STATE OF VERMONT

PUBLIC SERVICE BOARD

Petition of Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc., for a certificate of public good, pursuant to 30 V.S.A. § 248 and 10 V.S.A. § 6522, authorizing the construction of a second independent spent fuel storage installation storage pad and related improvements, including installation of a new diesel generator with an electrical rating of approximately 200 kW, at the Vermont Yankee Nuclear Power Station in the Town of Vernon, Vermont	)	Docket No. 8300

PROPOSAL FOR DECISION AND BRIEF OF ENTERGY NUCLEAR VERMONT YANKEE, LLC, AND ENTERGY NUCLEAR OPERATIONS, INC.

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I. INTRODUCTION

Entergy Nuclear Vermont Yankee, LLC, and Entergy Nuclear Operations, Inc. (together, "Entergy VY"), have asked this Board to authorize site preparation for, construction of and storage of spent nuclear fuel ("SNF") at a second, Independent Spent Fuel Storage Installation ("ISFSI") as well as site preparation for and construction of a 200-kilowatt ("kW") diesel-electric generator to provide a backup source of power (together, the "Project") at the Vermont Yankee Nuclear Power Station (the "VY Station") under 30 V.S.A. § 248 and 10 V.S.A. § 6522. By today's Order, we approve and issue a Certificate of Public Good ("CPG") for the Project, finding that the Project will promote the general good of the state.

In this docket, all parties agree that the VY Station's SNF should be removed from the plant's spent fuel pool and transferred to dry storage as expeditiously as possible. Moreover, no party sponsored evidence that specifically challenged Entergy VY's proposal to construct the second ISFSI storage pad 30-feet west of the existing ISFSI pad approved by the Board in Docket 7082.

While one party argued that we should require Entergy VY to undertake additional analysis of whether to store SNF in underground casks or locate the dry storage facility at alternative locations within and outside of the VY Station site, we conclude that further analysis is not necessary and that the company adequately considered alternatives before proposing to locate the second ISFSI pad adjacent to the existing ISFSI. We believe that further evaluating underground storage or locating the second pad at another location would only delay transfer of the plant's SNF to dry storage and would not result in a better means or location to store SNF. By today's Order, therefore, we approve construction of a second ISFSI storage pad and related

improvements in the location proposed by Entergy VY. We also approve the company's installation of a 200-kW diesel generator as part of the Project.

II. PROCEDURAL HISTORY

On June 30, 2014, Entergy VY filed its petition and prefiled supporting testimony with the Board for the construction of a second ISFSI storage pad and related improvements as well as a diesel-electric generator at the VY Station. On July 15, 2014, the Board initiated Docket 8300 to consider the company's petition, and it scheduled a prehearing conference on July 30, 2014.

On July 25, 2014, Entergy VY requested that the Board defer the scheduled prehearing conference as well as further proceedings in this docket until the fall, because additional time was needed to complete the necessary soil analyses and associated design calculations for the second ISFSI storage pad. Entergy VY also was in the process of preparing a site-specific decommissioning cost estimate and updated irradiated fuel management plan, by the end of 2014 that would address, among other decommissioning-related activities, the funding for spent fuel management.

On July 25, 2014, the Board rescheduled the prehearing conference to October 29, 2014. At the October 29th prehearing conference, Entergy VY recommended that the Board not establish a schedule at that time due to the ongoing engineering studies that could alter the design of the Project. Rather, Entergy VY proposed to consult with the other parties and the Clerk of the Board to identify possible dates for a status conference in late winter or early spring 2015.

On April 3, 2015, after consulting with the other parties and with the New England Coalition ("NEC") and Windham Regional Commission ("WRC") whose intervention-related

filings were pending with the Board, Entergy VY submitted a letter requesting the Board to schedule a status conference in late April or at the Board's earliest convenience.

On April 10, 2015, the Board issued a Notice of Hearing, scheduling a status conference for April 29, 2015. At that status conference, Entergy VY, with support from other parties, proposed a schedule for the docket, which the Board adopted in its Scheduling Order dated May 6, 2015. The docket has mostly proceeded according to this schedule.

