

**NUCLEAR REGULATORY COMMISSION**

**[Docket No. 50-271; NRC-2015-0111]**

**Entergy Nuclear Operations, Inc.**

**Vermont Yankee Nuclear Power Station**

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Environmental assessment and finding of no significant impact; issuance.

**SUMMARY:** The U.S. Nuclear Regulatory Commission (NRC) is considering issuance of exemptions in response to a request from Entergy Nuclear Operations, Inc. (Entergy or the licensee) that would permit the licensee to reduce its emergency planning (EP) activities at the Vermont Yankee Nuclear Power Station (Vermont Yankee or VY). The licensee is seeking exemptions that would eliminate the requirements for the licensee to maintain formal offsite radiological emergency plans, and reduce some of the onsite EP activities, based on the reduced risks at VY, which is permanently shutdown and defueled. However, requirements for certain onsite capabilities to communicate and coordinate with offsite response authorities, in the event of an emergency at VY, would be retained. In addition, offsite EP provisions would still exist through State and local government use of a comprehensive emergency management plan (CEMP) process in accordance with the Federal Emergency Management Agency's (FEMA's) Comprehensive Preparedness Guide (CPG) 101, "Developing and Maintaining Emergency Operations Plans." The NRC staff is issuing a final environmental assessment (EA) and final finding of no significant impact (FONSI) associated with the proposed exemptions.

**DATES:** The EA and FONSI referenced in this document are available on **[INSERT DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**.

**ADDRESSES:** Please refer to Docket ID **NRC-2015-0111** when contacting the NRC about the availability of information regarding this document. You may obtain publicly-available information related to this document using any of the following methods:

- **Federal Rulemaking Web Site:** Go to <http://www.regulations.gov> and search for Docket ID **NRC-2015-0111**. Address questions about NRC dockets to Carol Gallagher; telephone: 301-415-3463; e-mail: [Carol.Gallagher@nrc.gov](mailto:Carol.Gallagher@nrc.gov). For technical questions, contact the individual listed in the FOR FURTHER INFORMATION CONTACT section of this document.

- **NRC's Agencywide Documents Access and Management System (ADAMS):**  
You may obtain publicly-available documents online in the ADAMS Public Documents collection at <http://www.nrc.gov/reading-rm/adams.html>. To begin the search, select "[ADAMS Public Documents](#)" and then select "[Begin Web-based ADAMS Search](#)." For problems with ADAMS, please contact the NRC's Public Document Room (PDR) reference staff at 1-800-397-4209, 301-415-4737, or by e-mail to [pdr.resource@nrc.gov](mailto:pdr.resource@nrc.gov). For the convenience of the reader, the ADAMS accession numbers are provided in a table in the "Availability of Documents" section of this document.

- **NRC's PDR:** You may examine and purchase copies of public documents at the NRC's PDR, Room O1-F21, One White Flint North, 11555 Rockville Pike, Rockville, Maryland 20852.

**FOR FURTHER INFORMATION CONTACT:** James Kim, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington DC 20555-0001; telephone: 301-415-4125; e-mail: [James.Kim@nrc.gov](mailto:James.Kim@nrc.gov).

**SUPPLEMENTARY INFORMATION:**

**I. Introduction.**

Vermont Yankee is a permanently shutdown and defueled nuclear power plant that is in the process of decommissioning, and is located in Windham County, Vermont, 5 miles south of Brattleboro, Vermont. Entergy is the holder of the Renewed Facility Operating License No. DPR-28 for VY. Vermont Yankee has been shut down since December 29, 2014, and the final removal of fuel from the VY reactor vessel was completed on January 12, 2015. By letter dated January 12, 2015, Entergy submitted to the NRC a certification of the permanent cessation of power operations at VY and the permanent removal of fuel from the VY reactor vessel. As a permanently shutdown and defueled facility, and pursuant to section 50.82(a)(2) of Title 10 of the *Code of Federal Regulations* (10 CFR), VY is no longer authorized to be operated or to have fuel placed into its reactor vessel, but the licensee is still authorized to possess and store irradiated nuclear fuel. Irradiated nuclear fuel is currently stored onsite at VY in a spent fuel pool (SFP) and in an independent spent fuel storage installation.

The licensee has requested exemptions for VY from certain EP requirements in 10 CFR part 50, "Domestic Licensing of Production and Utilization Facilities." The NRC regulations concerning EP do not recognize the reduced risks after a reactor is permanently shut down and defueled. As such, a permanently shutdown and defueled reactor, such as VY, must continue

to maintain the same EP requirements as an operating power reactor under the existing regulatory requirements. To establish a level of EP commensurate with the reduced risks of a permanently shutdown and defueled reactor, Entergy requires exemptions from certain EP regulatory requirements before it can change its emergency plans.

