



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

January 29, 2016

Vice President, Operations
Entergy Nuclear Operations, Inc.
Vermont Yankee Nuclear Power Station
P.O. Box 250
Governor Hunt Road
Vernon, VT 05354

SUBJECT: VERMONT YANKEE NUCLEAR POWER STATION - POST-SHUTDOWN
DECOMMISSIONING ACTIVITIES REPORT (CAC NO. MF5188)

Dear Sir or Madam:

By letter dated December 19, 2014 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML14357A110), Entergy Nuclear Operations, Inc. submitted to the U.S. Nuclear Regulatory Commission (NRC) the Post-Shutdown Decommissioning Activities Report (PSDAR), including the Site-Specific Decommissioning Cost Estimate (DCE), for Vermont Yankee Nuclear Power Station (VY), pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.82(a)(4). Entergy certified on January 12, 2015 (ML15013A426) that it permanently ceased operations on December 29, 2014, permanently removed all fuel from the reactor vessel, and is temporarily storing the spent fuel in the spent fuel pool.

Pursuant to 10 CFR 50.82(a)(4)(i), the PSDAR must contain a description of the planned decommissioning activities along with a schedule for their accomplishment, a discussion that provides the reasons for concluding that the environmental impacts associated with site-specific decommissioning activities will be bounded by appropriate previously issued environmental impact statements, and a site-specific DCE, including the projected cost of managing irradiated fuel. Additionally, pursuant to 10 CFR 50.82(a)(3), decommissioning is to be completed within 60 years of permanent cessation of operations. The regulations do not require the NRC to approve a licensee's submitted PSDAR.

The public was offered opportunities to comment on the PSDAR. A notice was published in the *Federal Register* (80 FR 1975) on January 14, 2015. The NRC staff requested that all comments be submitted by March 23, 2015. Comments that were submitted electronically can be viewed at www.regulations.gov, by searching on Docket NRC-2015-0004 and selecting "Open Docket Folder."

The NRC staff held a public meeting in Brattleboro, VT on February 19, 2015, to explain the decommissioning process and receive comments and questions from the public regarding the PSDAR. A summary of the meeting can be found in ADAMS at ML15082A317. Public comments, and the NRC staff's responses to those comments, are included in the transcript of the meeting (ML15070A234), beginning on page 63.

The NRC staff encouraged members of the public to submit their comments, in writing, through one of the several available formats discussed during the meeting.

A large number of comments were received from the State of Vermont and other individuals and entities. All comments received have been grouped into two categories: (1) questions and comments that are within the regulatory purview of the NRC staff's review of the PSDAR, and considered by the staff during its review, and (2) questions and comments that, upon review, were found to be outside the regulatory authority of the NRC, or were not relevant to the review performed by the NRC staff (i.e., whether the licensee's PSDAR meets the requirement of 10 CFR 50.82(a)(4)) and, thus, were not considered.

The questions and comments that the NRC staff considered during its review of the PSDAR, including those specifically addressed by the NRC staff during the February 19, 2015, public meeting, are summarized below. Details of the specific questions or comments can be found in the documents referenced above.

- Questions or comments about the use decommissioning trust fund resources for expenses other than those defined in 10 CFR 50.2;
- Questions or comments about NRC being certain that there will be enough funds to decommission VY;
- Questions or comments about Entergy's financial liability concerning the decommissioning trust fund;
- Questions or comments regarding what happens to the decommissioning trust fund if Entergy files for bankruptcy;
- Questions or comments regarding the decommissioning trust fund and VY being a merchant plant;
- Questions or comments about the spent fuel remaining onsite without a permanent national high level waste storage facility;
- Questions or comments about dry cask integrity;
- Questions or comments on spent fuel management;
- Questions or comments about the safety of moving spent fuel from the spent fuel pool to dry casks;
- Questions or comments about whether there is reasonable assurance that sufficient funds are available to decommission the facility, and who manages those funds;
- Questions or comments about maintaining an offsite emergency plan until all spent fuel is placed in dry casks;
- Questions or comments about the description of the licensee's activities planned during decommissioning;

- Questions or comments about the decontamination of VY sooner (DECON – immediate dismantling) and not enter SAFSTOR (deferred dismantling);
- Questions and comments about the contents of the Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities (NUREG-0586), and
- Questions or comments about the environmental impact of the decommissioning activities and the maintenance of the historical site assessment.