On May 11, 2015, Entergy VY submitted supplemental prefiled testimony. On May 12, 2015, the Board issued a Notice of Hearing for a public hearing on the Project to be held on June 4, 2015, at the Vernon Elementary School in Vernon. On May 28, 2015, the Board issued a Memorandum confirming a June 4th site visit to the VY Station. The Board conducted a site visit for and held a public hearing on the Project on June 4, 2015.

On June 17, 2015 and July 20, 2015, Entergy VY responded to discovery on its prefiled testimony (both the prefiled testimony it had filed with its petition and the supplemental prefiled testimony it filed in May 2015), and on June 18, 2015, Entergy VY filed with the Board a Protective Agreement between Entergy VY and the Department of Public Service (the "Department") and a Motion for a Protective Order related to Allegedly Confidential Information. The Board issued its Procedural Order Re: Protective Agreement on February 4, 2016.

On July 7, 2015, the Board granted permissive intervention to the Town of Vernon and WRC and conditionally to NEC, over Entergy VY's objection, in its Order Re: Motions to Intervene.

The Department, the Agency of Natural Resources (the "Agency"), and WRC prefiled direct testimony on August 19, 2015. Also on August 19, 2015, NEC filed a letter requesting an extension until August 21, 2015, to prefile its testimony and proposed extending Entergy VY's deadline to file its initial round of discovery questions two days, to September 4, 2015. The Board issued an Order on August 20, 2015, granting this request. NEC prefiled direct testimony on August 21, 2015. WRC and the Agency responded to discovery on their prefiled testimony on September 29, 2015, and September 30, 2015, respectively.

Entergy VY prefiled rebuttal testimony on October 21, 2015, and responded to discovery on November 21, 2015. The Department, the Agency, and NEC prefiled surrebuttal testimony with the Board on December 23, 2015, and the Agency responded to discovery on its surrebuttal testimony on February 3, 2016. Entergy VY supplemented its discovery responses on July 21, 2015, December 16, 2015, and February 17, 2016.

Entergy VY filed objections to the admissibility of NEC's prefiled direct and part of its surrebuttal testimony on September 18, 2015, and January 22, 2016, respectively. The Board issued Order Re: Objections to Testimony on February 11, 2016, overruling Entergy VY's objections to the admissibility of both sets of prefiled testimony.

Entergy VY filed a Stipulation Between Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc. and the Agency, dated February 18, 2016 (the "Stipulation"), addressing how Entergy VY would manage any non-radiological soil contamination and building demolition waste associated with the Project as well as certain other issues.

The Board issued a Notice of Hearings for technical hearings in this docket on February 4, 2016, and held the technical hearing on February 23, 2016. The parties submitted

their proposals for decision and initial briefs on March 15, 2016, and filed their reply briefs on March 29, 2016.

III. POSITION OF THE PARTIES

Entergy Nuclear Vermont Yankee and Entergy Nuclear Operations

Entergy VY, the petitioner in this proceeding, asks the Board to approve the construction of a second ISFSI and related improvements and the installation of a 200-kW diesel generator at the VY Station. Entergy VY argues that construction of the second ISFSI in the location and on the timeline Entergy VY proposes is necessary to move SNF to dry storage by the end of 2020 and to facilitate eventual decommissioning of the VY Station.

Entergy VY also argues that the site of the proposed second ISFSI pad is reasonable and will not result in material delay of or increased costs for decommissioning and that other location sites have distinct disadvantages compared to the proposed Project location. Entergy VY further argues that requiring it to conduct further analyses of underground storage or alternative locations, as NEC recommends, would yield no significant benefits and would result in significant delay and increased costs – particularly for an off-site location given the Nuclear Regulatory Commission ("NRC") regulations and other licensing requirements that would have to be met for such an off-site location for SNF storage.[1] Entergy VY argues that the evidence it presented demonstrates that the Project, located as it proposes, meets each of the siting criteria established by 30 V.S.A. § 248(b) and the additional criteria for SNF storage established by 10 V.S.A. § 6522.

