long run. Oil price forecasting has not been accomplished with the degree of accuracy to allow the conclusion stated above. Exclusion of natural gas from consideration as an alternative so far in advance of specific plant application, based on uncertain economic forecasts, is undesirable. The Clean Air Act may invalidate post-2000 assertion regarding natural gas.

26. GEIS Statement

Section 9.5, p. 9-41: Overall, the issue of alternatives is considered to be Category 1, subject to an economic threshold analysis [for new fossil fuel and new nuclear power plants].

Vermont Comment

For the reasons stated in the preceding comments and in *Need for and Alternatives to Nuclear Plant License Renewal* and *Vermont Alternatives to Nuclear Plant License Renewal*, the issue of alternatives must be considered Category 3 for all plants.

27. GEIS Statement

Section 9.5, p. 9-41: The staff concludes that new fossil fuel and nuclear power plants are potential alternatives for replacing retired nuclear baseload capacity because (1) they are proven commercial power generating technologies, (2) they can provide the baseload capacity now provided by large nuclear units, and (3) they are available nationwide.

Vermont Comment

This statement concludes that only fossil fuel and nuclear power plants are potential alternatives to license renewal. If the GEIS is revised, it should be concluded that the following are potential alternatives.

1. Importation of foreign electric generation;

2. Combinations of demand side management, development of renewable generation and non-utility generation.

28. GEIS Statement

Section 9.5, p. 9-41: Overall, however, none of these [potential alternatives] can offer significant environmental advantages over license renewal.

Vermont Comment

This statement is the major result and conclusion of the NEPA review, the balancing of environmental costs and recommendation of either the proposed action or an environmentally preferable alternative. Yet this statement is flatly inaccurate and cannot be made for Vermont and Vermont Yankee for the following reasons:

1. The statement is not supported by the evaluation presented heretofore, specifically for natural gas, petroleum products
2. The statement is not true for viable Vermont alternatives of renewable energy and purchased power from Canada (see *Vermont Alternatives to Nuclear Plant License Renewal*).

The Statement is not Supported by the Evaluation Presented Heretofore, Specifically for Natural Gas, Petroleum Products

Fuel Cycle

It is stated that oil and gas have dedicated land-use requirements for pipeline transportation (p. 9-37, lines 34-35). While this is true, it is expected that establishment of a transportation system in Vermont will occur separately and significantly earlier than Vermont Yankee license renewal. For example, the New York-Iroquois Pipeline provides expandable gas potential for Vermont energy needs. Therefore, any land use environment costs are sunk costs before the license renewal decision.

Thus, the significant conclusion of the fuel cycle evaluation is stated as (p. 9-38, lines 22-24):

In petroleum and gas industries well blowouts, fires, and accidents result in injuries and death to workers, but incidence rates are much lower than those of coal and nuclear fuel cycle industries (Table 9.4). (Emphasis added)

Gas and petroleum injuries and deaths are "much lower" than nuclear. This is true even though nuclear injuries and deaths are likely understated (see *Vermont Alternatives to Nuclear Plant License Renewal*). Therefore gas and petroleum have a significant environmental advantage over nuclear in the fuel cycle evaluation.

Waste Generation

On p. 9-36, lines 15-17 and 20-22, it is stated:

Oil plants generate fly ash but not bottom ash and have much smaller waste disposal land requirement than coal. Natural gas plants produce very small quantities of solid wastes.... Land requirements for LLW disposal are very small compared with coal waste disposal requirements, but the nature of the waste (i.e., its radioactively) is more environmentally significant. (Emphasis added)

It is stated that natural gas produces very small quantities of solid wastes and that radioactive waste is "more environmentally significant". Therefore, gas and petroleum have a significant environmental advantage over nuclear in the waste generation evaluation.

Air Quality

Petroleum emissions are less than coal combustion. Gas emissions are significantly less than petroleum emissions. However, nuclear operation results in only a small amounts of emissions of regulated pollutants or carbon dioxide. Nuclear has a significant environmental advantage over petroleum and gas in the air quality evaluation.

Balancing of Environmental Costs

The areas of significant environmental advantage are shown on the following table:

<u>Area of Evaluation</u>	<u>Petroleum or Gas</u>	<u>Nuclear</u>
Fuel Cycle	Significant Environmental Advantage	--
Waste Generation	Significant Environmental Advantage	--
Air Quality	--	Significant Environmental Advantage

The results of these evaluations illustrate the obvious: a balancing is required between the air emissions of petroleum and gas and the high- and low-level radioactive waste generation of nuclear power. This balancing has not been done. An attempt at such a balance between coal and nuclear is made in Section 9.4.3.4., "Human Health" and Tables 9.2 and 9.3. No such balance is provided for petroleum and gas.

The quantitative attempts at a balance for coal and nuclear are remote and speculative such that it is not of proper value to be useful. In the coal table, the dominant effects, injuries and mortalities as a result of power operation, include the footnote, "these ranges are currently controversial; the actual range would be from 0 to perhaps several hundred." In the nuclear table, the waste management categories have very small numbers not representative of the waste disposal situation in the U.S. Despite many claims, there is not yet solutions to high-level radioactive waste disposal or to low-level waste disposal. It is not even known that such disposal can be done safely or accomplished over public objection. Therefore, the values in the table are not satisfactory. Similarly, not satisfactory are radiological results which have not been adjusted for the results of BEIR V and its trend. Thus, the quantitative attempt to balance environmental costs between coal and nuclear is not successful.

Conclusion

Balancing of environmental impacts of nuclear and of petroleum and gas has not been provided. Since this balance is likely to be determined by qualitative factors which vary in different localities, the conclusion regarding environmental preferability of alternatives must be left to the specific plant application.

The Statement is not True for Viable Vermont Alternatives of Renewable Energy and Purchased Power from Canada.

As stated, renewable energy and purchased power from Canada are viable alternatives to the proposed action. Contrary to the GEIS statement, these alternatives may be shown to offer significant environmental advantages over license renewal, and, at any rate, cannot be excluded from consideration as alternatives to Vermont Yankee at this time.

29. GEIS Statement

Section 10.2, p. 10-2: Additional land and materials may be required for the storage of the additional spent fuel and low-level waste that are generated. (Emphasis added)

Vermont Comment

This assessment of commitment of resources is inadequate for the purposes of NEPA. First, additional land will be required for high- and low-level radioactive waste disposal. For NEPA purposes, this section must:

- a. Assess the likelihood that such resources are available. It is not yet clear that locations can be found for present quantities of high- and low-level radioactive waste.
- b. Evaluate the aspect that such land, if located, is removed from social usefulness essentially forever. The permanency of this environmental impact must be considered to weigh heavily, when compared to more short-term impacts.

30. GEIS Statement

Section 10.6, p. 10-3: The staff concludes, on the basis of the assessments summarized in the GEIS, that the renewal of any operating license for up to 20 years, subject to the findings specified in Section 10.1, will have accrued benefits that outweigh the economic, environmental, and social costs of license renewal.

Vermont Comment

For the reasons stated in these comments and in the reports, *Need for and Alternatives to Nuclear Plant License Renewal* and *Vermont Alternatives to Nuclear Plant License Renewal*, this conclusion is unwarranted and unsupported for all nuclear plants, in general, and for Vermont Yankee, specifically. This determination must be reserved for specific plant applications.



U.S. Department of Energy
Office of Civilian Radioactive Waste Management

www.ocrwm.doe.gov

Yucca Mountain Project Update

Presented to:
**High-Level Radioactive Waste Transportation Task Force
Eastern Regional Conference – Council of State Governments**

Presented by:
**Jay Jones
Office of Civilian Radioactive Waste Management**

**May 11, 2006
Atlantic City, NJ**

**Docket 50-271
License Extension at VY
Exhibit Vermont-2
3 Pages**

Canister Approach - Program Redirection

- Canister provides simplification in repository design, licensing, construction, and operation
- SNF will be delivered to the repository primarily in canisters for spent fuel aging and emplacement underground
- TAD canister minimizes bare fuel handling and limits need for multiple complex surface facilities

**Simpler
Cleaner
Safer**



Major Attributes of Our New Approach

- **Canisterized Operations**

- **Canisters arriving at the repository will be disposable after being placed in a waste package**
- **A minimum bare fuel handling capability will be developed that will also be used for off-normal operations with remediation capabilities**
- **Aspects of the current design will be utilized to the extent practicable**
- **The phased construction approach will be maintained**
- **There will be an included capability for both truck and rail deliveries**



Sherman, William

From: Rosetta Virgilio [ROV@nrc.gov]
Sent: Tuesday, April 29, 2003 5:21 PM
To: slo-announcements@nrc.gov
Subject: NRC APPROVES CHANGES TO THE DESIGN BASIS THREAT AND ISSUES ORDERS

NRC NEWS

301/415-820

U. S. NUCLEAR REGULATORY COMMISSION
Office of Public Affairs

Washington, DC 20555-0001
Web Site: www.nrc.gov

Telephone

E-mail: opa@nrc.gov

No. 03-053
April 29, 2003

Docket 50-271
License Extension at VY
Exhibit Vermont-3
2 Pages

**NRC APPROVES CHANGES TO THE DESIGN BASIS THREAT AND ISSUES ORDERS
FOR NUCLEAR POWER PLANTS TO FURTHER ENHANCE SECURITY**

The Nuclear Regulatory Commission, after extensive deliberation and interaction with stakeholders, has approved changes to the design basis threat (DBT). The Commission believes that the DBT represents the largest reasonable threat against which a regulated private guard force should be expected to defend under existing law. These changes will be issued by Order.

In addition, the Commission has approved the issuance of two other Orders to nuclear plants regarding work hours, training, and qualification requirements for security personnel to further enhance protection of public health and safety, as well as the common defense and security. The three Orders will be issued to all 103 operating commercial nuclear power plants.

The three Orders, which are being issued today, will be effective immediately, but allow transition periods for full implementation. With these actions, the Commission expects that there will be a period of regulatory stability during which operating commercial plant licensees will be able to consolidate these and previously ordered security enhancements.

These Orders, in combination with the recently-issued Order in the area of access authorization, enhance the already strong defense capability at these sites using three interdependent elements directed to best protect the public, with the appropriate resources placed at the right places. These elements are:

- * the revised Design Basis Threat and associated defensive capabilities derived from previous measures that the Commission directed;
- * tighter work hour control and more robust training requirements for security personnel, to increase their capability to respond to threats; and
- * enhanced access authorization controls to ensure all plant personnel with access to critical areas have had the most rigorous background checks permitted by law.

The Order that imposes revisions to the Design Basis Threat requires power plants to implement additional protective actions to protect against sabotage by terrorists and other adversaries. The details of the design basis threat are safeguards information pursuant to Section 147 of the Atomic Energy Act and will not be released to the public. This Order builds on the changes made by the Commission's February 25, 2002 Order. The Commission believes that this DBT represents the largest reasonable threat against which a regulated private security force should be expected to defend under existing law. It was

arrived at after extensive deliberation and interaction with cleared stakeholders from other Federal agencies, State governments and industry.

Under NRC regulations, power reactor licensees must ensure that the physical protection plan for each site is designed and implemented to provide high assurance in defending against the DBT to ensure adequate protection of public health and safety and common defense and security. Extensive changes in those physical protection plans will now be made and submitted to NRC for approval.

The second Order describes additional measures related to security force personnel fitness for duty and security force work hours. It is to ensure that excessive work hours do not challenge the ability of nuclear power plant security forces to remain vigilant and effectively perform their duties in protecting the plants. However, the Order does include provisions to allow increases in work hours under certain conditions, once specific requirements are met. The NRC developed this unclassified Order through a public process. The NRC carefully considered comments from power reactor licensees, security force personnel, public citizen groups and other agencies in reaching its final decision. The Order will be publicly available on NRC's website at: <http://www.nrc.gov>.

The third Order describes additional requirements related to the development and application of an enhanced training and qualification program for armed security personnel at power reactor facilities. These additional measures include security drills and exercises appropriate for the protective strategies and capabilities required to protect the nuclear power plants against sabotage by an assaulting force. This Order requires more frequent firearms training and qualification under a broader range of conditions consistent with site-specific protective strategies. The details of the enhanced training requirements are safeguards information, and will not be released to the public. As with the DBT Order, the Commission solicited comments on a draft training Order from cleared stakeholders, including security personnel and took those comments under consideration in reaching its final decision.

"With the completion of these complementary Orders," Chairman Nils J. Diaz said, "the public should be reassured that the nation's nuclear power plants are well-secured against potential threats. The NRC intends to continue working closely with the Department of Homeland Security and other Federal agencies, as well as with State and local law enforcement and emergency planning officials to ensure an overall integrated approach to the security of these critical facilities."

###

Q.DPS:EN.1-11: The nuclear waste policy act of 1982 (Sec. 114 (d)) sets a limit of 70,000 metric tons on the disposal quantity for the proposed Yucca Mountain repository.

- a. Does Entergy believe that all of the spent nuclear fuel projected to be generated by Vermont Yankee through the end of the current operating license will be within the 70,000 metric ton limit?

A.DPS:EN.1-11a:

Entergy VY prefaces its response to this request by stating that it does not agree with the premise stated in this request, namely that the "nuclear waste policy act of 1982 (Sec. 114 (d)) sets a limit of 70,000 metric tons on the disposal quantity for the proposed Yucca Mountain repository." In fact, the Nuclear Waste Policy Act of 1982 merely states that the Commission decision approving the application for the first nuclear waste repository "shall prohibit the emplacement in the first repository of a quantity of spent fuel containing in excess of 70,000 metric tons" of waste "until such time as a second repository is in operation." Subject to this preface, Entergy VY responds as follows:

Yes.

Person Responsible for Response: Ben Franklin
Entergy Services Inc., Project Manager

Date: October 11, 2005

Q.DPS:EN.1-11: The nuclear waste policy act of 1982 (Sec. 114 (d)) sets a limit of 70,000 metric tons on the disposal quantity for the proposed Yucca Mountain repository.

- b. If the response to subpart a above is affirmative, please state each and every reason Entergy believes that all of the spent nuclear fuel projected to be generated by Vermont Yankee through the end of the current operating license will be within the 70,000 metric ton limit.

A.DPS:EN.1-11b:

Entergy VY prefaces its response to this request by stating that it does not agree with the premise stated in this request, namely that the "nuclear waste policy act of 1982 (Sec. 114 (d)) sets a limit of 70,000 metric tons on the disposal quantity for the proposed Yucca Mountain repository." In fact, the Nuclear Waste Policy Act of 1982 merely states that the Commission decision approving the application for the first nuclear waste repository "shall prohibit the emplacement in the first repository of a quantity of spent fuel containing in excess of 70,000 metric tons" of waste "until such time as a second repository is in operation." Subject to this preface, Entergy VY responds as follows:

Entergy VY has prepared a calculation cumulating all the expected industry spent-fuel acceptances by DOE through the acceptance of the last of VY's fuel generated through the current licensed life. This calculation extrapolates from the data already cumulated in Appendix A of the DOE's 2004 Acceptance Priority Ranking and uses the same acceptance rate assumptions used by DOE in that report. The calculation employs the expected discharges from the rest of the industry plants and assumes no plant life extensions or premature shutdowns. This calculation shows that all of VY's spent fuel is accepted before DOE will have accepted a cumulative total of 70,000 MTU of spent fuel.

Person Responsible for Response: Ben Franklin
Entergy Services, Inc., Project Manager

Date: October 11, 2005

Q.DPS:EN.1-11: The nuclear waste policy act of 1982 (Sec. 114 (d)) sets a limit of 70,000 metric tons on the disposal quantity for the proposed Yucca Mountain repository.

- c. If the response to subpart a above is affirmative, please provide an annual capacity acceptance schedule, extrapolated to include Vermont Yankee's fuel generated through the end of the current operating license, which shows that all of Vermont Yankee's spent fuel will be within the 70,000 metric ton limit.

A.DPS:EN.1-11c:

Entergy VY prefaces its response to this request by stating that it does not agree with the premise stated in this request, namely that the "nuclear waste policy act of 1982 (Sec. 114 (d)) sets a limit of 70,000 metric tons on the disposal quantity for the proposed Yucca Mountain repository." In fact, the Nuclear Waste Policy Act of 1982 merely states that the Commission decision approving the application for the first nuclear waste repository "shall prohibit the emplacement in the first repository of a quantity of spent fuel containing in excess of 70,000 metric tons" of waste "until such time as a second repository is in operation." Subject to this preface, Entergy VY responds as follows:

See the calculation spreadsheet provided herewith as Attachment A.DPS:EN.1-11c.

Person Responsible for Response: Ben Franklin
Entergy Services, Inc., Project Manager

Date: October 11, 2005

Q.DPS:EN.1-11: The nuclear waste policy act of 1982 (Sec. 114 (d)) sets a limit of 70,000 metric tons on the disposal quantity for the proposed Yucca Mountain repository.

- d. If the response to subpart a above is negative, please identify the development time estimated for additional storage capacity used for Entergy's financial assurance determination for the spent fuel.

A.DPS:EN.1-11d:

Entergy VY prefaces its response to this request by stating that it does not agree with the premise stated in this request, namely that the "nuclear waste policy act of 1982 (Sec. 114 (d)) sets a limit of 70,000 metric tons on the disposal quantity for the proposed Yucca Mountain repository." In fact, the Nuclear Waste Policy Act of 1982 merely states that the Commission decision approving the application for the first nuclear waste repository "shall prohibit the emplacement in the first repository of a quantity of spent fuel containing in excess of 70,000 metric tons" of waste "until such time as a second repository is in operation." Subject to this preface, Entergy VY responds as follows:

Not applicable.

Person Responsible for Response: Ben Franklin
Entergy Services Inc., Project Manager

Date: October 11, 2005

The Vermont Statutes Online

Title 10: Conservation and Development

Chapter 151: STATE LAND USE AND DEVELOPMENT PLANS

10 V.S.A. § 6086. Issuance of permit; conditions and criteria

Docket 50-271
License Extension at VY
Exhibit Vermont-5
7 Pages

§ 6086. Issuance of permit; conditions and criteria

(a) Before granting a permit, the district commission shall find that the subdivision or development:

(1) Will not result in undue water or air pollution. In making this determination it shall at least consider: the elevation of land above sea level; and in relation to the flood plains, the nature of soils and subsoils and their ability to adequately support waste disposal; the slope of the land and its effect on effluents; the availability of streams for disposal of effluents; and the applicable health and environmental conservation department regulations.

(A) Headwaters. A permit will be granted whenever it is demonstrated by the applicant that, in addition to all other applicable criteria, the development or subdivision will meet any applicable health and environmental conservation department regulation regarding reduction of the quality of the ground or surface waters flowing through or upon lands which are not devoted to intensive development, and which lands are:

- (i) headwaters of watersheds characterized by steep slopes and shallow soils; or
- (ii) drainage areas of 20 square miles or less; or
- (iii) above 1,500 feet elevation; or
- (iv) watersheds of public water supplies designated by the agency of natural resources; or
- (v) areas supplying significant amounts of recharge waters to aquifers.

(B) Waste disposal. A permit will be granted whenever it is demonstrated by the applicant that, in addition to all other applicable criteria, the development or subdivision will meet any applicable health and environmental conservation department regulations regarding the disposal of wastes, and will not involve the injection of waste materials or any harmful or toxic substances into ground water or wells.

(C) Water conservation. A permit will be granted whenever it is demonstrated by the applicant that, in addition to all other applicable criteria, the design has considered water conservation, incorporates multiple use or recycling where technically and economically

practical, utilizes the best available technology for such applications, and provides for continued efficient operation of these systems.

(D) Floodways. A permit will be granted whenever it is demonstrated by the applicant that, in addition to all other applicable criteria:

(i) the development or subdivision of lands within a floodway will not restrict or divert the flow of flood waters, and endanger the health, safety and welfare of the public or of riparian owners during flooding; and

(ii) the development or subdivision of lands within a floodway fringe will not significantly increase the peak discharge of the river or stream within or downstream from the area of development and endanger the health, safety, or welfare of the public or riparian owners during flooding.

(E) Streams. A permit will be granted whenever it is demonstrated by the applicant that, in addition to all other applicable criteria, the development or subdivision of lands on or adjacent to the banks of a stream will, whenever feasible, maintain the natural condition of the stream, and will not endanger the health, safety, or welfare of the public or of adjoining landowners.

(F) Shorelines. A permit will be granted whenever it is demonstrated by the applicant that, in addition to all other criteria, the development or subdivision of shorelines must of necessity be located on a shoreline in order to fulfill the purpose of the development or subdivision, and the development or subdivision will, insofar as possible and reasonable in light of its purpose:

(i) retain the shoreline and the waters in their natural condition;

(ii) allow continued access to the waters and the recreational opportunities provided by the waters;

(iii) retain or provide vegetation which will screen the development or subdivision from the waters; and

(iv) stabilize the bank from erosion, as necessary, with vegetation cover.

(G) Wetlands. A permit will be granted whenever it is demonstrated by the applicant, in addition to other criteria, that the development or subdivision will not violate the rules of the board, as adopted under this chapter, relating to significant wetlands.

(2) Does have sufficient water available for the reasonably foreseeable needs of the subdivision or development.

(3) Will not cause an unreasonable burden on an existing water supply, if one is to be utilized.

(4) Will not cause unreasonable soil erosion or reduction in the capacity of the land to hold water so that a dangerous or unhealthy condition may result.

(5) Will not cause unreasonable congestion or unsafe conditions with respect to use of the

highways, waterways, railways, airports and airways, and other means of transportation existing or proposed.

(6) Will not cause an unreasonable burden on the ability of a municipality to provide educational services.

(7) Will not place an unreasonable burden on the ability of the local governments to provide municipal or governmental services.

(8) Will not have an undue adverse effect on the scenic or natural beauty of the area, aesthetics, historic sites or rare and irreplaceable natural areas.

(A) Necessary wildlife habitat and endangered species. A permit will not be granted if it is demonstrated by any party opposing the applicant that a development or subdivision will destroy or significantly imperil necessary wildlife habitat or any endangered species; and

(i) the economic, social, cultural, recreational, or other benefit to the public from the development or subdivision will not outweigh the economic, environmental, or recreational loss to the public from the destruction or imperilment of the habitat or species; or

(ii) all feasible and reasonable means of preventing or lessening the destruction, diminution, or imperilment of the habitat or species have not been or will not continue to be applied; or

(iii) a reasonably acceptable alternative site is owned or controlled by the applicant which would allow the development or subdivision to fulfill its intended purpose.