State, local, and public comments or questions that were considered by the NRC staff during its review of the PSDAR but were found to be outside of the NRC's regulatory purview or outside the scope of the NRC staff's environmental review of the PSDAR, as defined in 10 CFR 50.82(a)(4)(i), are summarized below.

- Questions or comments regarding the independent assessments from citizen oversight committees;
- Questions or comments regarding the appropriateness or reasonableness of allowing the licensee to pass maintenance and decommissioning costs to the customer;
- Questions or comments regarding the specific condition of various plant components, including the condition of the spent fuel in the spent fuel pool;
- Questions or comments regarding the specifics of the spent fuel disposal or greater than class C waste;
- Questions or comments regarding low level waste agreements between states;
- Questions or comments regarding the river water thermal pollution;
- Questions or comments regarding the licensee's purpose for the proposed decommissioning schedule;
- Questions or comments regarding the transportation of low level radioactive material and its ultimate storage;
- Questions on the condition of plant components (e.g., are they "highly radioactive,"), or their ultimate burial location;
- Questions or comments on the cost or benefit of the licensee using wet versus dry spent fuel storage;
- Question or comments relating to regulatory requirements that the licensee must meet (e.g., emergency planning requirements of 10 CFR 50.54(q));

- Questions or comments postulating conditions beyond the design of the nuclear plant, or where a nexus to safety is not clear, or describing events of a speculative nature;
- Questions or comments about safety reviews, inspections, or processes that are defined in current regulations or publically available documents;
- Questions or comments on the acceptability of current NRC regulations; and
- Questions or comments about activities that are regulated by the other entities.

NRC staff's review process of the PSDAR does not require a response to each of the comments submitted. However, the NRC identified a number of similar in scope comments that pertained to the same topic. Generic responses related to those topics are addressed in the enclosure to this letter.

The NRC staff reviewed the PSDAR and DCE against the requirements in 10 CFR 50.82(a). In addition, the NRC staff used the guidance in Regulatory Guide (RG) 1.185, Revision 1, "Standard Format and Content for Post-Shutdown Decommissioning Activities Report," dated June 2013 (ML13140A038), in conducting its review and concludes the following:

1. Section 2.0 of the PSDAR, "Description of Planned Decommissioning Activities," and the DCE provide the applicable information identified in Section C(1) of RG 1.185. The NRC staff's review found that the licensee adequately described the activities associated with the major periods or milestones related to the decommissioning, as required by 10 CFR 50.82(a)(4)(i) and consistent with RG 1.185. These periods included Preparations (for Dormancy), Dormancy, and Preparations for Decommissioning, Decommissioning, and Site Restoration.
2. Section 3.0 of the PSDAR, "Schedule of Decommissioning Activities," and the DCE provide the estimated dates for initiation and completion of major decommissioning activities, as required by 10 CFR 50.82(a)(4)(i) and consistent with Section C(2) of RG 1.185. The NRC staff finds that the schedule for decommissioning activities is adequate to achieve VY license termination within 60 years of permanent cessation of operations, as required by 10 CFR 50.82(a)(3).
3. Section 4.0 of the PSDAR, "Estimate of Expected Decommissioning and Spent Fuel Management Costs," and the DCE provide an estimate of the expected decommissioning costs for VY. By letter dated March 30, 2015 (ML15092A141), Entergy estimated the total decommissioning cost of VY to be approximately \$817.22 million (in 2014 dollars), which is greater than the NRC minimum decommissioning cost of \$622.8 million (in 2014 dollars). The NRC staff finds that Entergy's site-specific DCE and the cost of long-term storage of spent fuel for VY are not unreasonable, are described consistent with the guidance in R.G. 1.185, provide sufficient details associated with the funding mechanisms, and meet the requirements of 10 CFR 50.82(a)(4)(i).
4. Section 5.0 of the PSDAR, "Environmental Impacts," provides a discussion of the potential environmental impacts associated with VY decommissioning activities, as