The NRC is considering issuing exemptions from portions of 10 CFR 50.47, “Emergency plans,” and 10 CFR part 50, appendix E, “Emergency Planning and Preparedness for Production and Utilization Facilities,” to Entergy, which would eliminate the requirements for Entergy to maintain offsite radiological emergency plans and reduce some of the onsite EP activities, based on the reduced risks at VY, due to its permanently shutdown and defueled status. According to the decision of the United States Court of Appeals for the Second Circuit in *Brodsky v. NRC* associated with a fire protection exemption for Indian Point Nuclear Generating Unit No. 3, and demonstrated public interest in this exemption request, particularly by the State of Vermont, on April 30, 2015 (80 FR 24291), the NRC published a *Federal Register* notice seeking public comment, pursuant to 10 CFR 51.33, on a draft EA and FONSI associated with Entergy’s exemption request. Based on the final EA and the NRC staff’s responses to the comments received on the draft EA, the NRC has determined not to prepare an environmental impact statement for the exemption request and is issuing a FONSI.

## **II. Environmental Assessment.**

### *Description of the Proposed Action*

The proposed action would exempt Entergy from meeting certain requirements set forth in 10 CFR 50.47 and appendix E to 10 CFR part 50. More specifically, Entergy requested exemptions from: 1) certain requirements in 10 CFR 50.47(b) regarding onsite and offsite

emergency response plans for nuclear power reactors; 2) certain requirements in 10 CFR 50.47(c)(2) to establish plume exposure and ingestion pathway EP zones for nuclear power reactors; and 3) certain requirements in 10 CFR part 50, appendix E, section IV, which establishes the elements that make up the content of emergency plans. The proposed action of granting these exemptions would eliminate the requirements for Entergy to maintain formal offsite radiological emergency plans, as described in 44 CFR part 350, and reduce some of the onsite EP activities at VY, based on the reduced risks at the permanently shutdown and defueled reactor. However, requirements for certain onsite capabilities to communicate and coordinate with offsite response authorities, in the event of an emergency at VY, would be retained. Additionally, if necessary, offsite protective actions could still be implemented using a CEMP process. A CEMP in this context, also referred to as an emergency operations plan (EOP), is addressed in FEMA's CPG 101. The CPG 101 is the foundation for State, territorial, Tribal, and local EP in the United States. It promotes a common understanding of the fundamentals of risk-informed planning and decision making, and helps planners at all levels of government in their efforts to develop and maintain viable, all-hazards, all-threats emergency plans. An EOP is flexible enough for use in all emergencies. It describes how people and property will be protected; details regarding who is responsible for carrying out specific actions; identifies the personnel, equipment, facilities, supplies, and other resources available; and outlines the process by which all actions will be coordinated. A CEMP is often referred to as a synonym for "all-hazards" planning.

The proposed action is in accordance with the licensee's application dated March 14, 2014, as supplemented by letters dated August 29, 2014, and October 21, 2014. In its letters dated August 29, 2014, and October 21, 2014, Entergy provided responses to the NRC staff's requests for additional information concerning the proposed exemptions.

### *Need for the Proposed Action*

The proposed action is needed for Entergy to revise the VY emergency plan to reflect the permanently shutdown and defueled status of the facility. The EP requirements currently applicable to VY are for an operating power reactor. There are no explicit regulatory provisions distinguishing EP requirements for a power reactor that has been permanently shut down, from those for an operating power reactor. Therefore, since the 10 CFR part 50 license for VY no longer authorizes operation of the reactor or emplacement or retention of fuel into the reactor vessel, as specified in 10 CFR 50.82(a)(2), the occurrence of postulated accidents associated with reactor operation is no longer credible.

In its exemption request, the licensee identified four possible radiological accidents at VY in its permanently shutdown and defueled condition. These are: 1) a fuel handling accident (FHA); 2) a radioactive waste handling accident; 3) a loss of SFP normal cooling (i.e., boil off); and 4) an adiabatic heat up of the hottest fuel assembly. The NRC staff evaluated these possible radiological accidents, as memorialized in the Commission Paper (SECY) 14-0125, "Request by Entergy Nuclear Operations, Inc., for Exemptions from Certain Emergency Planning Requirements," dated November 14, 2014. In SECY-14-0125, the NRC staff stated that it had verified that Entergy's analyses and calculations provided reasonable assurance that if the requested exemptions were granted, then: 1) for a design-basis accident (DBA), an offsite radiological release will not exceed the U.S. Environmental Protection Agency's (EPA) Protective Action Guides (PAGs) at the exclusion area boundary, as detailed in the EPA "PAG Manual, Protective Action Guides and Planning Guidance for Radiological Incidents," dated March 2013, which was issued as Draft for Interim Use and Public Comment; 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 on site 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 public health and safety. The Commission approved the NRC staff's recommendation to grant the exemptions, based on this evaluation in its Staff Requirements Memorandum (SRM) to SECY-14-0125, dated March 2, 2015.