(9) Is in conformance with a duly adopted capability and development plan, and land use plan when adopted. However, the legislative findings of sections 7(a)(1) through 7(a)(19) of this act shall not be used as criteria in the consideration of applications by a district commission.

(A) Impact of growth. In considering an application, the district commission shall take into consideration the growth in population experienced by the town and region in question and whether or not the proposed development would significantly affect their existing and potential financial capacity to reasonably accommodate both the total growth and the rate of growth otherwise expected for the town and region and the total growth and rate of growth which would result from the development if approved. After considering anticipated costs for education, highway access and maintenance, sewage disposal, water supply, police and fire services and other factors relating to the public health, safety and welfare, the district commission or the board shall impose conditions which prevent undue burden upon the town and region in accommodating growth caused by the proposed development or subdivision. Notwithstanding section 6088 of this title the burden of proof that proposed development will significantly affect existing or potential financial capacity of the town and region to accommodate such growth is upon any party opposing an application, excepting however, where the town has a duly adopted capital improvement program the burden shall be on the applicant.

(B) Primary agricultural soils. A permit will be granted for the development or subdivision of primary agricultural soils only when it is demonstrated by the applicant that, in addition to all other applicable criteria, either, the subdivision or development will not significantly reduce the agricultural potential of the primary agricultural soils; or,

(i) the applicant can realize a reasonable return on the fair market value of his land only by devoting the primary agricultural soils to uses which will significantly reduce their agricultural potential; and

(ii) there are no nonagricultural or secondary agricultural soils owned or controlled by the applicant which are reasonably suited to the purpose; and

(iii) the subdivision or development has been planned to minimize the reduction of agricultural potential by providing for reasonable population densities, reasonable rates of growth, and the use of cluster planning and new community planning designed to economize on the cost of roads, utilities and land usage; and

(iv) the development or subdivision will not significantly interfere with or jeopardize the continuation of agriculture or forestry on adjoining lands or reduce their agricultural or forestry potential.

(C) Forest and secondary agricultural soils. A permit will be granted for the development or subdivision of forest or secondary agricultural soils only when it is demonstrated by the applicant that, in addition to all other applicable criteria, either, the subdivision or development will not significantly reduce the potential of those soils for commercial forestry, including but not limited to specialized forest uses such as maple production or Christmas tree production, of those or adjacent primary agricultural soils for commercial agriculture; or

(i) the applicant can realize a reasonable return on the fair market value of his land only by devoting the forest or secondary agricultural soils to uses which will significantly reduce their forestry or agricultural potential; and

(ii) there are no nonforest or secondary agricultural soils owned or controlled by the applicant which are reasonably suited to the purpose; and

(iii) the subdivision or development has been planned to minimize the reduction of forestry and agricultural potential by providing for reasonable population densities, reasonable rates of growth, and the use of cluster planning and new community planning designed to economize on the cost of roads, utilities and land usage.

(D) Earth resources. A permit will be granted whenever it is demonstrated by the applicant, in addition to all other applicable criteria, that the development or subdivision of lands with high potential for extraction of mineral or earth resources, will not prevent or significantly interfere with the subsequent extraction or processing of the mineral or earth resources.

(E) Extraction of earth resources. A permit will be granted for the extraction or processing of mineral and earth resources, including fissionable source material:

(i) when it is demonstrated by the applicant that, in addition to all other applicable criteria, the extraction or processing operation and the disposal of waste will not have an unduly harmful impact upon the environment or surrounding land uses and development; and

(ii) upon approval by the district commission of a site rehabilitation plan which insures that upon completion of the extracting or processing operation the site will be left by the applicant in a condition suited for an approved alternative use or development. A permit will not be granted for the recovery or extraction of mineral or earth resources from beneath natural water bodies or impoundments within the state, except that gravel, silt and sediment may be removed pursuant to the rules of the agency of natural resources, and natural gas and oil may be removed pursuant to the rules of the natural gas and oil resources board.

(F) Energy conservation. A permit will be granted when it has been demonstrated by the applicant that, in addition to all other applicable criteria, the planning and design of the subdivision or development reflect the principles of energy conservation and incorporate the best available technology for efficient use or recovery of energy.

(G) Private utility services. A permit will be granted for a development or subdivision which relies on privately-owned utility services or facilities, including central sewage or water facilities and roads, whenever it is demonstrated by the applicant that, in addition to all other applicable criteria, the privately-owned utility services or facilities are in conformity with a capital program or plan of the municipality involved, or adequate surety is provided to the municipality and conditioned to protect the municipality in the event that the municipality is required to assume the responsibility for the services or facilities.

(H) Costs of scattered development. The district commission will grant a permit for a development or subdivision which is not physically contiguous to an existing settlement whenever it is demonstrated that, in addition to all other applicable criteria, the additional costs of public services and facilities caused directly or indirectly by the proposed development or subdivision do not outweigh the tax revenue and other public benefits of the development or subdivision such as increased employment opportunities or the provision of needed and balanced housing accessible to existing or planned employment centers.

(J) Public utility services. A permit will be granted for a development or subdivision whenever it is demonstrated that, in addition to all other applicable criteria, necessary supportive governmental and public utility facilities and services are available or will be available when the development is completed under a duly adopted capital program or plan, an excessive or uneconomic demand will not be placed on such facilities and services, and the provision of such facilities and services has been planned on the basis of a projection of reasonable population increase and economic growth.

(K) Development affecting public investments. A permit will be granted for the development or subdivision of lands adjacent to governmental and public utility facilities, services, and lands, including, but not limited to, highways, airports, waste disposal facilities, office and maintenance buildings, fire and police stations, universities, schools,

hospitals, prisons, jails, electric generating and transmission facilities, oil and gas pipe lines, parks, hiking trails and forest and game lands, when it is demonstrated that, in addition to all other applicable criteria, the development or subdivision will not unnecessarily or unreasonably endanger the public or quasi-public investment in the facility, service, or lands, or materially jeopardize or interfere with the function, efficiency, or safety of, or the public's use or enjoyment of or access to the facility, service, or lands.

(L) Rural growth areas. A permit will be granted for the development or subdivision of rural growth areas when it is demonstrated by the applicant that in addition to all other applicable criteria provision will be made in accordance with subdivisions (9)(A) "impact of growth," (G) "private utility service," (H) "costs of scattered development" and (J) "public utility services" of subsection (a) of this section for reasonable population densities, reasonable rates of growth, and the use of cluster planning and new community planning designed to economize on the cost of roads, utilities and land usage.

(10) Is in conformance with any duly adopted local or regional plan or capital program under chapter 117 of Title 24. In making this finding, if the district commission finds applicable provisions of the town plan to be ambiguous, the district commission, for interpretive purposes, shall consider bylaws, but only to the extent that they implement and are consistent with those provisions, and need not consider any other evidence.

(b) At the request of an applicant, or upon its own motion, the district commission shall consider whether to review any criterion or group of criteria of subsection (a) of this section before proceeding to or continuing to review other criteria. This request or motion may be made at any time prior to or during the proceedings. The district commission, in its sole discretion, shall, within 20 days of the completion of deliberations on the criteria that are the subject of the request or motion, either issue its findings and decision thereon, or proceed to a consideration of the remaining criteria.

(c) A permit may contain such requirements and conditions as are allowable proper exercise of the police power and which are appropriate within the respect to (1) through (10) of subsection (a), including but not limited to those set forth in sections 4414(4), 4424(2), 4414(1)(D)(i), 4463(b), and 4464 of Title 24, the dedication of lands for public use, and the filing of bonds to insure compliance. The requirements and conditions incorporated from Title 24 may be applied whether or not a local plan has been adopted. General requirements and conditions may be established by rule of the land use panel.

(d) The land use panel may by rule allow the acceptance of a permit or permits or approval of any state agency with respect to (1) through (5) of subsection (a) or a permit or permits of a specified municipal government with respect to (1) through (7) and (9) and (10) of subsection (a), or a combination of such permits or approvals, in lieu of evidence by the applicant. A district commission, in accordance with rules adopted by the land use panel, shall accept determinations issued by a development review board under the provisions of 24 V.S.A. § 4420, with respect to local Act 250 review of municipal impacts. The acceptance of such approval, positive determinations, permit, or permits shall create a presumption that the application is not detrimental to the public health and welfare with respect to the specific requirement for which it is accepted. In the case of approvals and permits issued by the agency of natural resources, technical determinations

of the agency shall be accorded substantial deference by the commissions. The acceptance of negative determinations issued by a development review board under the provisions of 24 V.S.A. § 4420, with respect to local Act 250 review of municipal impacts shall create a presumption that the application is detrimental to the public health and welfare with respect to the specific requirement for which it is accepted. Any determinations, positive or negative, under the provisions of 24 V.S.A. § 4420 shall create presumptions only to the extent that the impacts under the criteria are limited to the municipality issuing the decision. Such a rule may be revoked or amended pursuant to the procedures set forth in 3 V.S.A., chapter 25, the Vermont Administrative Procedure Act. The rules adopted by the land use panel shall not approve the acceptance of a permit or approval of such an agency or a permit of a municipal government unless it satisfies the appropriate requirements of subsection (a) of this section.

(e) This subsection shall apply with respect to a development that consists of the construction of temporary physical improvements for the purpose of producing films, television programs, or advertisements. These improvements shall be considered "temporary improvements" if they remain in place for less than one year, unless otherwise extended by the permit or a permit amendment, and will not cause a long-term adverse impact under any of the 10 criteria after completion of the project. In situations where this subsection applies, jurisdiction under this chapter shall not continue after the improvements are no longer in place and the conditions in the permit have been met, provided there is not a long-term adverse impact under any of the 10 criteria after completion of the project; except, however, if jurisdiction is otherwise established under this chapter, this subsection shall not remove jurisdiction. This termination of jurisdiction in these situations does not represent legislative intent with respect to continuing jurisdiction over other types of development not specified in this subsection.

(f) Prior to any appeal of a permit issued by a district commission, any aggrieved party may file a request for a stay of construction with the district commission together with a declaration of intent to appeal the permit. The stay request shall be automatically granted for seven days upon receipt and notice to all parties and pending a ruling on the merits of the stay request pursuant to board rules. The automatic stay shall not extend beyond the 30-day appeal period unless a valid appeal has been filed with the environmental court. The automatic stay may be granted only once under this subsection during the 30-day appeal period. Following appeal of the district commission decision, any stay request must be filed with the environmental court pursuant to the provisions of chapter 220 of this title. A district commission shall not stay construction authorized by a permit processed under the land use panel's minor application procedures. (1969, No. 250 (Adj. Sess.), § 12, eff. April 4, 1970; amended 1973, No. 85, § 10; 1973, No. 195 (Adj. Sess.), § 3, eff. April 2, 1974; 1979, No. 123 (Adj. Sess.), § 5, eff. April 14, 1980; 1981, No. 240 (Adj. Sess.), § 7, eff. April 28, 1982; 1985, No. 52, § 4, eff. May 15, 1985; 1985, No. 188 (Adj. Sess.), § 5; 1987, No. 76, § 18; 1989, No. 234 (Adj. Sess.), § 1; No. 280 (Adj. Sess.), § 13; 1993, No. 232 (Adj. Sess.), § 32, eff. March 15, 1995, 2001, No. 40, §§ 6-9; 2003, No. 115 (Adj. Sess.), § 56, eff. Jan. 31, 2005.)

**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

**In Re: Entergy Nuclear Vermont Yankee)
 LLC and Entergy Nuclear)
 Operations, Inc.)**

**Docket No. 50-271
(License Renewal)**

DECLARATION OF WILLIAM K. SHERMAN

William K. Sherman states as follows under penalties of perjury.

Introduction

1. My name is William K. Sherman. I am employed by the Vermont Public Service Department. My title is Vermont State Nuclear Engineer. I have held this position since November of 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. My professional and educational experience is summarized in the resume attached to this Declaration.
2. I am providing this Declaration in support of the Vermont Department of Public Service Notice of Intention to Participate and Petition to Intervene ("VDPS Petition").
3. I am familiar with the license amendment application for a license extension of twenty years submitted by Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc.
4. I assisted in the preparation of the VDPS Petition.
5. The facts provided in my declaration are true and correct to the best of my knowledge and belief, and the opinions expressed herein are based on my best professional judgment.

6. The Exhibits attached to the VDPS Petition are true and correct copies of the documents represented.

Primary Containment Concrete

7. The Applicant improperly excludes the attribute of *reduction of strength and modulus of the primary containment structure due to elevated temperature*. The Applicant claims this attribute is not an aging effect requiring management. However, the primary containment normal operating temperature limit is above the limit for excluding this attribute from consideration. The lack of consideration means the Commission cannot make the finding of acceptability in accordance with 10 C.F.R. §54.29(a).
8. Since the normal environment maximum of 165°F is above the cut off limit of 150°F, and since the concrete surface behind the steel shell will closely match the drywell ambient temperature, the statement at 3.5-8 of the LRA is not accurate, and reduction of strength and modulus of concrete structures due to elevated temperature is an aging effect requiring management.
9. Using 3.5-18 of the LRA, the Applicant may hold that reduction of strength and modulus of concrete structures due to elevated temperature is not applicable because VYNPS is a Mark I steel containment. However, this also is not accurate. In the UFSAR, the Applicant takes credit for the strength and integrity of containment walls in a number of manners.
10. Since the Applicant takes credit for containment wall concrete integrity and since the normal operating temperature may exceed 150°F, the attribute, *reduction of strength and modulus of the primary containment structure due to elevated temperature*, requires an age management program.

Spent fuel storage

11. New and significant information exists regarding the time for which onsite land will be removed from other uses, and whether such land use is irretrievable, which was not provided in the ER by the Applicant in accordance with 10 C.F.R. §51.53(c)(3)(iv). The current estimate in the Generic Environment Impact Statement (GEIS) is on-site storage of spent fuel will not last beyond 30 years after the end of the license period (including an extended license period). GEIS, Sections 6.4.6.2, 3.

12. The GEIS evaluates the impacts associated with onsite land use as Category 1, SMALL. The basis for this assessment is the assumption that the land used for storage of nuclear wastes at the reactor site will not exceed 30 years after the end of the license term. GEIS, Section 3.2 (referring to GEIS Chapter 6). That assumption, in turn, relies upon the assumption that a permanent high level waste repository, and perhaps even a second repository, will be in place by that time to receive the reactor wastes. GEIS, Section 6.4.6.2 Based on those assumptions the use of the reactor site for storing spent fuel, in this case for a period ending in 2062, has been deemed to be a small impact. GEIS, Section 3.2.

13. These assumptions are flawed. Recent evidence, not evaluated previously in the GEIS, now discloses that: 1) the likelihood that a permanent high level waste repository will be in place by 2062 is slight due to unanticipated technical problems uncovered at the Yucca Mountain site coupled with changes in national policy; 2) the only currently contemplated high level waste repository can accommodate the quantity of spent nuclear fuel expected to be produced by Vermont Yankee through the end of its originally licensed life, but it would not have space for at least a part of the additional spent nuclear fuel generated by VY during extended licensing; 3) no present plans exist for building a second high level waste repository nor has any site been identified for consideration for such a facility; 4) the United States is now embarking upon a changed policy for waste disposal which will

make all the current schedules obsolete and for which there is no reliable time frame for its implementation; 5) there is not now nor has there been any reasonable prospect that the federal government or any third party will take title to the license-renewal spent fuel waste and remove it from the site; and 6) it follows that it is reasonable to expect that at least a part of spent fuel to be generated at VY during the period of an extended license will remain at the site for a much longer time than evaluated in the GEIS and perhaps indefinitely.

14. Since this new information, not available at the time of development of the GEIS, demonstrates that the commitment of onsite land for storage/disposal of spent nuclear fuel from license renewal will be substantially longer than assumed in the *GEIS*, and may be indefinite, this results in an irretrievable commitment of onsite land with a MODERATE or LARGE impact.
15. Vermont and its communities have firmly established values associated with land use such that the long-term or indefinite use of a portion of the VY site for spent nuclear fuel storage should clearly be evaluated as a MODERATE or LARGE impact in the VY supplement to the GEIS.
16. There is new and significant information which the Applicant should have identified and described in its Environmental Report. If this information had been provided and evaluated properly, it would have changed the GEIS conclusions regarding onsite land use impacts.
17. The Applicant should have reported that the nation's policy with regard to spent fuel management has changed. The current administration and Congress have announced a major shift in policy called the Global Nuclear Energy Partnership (GNEP). Refer in general to the Administration's GNEP website - <http://www.gnep.energy.gov/> - which contains the announcement and much information regarding this new policy direction.

Proponents of this new policy hope this new approach will not separate out plutonium products. The home page of the website referenced above contains the following statement:

Demonstrate More Proliferation-Resistant Recycling

Accelerate the development, demonstration and deployment of new technologies to recycle nuclear fuel that do not result in separated plutonium —a key proliferation risk of existing recycling technologies.

As shown by this statement, this policy is a shift to reprocessing of spent fuel that hopes to use a technique which has neither been developed nor demonstrated.

18. Further, this shift in policy will remove attention and resources from repository development such that the basis and conclusions that spent fuel will not have to be stored on site beyond 2062 are no longer valid.
19. In addition, the Applicant should have reported that the previous assumption regarding the suitability of Yucca Mountain as a permanent waste disposal site is no longer valid. At Yucca Mountain, contrary to the assumptions underlying the GEIS, it has been discovered that the disposal area is subject to water in-leakage. Therefore the design must be changed from that previously assumed and it is not clear a new design can be developed which will meet dose and integrity requirements. Partially in response to this discovery, DOE has abandoned previous cask designs and now proposes a concept called the TAD (transportation, aging and disposal) standard canister for which there is not presently even a preliminary design. Exhibit Vermont-2¹.
20. Further, the Applicant should have stated that these changes have occurred in an increasingly hostile political environment. Senate minority leader Harry Reid (D-NV)

¹ Exhibit Vermont-2 consists of slides from a recent presentation by Jay Jones of the Department of Energy's Office of Civilian Radioactive Waste Management that identify that DOE is, at this late date, changing its canister approach.

strongly opposes development of Yucca Mountain and is able to use his position as minority leader effectively to advance this opposition and would do so even more forcefully as majority leader if the Senate leadership changes parties. And, the Western Governor's Association (WGA) has the following active resolution (03-16):

On December 1, 1989, the Western Governors' Association adopted Resolution 89-024 which stated that spent nuclear fuel should remain at reactor sites until a state has agreed to storage and DOE provides reasonable transportation, safety, and emergency response assurances to the western states. The resolution was readopted in 1992, 1995, 1997, and 1999.

All of the new information identified above provides additional arguments and evidence to bolster the opposition of Senator Reid and the WGA and undercut the assumed completion date for a usable high level waste repository.

19. In addition, the Applicant should have reported that, because the GEIS was prepared before September 11, 2001, it does not factor in the impact of viable terrorist threats into an evaluation of the socioeconomic impacts of indefinitely storing spent fuel at the reactor site. The extended long-term or indefinite presence of spent nuclear fuel at Vermont Yankee after permanent shutdown means a defined terrorist target will be present for the long-term or indefinitely. In its news release No. 03-053 (April 29, 2003) (Exhibit Vermont-3), NRC stated:

The Commission believes that this DBT [Design Basis Threat] represents the largest reasonable threat against which a regulated private security force *should be expected to defend* under existing law.

(Emphasis added). The phrase, *should be expected to defend*, means there is a limit on the expectation on the Applicant, and the state resources will be expected to provide additional security responses beyond the Applicant's capability. The very presence of this target creates an effect on that land, contiguous lands, and the surrounding area, creating the need for continuous augmented emergency preparedness plans and security response from the State.

20. The statute sets the storage limit of Yucca Mountain to 70,000 metric tons of disposed quantity:

(d) Commission action. The Commission shall consider an application for a construction authorization for all or part of a repository in accordance with the laws applicable to such applications, except that the Commission shall issue a final decision approving or disapproving the issuance of a construction authorization not later than the expiration of 3 years after the date of the submission of such application, except that the Commission may extend such deadline by not more than 12 months if, not less than 30 days before such deadline, the Commission complies with the reporting requirements established in subsection (e)(2). *The Commission decision approving the first such application shall prohibit the emplacement in the first repository of a quantity of spent fuel containing in excess of 70,000 metric tons of heavy metal or a quantity of solidified high-level radioactive waste resulting from the reprocessing of such a quantity of spent fuel until such time as a second repository is in operation.*

Nuclear Waste Policy Act, as amended, Sec. 114 (d), emphasis added. Entergy has stated that all of the spent fuel projected to be generated by Vermont Yankee through the end of its current operating license (including increases of spent fuel from power uprate) will be within the 70,000 metric tons storage limits of the "first" repository. See Entergy's response to the DPS Discovery Request 1-11 in PSB Docket No. 7082 (Exhibit Vermont-4). Applicant should have identified that at least some part of the spent fuel from license renewal will exceed the 70,000 metric ton limit (when all spent fuel being generated nationally is considered) and must go into a second repository.

21. While many believe that the first repository can dispose of more than the statutory 70,000 MTHW, this presumption cannot be relied upon until and unless the law is changed.
22. Similarly, some may believe DOE will removed spent fuel from the Vermont Yankee site to an interim storage location, thus eliminating the MODERATE or LARGE onsite land-use impact. Vermont strongly supports this outcome. Vermont will show at hearing that attempts in Congress to create such interim storage failed three times in the 1990's, and that this presumption cannot be relied upon until law is created to allow such interim

storage.

23. Since VY's initial operation, when perpetual tank storage was envisioned, the federal government's attempts to fulfill its obligation to develop spent fuel disposal have been abysmal. For the past nineteen years efforts have focused at Yucca Mountain, but due to the changes identified above, the Administration currently does not even have a schedule for the completion of the first repository. The Massachusetts Institute of Technology (MIT), in 2003, performed a study: *The Future of Nuclear Power: An Interdisciplinary MIT Study*. The Applicant should have identified that it sponsored the co-chair of the study, Dr. Ernest Moniz, Director of Energy Studies, Laboratory for Energy and the Environment, MIT Department of Physics, as a witness in PSB Docket No. 7082, regarding authorization for dry cask storage. In that docket, Dr. Moniz testified:

[T]he MIT Study argues that "interim" storage of spent fuel (which can be carried out either at reactor sites or in consolidated facilities, possibly under federal control) for fifty to seventy years is in any case a preferred approach for design of an integrated spent fuel management system.

Prefiled direct testimony of June 16, 2005 at 13. The implication of the Applicant's testimony through Dr. Moniz is that the first repository will not be available for "fifty to seventy years." If the schedule for the first repository is "fifty to seventy years," a time period greater than evaluated in the GEIS, then the schedule for a second repository is indefinite at best, if such a repository could ever be built.