identified by Section C(4) of RG 1.185. The PSDAR includes a comparison of potential environmental impacts from VY planned decommissioning activities with impacts from similar activities provided in NUREG-0586, "Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities," August 1988 (GEIS) Volumes 1 and 2 of Supplement 1, dated November 2002 (ML023470327 and ML023500310). The GEIS and supplement include evaluations of the environmental impacts of decommissioning activities at nuclear power reactors necessary to reduce residual radioactivity to levels that allow for the termination of the NRC license. The licensee compared the VY facility to the reference facility in NUREG-0586 and found that the VY environmental impacts were all bounded by the analyses provided in NUREG-0586. After reviewing the licensee's comparison, the NRC staff finds that the potential environmental impacts associated with the VY decommissioning activities are bounded by the previously issued GEIS and its supplement, are described consistent with the guidance in RG 1.185, and meet the requirements of 10 CFR 50.82(a)(4)(i).

Based on this review, the NRC staff finds that the PSDAR contains the information required by 10 CFR 50.82(a)(4)(i), and is consistent with RG 1.185. In accordance with 10 CFR 50.82(a)(7), Entergy must notify the NRC, in writing, before performing any significant decommissioning activity inconsistent with, or making a significant schedule change from, the planned decommissioning activities or schedules described in the PSDAR, including changes that significantly increase the decommissioning costs.

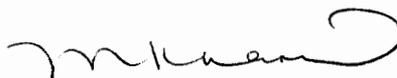
The NRC will continue to conduct inspections at VY throughout decommissioning under Inspection Manual Chapter 2561, "Decommissioning Power Reactor Inspection Program," to ensure decommissioning activities are performed safely and in compliance with the Commission's rules and regulations, and the conditions of the license.

In accordance with 10 CFR Part 2, "Agency Rules of Practice and Procedure," a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of NRC's ADAMS. ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

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If you have any questions regarding this letter, please contact James Kim, at (301) 415-4125, or by e-mail at James.Kim@nrc.gov.

Sincerely,

A handwritten signature in black ink, appearing to read 'Meena K. Khanna', with a large, stylized flourish at the end.

Meena K. Khanna, Chief
Plant Licensing IV-2 and Decommissioning
Transition Branch
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-271

Enclosure:

Comments and Responses Associated with Vermont Yankee
Post-Shutdown Decommissioning Activities Report

cc w/encl: Distribution via Listserv

**GENERAL RESPONSES TO COMMENTS ASSOCIATED WITH VERMONT YANKEE
POST-SHUTDOWN DECOMMISSIONING ACTIVITIES REPORT**

NRC STAFF RESPONSES TO THE STATE OF VERMONT COMMENTS

Extensive comments were received from the State of Vermont and the complete package of comments can be viewed under ADAMS Accession No. ML15082A234. Some of the comments that the State submitted are addressed in the material referenced below. In addition, the State's comments on the PSDAR were attached to the State's Petition for Intervention and Request for Hearing filed on April 20, 2015 (ML15110A484) and relied on by the State in that adjudication. The State's PSDAR comments were also attached to and relied on in the petition that the State filed with the Commission on November 4, 2015, titled "Petition of the State of Vermont, the Vermont Yankee Nuclear Power Corporation, and Green Mountain Power Corporation for Review of Entergy Nuclear Operation, Inc.'s Planned Use of the Vermont Yankee Nuclear Decommissioning Trust Fund" (ML15309A758). Given that the issues are in litigation, the NRC staff will not address them here. The NRC staff did, however, file an answer to the April 20, 2015 Petition and its answer can be accessed through ADAMS (ML15135A523). The NRC staff's answer to the November 5, 2015 Petition can also be accessed through ADAMS (ML15341A361).

GENERAL RESPONSES

The NRC identified a number of similar comments that pertained to the same topic. Below are generic responses related to those topics:

Funding of Offsite EP

There is no NRC requirement for a licensee to provide funding to a State or Commonwealth and it is considered a matter between the State and Entergy.