[1] Entergy VY also filed objections to the prefiled testimony of Raymond Shadis on behalf of NEC and part of the surrebuttal testimony of Raymond Shadis on behalf of NEC. *See* Entergy VY's Objection to Admission of Prefiled Testimony of Raymond Shadis, dated September 18, 2015; Entergy VY's Objection to Admission of Prefiled Surrebuttal Testimony of Raymond Shadis, dated January 22, 2016. The Board denied Entergy VY's objections. Order re: Objections to Testimony, dated February 11, 2016. Entergy VY preserved its objections at the technical hearing. *See* tr. 2/23/16 at 144:14-22 (Shadis).

Entergy VY notes its continued objection to the State of Vermont's assertion of jurisdiction over matters for which the federal government and the NRC have exclusive jurisdiction, including such exercise of its jurisdiction under Section 248 of Title 30, and Chapter 157 of Title 10, Vermont Statutes Annotated. In its petition, Entergy VY reserved its right to challenge on federal preemption grounds any state directive that would delay, prohibit or interfere with installation of the Project.

Vermont Department of Public Service

The Vermont Public Service Department supports Entergy VY's petition and asserts that it is in the best interest of the State of Vermont and its residents to move SNF to dry storage by the end of 2020, or sooner if practical. The Department offered testimony finding that Entergy VY has satisfied the criteria related to spent fuel storage under 10 V.S.A. § 6522, including that the company has provided adequate financial assurances for the management of SNF at the VY Station through the $145 million in credit facilities it secured for Project construction and the expected recoveries of damages from the U.S. Department of Energy for its failure to remove spent fuel from the site. The Department disagrees, however, that it is appropriate for Entergy VY to use funds from the VY Station's Nuclear Decommissioning Trust ("NDT") to pay for SNF management activities unrelated to the Project and is pursuing a claim to that effect before the NRC.

Vermont Agency of Natural Resources

The Agency offered evidence asking the Board to impose certain conditions in any CPG issued for the Project regulating how Entergy VY should manage Project waste materials and soils excavated for the Project's construction. The Agency and Entergy VY executed the Stipulation, which addressed these issues and was admitted into the record. As a result of the

Stipulation, the Agency now agrees that the Project satisfies the Section 248(b)(5) criteria that are within its jurisdiction and will promote the general good of the state.

New England Coalition

NEC agrees that the spent fuel should be moved to dry storage as quickly as possible but argues that Entergy VY has not adequately considered alternatives to the proposed second ISFSI pad. NEC claims that Entergy VY should be required to more thoroughly consider alternatives, including other locations for the pad off- and on-site and use of an underground storage system (known as the HI-STORM 100U). NEC further argues that because the Department of Energy ("DOE") has not developed a permanent solution for the storage of SNF, any spent fuel stored at the VY Station may remain there for a long period of time and could impact decommissioning or site restoration and reuse.

Windham Regional Commission

The WRC initially submitted prefiled testimony in this matter but did not move to admit any direct testimony or exhibits at the technical hearing.

IV. PUBLIC COMMENTS

In addition to hearing from the formal parties, the Board conducted a public hearing in Vernon on June 4, 2015. Under Vermont law, the Board is required to base its decision upon the evidence admitted into the record during the evidentiary or "technical" hearing. While public comments are not formal evidence, and accordingly may not be used to form the basis of the Board's findings, public comments play an important role in drawing the Board's attention to important issues and perspectives that the Board may consider in probing the issues raised by the parties and in reaching its final decision.