24. Vermont assigns a high value to land and its use within the state. The values are codified in the form of environmental protections in permitting criteria in 10 V.S.A Chapter 151, State Land Use and Development Plans (see Exhibit Vermont-5).
25. Criteria No. 7 of 10 V.S.A §6086 (a) states:

[Before granting a permit, the district commission shall find that the subdivision or development:]

(7) Will not place an unreasonable burden on the ability of the local governments to provide municipal or governmental services.

The long-term or indefinite storage of license renewal spent fuel at VY would trigger long-term burdens on local governments for emergency management and security services. It is highly likely that long-term or indefinite storage of the spent fuel created by license renewal would not comply with Criteria No. 7. Therefore, this would suggest the impact of the proposed onsite land use should be determined to be LARGE in the VY supplement to the GEIS.

26. Criteria No. 8 of 10 V.S.A §6086 (a) states:

[Before granting a permit, the district commission shall find that the subdivision or development:]

(8) Will not have an undue adverse effect on the scenic or natural beauty of the area, aesthetics, historic sites or rare and irreplaceable natural areas.

Under this criteria, the the District Environmental Commission would evaluate the effect of spent nuclear fuel being left long-term or indefinitely on a riverbank site that would otherwise be fully returned to greenfield condition. It is highly likely the long-term or indefinite presence of spent nuclear fuels following decommissioning of VY would be deemed to create an undue adverse effect. Considering this criteria, the proposed onsite land use should be evaluated as MODERATE or LARGE in the VY supplement to the GEIS.

27. In addition, Vermont's land use law requires a finding that land uses are in conformance with local or regional plans:

(10) Is in conformance with any duly adopted local or regional plan or capital program under chapter 117 of Title 24. In making this finding, if the district commission finds applicable provisions of the town plan to be ambiguous, the district commission, for interpretive purposes, shall consider bylaws, but only to the extent that they implement and are consistent with those provisions, and need not consider any other evidence.

10 V.S.A. §6086 (a)(10).

28. The Windham Regional Plan of October 30, 2001, which is applicable to VY, establishes land use requirements, and has the following provision:

LAND USE POLICIES

Rural Residential Lands

1. Ensure that any development of rural residential lands will be at densities that will serve to contain rural sprawl, and that are compatible with existing land uses and sensitive to the limitations of the land.

Once the bulk of the site is returned to a greenfield condition, it is doubtful that long-term or indefinite presence of spent nuclear fuel from license renewal would be considered "compatible with existing land uses". This provision suggests the onsite land use impact should at least be evaluated as MODERATE in the VY supplement to the GEIS.

29. The Windham Regional Plan also has the following provision:

COMMUNITY RESOURCE POLICIES

High Level Radioactive Waste

1. Encourage a requirement that permanent spent nuclear fuel (SNF) storage be resolved prior to any consideration of extending or reviewing the operating license of Vermont Yankee.

It is highly likely that a land use evaluation under 10 V.S.A. §6086 (a)(10) would find the proposal for long-term or indefinite storage of spent nuclear fuel from license renewal did not conform with the regional plan with regard to the item above. Thus, this provision suggests a LARGE impact from the onsite land use from the proposed license renewal.

30. There is also a Vernon Town Plan, Nov. 3, 2003, which is applicable to VY. This plan contains the following:

Section III: Resource and Economic Development

Recommendations:

#3 The Town should pursue discussions with appropriate representatives of the Vermont Yankee Nuclear power Company regarding the possible re-use of the power plant site for other commercial and industrial development following decommissioning.

The long-term or indefinite presence of spent nuclear fuel from license renewal has the potential for preventing “other commercial and industrial development following decommissioning.” If the spent fuel storage completely prevented the use of the site for other developments, it is highly likely the impact from license-renewal onsite land use would be LARGE. If the spent fuel storage allowed some additional development but hindered other possible commercial and industrial uses, the impact would likely be MODERATE.

31. The extended long-term presence of spent fuel will prevent use of the immediate land it occupies and will deter other possible uses of larger contiguous areas because of societal and commercial concerns regarding the proximity of radioactive material. From the foregoing, it is seen that Vermont has existing land use evaluation criteria, which establish the basis under which the impact from additional long-term or indefinite onsite land use resulting from the spent nuclear fuel generated from license renewal should be evaluated as MODERATE or LARGE in the VY supplement to the GEIS.
32. Even at the time of development of the GEIS Vermont urged the NRC to give greater credence to the real possibility that spent fuel generated by license extension would have to be stored at the reactor site more than 30 years after power generation had ceased. As noted above, that possibility has now risen to a probability. The failure of the NRC, during the GEIS development process, to even address the possibility that spent fuel would have to remain at the reactor site indefinitely, underscores the need to address those issues at this time in light of the new and significant evidence cited above. The history of Vermont’s participation in the GEIS process demonstrates this point.
33. Vermont provided the *Vermont GEIS Comments* at the generic review stage both to convince the NRC to see that its optimistic view of the future was unwarranted and in order to preserve its rights of challenge at the site specific stage of license renewal.
34. As explained below, the NRC does not directly address, and therefore does not directly

reject, Vermont's comments regarding land use associated with the spent fuel generated in license renewal either in its notes of consideration for the final rule for Environmental Review for Renewal of Nuclear Power Plant Operating Licenses (June 5, 1996, 61 FR 28467) or in its final GEIS, Section 3.2 (On-Site Land Use and Section 6.4.6 (Spent Fuel)).

35. At 61 FR 28479, it is stated:

Table S-3 does not take into account long-term onsite storage of . . . spent fuel assemblies for longer than 10 years . . . The environmental impacts of these aspects of onsite storage are also addressed in Chapter 6 of the final GEIS.

Therefore, Table S-3 does not consider Vermont's concern regarding onsite land use for spent fuel management for extended periods.

36. At 61 FR 28479, it is stated:

The only nonradiological effluent from waste storage is additional heat from the plant that was found to have a negligible effect on the environment.

While the only nonradiological effluent may be additional heat, this is not the only nonradiological effect resulting from the potential indefinite on-site land use from spent fuel management. This comment does not address Vermont's concerns.

37. At 61 FR 28479-28480, it is stated:

The environmental impacts of allowing onsite dry cask storage under a general license were assessed in an EA . . . Potential impacts that were assessed include . . . land use.

This statement is inadequate to address Vermont's concerns. While land use in general might have been considered in generic dry cask approvals, these generic approvals did not consider the impacts from potential indefinite land use associated with the spent fuel management problems caused by license renewal.

38. The GEIS further provides:

The GEIS addresses extended onsite storage of spent fuel during a renewal period of up to 20 years. (61 FR 28479)

* * *

Trends in onsite spent fuel storage capacity and the volume of spent fuel that will be generated during an additional 20 years of operation are considered in the GEIS. (61 FR 28480).

However, as the following statements in the GEIS demonstrate Vermont's comments regarding on-site land use were not addressed.

39. GEIS Section 3.2, On-Site Land Use states:

Changes in on-site land use at a nuclear plant could result if additional new spent fuel . . . facilities were required (Waste generation, handling, and disposal are discussed in Chapter 6). . . The U.S. Nuclear Regulatory Commission (NRC) has written a number of environmental assessments for on-site dry cask storage facilities and has reached a "finding of no significant impact" (FOSNI) for each. The FOSNI was reached considering the amount of land actually disturbed, the range of possible environmental impacts, and alternatives uses of the land. On-site land use impacts are expected to be of small significance.

From the first part of the above assessment, the NRC recognizes that license renewal may create changes in on-site land use for spent fuel management. Further comment in that regard is deferred to Chapter 6. Regarding the manner in which land use is described in the environmental assessments for dry cask storage, the GEIS gives the following example:

Using the Calvert Cliffs Nuclear Power Plant Site ISFSI EA as typical, the following impacts are evaluated. Land use is about six acres, which is within the owner-controlled area of 2300 acres. . . . The Commission believes that the impacts discussed above reasonably describe the impacts from existing dry cask storage facilities, as well as the likely impacts from those dry cask storage facilities that are expected to be constructed as a result of license renewal.

No part of this evaluation addresses Vermont's comments regarding onsite land use and

the possible indefinite commitment of this land in Vermont.

40. The GEIS makes a statement about emergency preparedness:

From the standpoint of emergency preparedness, the impacts of dry cask storage installations should be minor for three reasons. First, because of the reduced radioactive inventory in the fuel stored in dry cask facilities, accidents involving such storage facilities are likely to develop more slowly than those involving the nearby operating reactors. Second, accident impacts should be low, again because of the reduced inventories of radioactive materials in the stored fuel but also because of the correspondingly reduced level of decay heat compared with fuel still in-reactor. Thus, emergency plans formulated for operating reactors should encompass accidents at dry cask storage facilities. Third, it is NRC policy that plants with dry cask storage facilities incorporate the potential sources of hazard from these storage facilities in their emergency plans, as well as the potential hazard from all radiological source terms at the plant site.

GEIS Section 6.4.6.1. This statement does not address Vermont's concerns regarding the indefinite nature of the commitment of land for spent fuel management, nor the threat from terrorist activities which was greatly increased after September 11, 2001.

41. The evaluation in GEIS Section 6.4.6 uses 2010 as the date a geologic repository will be available. The GEIS recognizes the need for a second repository:

Possible extensions or renewals of operating licenses also need to be considered in assessing the need for and scheduling the second repository. It now appears that unless Congress lifts the capacity limit on the first repository – and unless this repository has the physical capacity to dispose of all spent fuel generated under both the original and extended or renewed licenses – it will be necessary to have at least one additional repository. Assuming that the first repository is available by 2025 and has the capacity on the order of 70,000 MTHM, additional disposal capacity would probably not be needed before about the year 2040 to avoid storing spent fuel at a reactor for more than 30 years after expiration of reactor operating licenses.

GEIS Section 6.4.6.2.

42. Above we have shown that Vermont's comments about land use were not adequately

addressed in the comment phase for the GEIS. On July 5, 1996, DPS commented:

The effect of . . . spent nuclear fuel generated from license renewal is ruled a resolved issue which cannot be raised in site-specific applications. This is lamentable . . . Congress has not appointed requested amounts for the federal spent nuclear fuel program. We have seen no progress in the spent nuclear fuel program which gives us confidence that a repository will become a reality. . . [R]adioactive waste disposal issues should not be sealed so they cannot be revisited by states in site-specific applications.

43. The Commission responded in part:

Also from a regulatory policy perspective, the Commission disagrees with the view of one state that each renewal applicant should come forward with an analysis of the HLW storage and disposal environmental effects. This is a national problem of essentially the same degree of complexity and uncertainty for every renewal application and it would not be useful to have a repetitive reconsideration of the matter.

61 FR 66538.

Security

44. The Applicant does not identify, for screening, security systems, structures and components required by 10 C.F.R. Part 73. These systems, structures, and components provide physical security and protect against terrorist activities which, if they fail, could result in the prevention of safety systems, structures and components to perform their safety functions. Among the systems, structures and components required by 10 C.F.R. Part 73 are those which require aging management review. The lack of this screening and aging management review prevents the Commission from completing its review of the requested license renewal in accordance with 10 C.F.R. §54.29(a).
45. In the LRA, the Applicant does not identify security related systems, structures and components in its equipment screening in Chapter 2.
46. Plant systems, structures, and components within the scoping criteria of 10 C.F.R. §54.4 are not limited to systems, structures, and components required in accordance with 10 C.F.R. Part 50. Within the definition of current licensing basis in 10 C.F.R. §54.3,

numerous Parts of 10 C.F.R. are identified, including 10 C.F.R. Part 73.

47. 10 C.F.R. Part 73 requires the Applicant to provide systems, structures and components for physical protection of plant and materials. Specifically, systems, structures and components are required under Sections:
 - 73.40 Physical protection: General requirements at fixed sites.
 - 73.45 Performance capabilities for fixed site physical protection systems.
 - 73.46 Fixed site physical protection systems, subsystems, components, and procedures.
 - 73.51 Requirements for the physical protection of stored spent nuclear fuel and high-level radioactive waste.
 - 73.55 Requirements for physical protection of licensed activities in nuclear power reactors against radiological sabotage.
48. At least some of the systems, structures and components required by 10 C.F.R. Part 73 meet the definition of 10 C.F.R. §54.4(a)(2). The failure of security systems, structures and components to fulfill their function of physical protection against terrorist activity can directly result in the prevention of safety systems to accomplish their functions.
49. The Applicant must perform the 10 C.F.R. §54.4 screening for these systems and perform the required aging management review required by 10 C.F.R. §54.21.
50. Vermont realizes identification of Part 73 systems, structures and components will include safeguards information (see 10 C.F.R. §73.21).

I declare under penalty of perjury that the foregoing is true and correct.

Executed on May 26, 2006.



William K. Sherman
State Nuclear Engineer

William K. Sherman

Mr. Sherman has a broad range of policy, public relations, economic and technical experience in the nuclear area over a thirty five-year career.

Professional Employment

1988 - Present	Vermont Department of Public Service State Nuclear Engineer
1973 -1985	Stone & Webster Engineering Corporation Senior Power Engineer
1971 - 1973	EDS Nuclear, Inc. Senior Engineer
1967 - 1971	U.S. Naval Nuclear Power Program Lieutenant

Experience

Vermont Department of Public Service

Cognizance of the daily status of operation of the Vermont Yankee Nuclear Plant.

Periodic inspections at the Vermont Yankee Nuclear Plant.

Liaison with the federal regulator of the Vermont Yankee Nuclear Plant.

Responsibility for monitoring and evaluating physical plant conditions during nuclear emergencies.

Maintains cognizance of issues and activities related to nuclear power in support of the Commissioner's position as NRC State Liaison Officer.

Expert witness testimony for the Department for issues associated with Vermont Yankee and nuclear power.

Serves as Vermont's Member on the Texas Low-level Radioactive Waste Disposal Compact Commission.

Serves as a member of the Nuclear Waste Strategy Coalition, a coalition of state public utility commission, attorney general and nuclear utility representatives, acting to effect a solution for the disposal of nuclear high-level radioactive waste.

Serves as a member and past-chairman of the Northeast High-Level Radioactive Waste Transportation Task Force.

Testifies before legislative committees on nuclear power issues.

Serves as principal staff for the Vermont State Nuclear Advisory Panel (VSNAP).

Experience - (continued)

Stone & Webster Engineering Corporation

Environmental Qualification Manager for a nuclear power plant under construction (May 1985 - Jan 1986). Supervised compliance with the requirements for environmental qualification of Class 1E electrical equipment.

Lead Power Engineer (Mar 1982 - May 1985) for a nuclear power plant under construction. Responsible for the overall technical and administrative direction of the power-related engineering and design activities associated with the 1200 MW pressurized water reactor in the construction phase. Direction of ongoing efforts such as preparation of System Descriptions and the Final Safety Analysis Report.

Principal Nuclear Engineer (Feb 1981 - Apr 1982) for a nuclear power plant under construction. Responsible for nuclear-related engineering and design activities during the construction phase. Supervised the activities of Engineers responsible for the NSSS contract, nuclear systems, nuclear-related buildings, and major specifications.

Power Engineer, assigned to the Nuclear Engineering Group (Feb 1980 - Feb 1981) for a nuclear power plant under construction. Coordinated all activities for the fuel building and fuel handling systems, and for the auxiliary building and component cooling water system. Responsible for safety-related specifications for pumps, heat exchangers, and cranes.

Lead Licensing Engineer (Mar 1973 - Jan 1980). Responsible for project activities toward obtaining construction permits for three nuclear projects. Supervised the preparation of the Safety Analysis Reports and Environmental Reports. Responsible for evaluation of plant design to ensure compliance with NRC licensing requirements. Responsible for liaison with federal and state regulatory agencies.

EDS Nuclear, Inc.

Licensing and engineering consulting work for a number of nuclear utilities.

U.S. Naval Nuclear Power Program

Instructor at U.S. Naval Nuclear Power School in the areas of Reactor Physics, Heat Transfer, and Physics.

Education

1963 - 1967

The University of Michigan
Bachelor of Science (Mechanical Engineering)

Licenses

Registered Professional Engineer - California, Massachusetts, Connecticut

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STATE OF VERMONT
DEPARTMENT OF PUBLIC SERVICE

July 6, 2006

Administrative Judge
Alex S. Karlin, Chairman
Atomic Safety and Licensing Board Panel
Mail Stop T-3 F23
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Administrative Judge
Thomas S. Elleman
Atomic Safety and Licensing Board Panel
5207 Creedmoor Road, #101
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Administrative Judge
Dr. Richard E. Wardwell
Atomic Safety and Licensing Board Panel
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U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Entergy Nuclear Operations, Inc.
(Vermont Yankee Nuclear Power Station)
Docket No. 50-271-LR; ASLBP No. 06-849-03-LR

Dear Administrative Judges:

Please find enclosed for filing a Corrected Copy of the Vermont Department of Public Service Reply to Answers of Applicant and NRC Staff to Notice of Intention to Participate and Petition to Intervene. The original version was filed on June 30, 2006. That afternoon as we worked to file by close of business, the document we had been working on was somehow corrupted and could no longer be used. Symptoms included random freezing of the entire program, text disappearing unbidden, and material to be deleted being frozen into the document. The State's technical people are still trying to figure out what happened. That day we finally took an older version and manually inserted the changes as quickly as we could, and cut and pasted where we could.

After the filing was electronically mailed at about 6:40 PM on June 30, 2006, I took some time off. Upon my return it became obvious that unfortunately some mistakes were made in our haste to get the filing mailed that night. Accordingly, I am providing a "Corrected Copy Submitted on 7/6/06" correcting all the places the changes did not get

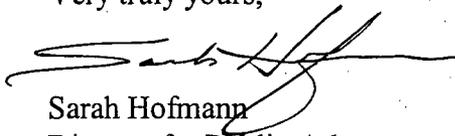
July 6, 2006

made in the document filed that were in the copy that originally had been prepared for filing but was horribly corrupted.

On the Corrected Copy I have included margin indicators of where changes were made. On the electronic copy, the changes also show in red. Although the changes occur only in the introduction material and the argument for contention 1, I have included the entire Reply so that parties can discard their earlier copy and rely on this Corrected Copy. With the hard copies mailed tomorrow, will be the exhibits and declaration of William Sherman as well, although no changes were made to these documents. They will be included for convenience.

I am sorry for any inconvenience this entire document corruption caused. I am available to answer any questions you might have about this process.

Very truly yours,



Sarah Hofmann
Director for Public Advocacy
Vermont Department of Public Service

cc: See Attached Certificate of Service

**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

**In Re: Entergy Nuclear Vermont Yankee)
 LLC and Entergy Nuclear)
 Operations, Inc.)
(Vermont Yankee Nuclear Power Station)**

**Docket No. 50-271
ASLBP No. 06-849-03-LR**

CORRECTED COPY SUBMITTED ON 7/6/06
**VERMONT DEPARTMENT OF PUBLIC SERVICE
REPLY TO ANSWERS OF APPLICANT AND NRC STAFF
TO NOTICE OF INTENTION TO PARTICIPATE
AND PETITION TO INTERVENE**

INTRODUCTION

Although Applicant and the Staff¹ point to NRC regulations that establish some criteria on the extent to which a State has rights to participate once a hearing has been established (see 10 CFR §2.315 (c)), they do not and cannot dispute the fact that 42 U.S.C. §2021(1) guarantees

¹ Pursuant to 10 CFR §2.309(h)(1) an Answer to a Petition to Intervene may only be filed by the “applicant/licensee, the NRC staff, and any other party to a proceeding” (emphasis added). On its face, §2.309(h) limits answers to parties by following the listing of the Applicant and the NRC staff by the language “and any other party” (emphasis added). Thus, as used in §2.309(h), the Staff and Applicant, are deemed to be parties and the Staff’s right to file an answer is dependent upon it having party status. In addition, the Commission has noted the Staff may not take a position on any issue in proceedings under Subpart L where the Staff is going to take action independent of the hearing process:

In no event, however, should the staff’s explanation set forth a position on, or otherwise assume an advocacy position with respect to the contested matter in the adjudication before the presiding officer.
69 Fed. Reg. 2182, 2228 (January 14, 2004) (Statement of Considerations).

By filing an Answer the Staff has elected to be a party. By taking a position on the merits of Contentions the Staff has determined it will not take action on the Proposed Amendment independent of the hearing process. We believe the Staff should be a party to this proceeding. Its decision to not act independently of the hearing process illustrates appropriate respect for the importance of the full exploration of the issues in a hearing, albeit a less full hearing than DPS believes is required.

every state that the NRC “shall afford reasonable opportunity for State representatives to offer evidence, interrogate witnesses, and advise the Commission as to the application” for any licensing amendment authorizing operation of a nuclear reactor whether or not a hearing is to be held. Nothing in §2.315 (c) purports to limit the rights created by the statute but merely specifies the procedures that apply to the participation of a state in a hearing that has been convened because other parties have admitted contentions. The legislative history of the statutory provision provides an equally clear and unlimited statement of the rights guaranteed:

Subsection l. provides appropriate recognition of the interest of the States in activities which are continued under Commission authority. Thus, the Commission is required to give prompt notice to the States of the filing of license applications and to afford reasonable opportunity for State representatives to offer evidence, interrogate witnesses, and advise the Commission as to the application.

Senate Report No. 870,1959 U.S. Code Congressional and Administrative News, p 2883.

The rights provided by 10 CFR §2.315 (c) are not exercisable until after the Board has determined if there are any admissible contentions further underscoring the fact that §2.315(c) is not intended to fully implement all the rights provided by 42 U.S.C. § 2021(l). Otherwise, the Regulation would read out of existence the plain language of the statute which does not condition the right of the state to participate with respect to a licensing amendment on whether the NRC has identified an admissible contention. In fact, since the Statute explicitly grants the right to present evidence and cross-examination without the State ever having to take a position on the merits, a reading of the Regulation to prohibit the State from participation unless there were an admissible contention would, in a case where no other entity sought to challenge the proposed amendment, effectively deny the State a right explicitly guaranteed by the Statute. We believe

the Board should not read the Commission Regulations to be in direct conflict with a statutory mandate where the language of the statute is susceptible to an interpretation which does not conflict with the statute. In this case, §2.315 (c) should be read only to prescribe certain procedures to be followed in a situation where an entity other than the State has presented a contention which has been found to be admissible and then only as to the particular hearing convened for the purpose of resolving that contention. The far reaching reading of §2.315 (c) urged by Applicant and the Staff would put it in direct conflict with the AEA. The Board should not assume that the Commission has chosen to ignore the precise language of a statutory provision, particularly where the Commission does not indicate that in adopting §2.315(c) it was intending to foreclose any other application of the state rights guaranteed by 42 U.S.C. § 2101(l).