Decommissioning Fund

The NRC regulations require licensees of nuclear power plants to submit data every 2 years, and annually for decommissioned plants on the status of funds to be put aside to cover the cost of decommissioning their nuclear plants (known as the Decommissioning Funding Status (DFS) Report). Any licensee for a plant that is within 5 years of the projected end of its operation, or where conditions have changed such that it will close within 5 years (before the end of its licensed life), or that has already closed (before the end of its licensed life), or that is involved in a merger or an acquisition shall submit this report annually. The NRC staff independently analyzes each of these reports to determine whether the agency has reasonable assurance that the licensees are providing sufficient funding for radiological decommissioning of the reactor when it is permanently shut down. This assurance is referred to as "decommissioning funding assurance (DFA)."

Enclosure

Section 4.0 of the PSDAR, "Estimate of Expected Decommissioning and Spent Fuel Management Costs," and the DCE provide an estimate of the expected decommissioning costs for VY. By letter dated March 30, 2015 (ML15092A141), Entergy estimated the total decommissioning cost of VY to be approximately \$817.22 million (in 2014 dollars), which is greater than the NRC minimum decommissioning cost of \$622.8 million (in 2014 dollars). The NRC staff finds that Entergy's site-specific DCE and the cost of long-term storage of spent fuel for VY are not unreasonable, are described consistent with the guidance in Regulatory Guide (RG) 1.185, Revision 1, "Standard Format and Content for Post-Shutdown Decommissioning Activities Report," dated June 2013 (ML13140A038), provides sufficient details associated with the funding mechanisms, and meets the requirements of 10 CFR 50.82(a)(4)(i).

SAFSTOR

The decommissioning approach that Entergy selected for VY is the SAFSTOR method.

SAFSTOR: After the plant is shut down and defueled, the facility is placed in a safe, stable condition and maintained in that state (safe storage). The facility is decontaminated and dismantled at the end of the storage period to levels that permit license termination. During SAFSTOR, a facility is left intact or may be partially dismantled, but the fuel is removed from the reactor vessel and radioactive liquids are drained from systems and components and then processed. Radioactive decay occurs during the SAFSTOR period, thereby reducing the quantity of contamination and radioactivity that must be disposed of during decontamination and dismantlement.

The NRC has strict rules governing nuclear power plant decommissioning, involving cleanup of radioactively contaminated plant systems and structures, and removal of the radioactive fuel. These requirements protect workers and the public during the entire decommissioning process and the public after the license is terminated.

In addition, 10 CFR 50.82(a)(3) requires decommissioning to be completed within 60 years of permanent cessation of operations.

Dry Cask

The NRC authorizes storage of spent nuclear fuel at an independent spent fuel storage installation (ISFSI) under a general license for VY. A general license authorizes Entergy to store spent fuel in NRC-approved casks at VY.

Entergy is required to perform evaluations of VY to demonstrate that the site is adequate for storing spent fuel in dry casks. These evaluations must show that the cask Certificate of Compliance conditions and technical specifications can be met, including analysis of earthquake events and tornado missiles. The licensee must also review its security program, emergency plan, quality assurance program, training program and radiation protection program, and make any necessary changes to incorporate the ISFSI at its reactor site.

An NRC-approved cask is one that has undergone a technical review of its safety aspects and been found to be adequate to store spent fuel at a site that has been evaluated by the licensee to meet all of the NRC's requirements in 10 CFR Part 72.

The NRC issues a Certificate of Compliance for a cask design to a cask vendor if the review of the design finds it technically adequate. The cask certificate is valid for up to 40 years from the date of issuance.

Spent Fuel Pool vs Dry Cask

Used (spent) radioactive nuclear fuel can be safely shielded with water, or steel and concrete. The NRC allows two types of storage methods for used nuclear fuel using these shielding methods: wet and dry storage. Wet storage (spent fuel pool) is an underwater storage and cooling facility for spent fuel elements that have been removed from the reactor. It involves placing the fuel assemblies under at least 20 feet of water. The water serves two purposes: it serves as a shield to reduce the radiation levels that people working above may be exposed to and it cools the fuel assemblies that continue to produce heat (called decay heat) for some time after removal.