Some of the public comments the Board heard addressed the following issues:

- The proposed ISFSI storage pad should be sited in a different location that is less vulnerable to natural and manmade disasters. Tr. 06/04/15 at 5 (Levin).
- SNF should be removed from the spent fuel pool, in a responsible manner, as quickly as possible. *Id.* at 7 (Williams), 11 (Sachs).
- Liquefaction and hydrology experts should be hired to review the Project prior to issuance of a CPG. *Id.* at 10–11 (Sachs).
- SNF could remain at the site for an undetermined amount of time. *Id.* at 13 (Sullivan Sachs).
- The Board should add conditions to a CPG, including: constructing a berm; restricting the timing of SNF placement into casks to times when children are not at school nearby; site cleanup before construction of the pad; and security and monitoring requirements. *Id.* at 5 (Levin), 7–9 (Williams), 15–16 (Picard).

The Board emphasizes that these comments have been of considerable help in identifying and exploring issues in this case and in evaluating and considering how the Board's decision and its impacts will affect the lives of Vermont citizens.

V. LEGAL FRAMEWORK

Entergy VY seeks a CPG under 30 V.S.A. § 248 and 10 V.S.A. § 6522 authorizing the construction of a second ISFSI pad and related infrastructure to store SNF in dry casks at the VY Station as well as installation of a 200-kW diesel generator, including a related barrier wall for security purposes, to provide backup power to the site. The Board previously authorized Entergy VY to construct a dry fuel storage facility and to store SNF at the VY Station for all spent fuel

derived from the station's operation through its permanent shutdown at the end of 2014.[2] Pursuant to 30 V.S.A. § 248 and 10 V.S.A. § 6522(a), Entergy VY must obtain a CPG from the Board to construct the Project.

In deciding whether to issue a CPG, the Board must find that the facility's construction meets the below-listed Section 248 criteria to the extent they are found to be applicable:

1) the facility will not unduly interfere with the orderly development of the region with due consideration having been given to the recommendations of the municipal and regional planning commissions, the recommendations of the municipal legislative bodies, and the land conservation measures contained in the plan of any affected municipality;
2) the 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;
3) the facility will not adversely affect system stability and reliability;
4) the facility will result in an economic benefit to the State and its residents;
5) the facility will not have an undue adverse effect on aesthetics, historic sites, air and water purity, the natural environment, the use of natural resources, and the public health and safety, with due consideration having been given to the criteria specified in 10 V.S.A. §§ 1424a(d) and 6086(a)(1) through (8) and (9)(K) and greenhouse gas impacts;

[2] Docket 7862, *Am. Pet. of Entergy VY for amendment of their CPG and other approvals required under 30 V.S.A. § 231(a) for authority to continue after March 21, 2012, operation of the VY Station, including the storage of SNF*, Order of 3/28/14; Docket 7082, *Pet. of Entergy VY for a CPG to construct a dry fuel storage facility at the VY Station*, Order of 4/26/06.

6) the facility is consistent with the principles for resource selection expressed in that company's approved least cost integrated plan;
7) the facility is in compliance with the electric energy plan approved by the Department under section 202 of Title 30, or that there exists good cause to permit the proposed action;
8) the facility does not affect or is not located on any segment of the waters of the State that has been designated as outstanding resource waters by the Secretary of Natural Resources, except that with respect to a natural gas or electric transmission facility, the facility does not have an undue adverse effect on those outstanding resource waters;
9) if the facility is a waste to energy facility, it is included in a solid waste management plan under 24 V.S.A. § 2202a; and
10) the facility can be served economically by existing or planned transmission facilities without undue adverse effect on Vermont utilities or customers.

See 30 V.S.A. § 248(b)(1)-(10).

Because Entergy VY's proposal involves the construction of a new facility for the storage of SNF, the Board must also find that Entergy VY has met the requirements set forth in 10 V.S.A. § 6522(b), including that:

1) Adequate financial assurance exists for the management of spent fuel at Vermont Yankee for a time period reasonably expected to be necessary, including through decommissioning, and for as long as it is located in the state.

2) The applicant has made commitments to remove all spent fuel from Vermont to a federally certified long-term storage facility in a timely manner, consistent with applicable federal standards.
3) The applicant has developed and will implement a spent fuel management plan that will facilitate the eventual removal of those wastes in an efficient manner.
4) The applicant is in substantial compliance with any memoranda of understanding entered between the state and applicant.