The AEA requires a hearing whenever a proposed amendment presents a “significant hazard consideration”. 42 U.S.C. §2239. Because §2101(l) guarantees the State certain rights when there is a right to a hearing, it is important for the Board to determine whether the proposed amendment is one which requires a hearing in order to determine whether the rights guaranteed to the State under §2101(l) are applicable here. A critical factor used by the Courts in determining whether a significant hazard is present and whether a hearing is required is whether the proposed amendment provides the licensee with greater operating authority. *See In re Three Mile Island Alert, Inc.*, 771 F.2d 720 (3d Cir.1985) *TMI*), *cert. denied*, 475 U.S. 1082, 106 S.Ct. 1460, 89 L.Ed.2d 717 (1986)(where the Court distinguishes the case before it, where no hearing was required, because the licensee has given “no greater operating authority”(*id.* 771 F.2d at 729)) and *Kelley v. Selin*, 42 F.3d 1501 (6th Cir. 1995)(where the Court found no hearing was required because the actions proposed “do not grant Consumers the right to operate Palisades in

any greater capacity than the plant had previously been allowed to operate” (*id.* 42 F.3d at 1515)).

In this case Applicant seeks a substantial alteration in its operating authority - the right to operate the plant for an additional 20 years - and thus the proposed amendment meets the Court recognized standard for when a hearing must be held.

The Commission has codified the factors to be evaluated in determining whether a significant hazard consideration is present in 10 CFR §50.92 (c):

(c) The Commission may make a final determination, pursuant to the procedures in § 50.91, that a proposed amendment to an operating license for a facility licensed under § 50.21(b) or § 50.22 or for a testing facility involves no significant hazards consideration, if operation of the facility in accordance with the proposed amendment would not:

- (1) Involve a significant increase in the probability or consequences of an accident previously evaluated; or
- (2) Create the possibility of a new or different kind of accident from any accident previously evaluated; or
- (3) Involve a significant reduction in a margin of safety.

DPS has raised considerations involving at least two of these in its Contentions. First, the reduction of strength and modulus of concrete for primary containment concrete would create a significant potential hazard. Second, it may also involve a new or different kind of accident in that the NRC has never evaluated the consequences of the failure of primary containment concrete in the event of a major accident. The focus in determining whether a hearing must be held is not on whether the result of the hearing will be that no significant hazard was created but on whether a legitimate issue has been raised regarding the existence of a “significant hazard”.

In *San Luis Obispo Mothers for Peace v. NRC*, 799 F.2d 1268 (9th Cir. 1986) the Court held:

The regulations thus appropriately require a hearing before the proposed license amendment becomes effective whenever the amendment *creates the possibility* of a new or different kind of accident. Petitioners have identified such an accident and they

should have been granted a prior hearing.

Id. 799 at 1270 (emphasis in original).

Therefore, DPS, as the designated representative of the State of Vermont, is entitled to the hearing rights guaranteed to it under 42 U.S.C. § 2101(l). Nothing in the statute or in NRC regulations limits the right of DPS to present evidence and cross-examine witnesses where, as here, a hearing must be held. Thus, even if the Board were to determine that no admissible contention has been presented and that pursuant to Part 2 no Subpart L or Subpart G hearing is to be held or even that an admissible contention has been presented but only a Subpart L hearing will be conducted, the rights guaranteed to DPS under the statute are not diminished. Although DPS could exercise its rights without identifying the topics on which it seeks to present such evidence and interrogate witnesses, DPS has chosen to define the specific subjects of interest to it by filing contentions and seeking party status and admission of those contentions under §2.309. DPS has not waived its rights under 42 U.S.C. §2021(l) or 10 CFR §315(c).²

RELEVANT LEGAL STANDARDS

Applicant and NRC Staff devote several pages to the proposition that a contention must meet strict tests before it can be admitted. DPS acknowledges there are strict standards for admissibility of contentions. However, Applicant and NRC Staff go far beyond those standards in their Answers. Because their arguments are at odds with the plain language of the regulations, we believe a brief review of the relevant provisions is necessary.

The issue which the Board is asked to resolve at this stage, other than standing, which is

² The argument advanced here is virtually identical to one advanced by DPS in the Uprate proceeding. It is reiterated here to preserve the position stated there.

not an issue with respect to DPS, is whether one or more contentions offered by DPS are admissible. “[T]he Atomic Safety and Licensing Board designated to rule on the . . . petition for leave to intervene will grant the . . . petition if it determines that the . . . petitioner has standing . . . and has proposed at least one admissible contention that meets the requirements of paragraph (f) of this section.” 10 CFR §2.309 (a). Subparagraph (f) requires the contention be set forth with “particularity”, that it contain a “specific statement of the issue of law or fact to be raised or controverted” and that it be accompanied by a number of other items, including “a brief explanation of the basis for the contention * * * a concise statement of the alleged facts or expert opinions which support the . . . petitioner’s position on the issue * * * [and] sufficient information to show that a genuine dispute exists with the applicant . . . on a material issue of fact or law.” 10 CFR §2.309 (f)(1). Nothing in Part 2 provides any support for the arguments advanced by Applicant and NRC Staff that the Board is to address the merits of the contentions in deciding whether they are admissible.

At no point in the regulations is the petitioner required to plead the bases or the supporting evidence with specificity³ or to provide a listing of all the bases or supporting evidence upon which petitioner intends to rely in the hearing. In fact, by requiring only that the statement of bases be “brief” and the supporting evidence be “concise” the regulations clearly contemplate much more will be presented once the contention is admitted. The Commission has been clear that while a genuine dispute warranting a hearing must be shown, a petitioner does not have to prove its contention at the pleading stage. *In the Matter of Private Fuel Storage L.L.C.*,

³ Specific reference is to be made to the portions of the application which petitioner disputes. 10 CFR §2.309 (f)(1)(vi). As discussed below, DPS has done that.

(Independent Spent Fuel Storage Installation) NRC Docket No. 72-22-ISFSI CLO-04-22 at 8 (August 17, 2004), 2004 WL 2049726 (NRC). The issue now is whether the contention is admissible.

The Answers also treat each basis and each piece of supporting evidence offered as to each contention as a separate statement in support of the contention, arguing that because a particular basis or particular piece of evidence, standing alone, does not adequately support the contention, the contention should be rejected. The regulations contemplate exactly the opposite result. Contention admissibility is to be judged by the totality of factors listed in §2.309(f)(1). In addition, because it is the contention which is admitted, not the bases or the supporting evidence, it follows that once a contention is admitted, the contention may be supported by any evidence and bases⁴. Other parties are free to challenge those bases and evidence when offered under the rules applicable to the form of hearing granted, but not to seek or obtain a preliminary ruling at the contentions admissibility stage on the admissibility of any basis or supporting evidence with regard to an admitted contention.

Applicant and the Staff base many of their arguments on the assumption that the Board is to resolve disputes over the evidence in deciding whether to admit a contention. Such an approach

⁴ “There is no regulatory requirement that an intervenor supply all the bases known at the time he files a contention. What is required is the filing of bases that the intervenor intends to rely on.” The question in determining whether to admit a new basis for an already admitted contention is whether it is timely to consider the new basis, in light of its seriousness and of the timeliness with which it has been raised. “The more serious an issue, the more important it is for this Board to consider it. We can, indeed, always determine that a serious issue that falls within the scope of an admitted contention must be considered in order to assemble an adequate record.” *In the Matter of Georgia Power Company* (Vogtle Electric Generating Plant, Units 1 and 2), 40 N.R.C. 37 at 2, 1994 WL 612194 (NRC) (July 1994)

to admissibility of contentions is directly contrary to the language of the regulations and makes no sense. The regulations require that petitioner submit “sufficient information to show that a genuine dispute exists with the applicant . . . on a material issue of law or fact.” If the Board were required to resolve these disputes, there would be no need for the summary judgment procedures contained in Subparts G and L. In addition, since the contentions are presented before any discovery, even the mandatory discovery provided by 10 CFR §2.336, and the regulations require only a “brief explanation” of the bases and a “concise statement” of the supporting evidence, it would be unreasonable to expect petitioner to be in a position to present all the reasoning in support of each basis and all the evidence which demonstrates why a contention and its bases are factually correct.⁵ If such a requirement existed, the Board would end up holding an evidentiary hearing to determine whether it should hold an evidentiary hearing. Clearly the regulations do not require such an absurd result. The regulations contemplate something more in the nature of a proffer of evidence that, if proven correct, would support the contention and bases.⁶

⁵ At a minimum, if the contention admissibility stage of the proceeding were a summary judgment proceeding, the protections provided by the summary judgment procedures should be followed including that 1) evidence offered by way of affidavit would have to be countered by contrary affidavit evidence, 2) where additional discovery was needed to properly respond to the motion an opportunity for such discovery would be provided and 3) all inferences that can be drawn from the evidence would be in favor of the party opposing summary judgment. Since neither Applicant nor the Staff have countered the affidavit evidence offered by DPS, they can not possibly prevail under a summary judgment standard.

⁶The Staff cites to the Yankee Rowe case for the proposition that the Board is required to determine whose view of the facts is correct in passing on the admissibility of contentions. The case does not support such an extreme view as evidenced by the quoted language in the Staff's brief. All the Board in that case is recognizing is that in evaluating whether the particular evidence upon which petitioner relies actually supports the proposition for which it is cited the Board should look at the entire document. That is much different than the proposition offered by the Staff which is that the Board should not only look at the document relied upon by petitioner but on any other documents which, according to the Staff, would support the opposite conclusion

The Answers submitted by Applicant and the Staff, to the extent they argue, by reference to other documents and other evidence, that DPS is in error in its factual assertions, actually demonstrate that the contention to which those facts are relevant is a contention as to which a genuine dispute as to material facts exists and thus the contention is admissible. The regulations would not have focused on the existence of a dispute as the basis for admissibility of a contention if it were the Board's task to resolve that dispute in deciding whether to admit a contention⁷.

ARGUMENT

A. CONTENTIONS

Applicant and Staff give short shrift to the proper legal standard to apply in deciding whether to grant the admission of a contention, but then totally ignore that legal standard in their argument. We agree that "bald or conclusory allegations that . . . a dispute exists" are unacceptable and that the burden on the proponent of the contention is to "make a minimal

from the one advanced by DPS.

⁷The ASLB has found that although an applicant put forth "extensive arguments that really go to the merits" of an issue which was the focus of a contention, that even though some of those arguments may prove to be meritorious, they are not grounds for rejecting those portions of a contention that the ASLB find to be admissible. The ASLB went on to find that despite Applicant's and the NRC Staff's claims to the contrary, Intervenor did support three parts of its contention with "expert opinion, documentary material, and with a reasonably specific explanation and fact-based argument sufficient to meet the requirements of the contention admissibility requirements in this regard." Additionally, the ASLB found that the parties differing on the meaning and import of various facts, statements from documents, and other evidence within the basis for the contention illustrated a "genuine dispute" rather than negating it, or any other requirement for an admissible contention. *In the Matter of Duke Energy Corporation*, (Catawba Nuclear Station, Units 1 and 2), Docket No's. 50-413-OLA, 50-414-OLA, ASLBP NO. 03-815-03-OLA, LBP-04-10 at 42 (April 2004), 2004 WL 1398219 (NRC).

showing that material facts are in dispute” . We also agree that a contention should be rejected if there are “no facts to support [our] position and [if we] contemplate using discovery or cross-examination as a fishing expedition”. 54 Fed. Reg. at 33,171. No fair reading of the DPS contentions could possibly conclude that DPS failed to meet these standards or that DPS intends to use discovery or cross-examination to aimlessly look for evidence to support its contentions. The documents submitted in support of the contentions⁸ and pages of meticulous discussion of the meaning of those documents, supported by and supplemented with the opinion of a highly qualified technical expert, belie any suggestion that DPS has made bald or conclusory assertions or that there are no facts which support its position. Between them Applicant and NRC Staff use dozens of pages just to attempt to demonstrate that the many bases and substantial supporting evidence offered by DPS are wrong but, significantly, they never charge that DPS failed to offer bases and evidence in support of its contentions, only that they disagree with the bases and the evidence.

⁸ Although Applicant and the Staff make reference in their Answers to numerous documents, no documents are appended to their pleading and there is not even an affidavit attesting to the accuracy of the statements made about the documents. Neither DPS nor the Board has any basis on this record to test the accuracy of the assertions made or to scrutinize the document “both for what it does and does not show.” *Yankee Atomic Elec. Co.* (Yankee Nuclear Power Station), LPB-96-2, 43 NRC 61, 90 *rev'd in part on other grounds*, CLI-96-7, 43 NRC 235 (1996). Opponents of intervention and contentions also have obligations that they must strictly meet and suffer the consequences of their failure to strictly comply with those obligations. Thus, DPS will oppose any attempt to amend the Answers or to introduce documents at the hearing on the admissibility of contentions. Nor is it relevant that some or even all of the documents may be publicly available. It is not appropriate to impose upon DPS or the Board the obligation of rounding up all the cited documents.

First Contention (Safety)

The Application must be denied because the Applicant has failed to provide the necessary information with regard to age management of primary containment concrete in accordance with 10 C.F.R. §54.21 such that the Commission cannot find that 10 C.F.R. §54.29(a) is met.

Contention 1 identifies that the Applicant attempts to take credit in License Renewal Application (LRA) Section 3.5.2.2.1.3 for an exclusion from age management of the reduction of strength and modulus of concrete for primary containment concrete based on the general area of concrete not exceeding 150°F. Yet at page 5.2-8 of the updated final safety analysis report section (UFSAR), Application states the temperature in the normal ambient temperature in the drywell is about 135°F to 165°F. The Contention highlights this discrepancy, stating that the general area of the face of the concrete will be greater than 150°F when drywell temperature is at 165°F. Either Applicant must show the face of the general area of concrete is less than 150°F to invoke the exclusion, or must provide an age management program for reduction of strength and modulus of concrete for primary containment concrete. As a result of this discrepancy, NRC cannot make the finding required by 10 C.F.R. §54.29(a).

Both the Staff and the Applicant claim Contention 1 is inadmissible because it is vague and unsupported (Applicant Answer at 11) or speculative and conclusory (Staff Answer at 11), lacking an adequate basis, and that therefore it fails to demonstrate the existence of a genuine dispute concerning a material issue. *Id.*

1. Contention 1 is stated with particularity and specificity

Applicant claims, in its Answer at 12, that Contention 1 lacks particularity and specificity. However, that is not the case. A contention is understood and its reach hinges upon its terms

coupled with its stated bases. The bases clearly states:

[T]he Applicant improperly excludes the attribute of *reduction of strength and modulus of the primary containment structure due to elevated temperature*. The Applicant claims this attribute is not an aging effect requiring management. However, the primary containment normal operating temperature limit is above the limit for excluding this attribute from consideration.

DPS Petition at 10. The aging effect at issue (see Applicant Answer at 12) is the attribute of *reduction of strength and modulus of the primary containment structure due to elevated temperature*. The aspect of the aging management program being challenged (*id.*) is the lack of an aging management program for the attribute of *reduction of strength and modulus of the primary containment structure due to elevated temperature*. The necessary information that is lacking (*id.*) is information to resolve the inconsistency regarding the containment normal temperature limit above the limit for excluding the attribute from aging management consideration. Applicant is not correct in this claim.

2. Use of a temperature of 165°F next to the steel wall of the drywell is not incorrect for determining the primary containment temperature of a significant general area of concrete outside the steel drywell.

The crux of Contention 1 is that the UFSAR Section 5.2.3.2 states that the temperature in the drywell is about 135°F to 165°F, and that using the higher temperature, 165°F, results in general area temperatures for concrete of greater than 150°F. The Applicant identifies a statement from UFSAR Section 5.2.3.7 that states that the drywell is cooled by four cooling units, which maintain an average temperature of 150°F, with a maximum of 135°F in vicinity of the recirculating pump motors. *Id.* at 13. The Applicant then incorrectly states, “DPS’ reference to the UFSAR is selective and ignores the statements indicating that the general temperature in the drywell is 150°F, consistent with the section of the ASME Code discussed in the Application.” *Id.*

The Applicant is incorrect for the following reasons. Contention 1 refers to the concrete outside the steel drywell⁹. If the area near the vicinity of the recirculating pump motors is maintained with a maximum of 135°F, the average is 150°F, and the peak is as high as 165°F, it follows that some portion of the area away from the recirculating pump motors is at 165°F. Since the recirculating pump motors are toward the inside of the drywell near the reactor, the area away from recirculating pump motors are the outer walls of the drywell. It is the temperature on the outer walls that controls the heat transfer and gradient through the walls to the concrete outside the steel drywell.

Further regarding the use of 165 °F for a general area temperature for concrete surface temperature determination, we are providing a portion of *Vermont Yankee Summary Report of Plant Environmental Conditions for Environmental Qualification Program*, Rev. 0, March 19, 1984, as Vermont Reply Exhibit 2. This includes page 4, "Normal Operating Plant Environments," which includes drywell operating temperatures. This information was developed from actual thermocouple readings¹⁰. This information shows that, for the general area from El. 270 ft to El. 315 ft, an average temperature of 185 °F should be used.. This is an average temperature applicable for use for the general area, as opposed to the peak temperature, listed as

⁹ See NRC Staff Answer at 10-11 which correctly states that the scope of this contention is limited to the strength and modulus of the primary containment structure, and refers to the concrete outside the steel drywell.

¹⁰ While this information is likely not current, at least it is representative of the thermal operation of the drywell that affected drywell concrete properties during a period of operation in 1980's. It is the temperature history that is relevant in the consideration of the attribute of *reduction of strength and modulus of the primary containment structure due to elevated temperature*. Therefore, this data from 1984 is specifically relevant. In addition, the temperature measurements were made when VY's maximum operation was 100% of thermal power. It now is allowed to operate at 120% of thermal power.

195 °F., which would be applicable for local area usage. This information from Vermont Reply Exhibit 2 demonstrates it is not incorrect to use 165 °F for the temperature next to the steel wall inside the drywell for determining the general area temperature for primary containment concrete outside the steel drywell between El. 270 ft. and El. 315 ft¹¹.

3. The expert statements of Mr. Sherman regarding concrete temperature are reliable

Both NRC Staff (Answer at 11-12) and Applicant (Answer at 13-14) claim that Mr. Sherman's statement, Declaration for Petition at ¶8, ("the concrete surface behind the steel shell will closely match the drywell ambient temperature,") is not sufficient basis within NRC rules and precedents to demonstrate the existence of a genuine dispute on a material issue of law or fact. That assertion from Applicant and NRC Staff is not supported by any expert affidavit and is itself a "conclusory and speculative assertion." Examination of Mr. Sherman's resume shows he is a registered professional engineer. His area of professional expertise is mechanical engineering, and heat transfer is a direct component of professional mechanical engineer expertise. Given a heat transfer scenario with an inside temperature of 165 °F, a 2.5-inch steel plate, a 2-inch sand gap, a six foot concrete wall, and an outside temperature of 100 °F, it is a reasonable conclusion, from a qualified expert that "the concrete surface behind the steel shell will closely match the drywell ambient temperature."

It is telling that neither Applicant nor NRC Staff have offered an expert opinion to refute the conclusion presented by Mr. Sherman. This is particularly significant because the calculation

¹¹The Applicant's statement in its Answer at 13 accusing DPS of selectively using statements and ignoring others is disturbing. We have shown that the accusation is wrong, and Entergy should have known that it was wrong. We note that none of the Applicant's factual assertions are supported by an affidavit of a credible expert.

required is basic heat transfer science and easily done. As the calculation described below demonstrates, the likely reason neither Applicant nor NRC Staff did a calculation is that their experts told them what Mr. Sherman had already concluded - 2.5-inches of steel and a 2-inch sand gap would not be sufficient to reduce 165 °F to 150 °F at the concrete wall.

Mr. Sherman's statement is correct and a sufficient basis to demonstrate the existence of a genuine dispute on a material issue of law or fact, and so it should be considered. Provision of actual heat transfer calculations are a level of detail that should be reserved for the evidence of the hearing and not an initial petition. Nevertheless, Mr. Sherman has prepared a calculation to demonstrate the accuracy of his statement at ¶8 of his Declaration for Petition.

The sample heat transfer calculation is for a representative cross section at El. 280 ft through the drywell to assess the temperature on the face of the concrete outside the steel drywell. *Marks' Standard Handbook for Mechanical Engineers*, Eighth Edition, 1978, McGraw Hill, pp. 4-59 to 4-70 (Transmission of Heat by Conduction and Convection) is used for the calculation. Data for the calculation was taken from Entergy's *License Renewal Application, Amendment No. 2*, dated May 15, 2006 (Vermont Reply Exhibit 1). This submittal identifies that, above the transition zone from spherical to cylindrical portions, the drywell is separated from reinforced concrete by a two-inch gap. The gap below this transition is filled with sand. In addition, the Amendment refers to the nominal plate thickness of the drywell as 2.5 inches.

The calculation assumes a steel plate of 2.5 inches, a sand-filled gap of 2 inches, and a concrete thickness of 6 feet, with drywell temperature at 165°F, the maximum value from UFSAR Section 5.2.3.2, and a reactor building temperature of 100°F. It was assumed that the drywell (near the drywell shell) and the reactor building were at their respective temperatures long enough

such that the steel surface inside the drywell and the concrete surface temperature in the reactor building were at these respective temperatures. The following thermal conductivities, in units of $\text{btu/hr/ft}^2\text{/}^\circ\text{F/ft}$, were taken from the *Marks Handbook*: steel plate - 26.2, dry sand - 0.188, concrete - 1.05.

At equilibrium, the results of this temperature gradient are:

Temperature at steel surface in the drywell - 165°F

Temperature at the steel/sand interface - 164.9°F

Temperature at the inside concrete face - 156.2°F

In this calculation, approximately 8 inches of thickness of the concrete remains over 150°F. This calculation confirms Mr. Sherman's statement that "the concrete surface behind the steel shell will closely match the drywell ambient temperature."

The foregoing has demonstrated that Vermont Contention 1 has an adequate and sufficient basis, and a genuine dispute exists concerning a material issue. Contention 1 should be admitted.

Second Contention (Environmental)

The Application must be denied because Applicant has failed to comply with the requirements of 10 CFR §51.53(c)(3)(iv) by failing to include new and significant information regarding the substantial likelihood that spent fuel will have to be stored at the Vermont Yankee site longer than evaluated in the GEIS and perhaps indefinitely and thus has failed to provide the necessary environmental information with regard to onsite land use in accordance with 10 C.F.R. §54.23 such that the Commission cannot find that the applicable requirements of Subpart A of 10 C.F.R. Part 50 have been satisfied (10 C.F.R. §54.29(b)).