In the late 1970's and early 1980's, the need for alternative storage began to grow when pools at many nuclear reactors began to fill up with stored used fuel. Utilities began looking at options for increasing spent fuel storage capacity. The first choice was to re-rack the SFPs, moving the stored assemblies closer together (high-density fuel storage). The NRC allowed high-density storage of spent fuel in pools originally designed to hold much smaller inventories (low-density, open rack storage). Plants started to use a dense storage configuration, with assemblies approximately 1 inch apart. In order to prevent the spent fuel from going critical, the fuel assemblies are partitioned off from each other in metal boxes whose walls contain neutron absorbing boron. These shields effectively create a thermal barrier around each waste assembly. Eventually, SFPs reached their capacity.

Dry cask storage allows spent fuel that has already been cooled in the spent fuel pool for at least 5 years to be surrounded by inert gas inside a container called a cask and stored on a concrete pad. The casks are typically steel cylinders that are either welded or bolted closed. The steel cylinder provides a leak-tight containment of the spent fuel. Each cylinder is surrounded by additional steel and concrete to provide radiation shielding to workers and members of the public. The fuel is kept cool by air entering vents on the side of the container and circulating around the outside of the steel canister. Each canister is designed to hold approximately 2-6 dozen spent fuel assemblies. Water and air are removed, the canister is filled with inert gas, sealed, and tested for leaks.

The NRC regulates spent fuel through a combination of regulatory requirements, licensing; safety oversight, including inspection, assessment of performance; and enforcement; operational experience evaluation; and regulatory support activities. The NRC's regulations are found in Chapter I of Title 10, "Energy", of the *Code of Federal Regulations*. Chapter I is divided into Parts 1 through 199. Part 72, "Licensing Requirements for the Independent Storage of Spent Nuclear Fuel and High Level Radioactive Waste, and Reactor-Related Greater than Class C Waste," rules spent fuel storage. The NRC periodically inspects the design, fabrication, and use of dry cask storage.

By COMSECY-13-0030, dated November 12, 2013 (ML13273A601 and ML13273A628), the NRC staff concluded that the expedited transfer of spent fuel to dry cask storage would provide only a minor or limited safety benefit.

By SRM COMSECY-13-0030, dated May 23, 2014 (ML14143A360), the Commission approved the NRC staff's recommendation that this Tier 3 Japan lessons learned activity be closed and that no further generic assessments be pursued related to possible regulatory actions to require the expedited transfer of spent fuel to dry cask storage.

Exemptions to the Planning Standards of 10 CFR 50.47 and Requirements of Appendix E to 10 CFR Part 50

By letter dated March 14, 2014, "Request for Exemptions from Portions of 10 CFR 50.47 and 10 CFR 50, Appendix E" (ML14080A141), Entergy requested exemptions from specific EP requirements for VY. These requested exemptions would be implemented 15.4 months after the reactor is shut down (estimated as April 2016). The NRC staff made a request for additional information (RAI) in a letter dated August 19, 2014, "Vermont Yankee Nuclear Power Station - Request for Additional Information Regarding Exemption from the Requirements of 10 CFR 50.47 and Appendix E (TAC No. MF3614)" (ML14192A835). In a letter dated August 29, 2014, "Request for Exemptions from Portions of 10 CFR 50.47 and 10 CFR 50 Appendix E - Supplement 1 (TAC No. MF3614)" (ML14246A176), Entergy provided responses to the RAI. The NRC staff found the application complete and the licensee's associated technical justification provided a basis for the Commission's consideration of the requested exemptions. The exemptions requested by Entergy, and the NRC staff's review of this information, are detailed in SECY-14-0125, dated November 14, 2014 (ML14227A711).