See 10 V.S.A. § 6522(b).

VI. DISCUSSION

A. Description of the Project

1. Entergy VY plans to construct a second ISFSI storage pad and a 200-kW diesel generator and related barrier wall. Together, the new pad and existing pad will hold casks to store all of the SNF generated by the VY Station through the plant's permanent shutdown at the end of 2014. Thomas pf. at 3:17-20, 5:7–6:16.

2. The Board approved the existing ISFSI storage pad at the VY Station, with space for 40 casks, in Docket 7082 on April 26, 2006. Thirteen casks loaded with SNF have already been placed on the existing ISFSI pad. *Id.* at 3:15-16, 8:7-8; exh. EN-GT-3 at 6.

3. Entergy VY plans to commence loading additional casks with SNF and moving them to the existing ISFSI pad during 2017. This plan is supported by the Department. Tr. 2/23/16 at 8:15-18 (Thomas); Recchia surreb. pf. at 2:7.

4. Commencing loading in 2017 will provide a higher level of confidence that all of the plant's SNF will be transferred to dry storage by 2020 without increasing costs and will allow Entergy VY to address any contingencies that may arise if technical or other problems are encountered. Thomas reb. pf. at 3:7-9, 4:3-4; tr. 2/23/16 at 33:17-20 (Thomas), 176:4-9 (Recchia).

5. Entergy VY's supply vendor, Holtec, has indicated that it can accelerate the delivery of storage equipment. Thomas reb. pf. at 3:10-12.

6. Based on Entergy VY's current Decommissioning Cost Estimate, delaying transfer of all VY Station SNF to dry storage beyond 2020 would increase decommissioning costs. Thomas supp. pf. 5:19–6:2.

7. Entergy VY estimates that 58 casks will be required to hold all SNF generated by the VY Station following the facility's closure at the end of 2014. Thomas pf. at 8:5-7.

9. Entergy VY has proposed a construction schedule for the Project beginning in mid-June 2016 and ending in mid-November 2017. Thomas supp. pf. at 5:1-2.

The Second ISFSI Pad

10. The Project primarily consists of constructing a second ISFSI storage pad made of highly-engineered concrete, measuring approximately 93 feet by 76 feet and located approximately 30 feet immediately west of the existing ISFSI storage pad. Thomas pf. at 5:7-10; 15:1-2.

11. The second pad will be similar to the existing pad and will comply with the Holtec Final Safety Analysis Report, which addresses seismic issues, fire and explosion hazards, flooding, snow and ice, and projectile objects, to support casks loaded with SNF. *Id.* at 15:2-5.

12. Construction of the second ISFSI pad requires excavation to approximately five feet below grade; the pouring of a leveling slab; and backfilling with an engineered backfill soil. *Id.* at 16:9-12.

13. The ISFSI pad will be a three-foot thick monolithic structure containing steel rebar and concrete built during a continuous concrete pour. *Id.* at 16:12-14.

14. The second ISFSI storage pad is sized for 25 cask spaces. These additional spaces will bring the total cask spaces at the VY Station to 65, seven more spaces than Entergy VY calculates are necessary to hold all of the SNF generated at the VY Station up until its permanent shutdown in late 2014. *Id.* at 8:5-9.

15. The extra seven cask spaces are necessary. A total of four cask spaces accessible from the apron must be left open to allow for movement of and access to casks stored on the pad, and up to three spaces may be used to store casks holding "Greater than Class C" waste. *Id.* at 8:9-13; tr. 2/23/16 at 27:18–28:4 (Thomas).

16. The proposed pad will be connected to the existing pad by removing the existing west-facing access ramp, installing a similar concrete apron for the proposed pad, installing a 30-foot long by 24-foot wide concrete connector between the apron of the existing pad and the proposed apron, and installing a west-facing access ramp from the proposed apron. Thomas pf. at 15:16–16:3.