INTRODUCTION

The central thesis of the arguments advanced by NRC Staff and Entergy in opposition to DPS Contention 2 is that the Commission has, contrary to all reason and in contravention of well-established legal principles, declared that no intervenor may ever present for consideration by an ASLB the issue of whether “new and significant information not considered in the GEIS analysis” exists thus warranting further analysis of those issues.¹² DPS rejects this ungenerous view of the Commission’s intent in adopting the GEIS and, as the following analysis amply demonstrates, the Commission also rejects such a rigid and unreasoned position.

The error in the arguments advanced by NRC Staff and Entergy begins with their misinterpretation of DPS Contention 2 which reads as follows:

The Application must be denied because Applicant has failed to comply with the requirements of 10 CFR §51.53(c)(3)(iv) by failing to include new and significant information regarding the substantial likelihood that spent fuel will have to be

¹² NRC Staff takes the wholly indefensible position that “[e]ven if there was [sic] new and significant information regarding the long-term storage of high-level waste beyond the period of license renewal, it would not need to be included in the GEIS, or any supplement thereto, as it is beyond [sic] scope.” Staff Ans. at 17. Thus, NRC Staff urges the Board to adopt the absurd view that evidence, no matter how compelling, that the GEIS is incorrect should be ignored because the GEIS is, by rule, declared to be correct. Clearly, the Commission intends no such result. See 61 FR at 28471

stored at the Vermont Yankee site longer than evaluated in the GEIS and perhaps indefinitely and thus has failed to provide the necessary environmental information with regard to onsite land use in accordance with 10 C.F.R. §54.23 such that the Commission cannot find that the applicable requirements of Subpart A of 10 C.F.R. Part 50 have been satisfied (10 C.F.R. §54.29(b))

First, the focus of the contention, as it must be at this stage, is the failure of the Applicant to provide certain information required to be provided.¹³ Second, there is no dispute that Applicant has failed to provide that information. There is no discussion in the Application of the use of the site for spent fuel storage for an indefinite period beyond the license renewal date of 2032, much less the environmental impacts of such use. Third, the real issue at this stage of the proceeding is whether Applicant is legally required to provide such new and significant information regarding on-site land use. Fourth, the focus of the contention is the additional spent fuel that will be

¹³ As noted in the Petition, failures by NRC Staff cannot be the subject of a contention at this time because NRC Staff has yet to publish a draft, much less, a final impact statement. Contrary to the assertion by Entergy, NRC Staff failures to comply with NEPA obligations can be the basis for a license denial since it is the major federal action by the NRC, whether to approve or disapprove the proposed license extension, to which NEPA is directed and it is the NRC Staff that has been delegated the responsibility to engage in the necessary review and analysis to demonstrate compliance with NEPA. Unlike the AEA, NEPA does not impose substantive requirements but rather process requirements on the NRC. NRC is required to engage in a certain process which includes consideration of relevant evidence and fully addressing that evidence in reaching conclusions. Ultimately it is the Board which decides whether the NEPA process has been fulfilled. Ignoring new and significant evidence that may alter prior conclusions on potential environmental impacts is the kind of procedural error which NEPA prohibits. If NRC ignores new and significant information, as Applicant and NRC Staff urge be done, NEPA compliance will be insufficient and the major federal action NRC is about to take in deciding whether to grant a 20 year license extension will be null and void. Thus, NRC compliance with NEPA is necessarily an issue before this Board. When, as here, Applicant fails to meet its obligations to provide information required by NRC Regulations, it is the regulations, not NEPA, that form the basis for the license denial. *See* 10 CFR §2.309)f(vi) (“if the petitioner believes that the application fails to contain information on a relevant matter as required by law, the identification of each failure and the supporting reasons for the petitioner’s belief”). Contention 2 clearly meets this contention filing requirement.

generated after 2012 if VY is given a license extension. As the initial Petition demonstrates, it is the added burden that will be placed on the reasonably anticipated off-site waste disposal options, which options are insufficient to handle the post-2012 spent fuel, that will create the indefinite storage of spent fuel at the VY site.

Both Applicant and NRC Staff assume, erroneously, that this contention is about waste confidence. It is not. The waste confidence proceeding does not directly address the issue of the environmental impact on land use and state resources of the indefinite storage of spent fuel at the site of a nuclear reactor after the time when the reactor is no longer operating. Rather, it focuses on the radiological and other risk impacts on the environment. Moreover, the GEIS for license extensions also does not address this issue. Thus, it is irrelevant that 20 years ago the Commission decided that, based on the information then available to it, there was reasonable assurance that radiation and other risks would not endanger public health and safety or the environment and that there would be a place to store the spent fuel after each nuclear power plant had closed.

In addition, even if the issue of indefinite spent fuel storage after plant shut down were addressed years ago, the issue raised by Contention 2 is the failure of the Applicant to provide new and significant information regarding the likelihood that it will need to use the VY site for spent fuel storage for much longer than previously assumed and to evaluate the environmental impact of such longer use. For the sake of argument, we assume the Commission had a substantial evidentiary basis in 1984 and 1990 to conclude that spent fuel could be stored safely at or away from the reactor site for 30 years after the license, including any extended license, had expired. We also assume a substantial evidentiary basis existed in 1990 to conclude that "at least

one mined geologic repository will be available within the first quarter of the twenty-first century, and sufficient repository capacity will be available within 30 years beyond the licensed life for operation of any reactor to dispose of the commercial high-level waste and spent fuel originating in such reactor and generated up to that time.” However, nowhere in the waste confidence finding does the Commission discuss or purport to discuss the separate question of the environmental impact of the indefinite use of the reactor site for spent fuel storage.¹⁴

As noted in Contention 2, it is that continued site use that raises environmental concerns, a concern that transcends the current assumptions regarding the separate issue of whether extended on-site storage of spent fuel will be safe or available. There is substantial new and significant information that has emerged on these issues that is not discussed in the GEIS.

In its wisdom, the Commission has provided several mechanisms by which such new and significant information can be brought to its attention. One mechanism by which the Commission sought to be assured that it was aware of any new and significant information was to impose on the Applicant the obligation to report to it, in the Environmental Report, any new or significant information regarding potential environmental impacts not previously evaluated. 10 CFR §51.53(c)(3)(iv). Because the Applicant has failed to meet this obligation, one remedy allowed by the rules is for a prospective intervenor to challenge the failure of an applicant to, on its own, provide the new and significant information in its application. 10 CFR §2.309(f)(vi). DPS

¹⁴ Significantly, when the Commission discusses the environmental impact of extended storage of spent fuel it is in the context of the risk to the environment - i.e. the radiological and other consequences of long term storage - not the land use questions. That analysis underlies the conclusions stated in 10 CFR §51.23 that there is no significant environmental impact associated with storage of spent fuel at the reactor site for 30 years after reactor shutdown, a conclusion which does not address either land use or indefinite spent fuel storage.

Contention 2 is based on the failure of Entergy to make the required disclosures.

There is a dispute, one worthy of consideration by the Board, as to whether the information is in fact “new and significant” within the meaning of the supplementation rules. Resolution of that issue with a finding that the information is “new and significant” may then warrant further proceedings either by the Board or the Commission to integrate that new and significant information into the environmental analysis of the proposed extension. Until that integration has occurred and the impacts of indefinite storage of spent fuel at VY have been quantified, it will not be possible to complete the environmental review for the VY extension and to reach a final decision on the proposed action.

ARGUMENT

A. ENTERGY HAS A DUTY TO IDENTIFY NEW AND SIGNIFICANT INFORMATION

The critical regulatory standard at issue is 10 CFR §51.53(c)(3)(iv) which provides in pertinent part:

The environmental report must contain any new and significant information regarding the environmental impacts of license renewal of which the applicant is aware.

Entergy is aware of new and significant information regarding the environmental impact of land use from spent fuel storage and is aware that it may have to keep such spent fuel on site for a much longer time than assumed in the GEIS. In *Entergy Nuclear Generating Co. v. U.S.*, 64 Fed.Cl. 336 (2005) Entergy successfully sued the United States on the theory that DOE had breached a contractual duty to take possession of, and title to, spent nuclear fuel (SNF) within 63 months after a utility submitted a delivery commitment schedule (DCS) with regard to such SNF.

In that suit, and at the urging of Entergy, the Court of Claims, in reliance on the stipulation of the parties and otherwise undisputed facts reached the following conclusion:

This aborted effort in 2004 to reinstitute the DCS process signals that no disposal of SNF will occur during 2010, taking into account the 63-month period between designation and collection, and moreover that disposal may not occur within any foreseeable time in the future. No repository is available.

Id. 64 Fed.Cl. at 340 (citation omitted)(the chaotic nature of the entire spent fuel storage management scheme is detailed in the Court's opinion at footnotes 3 and 4). Entergy was fully capable of setting forth these new and significant facts, plus we suspect much more information not readily available from the printed case, in order to meet its obligations under 10 CFR §51.53(c)(3)(iv) but failed to do so, thus depriving the NRC, potential intervenors, and this Board of the truth about the uncertainty in how Entergy will manage the spent fuel it proposes to generate over the extended 20 years of operation of VY.

Once before VY ignored the risk that it might produce nuclear waste for which no disposal remedy existed and now finds itself left holding that spent fuel indefinitely without a viable solution in sight. *See Vermont Yankee Nuclear Power Corp. v. Natural Resources Defense Council*, 435 U.S. 519 (1978). It is imprudent for VY to fail to heed the lesson it should have learned from its prior decision to proceed to produce nuclear waste when no waste disposal solution was available and fail to disclose in its ER that once again it proposes to generate years of nuclear waste without any assurance that when the time comes it will have any place to keep that waste except at the plant site. This Board has the right to consider the potential impact, on the 125 acres of land owned by VY and the thousands of acres of nearby land, of indefinite storage of spent nuclear fuel at VY.

Neither NRC Staff nor Applicant deny the profound potential impacts on local land use and Vermont State resources that can occur if spent fuel remains at the site indefinitely following closure of the reactor. Nor do they challenge the fact that at present there is substantial information that storage of spent fuel at VY may well extend beyond any date assumed in the GEIS. Nor do they challenge the fact that based on the currently available information there is no reliable basis to conclude that the additional fuel to be generated by extended operation will be able to be stored off-site at any time in the foreseeable future. Even the Commission concedes that there is no basis to assume that sufficient storage will be available for all the fuel to be generated if all plants obtain license extensions. *See* GEIS §6.4.6.2.

Rather, NRC Staff and Applicant seek to obfuscate the real issue by citing to the Commission's decision, codified in 10 CFR §51.23, that the Commission is confident that within 30 years after the shutdown of all nuclear plants a waste disposal solution will be found that can safely store nuclear wastes and that in the interim the risks to human health and the environment from extended storage of nuclear fuel at nuclear reactor sites will be acceptable.

To fully understand what the Commission did and did not do in adopting 10 CFR §51.23 it is necessary to examine the statement of considerations published by it and in particular its discussion of the issue of non-radiological impacts of extended spent fuel storage at the reactor site. In the extended discussion of comments relating to the non-radiological impacts of spent fuel storage at the reactor site, the Commission wrote:

B. Non-Radiological Consequences of Spent Fuel Storage

The Commission's fourth finding rested in part on the Commission's determination that there are no significant non-radiological consequences due to the extended storage of spent fuel which could adversely affect the environment. The public was invited to comment also on this finding and to provide a detailed discussion of

any such environmental impacts. Mr. Marvin Lewis asserted that the continuous storage of spent fuel under water for 30 years or more requires unprecedented institutional guarantees. He also noted that there had been no consideration of financial, economic and security implications of storage for 30 or more years. Mr. Lewis did not expand upon these assertions to explain how they would result in significant non-radiological environmental consequences. In any event, the more than twenty years of experience with storing spent fuel demonstrates that storage of spent fuel for 30 years or more does not require unprecedented institutional guarantees or raise unique questions regarding finances, economics or the security of extended spent fuel storage. Further, the Commission will require all reactor licensees, 5 years before expiration of their operating license to provide a plan for managing the spent fuel prior to disposal. Moreover, the record documents referred to by UNWGMG-EEI, DOE and AIF show that there are no significant non-radiological environmental impacts associated with the extended storage of spent fuels. The amount of heat given off by spent fuel decreases with time as the fuel ages and decays radioactively. No additional land needs to be devoted to storage facilities because reactor sites have adequate space for additional spent fuel pools or dry storage installations. The additional energy and water needed to maintain spent fuel storage is also environmentally insignificant. No commentor has challenged these assessments of environmental impacts and the Commission has no reason to question their validity. Under these circumstances, the Commission has no reason to reassess its prior determination that extended storage of spent fuel will present no significant non-radiological consequences which could adversely affect the environment.

49 FR 34658, 34665. Thus, there was no consideration of the type of land use impacts that DPS addresses in Contention 2. Those land use impacts are inherently site specific and need to be considered in the context of this site.

But, NRC Staff and Applicant assert, the NRC has already addressed the land use impacts and found them subject to resolution generically and too small to be worthy of further analysis. However, an exploration of the Statement of Considerations for 10 CFR §51.53 reveals that NRC did not address the site specific concerns raised here by DPS since it merely relied on the previous waste confidence findings.

Response. As stated at 61 FR 28477, the Commission acknowledges that there is uncertainty in the schedule of availability of disposal facilities for LLW

and HLW. The Commission understands the continuing concern of the States and of the public over the prospects for timely development of waste disposal facilities. The uncertainty in the schedule of availability of disposal facilities is especially of concern because of the waste currently being generated during the initial licensing term of power reactors. The Commission, however, continues to believe that there is sufficient understanding of and experience with the storage of LLW and HLW to conclude that the waste generated at any plant as a result of license renewal can be stored safely and without significant environmental impacts prior to permanent disposal. The Commission believes that conditioning individual license renewal decisions on resolution of radioactive waste disposal issues is not warranted because the Commission has already made a generic determination, codified in 10 CFR 51.23, that spent fuel generated at any reactor can be stored safely and without significant environmental impacts for at least 30 years beyond a license renewal term and that there will be a repository available within the first quarter of the twenty-first century. The waste confidence decision is discussed in Chapter 6 of NUREG-1437, "Generic Environmental Impact Statement for License Renewal for Nuclear Plants," May 1996. The Commission similarly believes that enough is known regarding the effects of permanent disposal to reach the generic conclusion in the rule. The rule is not based on the assumption that Yucca Mountain will be licensed. Also from a regulatory policy perspective, the Commission disagrees with the view of one state that each renewal applicant should come forward with an analysis of the HLW storage and disposal environmental effects. This is a national problem of essentially the same degree of complexity and uncertainty for every renewal application and it would not be useful to have a repetitive reconsideration of the matter.

The Commission further believes that the provisions in the present rule and elsewhere in the Commission's regulations adequately provide for the introduction and consideration of new significant information in license renewal reviews, and that the 10 year review cycle for the rule and the GEIS adequately provides for Commission reassessment of the status of LLW and HLW disposal programs. The Commission recognizes that the possibility of significant unexpected events remains open. Consequently, the Commission will review its conclusions on these waste findings should significant and pertinent unexpected events occur (see also, 49 FR 34658 (August 31, 1984)). In view of the Commission's favorable conclusions regarding prospects for safe and environmentally acceptable waste disposal, it sees no need for conditioning licenses as recommended. The Category 1 designations for these three issues [low-level waste storage and disposal, offsite radiological impacts (spent fuel and high-level waste disposal), and on-site spent fuel] in the final rule has not been changed in response to these comments.

61 FR 66537, 66538 (emphasis added). Thus, it can be seen that the focus of the Commission analysis was on the generic issue of whether plants should be licensed at all in the face of waste

disposal uncertainty, on the generic issue of the potential radiological and other risk and their impact on the environment from storage of spent fuel at the reactor site and not the site specific question of whether indefinite storage of spent fuel at the reactor site would cause a significant environmental impact on land use at that site.

This analysis of the reach and intent of 10 CFR §51.23 is confirmed by an analysis of the GEIS, which is the place where the Commission sought to address the conventional environmental impacts of license extensions, as opposed to radiological and other risks. The GEIS assigns a Category 1, i.e. not requiring individual analysis, to the on-site storage of the additional spent fuel generated by an extended license. 10 CFR Part 51, Subpart A, Appendix B. But the statement of considerations makes clear that this classification is not intended to address the site specific issue raised by DPS Contention 2:

Thus, continued storage of spent fuel on site may be an issue for some utilities regardless of their license renewal plans. GEIS, §6.4.6.1

Under the Waste Confidence Rule, NRC has determined that spent fuel can be stored on-site for at least 30 years beyond the licensed (and license renewal) operating life of nuclear power plants safely and with minimal environmental impact (54 FR 39765; 55 FR 38472). This decision does not address the environmental impacts of storage during the additional 20 years of operation after license renewal. The additional spent fuel generated during this 20-year period poses three potential issues.

First, under the Nuclear Waste Policy Act of 1982 (NWPA) as amended, DOE is authorized to dispose of up to 70,000 metric tonnes of heavy metal (MTHM) in the first repository before granting a construction authorization for a second. Under existing licenses, projected spent-fuel generation could exceed 70,000 MTHM as early as the year 2010. Possible extensions or renewals of operating licenses also need to be considered in assessing the need for and scheduling the second repository. It now appears that unless Congress lifts the capacity limit on the first repository--and unless this repository has the physical capacity to dispose of all spent fuel generated under both the original and extended or renewed licenses--it

will be necessary to have at least one additional repository. Assuming that the first repository is available by 2025 and has a capacity on the order of 70,000 MTHM, additional disposal capacity would probably not be needed before about the year 2040 to avoid storing spent fuel at a reactor for more than 30 years after expiration of reactor operating licenses. GEIS, §6.4.6.2

The Commission's waste confidence finding at 10 CFR 51.23 leaves only the on-site storage of spent fuel during the term of plant operation as a high-level-waste storage and disposal issue at the time of license renewal. The Commission's regulatory requirements and the experience with on-site storage of spent fuel in fuel pools and dry storage has been reviewed. Within the context of a license renewal review and determination, the Commission finds that there is ample basis to conclude that continued storage of existing spent fuel and storage of spent fuel generated during the license renewal period can be accomplished safely and without significant environmental impacts. Radiological impacts will be well within regulatory limits; thus radiological impacts of on-site storage meet the standard for a conclusion of small impact. The nonradiological environmental impacts have been shown to be not significant; thus they are classified as small. The overall conclusion for on-site storage of spent fuel during the term of a renewed license is that the environmental impacts will be small for each plant. The need for the consideration of mitigation alternatives within the context of renewal of a power reactor license has been considered, and the Commission concludes that its regulatory requirements already in place provide adequate mitigation incentives for on-site storage of spent fuel. On-site storage of spent fuel during the term of a renewed operating license is a Category 1 issue. GEIS §6.4.6.7 (Emphasis added)

In reviewing the entire portion of the GEIS addressing the spent fuel storage at the site following reactor shut down, there is no discussion of the issue of indefinite impacts on local land use and no discussion of the special nature of the land in the vicinity of any plant, much less VY. The entire discussion uses the concept of minimal environmental impact to refer to impacts on the environment from radiological and non-radiological risks from extended spent fuel storage.

In addition the S-3 Table, which is a major underpinning of the GEIS analysis, assumes that the reactor site will be safe and usable shortly after the plant has been decommissioned. See 61 FR 28467, 28479 ("Table S-3 does not take into account long-term onsite storage of LLW, mixed waste, and storage of spent fuel assemblies onsite for longer than 10 years, nor does it take

into account impacts from mixed waste disposal. The environmental impacts of these aspects of onsite storage are also addressed in Chapter 6 of the final GEIS and the findings are included in the final rule in Table B-1 of appendix B to 10 CFR part 51.”).

DPS does not contest in this proceeding that the storage of the spent fuel at VY for an indefinite period beyond the date the reactor is shut down may be safe. But, the adjacent land and the VY land itself will not be able to be developed and used in the same manner as if the spent fuel had been removed from the site. It is that impact which has not been considered in S-3, the GEIS or anywhere else and it is that issue which needs to be addressed in this proceeding in order to fully characterize the potential environmental impact of the proposed license extension. The Applicant’s failure to disclose information of which it was aware that bears on the issue on the duration of land use for spent fuel storage is a legitimate contention which may well lead to additional contentions once the draft and final EIS are presented by the Staff.

Because the challenge to Contention 2 by Applicant includes an attack on the merits of the statement that new and significant information exists, an attack which concedes this is an issue on which there is a material dispute of fact, we devote a few paragraphs to rebutting Applicant’s unsupported assertions. We do not waive the basic argument that these factual disputes should be resolved in the hearing, not in the intervention process.

Applicant claims that the new and significant information identified by DPS was previously considered in the GEIS and is also not significant. Applicant Answer at 19-23. Applicant’s claims are not correct.

While individual statements, quoted by the Applicant, were made in the Waste Confidence Decision about unexpected results at Yucca mountain, the possible need for a second repository,

and a possible reconsideration of reprocessing, it is the sum and combination of each of these occurring together which constitutes new and significant information. Also, Applicant ignores its own new and significant information regarding the unlikelihood that title to any spent fuel will be transferred from Applicant to the government and thus the unlikelihood that any of the spent fuel generated after 2012 will be transferred off-site in the foreseeable future. *See Entergy Nuclear Generating Co. v. U.S.*

There is no question that the discovery of groundwater at disposal levels at Yucca Mountain has created a complete paradigm shift. A primary reason Yucca Mountain was chosen was because it contained a unique geological formation that was thought to prevent groundwater intrusion. The fact that groundwater has been recently discovered and the paradigm for design has shifted is seen in the U.S Nuclear Waste Technical Review Board's (NWTRB's) *Report to the U.S. Congress and Secretary of Energy*, January 1, 2005 to February 28, 2006 ("NWTRB Report"). The executive summary contains the following:

Two potentially significant natural barriers at Yucca Mountain—the unsaturated zone beneath the repository horizon and the saturated zone— can isolate radionuclides that might be released from the emplaced waste packages. The Board believes that the Project has made great strides over the last few years in developing a sound understanding of the magnitude and rates of mountain-scale groundwater flow in the unsaturated and saturated zones under ambient temperatures and current climatic conditions.

NWTRB Report at 1. (Emphasis added.)