In Attachment 2 to the March 14, 2014, letter, Entergy provided the accident analyses associated with Design-Basis Accidents (DBAs) and beyond DBAs as a basis for justifying the request for approval of the VY Permanently Defueled Emergency Plan (PDEP). Entergy's requested exemptions included analyses to show that the radiological consequences of DBAs will not exceed the limits of the Environmental Protection Agency's (EPA's) protective action guides (PAGs) at the exclusion area boundary 17 days after shut down. Additionally, Entergy performed analyses for beyond DBA loss of spent fuel pool (SFP) inventory events, including an event that has uncovered spent fuel with no air cooling. In the unlikely event that cooling to the spent fuel is not possible, the analysis shows that 15.4 months after shut down (estimated as April 2016), 10 hours would be available from the time the fuel is uncovered until it reaches a temperature of 900 degrees Celsius to initiate mitigative actions consistent with plant conditions and, if necessary, for offsite authorities to employ their comprehensive emergency management plan (CEMP) to take protective actions. In addition, significant decay of short-lived radionuclides that would occur over the 15.4 months from shut down provides assurance in other ways. The time available to initiate mitigative actions and the significant decay of short-lived radionuclides would continue to increase beyond 15.4 months after shutdown providing further assurance. As indicated by the results of research conducted for NUREG-1738, "Technical Study of Spent Fuel Pool Accident Risk at Decommissioning Nuclear Power Plants" (ML010430066), and more recently, NUREG-2161, "Consequence Study of a Beyond-Design-Basis Earthquake Affecting the Spent Fuel Pool for a U.S. Mark I Boiling Water Reactor" (ML14255A365), while other consequences can be extensive, accidents from SFPs with significant decay time have little potential to cause offsite early fatalities, even if the existing offsite radiological emergency plan requirements were relaxed.

In Attachment 1 to the March 14, 2014, letter, Entergy furnished information to supplement its requested exemptions concerning its SFP inventory makeup strategies. Several sources of

makeup to the pool are available, such as the service water (SW) system, which has redundant pumping capability and power supplies to ensure alternative fuel pool makeup function. Additionally, there are electric-driven and diesel-driven fire pumps that can supply makeup water to the SFP via the SW system or the fire water system. All sources discussed above take suction from the Connecticut River. VY also has an engine-driven emergency makeup pump capable of taking suction from the Cooling Tower No. 2 deep basin to provide an alternate source of makeup water to the SFP. There are multiple ways to add makeup water to the SFP with or without entry to the refuel floor. In a letter dated April 24, 2014, "Technical Specifications Proposed Change No. 307, Revision to Mitigation Strategy License Condition and Technical Specification Administrative Controls for Permanently Defueled Condition - Supplement 1 (TAC No. MF 2991)" (ML14119A099), Entergy withdrew its request to remove License Condition 3.N, Mitigation Strategy License Condition, from the VY Renewed Facility Operating License. This license condition requires VY to maintain its SFP inventory makeup strategies, as discussed above.

In the unlikely situation that a radiological release is expected, elements of the revised EP would facilitate the ability of offsite authorities to take protective actions under a CEMP. The licensee must still maintain an ability to determine if a radiological release is occurring, and if a release is occurring or expected to occur, promptly communicate that information to offsite authorities.

The NRC staff reviewed Entergy's requested exemptions against the requirements in 10 CFR 50.47, Appendix E to 10 CFR Part 50, and 10 CFR 72.32, "Emergency Plan." The review considered the status of the facility, which will be permanently shut down and defueled at the time when the exemptions will be implemented and the low likelihood of any credible accident resulting in radiological releases requiring offsite protective measures. The NRC staff based its evaluation of the Entergy request for exemptions from EP requirements on site-specific analyses provided by the licensee. The NRC staff verified Entergy's analyses and its calculations. The analysis provided reasonable assurance that in granting the requested exemptions to Entergy: (1) an offsite radiological release will not exceed the EPA's PAGs at the site boundary for a DBA; and (2) in the unlikely event of a beyond DBA resulting in a loss of all SFP cooling, there is sufficient time to initiate appropriate mitigating actions and, if a release is projected to occur, there is sufficient time for offsite agencies to take protective actions using a CEMP to protect the health and safety of the public.

Consistent with the June 17, 1993, memorandum of understanding (MOU) between the NRC and the Federal Emergency Management Agency (FEMA), contained in Appendix A to 44 CFR 353, the NRC staff has discussed and coordinated its review of requests for exemptions to EP regulations with FEMA. As part of the NRC staff's evaluation of the recent EP exemptions requested for the Kewaunee Power Station, the NRC staff provided FEMA with a copy of SECY-14-0066, "Request by Dominion Energy Kewaunee, Inc. for Exemptions from Certain Emergency Requirements," dated June 27, 2014 (ML14072A257), and the opportunity to ask questions, obtain clarification, and comment on the paper, prior to the Commission receiving it for review. FEMA provided the following comments in response to the EP exemptions proposed in SECY-14-0066:

FEMA is not taking a position on the technical arguments presented by the licensee or the NRC's assessments. FEMA recognizes the NRC's role to analyze the possibility of incidents that could result in offsite dose impacts.