Based on these analyses, the licensee states that complete application of the EP rule to VY, in its particular circumstances as a permanently shutdown and defueled reactor, would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule. Entergy also states that it would incur undue costs in the application of operating plant EP requirements for the maintenance of an emergency response organization in excess of that actually needed to respond to the diminished scope of credible accidents for a permanently shutdown and defueled reactor.

#### *Environmental Impacts of the Proposed Action*

The NRC staff concludes that the exemptions, if granted, would not significantly increase the probability or consequences of accidents at VY in its permanently shutdown and defueled condition. There would be no significant change in the types of any effluents that may be released offsite. There would be no significant increase in the amounts of any effluents that may be released offsite. There would be no significant increase in individual or cumulative occupational or public radiation exposure. Therefore, there are no significant radiological environmental impacts associated with the proposed action.

With regard to potential non-radiological impacts, the proposed action does not have any foreseeable impacts to land, air, or water resources, including impacts to biota. In addition, there are no known socioeconomic or environmental justice impacts associated with the

proposed action. Therefore, there are no significant non-radiological environmental impacts associated with the proposed action.

Accordingly, the NRC concludes that there are no significant environmental impacts associated with the proposed action.

#### *Environmental Impacts of the Alternatives to the Proposed Action*

As an alternative to the proposed action, the NRC staff considered the denial of the proposed action (i.e., the “no-action” alternative). The denial of the proposed action would not result in a change to the current environmental impacts. Therefore, the environmental impacts of the proposed action and the alternative action are similar.

#### *Alternative Use of Resources*

The proposed action does not involve the use of any different resources than those previously considered in the Final Environmental Statement for VY, dated July 1972, as supplemented by NUREG-1437, Supplement 30, “Generic Environmental Impact Statement for License Renewal of Nuclear Plants Regarding Vermont Yankee Nuclear Power Station,” Volumes 1 and 2, published in August 2007.

#### *Agencies or Persons Consulted*

Development of this EA and FONSI did not result in consultation.

#### *Discussion of Comments*

At the conclusion of the draft EA and FONSI comment period on June 1, 2015, the NRC received four submissions containing comments from interested members of the public and



from the State of Vermont. Full text versions of the comments can be viewed at <http://www.regulations.gov>, by searching for Docket **NRC-2015-0111** and selecting “Open Docket Folder,” or at ADAMS Accession Nos. ML15138A094, ML15159A183, ML15159A184, and ML15159A185, respectively.

Each comment was carefully reviewed by the NRC staff. Although most of the comments were outside the scope of the draft EA and FONSI, which deal strictly with the environmental impacts of granting the exemption request, the NRC has responded fully to the comments, as shown below.

#### *State of Vermont Comments*

The State of Vermont’s comments consisted of two arguments: 1) that the NRC did not comply with the National Environmental Policy Act (NEPA), by publishing the draft EA after the Commission had approved the staff’s recommendation to grant the exemption request and 2) that the draft EA and FONSI are deficient and inadequate because they do not take a hard look at all the potential environmental impacts of the proposed action, which Vermont asserts could be significant and, thus, require evaluation through an environmental impact statement. The NRC staff does not agree with these comments. As an initial matter, the comments are outside the scope of the comment opportunity because they do not have to do with the environmental impacts of granting Entergy’s exemption request, but are instead procedural and substantive challenges under NEPA, to an NRC granting of the exemption request that has not yet occurred. Additionally, both arguments are without merit.