Dry Cask Storage System

17. Entergy VY will use the Holtec HI-STORM 100 system that was approved by the Board in Docket 7082 for dry cask storage of SNF at the VY Station site. *Id.* at 6:21-22.

18. The Holtec HI-STORM 100 dry cask storage equipment includes multi-purpose canisters ("MPC") into which SNF will be loaded; a "HI-TRAC" transfer container that will be used to transfer the MPCs within the Reactor Building; a "HI-STORM 100S overpack" (or "cask") into which each MPC will be transferred from the HI-TRAC; and the ISFSI storage pad on which the HI-STORM 100 overpacks will be stored. *Id.* at 7:1-13.

19. Entergy VY will be able to use existing infrastructure when transferring SNF to the second ISFSI storage pad, including modifications to the Reactor Building to support a transfer vehicle to move the HI-STORM 100 overpack to the Containment Access Building and the replacement of the Containment Access Building with a larger structure to support a vertical cask transporter which transports each HI-STORM 100 overpack to the ISFSI pad. *Id.* at 7:14–8:2.

200-kW Diesel Generator

20. Entergy VY proposes to replace an existing 175-kW diesel generator with a new 200-kW diesel generator with an above-ground fuel-oil-storage tank, and an uninterruptible power supply and associated battery bank, to supply backup power to the ISFSI complex and security equipment at the VY Station and other on-site electrical needs. *Id.* at 12:14-16, 13:6-9, 15-22.

21. The generator will be mounted in a metal enclosure/foundation base that measures approximately 12-feet wide by 35-feet long by 12-feet high, with a ventilation hood having an

approximately 52-inch overhang to be installed along the southeast side of the enclosure. Thomas supp. pf. at 6:17–7:1.

22. The metal enclosure will have two compartments with the diesel generator in one compartment and the uninterruptable power supply and associated battery bank and electric panels, in the other. Thomas pf. at 12:20-22.

23. The generator's fuel tank will be a 1,200-gallon, above-ground, double-wall-fuel-storage tank surrounded by a 1,350-gallon rupture basin that has a switch to detect a fuel leak from the tank. The tank and basin will be mounted within the foundation base that is located between the enclosure and the foundation pad. *Id.* at 13:3-5; Thomas supp. pf. at 7:3-7.

24. Approximately 150 feet of underground electrical duct bank, which will contain the cables to connect the offsite power source and diesel-generator loads to the electrical panels within the enclosure, will be installed in the plant's Protected Area. Thomas pf. at 13:11-14.

25. To comply with federal security requirements, the enclosure for the 200-kW diesel generator will be surrounded on three sides by a barrier wall measuring 16-feet high and 8-feet thick. The wall's exterior surface will be Cor-Ten steel, which resists corrosion and has a dark brown appearance when exposed to the elements. Thomas supp. pf. at 6:10-15.

26. Other than initial startup and periodic testing, the 200-kW diesel generator will be used solely as an on-site backup power source. The generator is expected to operate less than 20 hours per year and will not require any changes to the transmission facilities connecting to the VY Station. Thomas pf. at 14:3-15.

Site Preparation

27. Construction activities associated with the Project will occur within the VY Station's protected area, except for the temporary storage of construction material and long-term storage of excavated soil, which will be located in the plant's Owner Controlled Area ("OCA"). *Id.* at 6:13-16.

28. Engineering seismic response analyses for the ISFSI pad determined that the pad can be constructed in the proposed location in compliance with NRC regulations and Holtec's Certificate of Compliance for the HI-STORM 100 system. Thomas supp. pf. at 4:14-18.

29. NRC staff reviewed and did not identify any issues with the engineering-design calculations for the proposed ISFSI pad. Thomas reb. pf. at 4:14-17; tr. 2/23/16 at 9:7-14 (Thomas); exh. Entergy VY-5.

30. The second ISFSI storage pad will be constructed where the North Warehouse and a 175-kW diesel generator are currently located. Excavation to a depth of approximately five feet below grade will begin in the location below and adjacent to the North Warehouse once these structures are removed from the site. Thomas pf. at 6:1-5, 18:9-12.