FEMA acknowledges that individual states and local governments have the primary authority and responsibility to protect their citizens and respond to disasters and emergencies. The exemption, if issued, could create a transitional environment for off-site emergency planners in how they consider radiological hazards. FEMA will continue to support offsite organizations as they adjust their plans, capabilities, and resources to the changing radiological threat. Among the resources available to support FEMA stakeholders during the transition process include, but are not limited to, the National Preparedness System guidance materials, the Federal Radiological Preparedness Coordinating Committee, and assistance from FEMA Headquarters and Regional Staff.

The NRC staff considered FEMA's comments as part of SECY-14-0066 and believes that the technical and safety basis for the exemptions demonstrate reasonable assurance in the two areas mentioned above.

FEMA was offered the opportunity to comment on the draft VY SECY paper. In response, FEMA indicated that they had no further comments other than the inclusion of the statement above from SECY-14-0066.

The decommissioning facility, at the time the exemptions are granted, would pose significantly less of a radiological risk to public health and safety than an operating power reactor, which should result in a straightforward transition to a more streamlined CEMP. Aspects of existing offsite radiological emergency preparedness plans may remain in place, at the State's discretion, before completion of any adjustments to State and local CEMPs that are appropriate for the reduced radiological risk and can be adopted to minimize burden on the State and local governments. VY will still be required to maintain an onsite EP, which would provide for the notification of, and coordination with, offsite organizations commensurate with the approved exemptions.

The exemption would not affect the authority that FEMA has under its regulations in 44 CFR Chapter I, "Federal Emergency Management Agency," for overall emergency management and assistance to State and local response organizations, nor would it affect the responsibilities of State and local governments to establish and maintain CEMPs. The NRC would base its finding of reasonable assurance on its review of licensee onsite emergency preparedness and would not require a finding from FEMA on the adequacy of State and local CEMPs. Under its role as described in the National Response Framework, the NRC remains ready to support FEMA by providing it and State and local governments technical advice related to the safety and security of operations at the plant.

In a letter dated June 12, 2014, "Vermont Yankee Permanently Defueled Emergency Plan and Emergency Action Level Scheme" (ML14168A302), Entergy also requested a license amendment to revise its emergency plan, implementing changes that reflect the permanently shut down and defueled status of VY based on the NRC granting the requested exemptions from portions of 10 CFR 50.47 and 10 CFR 50 Appendix E. This included the exemption to the emergency planning zone and the exemption to increase the notification time from 15 minutes to 60 minutes are contained in SECY-14-0125. The revised EP also includes other changes consistent with the proposed exemptions discussed in SECY-14-0125.

By SRM-SECY-14-0125, dated March 2, 2015 (ML15061A516), the Commission approved the NRC staff's recommendation to grant Entergy's request for exemptions from certain EP requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50 for Vermont Yankee to be implemented as stipulated in SECY-14-0125, dated November 14, 2014 (ML14227A711).

The NRC staff approved the requested exemptions effective as of April 15, 2016. The exemptions would remove the requirements to address hostile action in the VY PDEP, to maintain an emergency planning zone and an emergency operations facility (EOF), and to have an evaluation of the adequacy of offsite radiological emergency response by FEMA.

The Commission recently approved similar exemption requests for the Kewaunee Power Station; Crystal River Unit 3 Nuclear Generating Plant; and San Onofre Nuclear Generating Station, Units 1, 2, and 3; (ML14261A223, ML15058A906, and ML15082A204, respectively).

Generic Environmental Impact Statement (GEIS)

The NRC staff performed a review of the environmental impacts of license renewal on eventual decommissioning in Section 7.0 of NUREG-1437, Supplement 30, "Generic Environmental Impact Statement for License Renewal of Nuclear Plants: Regarding Vermont Yankee Nuclear Power Station - Final Report," Volume 1 and 2, dated August 2007 (ML072050012 and ML072050013).