The Vermont argument that the NRC is not procedurally in compliance with NEPA is without merit because, consistent with 10 CFR 51.21, the NRC conducted the EA for the exemption request before making any final decision on the exemption request. The NRC

received the exemption request on March 14, 2014. The exemption request seeks exemptions from 10 CFR 50.47(b), 10 CFR 50.47(c)(2), and 10 CFR part 50, appendix E. The Commission has previously directed, in SRM to SECY-08-0024, "Delegation of Commission Authority to Staff to Approve or Deny Emergency Plan Changes that Represent a Decrease in Effectiveness," dated May 19, 2008, that the NRC staff should request Commission approval for any reduction in the effectiveness of a licensee's emergency plan that requires an exemption from the requirements of 10 CFR 50.47(b) and 10 CFR part 50, appendix E. Therefore, on November 14, 2014, the NRC staff sought Commission approval with SECY-14-0125 "for the staff to process and grant, as appropriate" the exemption request. In SECY-14-0125, the NRC staff also explained that it had reviewed Entergy's site-specific analyses and calculations and stated that these analyses provide reasonable assurance that in granting the exemption request: 1) an offsite radiological release will not exceed the EPA 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. In response, on March 2, 2015, the Commission "approved the staff's recommendation to grant" the exemption request "to be implemented as stipulated in SECY-14-0125." Thus, the NRC staff then proceeded to process the exemption request by, in part, conducting an EA of the exemption request, the draft of which was published for public comment on April 30, 2015. The NRC has now completed its final EA and FONSI, but has still yet to approve or deny the exemption request. The fact that the Commission had approved an NRC staff recommendation to grant the exemption request does not compel the NRC staff to grant the exemption request. Therefore, any future approval or denial of the exemption request will have necessarily come only after the NRC had considered the potential environmental

impacts of the proposed exemption request, as well as, the public's and the State of Vermont's comments on these potential environmental impacts. Consequently, Vermont's argument that the NRC has approved the exemption request before taking a hard look at its potential environmental impacts in contravention of NEPA is without merit.

The Vermont argument that the NRC is not substantively in compliance with NEPA is without merit because, consistent with 10 CFR 51.30, the EA identifies the proposed action and includes a brief discussion of: the need for the proposed action; the alternatives to the proposed action; the environmental impacts of the proposed action and alternatives; and a list of agencies and persons consulted and identification of sources used. With respect to environmental impacts, the NRC staff found that the exemption request, if granted, would not significantly increase the probability or consequences of accidents at VY, would not significantly change the types or increase the amounts of any effluents that may be released offsite, and would not significantly increase individual or cumulative occupational radiation exposure. Therefore, the NRC staff concluded that granting the exemption request would not have a significant effect on the quality of the human environment. The NRC staff based this finding on the permanently shutdown and defueled status of VY, combined with the long history of technical studies demonstrating that the risk for such facilities is very low, and the staff's verification that Entergy's site-specific analyses provided reasonable assurance that, even with the granting of the exemption request, a DBA will not exceed the EPA PAGs at the exclusion area boundary and a beyond-DBA will move slowly enough that appropriate onsite mitigating actions may be initiated and, if a release is projected to occur, offsite agencies would take protective actions using a CEMP to protect the public health and safety. Consequently, Vermont's argument that the EA is deficient and inadequate is without merit.

The NRC staff also disagrees with each of Vermont's specific arguments as to why it believes that the EA is inadequate. Vermont asserts that the granting of the exemption request would have "direct and significant implications for public health and safety," but the EA explicitly found that granting the exemption request would not have a significant effect on the quality of the human environment. Vermont asserts that the situation is unique because there is an elementary school directly across the street from VY, but this fact is immaterial because the NRC staff found that Entergy had provided reasonable assurance that a DBA would not result in radiation exposure greater than or equal to 1 rem at the VY boundary and that any beyond-DBA could be addressed in a timely manner. Vermont asserts that the EA fails to give any consideration to high-burnup fuel in the SFP, but the exemption request's DBA analysis, as demonstrated in its reference 6 at attachment 4, table 3-2, did indeed consider high-burnup fuel. Vermont asserts that the use of an EA is insufficient because Vermont opposes the exemption request as do a number of Vermont citizens, but this does not impact the staff's determination that the proposed action will not have a significant effect on the quality of the human environment. Vermont asserts that the risks resulting from any granting of the exemption request are uncertain, but technical studies spanning from 1975 to 2014 have, in fact, demonstrated the risks of storing spent fuel in SFPs to be very low. Vermont asserts that precedent advises against the granting of the exemption request, but similar exemption requests have been granted for eight previous facilities. Vermont asserts that granting the exemption request means that State and local officials may no longer receive training regarding radiological incidents, but does not address Entergy's continuing obligation, per 10 CFR part 50, appendix E.IV.F.1, to make radiological orientation training available to local emergency services and law enforcement, or, per 10 CFR 50.47(b)(15), to make radiological emergency response training available to those called on to assist in an emergency. Finally, Vermont

asserts that the potential environmental impacts from the exemption request should be analyzed in conjunction with a prior Entergy termination of the Emergency Response Data System at VY, but this earlier action was taken by Entergy, consistent with the Commission's regulations and, thus, did not require an environmental review. Consequently, the NRC staff disagrees with all of Vermont's comments.