A key driver in the performance of the repository, both preclosure and postclosure, is temperature. The temperature of the spent nuclear fuel affects the integrity of the fuel cladding and the susceptibility of the waste-package material to localized or general corrosion. The temperature and time profiles in the near-field environment of the drift affect tunnel degradation, causing more fracture pathways, drift separation, and movement of water or water vapor in the unsaturated zone. How these temperatures are controlled is determined by the Project's thermal-management strategy, which identifies controlling criteria, including the maximum thermal loading of the waste packages, line loading in the emplacement drift, and

peak temperatures and zones for pillar separation.

Id. (Emphasis added.)

The Board has concerns about the technical basis underlying the Project's thermal-management strategy. First, the technical basis for the Project's choice of thermal criteria to limit temperature is not well-defined. The Board believes that the Project should articulate in a transparent way the basis for its thermal criteria. Second, the implications for thermal management of the Project's provisional decision to develop and implement a standardized canister for storing, transporting, and disposing of spent nuclear fuel do not seem to have been evaluated fully. The Board is particularly concerned about the ability of the utilities to blend the spent nuclear fuel to the required thermal loading, given the spent nuclear fuel available in the spent-fuel pools, the increasing volume of spent nuclear fuel in dry storage at reactors, and the trend toward higher burn-up fuel. Moreover, the Board is concerned that the constraints imposed by line-load requirements during emplacement have not been fully represented or understood in terms of surface facility design and operation. Third, the Board is not persuaded that the thermal-hydrologic models being used to predict postclosure temperature, relative humidity, and vapor transport within the drifts have a strong technical basis.

Id. at 1,2. (Emphasis added.)

The engineered barrier system consists of the spent nuclear fuel, including the cladding and the fuel pellets; the waste package, including any canister or basket holding the spent nuclear fuel or high-level radioactive waste; the waste package invert; the drip shield; and the backfill, if any. As do the natural barriers, the engineered barrier system can contribute to waste isolation.

Id. at 2,

The Alloy-22 outer barrier of the waste package will not corrode significantly unless liquid water is present on the waste package surface. The higher the temperature at which liquid water is present, the greater is the concern, because metals generally corrode faster at higher temperatures and the susceptibility of metals to corrosion generally increases at higher temperatures. Project scientists have determined that dusts from ventilation air during the preclosure period would settle on waste package surfaces and would contain salts that could form saturated brines with boiling points on the order of 200°C.

Id. (Emphasis added.)

The Project maintains that potential localized corrosion of Alloy-22 at elevated temperatures can be excluded from its performance-assessment calculations. The Board believes that the

technical basis for the exclusion is not compelling, partly because only very limited corrosion data have been collected at temperatures above 150°C and partly because data showing cessation (stifling) of localized corrosion at lower temperatures may or may not be relevant to all conditions under which localized corrosion could occur in the proposed repository. The Board strongly urges the Project to continue collecting data that might justify its assumption that localized corrosion will not occur at temperatures as high as 200°

Id.

These statements from the executive summary of the NWTRB report illustrate that the project is now considering the presence of groundwater in its design. The body of the NWTRB Report is filled with details related to having to create a new design for the groundwater that has been discovered.

The change in national policy for waste disposal also constitutes new and significant standard. As stated in the petition, the Administration is embarked on a major new initiative labeled the Global Nuclear Energy Partnership (GNEP). As part of GNEP, the Administration proposes changing to a novel mode of reprocessing in which unused Uranium would be removed but Plutonium would remain in a form that does not promote proliferation of weapons-grade nuclear material. This novel mode of reprocessing is unproven.

Prominent political supporters of GNEP advocate retaining spent nuclear fuel in its present location while the nation embarks on a research program with an undefined schedule to try to find a reprocessing process that would meet these goals. They reason that, since spent fuel will not be disposed of, but rather reprocessed, it should not be moved until after it can be reprocessed. And further, the disposal plan at the repository would have to undergo a major modification to accept reprocessing waste forms instead of spent fuel. The result is that all spent fuel disposal plans would be on hold while it is determined if (not when) a reprocessing method could be developed.

Applicant is not correct regarding its comment that “the Commission explicitly

“recogniz[ed] the possibility” that the country might renew reprocessing of spent nuclear fuel. 55 Fed. Reg. at 38,489, 38,493.”(Answer at 20). The referenced statements from 55 Fed. Reg. at 38,489, 38,493 applied to Waste Confidence Finding One pertaining to the technical feasibility of a repository, and not Finding Two which dealt with the schedule. There is no suggestion in the discussion for Finding Two that the Commission considered a return to reprocessing in its schedule determinations. And most pertinent, the Commission certainly did not envision a turn to a completely novel and unproven method of reprocessing with no set schedule and disposal plans on hold.

The Applicant gives short shrift (Answer at 21) to the changing political climate regarding spent nuclear fuel disposal. We believe this is wrong because we believe most involved with the spent fuel disposal dilemma would say it is primarily a political problem. Part of the new and significant information is the political landscape. We have an Administration, responsible for implementing spent fuel disposal, which is now promoting the novel GNEP. We have the most powerful nuclear advocate in the Senate, Sen. Domenici, also promoting GNEP and urging retention of spent fuel at their current locatoins. We have the most powerful Senator for the other party, Sen. Reid, as the primary opponent of Yucca Mountain development, also urging retention of spent fuel on their present sites indefinitely. This political landscape constitutes new and significant information which will have high impact on whether spent nuclear fuel will ever move, and the land use at Vermont Yankee.

Regarding a second repository, the Applicant quotes from Waste Confidence:

The Commission also explicitly considered the first repository’s capacity and the need for a second repository and concluded that “if the need for an additional repository is established, Congress will provide the needed institutional support and funding, as it has for the first repository.” and that it “need not at this time consider the institutional

uncertainties arising from having to restart a second repository program.” 55 Fed. Reg. at 38,502, 38,504.

Emphasis added. With the changed political landscape, there is no basis to believe “Congress will provide the needed institutional support and funding, as it has for the first repository.”

The same is true regarding the GEIS statement about a second repository:

Assuming that the first repository is available by 2025 and has a capacity on the order of 70,000 MTHM, additional disposal capacity would probably not be needed before about the year 2040 to avoid storing spent fuel at a reactor for more than 30 years after expiration of reactor operating licenses. GEIS, §6.4.6.2

If it took from 1985 until 2025, a period of 40 years, to develop the first repository, there is no basis to believe that a second repository, if started immediately, could be developed within 34 years, given the past history and present political landscape.

Finally, it is not each single item mentioned about that constitutes new and significant information, but it is the sum of all of these items that results in a situation where spent nuclear fuel will remain at Vermont indefinitely, creating a MODERATE to LARGE evaluation associated with this use of land.

B. NEW AND SIGNIFICANT INFORMATION REQUIRES A REVISION TO THE GEIS

In addition to the fact that the specific issue raised by DPS in Contention 2 is not addressed by the GEIS and therefore is not foreclosed from full consideration in this proceeding, there is another independent reason why Contention 2 is admissible. Assuming, as NRC Staff and Entergy argue, that the GEIS has addressed the issue of the use of land after the shut down of the reactor, has concluded that its use will be no longer than 30 years and that such use is a Category 1 impact, the Commission has explicitly provided that the question of whether there is new and significant information that would warrant amending the GEIS or ignoring its findings for a

specific case is a question which can be raised in this proceeding.

In the Statement of Consideration accompanying the adoption of amendments to 10 CFR Part 51, the Commission addressed the issue of how to deal with new and significant information in response to concerns from the public and many interested states. The Commission resolved the issue as follows:

The major changes adopted as a result of these discussions are as follows:

1. The NRC will prepare a supplemental site-specific EIS, rather than an environmental assessment (as initially proposed), for each license renewal application. This SEIS will be a supplement to the GEIS. Additionally, the NRC will review comments on the draft SEIS and determine whether such comments introduce new and significant information not considered in the GEIS analysis. All comments on the applicability of the analyses of impacts codified in the rule and the analysis contained in the draft supplemental EIS will be addressed by NRC in the final supplemental EIS in accordance with 40 CFR 1503.4, regardless of whether the comment is directed to impacts in Category 1 or 2. Such comments will be addressed in the following manner:

a. NRC's response to a comment regarding the applicability of the analysis of an impact codified in the rule to the plant in question may be a statement and explanation of its view that the analysis is adequate including, if applicable, consideration of the significance of new information. A commenter dissatisfied with such a response may file a petition for rulemaking under 10 CFR 2.802. If the commenter is successful in persuading the Commission that the new information does indicate that the analysis of an impact codified in the rule is incorrect in significant respects (either in general or with respect to the particular plant), a rulemaking proceeding will be initiated.

b. If a commenter provides new information which is relevant to the plant and is also relevant to other plants (i.e., generic information) and that information demonstrates that the analysis of an impact codified in the final rule is incorrect, the NRC staff will seek Commission approval to either suspend the application of the rule on a generic basis with respect to the analysis or delay granting the renewal application (and possibly other renewal applications) until the analysis in the GEIS is updated and the rule amended. If the rule is suspended for the analysis, each supplemental EIS would reflect the corrected analysis until such time as the rule is amended.

c. If a commenter provides new, site-specific information which demonstrates that

the analysis of an impact codified in the rule is incorrect with respect to the particular plant, the NRC staff will seek Commission approval to waive the application of the rule with respect to that analysis in that specific renewal proceeding. The supplemental EIS would reflect the corrected analysis as appropriate.

61 FR 28467, 28470.

Step one in the process set forth by the Commission is the Applicant's ER submittal which is required to include any new and significant information. 10 CFR §51.53(c)(iv). The new and significant information requirement applies, as noted in the Statement of Considerations, to both Category 1 and Category 2 impacts. As noted in the Statement of Considerations the Staff also has an obligation with regard to receiving and considering new and significant information and seeking Commission approval for modifications in the GEIS in light of that information.¹⁵ It is also incumbent upon the Board to consider whether new and significant information warrants consideration of additional environmental impacts not covered by the GEIS:

(4) The supplemental environmental impact statement must contain the NRC staff's recommendation regarding the environmental acceptability of the license renewal action. In order to make its recommendation and final conclusion on the proposed action, the NRC staff, adjudicatory officers, and Commission shall integrate the conclusions, as amplified by the supporting information in the generic environmental impact statement for issues designated Category 1 (with the exception of offsite radiological impacts for collective effects and the disposal of spent fuel and high level waste) or resolved Category 2, information developed for

¹⁵ DPS has provided NRC Staff with its views on the new and significant information addressed in Contention 2 by timely filing its comments in response to the Federal Register Notice, Vol 71, No. 77, Friday April 21, 2006, pages 20733-20735. June 23, 2006 Letter from William Sherman to Chief, Rules and Directives Branch. The staff is required to consider whether new and significant information warrants any change to the GEIS conclusions for the specific plant and include those in the Draft SEIS. 61 FR 28467, 28485 ("If the comments are determined to provide new and significant information bearing on the previous analysis in the GEIS, these comments will be considered and appropriately factored into the Commission's analysis in the SEIS. Public comments on the site-specific additional information provided by the applicant regarding Category 2 issues will be considered in the SEIS.").

those open Category 2 issues applicable to the plant in accordance with §51.53(c)(3)(ii), and any significant new information. Given this information, the NRC staff, adjudicatory officers, and Commission shall determine whether or not the adverse environmental impacts of license renewal are so great that preserving the option of license renewal for energy planning decisionmakers would be unreasonable.

10 CFR §51.95(c)(4).¹⁶ See also 10 CFR §51.104(a) delegating to the Board the task of resolving disagreements among the parties regarding the EIS findings in cases, like this, where an ASLB has been convened.

The regulations contemplate an iterative process with regard to new and significant information, beginning with Applicant's obligations under 10 CFR §51.53(c)(3)(iv). Thus a proposed intervenor must start the process of challenging the environmental impacts by challenging the Applicant's failure to identify new and significant information of which it is aware in either Category 1 or 2. Unless corrected, that failure alone would warrant denial of the proposed extension. If Applicant files all of the information of which it is aware that is new and significant regarding the duration of storage of spent fuel at VY following the expiration of the extended license, the focus will then shift to the NRC Staff and its obligations. In that event, however, the record will contain an admission from Applicant that new and significant information does exist. Applicant cannot avoid making this admission by the illegal expedient of failing to meet its obligations under 10 CFR §51.53(c)(iv).

If Applicant, in order to avoid such an admission, chooses to deny that there is any new and significant information, as it does here, then there is clear issue of disputed fact that the Board

¹⁶ This section provides that site- specific environmental findings shall be amplified by GEIS findings ("with the exception of offsite radiological impacts for collective effects and the disposal of spent fuel and high level waste"), confirming that the portion of the GEIS that addresses spent fuel storage is focused on radiological environmental impacts, not land use.

is required to resolve. 10 CFR §2.309(f)(1)(vi). By presenting contrary evidence to that presented by DPS, Applicant and the Staff have conceded the contention does raise genuine factual disputes that warrant a hearing. *In the Matter of Duke Energy Corporation*, (Catawba Nuclear Station, Units 1 and 2), Docket No's. 50-413-OLA, 50-414-OLA, ASLBP NO. 03-815-03-OLA, LBP-04-10 at 42 (April 2004), 2004 WL 1398219 (NRC). To the extent the Board chooses to address the merits of the bases and supporting evidence offered by DPS, it is significant that only DPS provided any admissible evidence. The DPS factual submittal was attested to, by a qualified expert.¹⁷ The contrary opinions, interpretations of documents and factual claims by Applicant and the Staff in opposition represent nothing more than the unsworn assertions of lawyers. Such lawyer assertions are insufficient to overcome the attested to evidence of DPS. *See* 10 CFR §2.710(b).

DPS will file contentions regarding the NRC Staff compliance with its obligations regarding new and significant information, assuming it is not in full compliance with its obligations, at the time of issuance of the Draft EIS in order to assure that the contentions are timely. It is not possible at this time to know what NRC Staff will do but there are four possibilities other than full compliance with the regulations and NEPA:

1. Fail to identify all the new and significant information;

¹⁷ Mr. Sherman is the Vermont State Nuclear Engineer, a position held since 1988. He brings special qualifications as an expert witness. He is briefed on nuclear matters by the NRC and attends numerous briefings by DOE and others regarding nuclear waste disposal planning. He is particularly well-qualified to offer his opinions on the factual subjects in dispute regarding admissibility of DPS contentions. Part of his responsibilities include following the activities of Vermont Yankee on a day-to-day basis. This provides for daily plant status notifications from Entergy and access to Vermont Yankee documents, many of which are reviewed at, but not taken from, the plant site. However, he does not have access to those internal Entergy documents in which Entergy assesses the likelihood that it will have to keep spent fuel at VY indefinitely.

2. Identify the information but deny that it is new and significant;
3. Identify the information, admit that it is new and significant but deny that it warrants any additional consideration of environmental impacts of the proposal;
4. Admit that modifications of the environmental impacts of the proposal are required but fail to properly identify and weigh those impacts.¹⁸

In this case, Applicant takes its stance at the most fundamental point by arguing that there is no new and significant information. However, whether it is correct in that belief is not a matter for resolution at the contention admissibility stage but goes to the merits of the contention and cannot be resolved until after the contention is admitted. Once the contention is admitted, Applicant will be obligated, under the disclosure provisions of 10 CFR §2.336(a)(2)(i) to identify and/or produce all documents "that are relevant to the contentions". This would include all the information on the likelihood that spent fuel will need to be stored at the VY for more than 30 years after VY operation ceases, whether or not Applicant believes it is new or significant.

¹⁸ If, as we believe is the case, the information that DPS has identified plus the additional information that should be supplied by Applicant demonstrates that there is a significant environmental impact which may be caused by granting the proposed extension and that the GEIS never addressed this issue, there is no need to amend the GEIS. The information will be site-specific - i.e. the environmental impact on land use in the area of the plant if the site is indefinitely used for spent fuel storage - and will be able to be fully analyzed in the SEIS. If, however, the Board concludes that the new and significant information addresses issues already covered by the GEIS, then the GEIS itself will need to be amended. The process for that, as it applies to the EIS outside the hearing process, is set forth in the Statement of Considerations quoted *supra*. 61 FR 28467, 28470. It involves the Staff making application to the Commission for a modification in the GEIS or the party aggrieved by the Staff refusal seeking an amendment of the rules. However, as noted in 10 CFR §51.104(a), where, as here, the EIS is issued in the context of an ASLB proceeding, the issue is resolved by the Board. What is unclear is whether the Board decides that the GEIS needs to be modified and then proceeds to do so or whether the Board recommends such action, essentially standing in the shoes of the NRC Staff, and the Commission makes the final decision. This issue may be somewhat academic since, whatever the Board does, the Commission will be the final arbiter.

Finally, there cannot be any doubt that the issue that underlies the DPS contention, i.e. whether there is new and significant information that would warrant modification of the environmental impacts as now apparently contemplated by Applicant and NRC Staff, is an appropriate issue for resolution in this hearing. In its Statement of Considerations accompanying the regulations governing the analysis of environmental impacts of proposed license extensions the Commission was careful to note that:

The Commission will issue a final supplemental environmental impact statement for a license renewal application in accordance with 10 CFR 51.91 and 51.93 after considering the public comments related to new issues identified from the scoping and public comment process, Category 2 issues, and any new and significant information regarding previously analyzed and codified Category 1 issues.

61 FR 28467, 28485. Thus, the suggestion that DPS can only raise Contention 2 if it files a formal request pursuant to 10 CFR §2.335(b) ignores the extensive administrative history confirming that the Commission intends that claims of the existence of new and significant information warranting modifications to the GEIS are to be part of the SEIS and ASLB decision-making process. In addition, even if a §2.335(b) petition were required, the contention as filed, with the supporting affidavit of William Sherman, meets the requirements of the regulation. The Contention and affidavit identify the way in which the GEIS designation of potential land use impacts from license extension fail to consider the new evidence that such land use is likely to be indefinite and that the impacts of such indefinite land use at this site are substantial. Since the purpose of the GEIS is to accurately characterize the potential environmental impacts of the license extension it is apparent that unless evidence of indefinite spent fuel storage at the site is allowed and unless the environmental impacts on land use of such indefinite storage are considered, the GEIS will not serve its function. This problem is also correctable, without

amending the GEIS, by including the additional analysis in the SEIS as we suggest above.

Third Contention (Safety)

The Application must be denied because the Applicant has failed to fully identify plant systems, structures and components that are non-safety-related systems, structures, and components in the security area whose failure could prevent satisfactory accomplishment of any of the functions of safety-related systems, structures and components in accordance with 10 C.F.R. §54.4(a)(2), such that the Commission cannot find that 10 C.F.R. §54.29(a) is met.

This contention asserts that security equipment meets the definition of 10 C.F.R. §54.4.(a)(2) and that it should be demonstrated that the effects of aging on the functionality of this security equipment should be managed during the period of extended operation, just as it must be for all other equipment meeting the definition of 10 C.F.R. §54.4.(a)(2). Applicant and NRC Staff oppose admission of this contention on the grounds that it is outside the scope of the proceeding. The Staff also claims the contention is not material to the findings the NRC must make to support the action that is involved in the proceeding, does not set forth a specific factual or legal basis, as required, and does not demonstrate the existence of a genuine dispute on a material issue of law or fact.

1. Security equipment is not different than any other equipment meeting the definition of 10 C.F.R. §54.4.(a)(2).

Security equipment is non-safety equipment whose failure could compromise the functioning of safety equipment. *See* DPS Petition at 32.-3 Many non-safety systems, structures and components whose failure could prevent satisfactory accomplishment of safety related functions are screened out through the provisions of 10 C.F.R. §54.21(a)(1) as having moving

parts or with a change in configuration or properties, or are subject to replacement based on a qualified life or specified time period. This is also true of security equipment such as intrusion alarms, emergency alarms, communications equipment, and various interdiction weapons. Other security equipment, such as physical barriers and structures, would not be screened out by 10 C.F.R. §54.21(a)(1). Examples of such physical barriers and structures, which are visible upon entry to the plant complex, are concrete vehicle barriers and bullet resistant enclosures (“guard towers”)¹⁹. Failure of a vehicle barrier through age degradation could allow entry of radiological saboteurs that could subsequently prevent satisfactory accomplishment of safety related functions. Failure of a bullet resistant enclosure through age degradation could admit radiological saboteurs whose actions could subsequently prevent satisfactory accomplishment of safety related functions. There is no reason that the age management provisions of 10 C.F.R. §54.21 (a) should not be applied to security equipment just as it is to other 10 C.F.R. §54.4.(a)(2) equipment.

Applicant’s attempt at dismissing security equipment as not *directly* preventing satisfactory accomplishment of safety related functions (and creating a novel and unheard of standard, *fairly direct effect*) is entirely unpersuasive. Entergy Answer at 26-28. The age-degradation failure of a bullet resistant enclosure, vehicle barrier, or other item of security equipment could admit radiological saboteurs whose intent would be to prevent satisfactory

¹⁹ Similar to footnote 6 of the DPS Petition, at 33, DPS is using vehicle barriers and bullet resistant enclosures as “non-Safeguards Information” examples of security equipment. Vehicle barriers and bullet resistant enclosures are visible and obvious to visitors to the station. DPS has not identified other specific systems, structures and components required by 10 C.F.R. Part 73 in order to avoid a Nuclear Safeguards Information designation. DPS continues to reserve its rights, under a rebuttal of lack of specificity on this contention, to file a list of systems, structures and components required by 10 C.F.R. Part 73 that require aging management review under 10 C.F.R. §54.21.

accomplishment of safety related functions. In San Luis Obispo Mothers for Peace v. NRC, No. 03-74628, slip op. (9th Cir. June 2, 2006) (“Mothers for Peace”), the Court held that NRC could not consider the possibility of an attack by radiological saboteurs as *remote and speculative* (in the case at hand, for the NEPA evaluation). Applicant seeks to discount the impact of this decision relying primarily on *Limerick Ecology Action v. NRC*, 869 F.2d 719, 741-44 (3d Cir. 1989) and *Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2), CLI-02-26, 56 N.R.C. 358, 363 (2002). The former has little relevance, having been written prior to September 11, 2001, when the terrorist attacks in the United States became far less speculative and the urgency of evaluating them became far more important. The latter is inapplicable to Contention 3. DPS does not challenge the security measures taken which is the thrust of the *McGuire* decision. The Contention challenges Applicant’s refusal to provide the type of long term maintenance and age management that is to be applied to all other equipment whose failure could impact the performance of safety-related equipment. In addition, to the extent the GEIS or any other regulations, all of which were written prior to 9/11, purport to excuse security equipment from age management, there is new and significant information that such actions were imprudent and need to be re-evaluated.