Environmental impacts from the activities associated with the decommissioning of any reactor before or at the end of an initial or renewed license are evaluated in the "Generic Environmental Impact Statement for Decommissioning of Nuclear Facilities (Decommissioning GEIS): Supplement 1, Regarding the Decommissioning of Nuclear Power Reactors," NUREG-0586, Supplement 1, dated November 2002 (ML023470304 and ML023470323). The NRC staff's evaluation of the environmental impacts of decommissioning presented in NUREG-0586, Supplement 1, identifies a range of impacts for each environmental issue.

The incremental environmental impacts associated with decommissioning activities resulting from continued plant operation during the renewal term are discussed in the *Generic Environmental Impact Statement for License Renewal of Nuclear Plants* (License Renewal GEIS), NUREG-1437, Volumes 1 and 2 (NRC 1996, 1999, and 2013). The License Renewal GEIS includes a determination of whether the analysis of the environmental issue could be applied to all plants and whether additional mitigation measures would be warranted. Issues were then assigned a Category 1 or a Category 2 designation. As stated in the License Renewal GEIS, Category 1 issues are those that meet all of the following criteria: (1) the environmental impacts associated with the issue have been determined to apply either to all plants or, for some issues, to plants having a specific type of cooling system or other specified plant or site characteristics, (2) A single significance level (i.e., small, moderate, or large) has been assigned to the impacts (except for collective offsite radiological impacts from the fuel cycle and from high-level waste and spent fuel disposal), and (3) mitigation of adverse impacts associated with the issue has been considered in the analysis, and it has been determined that additional plant-specific mitigation measures are likely not to be sufficiently beneficial to warrant implementation.

For issues that meet Category 1 criteria, no additional plant-specific analysis is required unless new and significant information is identified.

Category 2 issues are those that do not meet one or more of the criteria for Category 1, and, therefore, additional plant-specific review of these issues is required. There are no Category 2 issues related to decommissioning in the License Renewal GEIS.

Based on information in the License Renewal GEIS, the Commission found that

Decommissioning would have some short-term socioeconomic impacts. The impacts would not be increased by delaying decommissioning until the end of a 20-year relicense period, but they might be decreased by population and economic growth.

Therefore, the NRC staff concluded that there would be no socioeconomic impacts associated with decommissioning following the license renewal term beyond those described in the GEIS.

In the PSDAR, Entergy states, in part, the following:

Decommissioning of VYNPS is expected to result in negative socioeconomic impacts. As VYNPS transitions from an operating plant to a shutdown plant and into the different phases of decommissioning, an overall decrease in plant staff will occur. The lost wages of these plant staff will result in decreases in revenues available to support the local economy and local tax authorities. Some laid-off workers may relocate, thus potentially impacting the local cost of housing and availability of public services.

Section 4.3.12 of the Decommissioning GEIS (NUREG-0586) evaluated changes in workforce and population, changes in local tax revenues, and changes in public services. The evaluation also examined large plants located in rural areas that permanently shut down early and selected the SAFSTOR option. The Decommissioning GEIS determined that this situation is the likeliest to have negative impacts. The Decommissioning GEIS concluded that socioeconomic impacts are neither detectable nor destabilizing and that mitigation measures are not warranted. Therefore, Entergy concludes that the impacts of VYNPS' decommissioning on socioeconomic impacts are bounded by the Decommissioning GEIS.

ADDITIONAL INFORMATION

Additional information can be found in the following documents:

Backgrounder on Decommissioning Nuclear Power Plants: www.nrc.gov/reading-rm/doc-collections/fact-sheets/decommissioning.html

Frequently Asked Questions About Reactor Decommissioning:
www.nrc.gov/waste/decommissioning/faq.html

If you have any questions regarding this letter, please contact James Kim, at (301) 415-4125, or by e-mail at James.Kim@nrc.gov.

Sincerely,

/RA/

Meena K. Khanna, Chief
Plant Licensing IV-2 and Decommissioning
Transition Branch
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-271

Enclosure:

Comments and Responses Associated with Vermont Yankee
Post-Shutdown Decommissioning Activities Report

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