### *Public Comments*

In addition to the Vermont comments, the NRC received three sets of public comments on the draft EA. These public comments raised substantively similar issues as the Vermont comments and, thus, the NRC staff disagrees with them for the same reasons that it disagrees with the Vermont comments, as addressed above.

### **III. Finding of No Significant Impact.**

The licensee has proposed exemptions from: 1) certain requirements in 10 CFR 50.47(b) regarding onsite and offsite emergency response plans for nuclear power reactors; 2) certain requirements in 10 CFR 50.47(c)(2) to establish plume exposure and ingestion pathway EP zones for nuclear power reactors; and 3) certain requirements in 10 CFR part 50, appendix E, section IV, which establishes the elements that make up the content of emergency plans. The proposed action of granting these exemptions would eliminate the requirements for the licensee to maintain formal offsite radiological emergency plans, as described in 44 CFR part 350, and reduce some of the onsite EP activities at VY, based on the reduced risks at the permanently shutdown and defueled reactor. However, requirements for certain onsite capabilities to communicate and coordinate with offsite response authorities following declaration of an emergency at VY will be

retained and offsite “all hazards” EP provisions will still exist through State and local government use of a CEMP.

Consistent with 10 CFR 51.21, the NRC conducted the EA for the proposed action, which is included in Section II of this document, and incorporated by reference in this finding. On the basis of this EA, the NRC concludes that the proposed action will not have a significant effect on the quality of the human environment. Accordingly, the NRC has decided not to prepare an environmental impact statement for the proposed action.

#### **IV. Availability of Documents.**

The documents identified in the following table are available to interested persons through one or more of the following methods, as indicated.

<b>Document</b>	<b>ADAMS Accession No. / Web link</b>
Developing and Maintaining Emergency Operations Plans, Comprehensive Preparedness Guide (CPG) 101, Version 2.0, November 2010.	<a href="http://www.fema.gov/pdf/about/divisions/npd/CPG_101_V2.pdf">http://www.fema.gov/pdf/about/divisions/npd/CPG_101_V2.pdf</a>
Docket No. 50-271, Request for Exemptions from Portions of 10 CFR 50.47 and 10 CFR Part 50, Appendix E, Vermont Yankee Nuclear Power Station, March 14, 2014.	ADAMS Accession No. ML14080A141
Docket No. 50-271, Request for Exemptions from Portions of 10 CFR 50.47 and 10 CFR Part 50, Appendix E – Supplement 1, Vermont Yankee Nuclear Power Station, August 29, 2014.	ADAMS Accession No. ML14246A176

Docket No. 50-271, Request for Exemptions from Portions of 10 CFR 50.47 and 10 CFR Part 50, Appendix E – Supplement 2, Vermont Yankee Nuclear Power Station, October 21, 2014.	ADAMS Accession No. ML14297A159
Protective Action Guides and Planning Guidance for Radiological Incidents, U.S. Environmental Protection Agency Draft for Interim Use and Public Comment, March 2013.	<a href="http://www.epa.gov/radiation/docs/er/pag-manual-interim-public-comment-4-2-2013.pdf">http://www.epa.gov/radiation/docs/er/pag-manual-interim-public-comment-4-2-2013.pdf</a>
SECY-14-0125, "Request by Entergy Nuclear Operations, Inc., for Exemptions from Certain Emergency Planning Requirements," November 14, 2014.	ADAMS Accession No. ML14227A711
Staff Requirements Memorandum to SECY-14-0125, "Request by Entergy Nuclear Operations, Inc., for Exemptions from Certain Emergency Planning Requirements," March 2, 2015.	ADAMS Accession No. ML15061A516
Staff Requirements Memorandum to SECY-08-0024, "Delegation of Commission Authority to Staff to Approve or Deny Emergency Plan Changes that Represent a Decrease in Effectiveness," May 19, 2008.	ADAMS Accession No. ML081400510
NUREG-1437, Supplement 30, "Generic Environmental Impact Statement for License Renewal of Nuclear Plants Regarding Vermont Yankee Nuclear Power Station," August 2007.	ADAMS Accession No. ML071840398

State of Vermont Comments	ADAMS Accession No. ML15159A183
Public Comments	ADAMS Accession Nos. ML15138A094, ML15159A184, and ML15159A185

Dated at Rockville, Maryland, this 31 day of July, 2015.

For the Nuclear Regulatory Commission.

*/RA/*

A. Louise Lund, Acting Director,  
Division of Operating Reactor Licensing,  
Office of Nuclear Reactor Regulation.