Barriers credited in the security plan are not different in function than fire barriers. Both are passive components. Both have design bases to prevent an occurrence for a time period - one due to fire, and the other due to radiological saboteur intrusion. Fire barriers are identified in the License Renewal Application, Sections 2.1.2.2.1, 2.1.2.4.2, 2.3.3.8; throughout the Tables of Section 2.4; Table 3.3.1, and Table 3.3.5. The age management program for fire barriers is described in Section B.1.12 of Appendix B. The same type of review and age management is

necessary for security systems, structures and components whose failure could prevent satisfactory accomplishment of safety related functions.

2. Security equipment should not be considered outside the scope of this proceeding

Security equipment is not excluded from consideration by any regulation. Rather, the link of applicability is stated in the DPS Petition, at 32:

Plant systems, structures, and components within the scoping criteria of 10 C.F.R. §54.4 are not limited to systems, structures, and components required in accordance with 10 C.F.R. Part 50. Within the definition of current licensing basis in 10 C.F.R. §54.3, numerous Parts of 10 C.F.R. are identified, including 10 C.F.R. Part 73.

NRC Staff and Applicant rely only on the *statement of consideration* from 1991, now dated and stale as a result of September 11, 2001 terrorist attack and the Mothers for Peace decision. Both NRC Staff and Applicant quote the following:

The requirements of 10 CFR part 73, notably the testing and maintenance requirements of 10 CFR 73.55(g), include provisions for keeping up the performance of security equipment against impairment due to age-related degradation or other causes. Once a licensee establishes an acceptable physical protection system, changes that would decrease the effectiveness of the system cannot be made without filing an application for license amendment in accordance with 10 CFR 50.54(p)(1).

Application for a renewed license will not affect the standards for physical protection required by the NRC. The level of protection will be maintained during the renewal term in the same manner as during the original license term, since these requirements remain in effect during the renewal term by the language of § 54.35. The requirements of 10 CFR part 73 will continue to be reviewed and changed to incorporate new information, as necessary. The NRC will continue to ensure compliance of all licensees, whether operating under an original license or a renewed one, through ongoing inspections and reviews.

Final Rule, "Nuclear Power Plant License Renewal," 56 Fed. Reg. 64,943, 64,967 (Dec. 13, 1991) (1991 Final Rule). This logic emanates from the implicit regulatory notion, prevalent before September 11, 2001, that attack by radiological saboteurs is remote and speculative²⁰. Therefore, the same detailed attention to age management was not given to security equipment as it was to other non-safety related equipment whose failure could prevent satisfactory accomplishment of safety related functions. Security equipment was primarily thought of as active equipment, such as intrusion alarms, emergency alarms, communications equipment, and various interdiction weapons, whose function would be demonstrated by the maintenance requirements of 10 C.F.R. §73.55(g).

Under closer scrutiny necessitated following the September 11, 2001 terrorist attack, it is clear that 10 C.F.R. §73.55(g) does not invoke the age management provisions on a level comparable to 10 C.F.R. §54.21 for security equipment such as vehicle barriers, bullet resistant enclosures, or other similar equipment. 10 C.F.R. §73.55(g)(1) requires only that "All alarms, communication equipment, physical barriers, and other security related devices or equipment shall be maintained in operable condition." No guidance is given for how the determination of operability is to be made for such equipment as vehicle barriers, bullet resistant enclosures, and other similar equipment. The requirements of 10 C.F.R. §54.21 are more detailed. Under 10 C.F.R. §54.21(a)(3), for vehicle barriers, bullet resistant enclosures, and other similar equipment, the Applicant would have to "demonstrate that the effects of aging will be adequately managed so that the intended function(s) will be maintained consistent with the CLB for the period of

²⁰ The validity of this statement is proven by NRC's attempt to continue to hold to the *remote and speculative* position in Mothers for Peace, a position that is refuted by the Court.

extended operation.”

Applicant’s testing and maintenance program for security equipment in accordance with 10 C.F.R. §73.55(g) was established long before consideration of age degradation of vehicle barriers, bullet resistant enclosures, and other similar equipment were issues. There is no statement that Applicant’s testing and maintenance program in accordance with 10 C.F.R. §73.55(g) includes provisions that demonstrate, for vehicle barriers, bullet resistant enclosures, and all other similar equipment, that the effects of aging will be adequately managed so that the intended function(s) will be maintained consistent with the CLB for the period of extended operation^{21 22}.

²¹ Applicant had the opportunity to provide such statement by affidavit of a credible expert in its *Answer*, but did not.

²² In addition, Applicant argues at 28 of its *Answer* from the *statement of consideration* for the maintenance rule, that “security has been deleted from 10 CFR 50.65 [i.e., the maintenance rule] as it is adequately addressed in § 73.46(g) and § 73.55(g).” This argument, intended to show that security systems, structures and components (SSCs) should not be considered under 10 C.F.R. §54.4(a)(2), instead proves the reverse, and confirms our argument at this point.

Maintenance of non-safety related SSC’s whose failure could prevent satisfactory accomplishment of safety related functions, which are not security SSCs, is performed under 10 C.F.R. §50.65, the maintenance rule. The basic requirement of the maintenance rule is in 10 C.F.R. §50.65(a)(1), that these SSCs “*are capable of fulfilling their intended functions.*” Emphasis added.

Maintenance of security SSCs is performed under 10 C.F.R. §73.55 (g). The basic requirement of the security testing and maintenance requirement is that security SSCs “*shall be maintained in an operable condition.*” Emphasis added.

Reading of the two requirements shows they are parallel - essentially the same. Yet the non-safety SSCs under the maintenance rule are included for license renewal consideration under 10 C.F.R §54.4(a)(2). Therefore it makes no sense in logic to exclude security SSCs, as the Staff and Applicant quote for the 1991 *statement of consideration* for license renewal, when the testing and maintenance requirements are essentially identical for the SSCs that are included.

The explanation for this suspension of logic lies in the implicit underlying notion in the *statement of consideration* that security challenges by radiological saboteurs is remote and speculative. This notion is shown to be changed by the September 11, 2001 attacks and by

Staff includes an argument that DPS misreads 10 C.F.R. §54.21. Staff Answer at 20-21.

Staff states that “not all SSCs within the scope of Section 54.4 are subject to management review.” Then Staff quotes the McGuire and Catawba license renewal proceeding, that security SSCs are not subject to the physical aging processes at issue in license renewal. 56 NRC at 364. This statement and logic is simply not correct with regard to DPS Contention 3. For example, the concrete vehicle barriers have a design basis to prevent vehicle intrusion. As shown in Section 3.5 of the License Renewal Application (LRA), loss of material, scaling, cracking and spalling, are physical aging processes of concrete at issue in license renewal. Loss of material, scaling, cracking and spalling, could occur in a manner such that concrete vehicle barriers no longer meet their design basis for vehicle prevention.

Similarly, bullet resistant enclosures have a design basis to resist bullets. The bullet resistant material needs to be evaluated in a manner similar to the other materials age evaluations in the LRA, to prove the such material does not lose its bullet-resistance during the period of license renewal, or that the bullet-resistant nature of the material is monitored in a manner to ensure it continues to meet its design basis or that newer and more dangerous bullets have not been developed. Finally, the structural steel support of bullet resistant enclosures, of necessity, has a design basis related to radiological saboteur intrusion. Aging effects on structural steel is an aging process at issue in Section 3.5 of the LRA. The structural steel supports of the bullet resistant enclosures needs to be evaluated to prove the such material does not degrade in a manner to no longer meet its design basis, or is monitored in a manner to ensure it continues to meet its design basis.

Mothers for Peace.

As stated earlier, vehicle barriers and bullet resistant enclosures are non-Safeguards Information examples of security systems, structures and components. All security systems, structures and components need to be reviewed thoroughly and methodically, as required by 10 C.F.R. §§54.4 and 54.21.

Since:

- 1) there exists security structures, systems and components that are subject to the physical aging processes at issue in license renewal;
- 2) the maintenance program in accordance with 10 C.F.R. §73.55(g) was established long before aging management issues were a consideration;
- 3) there is no statement that the maintenance program in accordance with 10 C.F.R. §73.55(g) demonstrates that the effects of aging will be adequately managed so that the intended function(s) will be maintained consistent with the CLB for the period of extended operation for all applicable security systems, structures and components; and
- 4) the entire paradigm for understanding of the significance and impact of radiological saboteurs has been completely transformed by the September 11, 2001 terrorist attacks and Mothers for Peace;

the statement of consideration from 1991 should not be considered determinative for security equipment in this proceeding, and security equipment should not be considered outside the scope of the proceeding.

3. The issue raised by Contention 3 is material to the findings NRC must make to approve the license renewal

NRC Staff claims that DPS fails to demonstrate the issue raised by Contention 3 is material to the findings NRC must make to approve the license renewal. However, absent the statement itself, Staff makes no argument supporting that claim. NRC Staff ignores the contention which states, in part “that the Commission cannot find that 10 C.F.R. §54.29(a) is

met.” Section 54.29 (a) requires a determination that there is reasonable assurance that the activities authorized by the renewed license will continue to be conducted in accordance with the CLB, and that any changes made to the plant's CLB in order to comply with this paragraph are in accord with the Act and the Commission's regulations. These matters include managing the effects of aging during the period of extended operation on the functionality of structures and components that have been identified to require review under § 54.21(a)(1). We have shown above that security equipment is within the definition of 10 C.F.R. §54.4.(a)(2), and there are examples of security equipment that meet the evaluation requirements of § 54.21(a)(1). Therefore, the issue raised by Contention 3 is material to the findings NRC must make to approve the license renewal.

4. A specific factual basis of Contention 3 is provided

The staff also claimed DPS did not set forth a necessary factual basis for Contention 3.

Staff Answer at 21. The DPS Petition, at 32, included the following:

3. 10 C.F.R. Part 73 requires the Applicant to provide systems, structures and components for physical protection of plant and materials. Specifically, systems, structures and components are required under Sections:

73.40 Physical protection: General requirements at fixed sites.

73.45 Performance capabilities for fixed site physical protection systems.

73.46 Fixed site physical protection systems, subsystems, components, and procedures.

73.51 Requirements for the physical protection of stored spent nuclear fuel and high-level radioactive waste.

73.55 Requirements for physical protection of licensed activities in nuclear power reactors against radiological sabotage.

The above identifies that security equipment exists. DPS expected that Staff would be able to

agree that applicable security equipment exists. Footnote 6 (DPS Petition at 33) reserved the right to supplement under claim of lack of specificity. The Staff suggests at note 20 (Answer at 21) that "DPS does not explain why it failed to submit the information under seal,". The complexity of a state filing Nuclear Safeguards Information made such a filing infeasible. The difficulty of such filing, as noted above, is underscored by the fact that the DPS attorneys appearing in this case are not (at this time) authorized to view Safeguards Information²³.

While maintaining that the quoted item above from the DPS Petition at 32 is sufficient factual identification of security equipment, DPS has provided additional specific factual identification in this *Reply* for other reasons. Therefore, contrary to Staff claims, a specific factual basis is provided for Contention 3.

CONCLUSION

For all the reasons stated here and provided in the initial Petition DPS urges the Board to admit the Contentions to resolve the genuine dispute that exists between it and the Applicant regarding the facts and opinions which are at issue.

Respectfully submitted,

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²³ Vermont treats Safeguards Information with great care. Authorization to view Safeguards Information under 10 C.F.R. §73.21(c)(iii) is given under only the strictest standard of need to know.

84 East Thetford Rd.
Lyme, NH 03768

Dated this 30th day of June, 2006 at Montpelier, Vermont.

UNITED STATES
NUCLEAR REGULATORY COMMISSION

In Re: Entergy Nuclear Vermont Yankee)
 LLC and Entergy Nuclear)
 Operations, Inc.)
(Vermont Yankee Nuclear Pwer Station))

Docket No. 50-271
ASLBP No. 06-849-03-LR

DECLARATION OF WILLIAM K. SHERMAN

accompanying

**Vermont Department of Public Service
Reply to Answers of Applicant and NRC Staff
to Notice of Intention to Participate
and Petition to Intervene**

William K. Sherman states as follows under penalties of perjury.

Introduction

1. My name is William K. Sherman. I am employed by the Vermont Public Service Department. My title is Vermont State Nuclear Engineer. I have held this position since November of 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. My professional and educational experience was summarized in the resume attached the Declaration filed with the Notice and Intention to Participate and Petition to Intervene.
2. My responsibilities with the Department include monitoring for the state of Vermont both the political and technical developments associated with management and ultimate disposal of nuclear waste.
3. I am providing this Declaration in support of the Vermont Department of Public Service Reply to Answers of Applicant and NRC Staff to Notice of Intention to Participate and Petition to Intervene ("DPS Reply").

4. I am familiar with the license amendment application for a license extension of twenty years submitted by Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc.
5. I assisted in the preparation of the DPS Reply.
6. The facts provided in my declaration are true and correct to the best of my knowledge and belief, and the opinions expressed herein are based on my best professional judgment.
7. The Exhibits attached to the DPS Reply are true and correct copies of the documents represented.

Primary Containment Concrete

8. I have performed a sample heat transfer calculation of a section through the drywell to assess the temperature on the face of the concrete outside the steel drywell. For the calculation, I have used *Marks' Standard Handbook for Mechanical Engineers*, Eighth Edition, 1978, McGraw Hill, pp. 4-59 to 4-70 (Transmission of Heat by Conduction and Convection).
9. For the heat transfer calculation, I have also used Entergy's *License Renewal Application, Amendment No. 2*, dated May 15, 2006 (Vermont Reply Exhibit 1). This submittal identifies that, above the transition zone from spherical to cylindrical portions, the drywell is separated from reinforced concrete by a two-inch gap. The gap below this transition is filled with sand. In addition, the Amendment refers to the nominal plate thickness of the drywell as 2.5 inches.

10. I used a representative cross section at El. 280 ft for the calculation. I assumed a steel plate of 2.5 inches, a sand-filled gap of 2 inches, and a concrete thickness of 6 feet.
11. I assumed the drywell temperature was 165°F, the maximum value from UFSAR Section 5.2.3.2, and a reactor building temperature of 100°F. I further assumed these areas were at these temperatures long enough such that the steel surface inside the drywell and the concrete surface temperature in the reactor building were at these respective temperatures.
12. I took thermal conductivities from the *Marks Handbook*. These values were, in units of btu/hr/ft²/°F/ft: steel plate - 26.2, dry sand - 0.188, concrete - 1.05.
13. At equilibrium, the results of this temperature gradient are:
 - Temperature at steel surface in the drywell - 165°F
 - Temperature at the steel/sand interface - 164.9°F
 - Temperature at the inside concrete face - 156.2°F

In this calculation, approximately 8 inches of thickness of the concrete remains over 150°F.

14. This calculation confirms my statement from the Declaration for the Petition:

“The concrete surface behind the steel shell will closely match the drywell ambient temperature.”

This statement can be made by inspection - e.g., with a steel plate, small gap and approximately six foot thickness of concrete, the inside concrete surface temperature will be close to the ambient temperature on the face of the steel plate.

15. It is possible there are locations where the sand gap is less than two inches, or steel may touch concrete. In this case, the concrete temperatures would be higher. In other instances, concrete thickness is greater than 6 feet, which also would result in higher inside surface concrete temperatures.

16. If the area near the vicinity of the recirculating pump motors is maintained with a maximum of 135°F, and the average is 150°F, then the area away from the recirculating pump motors is at 165°F. Since the recirculating pump motors are toward the inside of the drywell near the reactor, the area away from recirculating pump motors are the outer walls of the drywell. It is the temperature on the outer walls that controls the heat transfer and gradient through the walls to the concrete outside the steel drywell.
17. Applicant suggests (Applicants Answer at 13) that it is inappropriate to use 165 °F for a general area temperature for concrete surface temperature determination. A portion of *Vermont Yankee Summary Report of Plant Environmental Conditions for Environmental Qualification Program*, Rev. 0, March 19, 1984, is provided as Vermont Reply Exhibit 2. This includes page 4, "Normal Operating Plant Environments," which includes drywell operating temperatures. This information was developed from actual thermocouple readings.
18. While this information is likely not current, at least it is representative of the thermal operation of the drywell that affected drywell concrete properties during a period of operation in 1980's. It is the temperature history that is relevant in the consideration of the attribute of *reduction of strength and modulus of the primary containment structure due to elevated temperature*. Therefore, this data from 1984 is specifically relevant. In addition, the temperature measurements were made when VY's maximum operation was 100% of thermal power. It now is allowed to operate at 120% of thermal power.
19. This information shows that, for the general area from El. 270 ft to El. 315 ft, an average temperature of 185 °F should be used.. This is an average temperature applicable for use for the general area, as opposed to the peak temperature, listed as 195 °F., which would be applicable for local area usage.

20. This information from the 1984 Vermont Reply Exhibit 2 demonstrates it is not incorrect to use 165 °F for the temperature next to the steel wall inside the drywell for determining the general area temperature for primary containment concrete outside the steel drywell between El. 270 ft. and El. 315 ft.

Land Use

21. I have reviewed the GEIS and based on that review it is my conclusion that there is no substantive analysis or discussion of the environmental impact associated with the loss of land use due to the continued storage of the spent fuel at the reactor site following the shutdown of a reactor. In particular, the GEIS does not consider that at individual sites the continued presence of spent fuel at the reactor site 1) may substantially interfere with the use and development of valuable land both at the reactor site and adjacent to the site and 2) may require a considerable commitment of economic resources from local and state authorities to maintain adequate support for safety and security required to be maintained throughout the time spent fuel remains at the site.
22. While individual statements, quoted by the Applicant, were made in the Waste Confidence Decision about unexpected results at Yucca mountain, the possible need for a second repository, and a possible reconsideration of reprocessing, it is the sum and combination of each of these occurring together which constitutes new and significant information.
23. There is no question that the discovery of groundwater at disposal levels at Yucca Mountain has created a complete paradigm shift.
24. A primary reason Yucca Mountain was chosen was because it contained a unique geological formation that was thought to prevent groundwater intrusion.
25. The fact that groundwater has been recently discovered and the paradigm for design has

shifted is seen in the U.S Nuclear Waste Technical Review Board's (NWTRB's) *Report to the U.S. Congress and Secretary of Energy*, January 1, 2005 to February 28, 2006 ("NWTRB Report"). The body of the NWTRB Report is filled with details related to having to create a new design for the groundwater that has been discovered.

26. The change in national policy for waste disposal also constitutes new and significant standard. As stated in the petition, the Administration is embarked on a major new initiative labeled the Global Nuclear Energy Partnership (GNEP). As part of GNEP, the Administration proposes changing to a novel mode of reprocessing in which unused Uranium would be removed but Plutonium would remain in a form that does not promote proliferation of weapons-grade nuclear material. This novel mode of reprocessing is unproven.
27. Prominent political supporters of GNEP advocate retaining spent nuclear fuel in its present location while the nation embarks on a research program with an undefined schedule to try to find a reprocessing process that would meet these goals. They reason that, since spent fuel will not be disposed of, but rather reprocessed, it should not be moved until after it can be reprocessed. And further, the disposal plan at the repository would have to undergo a major modification to accept reprocessing waste forms instead of spent fuel. The result is that all spent fuel disposal plans would be on hold while it is determined if (not when) a reprocessing method could be developed.
28. The Commission certainly did not envision in the Waste Confidence Decision a turn to a completely novel and unproven method of reprocessing with no set schedule and disposal plans on hold.
29. The Applicant gives short shrift (Answer at 21) to the changing political climate regarding spent nuclear fuel disposal. I believe most involved with the spent fuel disposal dilemma would say it is primarily a political problem. Part of the new and significant

information is the political landscape. We have an Administration, responsible for implementing spent fuel disposal, which is now promoting the novel GNEP. We have the most powerful nuclear advocate in the Senate, Sen. Domenici, also promoting GNEP and urging retention of spent fuel at their current locations. We have the most powerful Senator for the other party, Sen. Reid, as the primary opponent of Yucca Mountain development, also urging retention of spent fuel on their present sites indefinitely. This political landscape constitutes new and significant information which will have high impact on whether spent nuclear fuel will ever move, and the land use at Vermont Yankee.

30. With the changed political landscape, there is no basis to believe "Congress will provide the needed institutional support and funding, as it has for the first repository."
31. If it took from 1985 until 2025, a period of 40 years, to develop the first repository, there is no basis to believe that a second repository, if started immediately, could be developed within 34 years, given the past history and present political landscape.
32. It is not each single item mentioned about that constitutes new and significant information, but it is the sum of all of these items that results in a situation where spent nuclear fuel will remain at Vermont indefinitely, creating a MODERATE to LARGE evaluation associated with this use of land.

Security

33. Many non-safety systems, structures and components whose failure could prevent satisfactory accomplishment of safety related functions are screened out through the provisions of 10 C.F.R. §54.21(a)(1) as having moving parts or with a change in configuration or properties, or are subject to replacement based on a qualified life or specified time period. This is also true of security equipment such as intrusion alarms, emergency alarms, communications equipment, and various interdiction weapons.

34. Other security equipment, such as physical barriers and structures, would not be screened out by 10 C.F.R. §54.21(a)(1). Examples of such physical barriers and structures, which are visible upon entry to the plant complex, are concrete vehicle barriers and bullet resistant enclosures (“guard towers”).
35. Failure of a vehicle barrier through age degradation could allow entry of the vehicle of radiological saboteurs that could subsequently prevent satisfactory accomplishment of safety related functions.
36. Failure of a bullet resistant enclosure through age degradation could admit radiological saboteurs whose actions could subsequently prevent satisfactory accomplishment of safety related functions.
37. There is no reason that the age management provisions of 10 C.F.R. §54.21 (a) should not be applied to security equipment just as it is to other 10 C.F.R. §54.4.(a)(2) equipment.
38. The age-degradation failure of a bullet resistant enclosure, vehicle barrier, or other item of security equipment could admit radiological saboteurs whose intent would be to prevent satisfactory accomplishment of safety related functions.
39. Barriers credited in the security plan are not different in function than fire barriers. Both are passive components. Both have design basis to prevent an occurrence for a time period - one due to fire, and the other due to radiological saboteur intrusion. The same type of review and age management is necessary for security systems, structures and components whose failure could prevent satisfactory accomplishment of safety related functions.
40. Before September 11, 2001 attack by radiological saboteurs was considered remote and

speculative. The same detailed attention to age management was not given to security equipment as it was to other non-safety related equipment whose failure could prevent satisfactory accomplishment of safety related functions. Security equipment was primarily thought of as active equipment, such as intrusion alarms, emergency alarms, communications equipment, and various interdiction weapons, whose function would be demonstrated by the maintenance requirements of 10 C.F.R. §73.55(g).

