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STATE OF VERMONT  
DEPARTMENT OF PUBLIC SERVICE

DOCKETED  
USNRC

May 30, 2006 (3:30pm)

OFFICE OF SECRETARY  
RULEMAKINGS AND  
ADJUDICATIONS STAFF

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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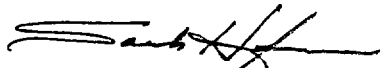
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SECY 02

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**

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

**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:

Sarah Hofmann, Esq.  
Director for Public Advocacy  
Department of Public Service  
112 State Street - Drawer 20  
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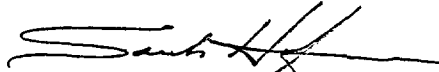
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Ms. Hofmann is an employee of the State of Vermont as the Director for Public Advocacy to the Department of Public Service. She is a an attorney at law in good standing admitted to practice in Vermont. Mr. Roisman is in private practice and is in

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,

A handwritten signature in black ink, appearing to read "Sarah Hofmann", written over a horizontal line.

Sarah Hofmann  
Director for Public Advocacy  
Department of Public Service  
112 State Street - Drawer 20  
Montpelier, VT 05620-2601

Anthony Z. Roisman  
National Legal Scholars Law Firm  
84 East Thetford Rd.  
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 26<sup>th</sup> 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.

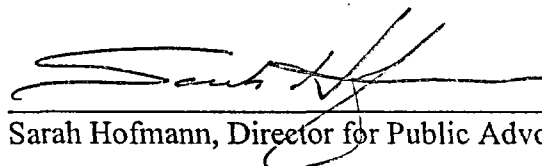
Office of the Secretary of the Commission\*  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001  
Attention: Rulemaking and Adjudications  
Staff  
HEARINGDOCKET@NRC.GOV

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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)**

**DOCKETED  
USNRC**

**May 30, 2006 (3:30pm)**

**OFFICE OF SECRETARY  
RULEMAKINGS AND  
ADJUDICATIONS STAFF**

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

**Filed on May 26, 2006**

**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

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

**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.<sup>1</sup> 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).<sup>2</sup>

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<sup>1</sup> 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.

<sup>2</sup> 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”<sup>3</sup> 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.

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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.

<sup>3</sup> 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).<sup>4</sup> 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

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<sup>4</sup> 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-2<sup>5</sup>.

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.

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<sup>5</sup> Exhibit Vermont-2 consists of a set 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.

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)<sup>6</sup>. 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<sup>7</sup>.

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).

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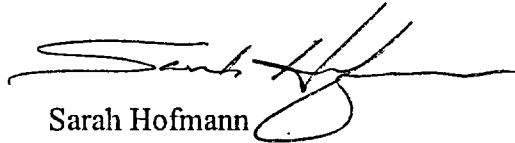
<sup>6</sup> Vermont has not identified specific systems, structures and components required by 10 C.F.R. Part 73 in order to avoid a Nuclear Safeguards Information designation. Vermont reserves its rights, under a rebuttal of lack of specificity on this contention, to file a list of systems, structures 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).

<sup>7</sup> 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

pl  
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<sub>(e)</sub> 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



# 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



# 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



**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

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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.)

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**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

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

**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-2<sup>1</sup>.
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)

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<sup>1</sup> 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 onside 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	<b>Vermont Department of Public Service</b> State Nuclear Engineer
1973 -1985	<b>Stone &amp; Webster Engineering Corporation</b> Senior Power Engineer
1971 - 1973	<b>EDS Nuclear, Inc.</b> Senior Engineer
1967 - 1971	<b>U.S. Naval Nuclear Power Program</b> 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