41. Applicant's testing and maintenance program for security equipment in accordance with 10 C.F.R. §73.55(g) was established long before consideration of age degradation of vehicle barriers, bullet resistant enclosures, and other similar equipment were issues.
42. Maintenance of non-safety related SSC's whose failure could prevent satisfactory accomplishment of safety related functions, which are not security SSCs, is performed under 10 C.F.R. §50.65, the maintenance rule. The basic requirement of the maintenance rule is in 10 C.F.R. §50.65(a)(1), that these SSCs "*are capable of fulfilling their intended functions.*" Maintenance of security SSCs is performed under 10 C.F.R. §73.55 (g). The basic requirement of the security testing and maintenance requirement is that security SSCs "*shall be maintained in an operable condition.*" These two requirements are essentially the same.
43. It is not logical to exclude security SSCs, based on maintenance and testing requirements, when the testing and maintenance requirements are essentially identical for the SSCs that are included. The explanation for this suspension of logic lies in the now *passee* notion that security challenges by radiological saboteurs is remote and speculative.
44. Concrete vehicle barriers have a design basis to prevent vehicle intrusion. As shown in Section 3.5 of the License Renewal Application (LRA), loss of material, scaling, cracking and spalling, are physical aging processes of concrete at issue in license renewal. Loss of material, scaling, cracking and spalling, could occur in a manner such that concrete

vehicle barriers no longer meet their design basis for vehicle prevention.

45. Bullet resistant enclosures have a design basis to resist bullets. The bullet resistant material needs to be evaluated in a manner similar to the other materials age evaluations in the LRA, to prove the such material does not lose its bullet-resistance during the period of license renewal, or that the bullet-resistant nature of the material is monitored in a manner to ensure it continues to meet its design basis.
46. Structural steel support of bullet resistant enclosures, of necessity, has a design basis related to radiological saboteur intrusion. Aging effects on structural steel is an aging process at issue in Section 3.5 of the LRA. The structural steel supports of the bullet resistant enclosures needs to be evaluated to prove the such material does not degrade in a manner to no longer meet its design basis, or is monitored in a manner to ensure it continues to meet its design basis.
47. The requirements for a Vermont to make a Nuclear Safeguards Information filing are cumbersome, even unduly so, far more than a simple non-disclosure agreement. The attorneys entered on this case for the DPS are not (at this time) authorized to view Safeguards Information, as I am. Vermont treats Safeguards Information with great care. Authorization to view Safeguards Information under 10 C.F.R. §73.21(c)(iii) is given under only the strictest standard of need to know.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on June 30, 2006.


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State Nuclear Engineer



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May 15, 2006

BVY 06-043

ATTN: Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Reference: 1. Letter, Entergy to USNRC, "Vermont Yankee Nuclear Power Station, License No. DPR-28, License Renewal Application," BVY 06-009, dated January 25, 2006

Subject: **Vermont Yankee Nuclear Power Station**
License No. DPR-28 (Docket No. 50-271)
License Renewal Application, Amendment No. 2

On January 25, 2006, Entergy Nuclear Operations, Inc. and Entergy Nuclear Vermont Yankee, LLC (Entergy) submitted the license renewal application for the Vermont Yankee Nuclear Power Station (VYNPS) as indicated by Reference 1. Based on recent discussions between industry and NRC staff, Entergy is providing Attachment 1 to provide additional information concerning the drywell shell.

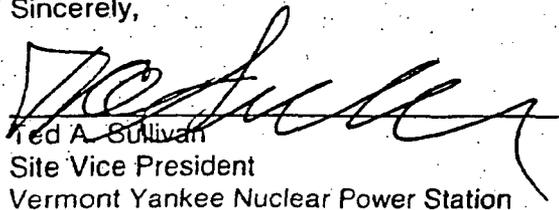
Just prior to the submittal of this letter, proposed license renewal interim staff guidance was published in the Federal Register (May 9, 2006). The NRC proposed guidance, "LR-ISG-01: Plant-Specific Aging Management Program for Inaccessible Areas of Boiling Water Reactor Mark I Steel Containment Drywell Shell," was issued for public comment. The proposed guidance is expected to be finalized by NRC staff after the comment period.

This letter contains no regulatory commitments.

Should you have any questions concerning this letter, please contact Mr. Jim DeVincentis at (802) 258-4236.

I declare under penalty of perjury that the foregoing is true and correct. Executed on May 15, 2006.

Sincerely,


Ted A. Sullivan
Site Vice President
Vermont Yankee Nuclear Power Station

Attachment (1)

cc: (on next page)

Docket 50-271-LR
ALSBP No. 06-849-03-LR
Exhibit Vermont Reply-1
10 Pages

A117

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Docket 50-271
BVY 06-043

Attachment 1

Vermont Yankee Nuclear Power Station

License Renewal Application – Amendment No. 2

Drywell Shell Information

Purpose

For license renewal, the NRC evaluates the potential for corrosion of the Mark I steel containment drywell shell. This issue previously was the subject of generic NRC communications in the 1980s. Specifically, Generic Letter (GL) 87-05 addressed potential degradation of Mark I drywells due to corrosion. This document provides additional information on the Vermont Yankee Nuclear Power Station (VYNPS) drywell shell relative to recent industry experience in this area.

Background

In 1980, the Oyster Creek Station observed water coming from lines that drain water from the annulus region between the drywell wall and the surrounding concrete and the sand cushion region. The water source was initially identified in 1983 as coming from the Drywell-Refueling Cavity bellows drain line gasket. After performing ultrasonic thickness measurements in 1986, Oyster Creek Station reported that corrosion and material loss had occurred to the Drywell Shell in the area of the sand-cushion. This led to the NRC's issuance of Information Notice 86-99 (Degradation of Steel Containments), Generic Letter 87-05 (Request for Additional Information Assessment of Licensee Measures to Mitigate and/or Identify Potential Degradation of Mark I Drywells), and Information Notice 86-99 Supplement 1.

The purpose of GL 87-05 was "...to initiate the collection of information of the licensee's current and proposed action to assure the degradation of the Drywell Shell plates adjacent to the sand-cushion has not occurred and to determine if augmented inspections above and beyond those planned by the licensee's are necessary."

In 1995, subsequent to the GL responses, the staff approved the use of ASME Section XI, Subsection IWE (Requirements for Class MC and Metallic Liners of Class CC Components of Light-Water Cooled Plants) which exempts, in accordance with Subparagraph IWE-1220(b), "embedded or inaccessible portions of containment vessels, parts, and appurtenances that met the requirements of the original Construction Code..." However, Paragraph IWE-1240 establishes criteria for determining the need for augmented examinations.

VYNPS Primary Containment Design

At VYNPS, the primary containment includes the drywell, the suppression chamber, and the drywell to suppression chamber vent headers. The drywell is an inverted light bulb-shaped carbon steel primary containment structure enclosed in reinforced concrete founded on bedrock. Above the transition zone between the spherical and cylindrical portions, the drywell is separated from the reinforced concrete by a two-inch gap. This gap allows for drywell expansion.

Drywell Shell Exterior

A sand-filled cavity encircles the drywell to cushion the concrete to free standing steel transition. This sand cushion is equipped with drains to remove any water that might enter the sand and cause accelerated corrosion of the drywell shell. The sand cushion area is drained to protect the exterior surface of the drywell shell at the sand cushion interface from water that might enter the air gap.

During construction, the exterior surface of the drywell shell was coated with an inorganic zinc primer and a protective top coat. The coating is intact in areas that have been examined.

A pliable bellows assembly between the drywell shell and the refueling cavity (area 'A' on the enclosed general arrangement drawing) separates the filled refueling cavity from the exterior surface of the drywell shell during refueling operations. The assembly utilizes a fully welded stainless steel to carbon steel design, providing a channel to collect any potential leakage from the bellows. Leakage, if any, through the bellows assembly is directed to a drain system equipped with an alarm for notification of operators. While the refueling cavity is filled, plant operators examine areas around the drywell shell exterior to determine if leakage is occurring.

An additional source of water that could impact the drywell shell exterior is leakage from the spent fuel storage pool and dryer-separator pit liner welds. Channels behind the welds direct leakage, if any, to funnels. These funnels are routinely inspected by plant operators to determine if leakage exists from the spent fuel storage pool, the dryer-separator pit, or the refueling cavity drains. The majority of the drywell shell exterior surface is inaccessible for examination.

Drywell Shell Interior

The majority of upper portion of the drywell shell interior surfaces are accessible for inspection. The lower portion of the drywell is not accessible where it is covered by the concrete drywell floor which provides structural support for the reactor pedestal and other equipment.

The VYNPS primary containment system is inerted with nitrogen gas during normal power operations so that oxygen levels are maintained at less than 4%. Inerting with nitrogen provides an atmosphere that is not conducive to corrosion of containment interior surfaces.

Operating Experience and Actions Taken to Prevent Drywell Corrosion

VYNPS responded to GL 87-05 on May 8, 1987 indicating no evidence of degradation to the drywell was noted. Further, VYNPS committed to ensure continued drywell integrity via IWE inspection and inspections (including internals) of the eight 1" sand cushion drain lines for integrity and freedom from obstruction.

VYNPS reported on the refuel cavity design, explaining that the design is a fully welded stainless steel/carbon steel construction (vice Oyster Creek design) with a backup barrier channel that utilizes a seal (i.e., bellows) rupture drain with an alarm system for notifying operators in the event of any bellows or drain line connection leakage.

In 1991, during normal operations, leakage from a main steam line drain valve was condensing on and traveling along the primary containment atmosphere control piping to the drywell shell exterior. The typical penetration design slopes piping away from the drywell however, this atypical penetration is sloped towards the drywell. To ensure drywell shell integrity, the exterior drywell shell in the area of the sand cushion and the sand cushion itself (area 'B' on the enclosed general arrangement drawing) were examined by boroscope and the sand cushion drains were verified functional. No corrosion was found on the drywell shell and the sand cushion was found dry, compacted, and with adequate ventilation to assure the sand would remain dry. Spray shields were installed on piping penetrations that sloped towards the drywell shell.

A periodic surveillance (approximately every 10 years) was established to examine the drywell shell sand cushion drain lines for integrity and freedom from obstructions.

In 1992, the drywell interior, in the area of the sand-cushion was examined. The examination identified a missing section of the moisture barrier at the concrete floor to drywell shell interface joint (area 'C' on the enclosed general arrangement drawing). No evidence of corrosion of the interior drywell shell surface was observed. In 1999, during the implementation of the ASME Section XI IWE Program, corrosion was identified on the interior surface of the drywell shell in the area of the missing moisture barrier. The maximum pit depth was 1/16". The nominal plate thickness of the drywell shell in that area is 2.5".

In 2001 a replacement moisture barrier was installed. Prior to installation, the drywell shell interior and the concrete floor were stripped of all coatings and sealant for approximately a six inch band either side of the intersecting joint. The corrosion was removed. The drywell shell was then examined by VT-3, VT-1, and UT measurement processes. Observations and measurements met acceptance criteria. The replacement moisture barrier was installed. The moisture barrier was subsequently examined in 2002, 2004 and 2005. The examination evaluated the adherence of the drywell shell coating, no evidence of corrosion, elastomer to shell and concrete interface, and hardening of the elastomer.

Ongoing actions to Prevent Drywell Degradation

During approximately 95% of a fuel cycle, the VY primary containment system atmosphere is inerted with nitrogen. During this period, the atmosphere oxygen concentration is maintained less than 4%. The moisture content is reduced by a dehumidification system. Condensate from the dehumidification system is routed to dedicated drain lines and collected in sumps. The result is that the drywell interior is dry and oxygen-free at a relatively constant temperature that does not promote corrosion.

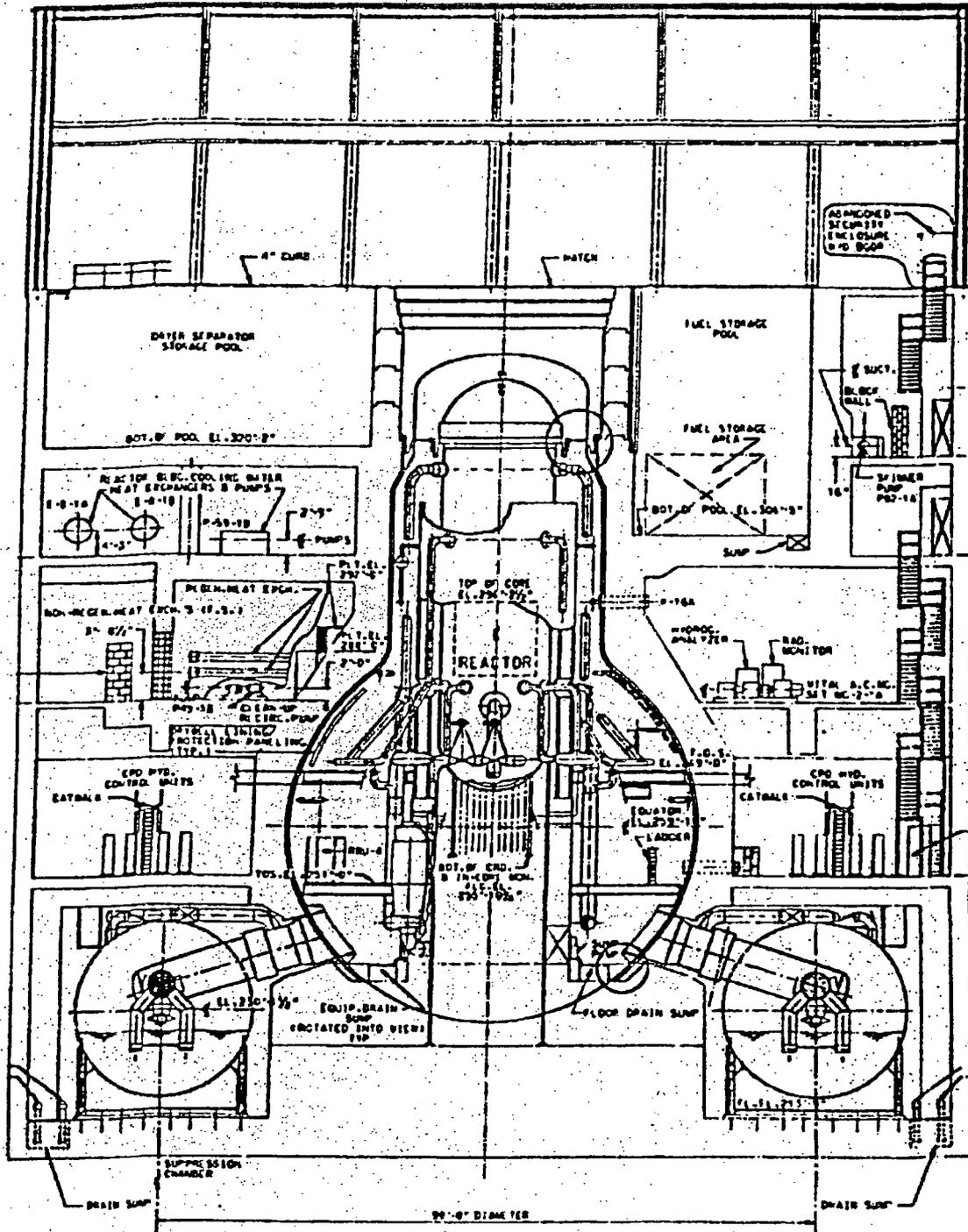
The suppression chamber exterior and interior surfaces, the majority of the vent header exterior and interior surfaces, the majority of the drywell shell interior surfaces, the drywell hemi-spherical head exterior and interior surfaces, and some penetrations in the cylindrical and spherical portions of the structure are accessible for examination. The structures are examined in accordance with ASME Section XI – 1998 Edition with 2000 Addenda, Subsection IWE, Requirements for Class MC and Metallic Liners of Class CC Components of Light-Water Cooled Plants. The accessible portions of the drywell shell interior surfaces are examined in accordance with the ASME code, three times during each ISI ten-year interval. As of May 2006, no surface areas are subject to the requirements of Paragraph IWE-1240, "Surface Areas Requiring Augmented Examination."

The moisture barrier is examined at least once every period, in accordance with ASME Section XI inservice inspection requirements.

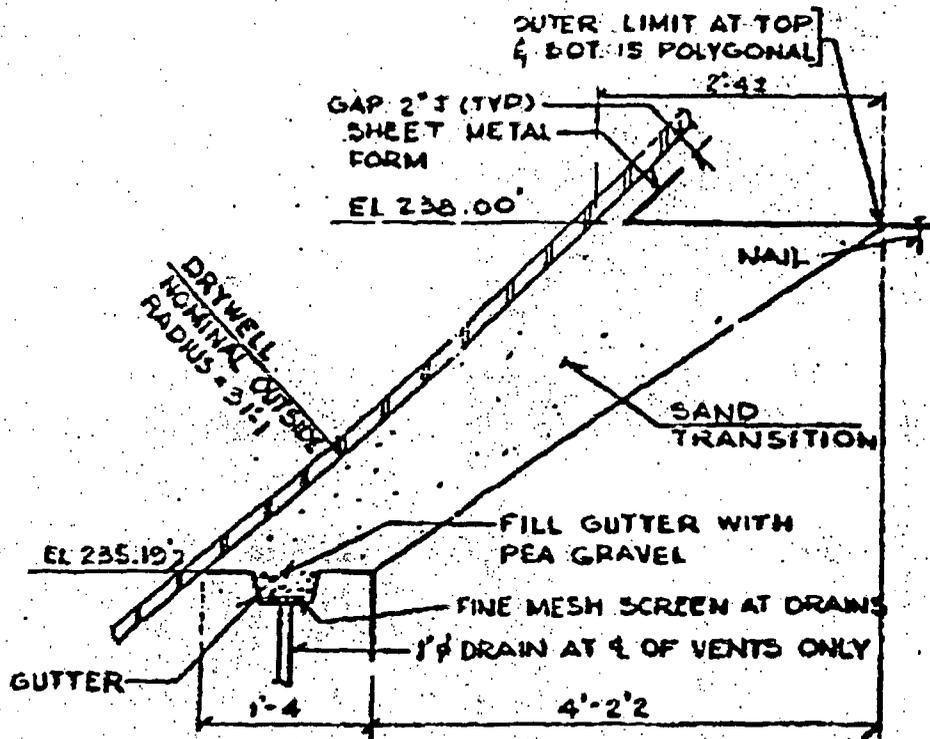
Approximately once every 10 years, the drywell shell sand cushion drain lines are examined to verify integrity and freedom from obstructions.

Conclusion

VYNPS has effectively addressed the issue of drywell shell corrosion through actions taken in response to GL 87-05 as well as additional actions subsequent to the response to GL 87-05. UT examinations to determine the drywell wall thickness at the sand cushion region indicated no detectable loss of material and hence no discernable corrosion rate. Based on this corrosion rate, no discernable loss of drywell shell thickness is projected through the period of extended operation. The above described ongoing actions to prevent drywell shell degradation provide continuing reasonable assurance of satisfactory drywell-shell condition through the period of extended operation.



General Arrangement - Reactor Building
from G-191150 [Sect A-A]



DETAIL OF SAND TRANSITION
AT C OF SEGMENT

VERMONT YANKEE SUMMARY REPORT
OF
PLANT ENVIRONMENTAL CONDITIONS
FOR ENVIRONMENTAL QUALIFICATION PROGRAM

Revision 0
March 19, 1984

D. E. Yasi

Docket 50-271-LR
ALSBP No. 06-849-03-LR
Exhibit Vermont Reply-2
3 Pages

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3.0 NORMAL OPERATING PLANT ENVIRONMENTS

Although well-documented measurements of environmental data throughout the plant have not been recorded, we believe the following data adequately represents the normal range of plant environmental conditions for use in evaluating normal aging effects of equipment. However, localized conditions due to high temperature piping and equipment could be considerably different from average conditions.

3.1 Temperature, Pressure, and Humidity

REACTOR BUILDING - OCCUPIED AREAS ONLY

(Excluding Primary Containment, Steam Tunnel,
RCIC Turbine Room, HPCI Turbine Room)

	<u>JAN</u>	<u>FEB</u>	<u>MAR</u>	<u>APR</u>	<u>MAY</u>	<u>JUN</u>	<u>JUL</u>	<u>AUG</u>	<u>SEP</u>	<u>OCT</u>	<u>NOV</u>	<u>DEC</u>
Avg. Temp. °F	70	70	70	75	80	85	95	95	85	80	70	70
Avg. Humidity %	40	40	45	60	65	70	70	75	75	60	45	40
Peak Temperature:	104°F											
Pressure:	Ambient											

DRYWELL (Operating and Hot Standby Modes)

	<u>(Below El. 270')</u>	<u>(El. 270' to El. 315')</u>	<u>(Above El. 315')</u>
	<u>JAN - DEC</u>	<u>JAN - DEC</u>	<u>JAN - DEC</u>
Avg. Temp. °F	150	185	270
Avg. Humidity %	< 40	< 40	< 40
Peak Temperature: °F	160	195	280
Pressure: PSIG	2	2	2

Note: The average temperatures listed are based upon the hottest recorded location within each zone during plant operation. These values should be expected during 90% of plant life. For the remaining 10% of time, when the reactor is shutdown, an average temperature of 100°F will be experienced throughout the drywell.

When necessary, the local temperature near a particular component can be documented and utilized for aging calculations in lieu of the above temperatures. Average temperatures at many thermocouple locations in the drywell are documented in Appendix A.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)	
)	
ENTERGY NUCLEAR VERMONT)	Docket No. 50-271-LR
YANKEE LLC AND ENTERGY NUCLEAR)	ASLBP No. 06-849-03-LR
OPERATIONS, INC.)	
(Vermont Yankee Nuclear Power Station))	

CERTIFICATE OF SERVICE

I hereby certify that copies of the Corrected Copy Submitted on 7/6/06 of the Vermont Department of Public Service Reply to Answers of Applicant and NRC Staff to Notice of Intention to Participate and Petition to Intervene were served on the persons listed below by deposit in the U.S. Mail, first class, postage prepaid, on the 7th day of July, 2006, and by electronic mail and where indicated by an asterisk on this 6th day of July 2006.

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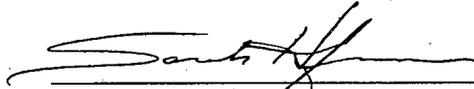
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Respectfully submitted,

A handwritten signature in black ink, appearing to read "Sarah Hofmann", written over a horizontal line.

Sarah Hofmann
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Vermont Department of Public Service