31. The tools, material, and equipment in the North Warehouse will be surveyed for radioactive contamination and will either be released for reuse or disposal or, if contaminated, relocated to the Turbine Building. *Id.* at 11:6-10.

32. Once tools, material, and equipment are removed from the North Warehouse, Entergy VY will conduct a radiation survey, a lead-paint survey, and an asbestos survey of the

warehouse and the waste-oil burner in the warehouse, and areas requiring remediation will be identified and marked. *Id.* at 11:10-13.

33. Entergy VY will follow the Vermont Department of Health's asbestos regulations as necessary and use certified personnel during any remediation of asbestos. Thomas pf. at 11:14-17.

34. The North Warehouse, its foundation slab and three sides of its frost wall, with associated footings, will be removed from the site. The lower half of the three-foot-high, east frost wall will remain to ensure that the existing ISFSI pad has adequate lateral support during excavation for the second ISFSI pad. *Id.* at 9:21; Thomas reb. pf. at 4:7-13.

35. The Stipulation between Entergy VY and the Agency establishes how Entergy VY will comply with the federal Environmental Protection Agency's Mixed Waste Rule[3] for waste resulting from the North Warehouse's demolition and the actions it will take with respect to soil contaminated with non-radiological hazardous waste excavated within the Project boundaries. Exh. Entergy VY-3 at 2-7.

36 Entergy VY will remove the 175-kW diesel generator and underground storage tank in accordance with the Vermont Underground Storage Tank Rules and the Vermont Underground Closure and Site Assessment Regulations. Thomas pf. at 11:21–12:11.

37. Entergy VY will reroute or disconnect underground utilities and remove storm-water piping in the location of the proposed second ISFSI storage pad. *Id.* at 10:11-23.

[3] 40 C.F.R. §§ 266.210, *et seq*. (Subpart N). The Mixed Waste Rule governs the handling of waste that contains both low-level radioactive waste and non-radioactive hazardous waste. Section 7-109(b)(2) of the Agency's Hazardous Waste Management Regulations incorporates the federal Mixed Waste Rule by reference.

38. Entergy VY will install two new drain manholes and approximately 115 feet of stormwater pipe to allow proper drainage of the area between the two pads and the area to the south of the ISFSI pad. The VY Station's Individual Stormwater Permit reflects this installation. *Id.* at 10:23–11:3; exh. Entergy VY-1.

Consideration of Alternatives

39. Some form of spent fuel storage and management at the VY Station is necessary because the DOE is not accepting SNF for off-site storage. *Id.* at 19:21-22.

40. Entergy VY considered several alternatives to its proposal to construct an above-ground ISFSI pad located 30 feet west of the existing ISFSI pad. *Id*. at 5:7-9, 20:10-12.

41. Specifically, Entergy VY considered keeping SNF in the plant's spent fuel pool; underground storage of SNF in dry casks; and storage of SNF in above-ground casks on an ISFSI pad located elsewhere on the site. *Id*. at 20:13–22:12.

Spent Fuel Pool

42. Keeping SNF in the existing pool is not a substitute for constructing a second ISFSI storage pad, because the VY Station cannot be fully decommissioned until all SNF has been removed from the pool and it is not known at this time when DOE will accept the fuel for permanent off-site storage in quantities sufficient for the removal of all of the plant's SNF from the pool. Thomas pf. at 20:13-17.

43. Keeping the VY Station's spent fuel pool operating would require Entergy VY to incur significant personnel and other operating expenses that Entergy VY could seek to fund from the Plant's NDT. *Id*. at 20:18-21.

44. All parties agree with Entergy VY's decision not to use the spent fuel pool for long-term SNF storage. *See* tr. 2/23/16 at 177:12-18 (Recchia) (dry storage is a passive system not requiring human intervention); *id*. at 150:15-20 (Shadis) ("dry cask is the thing"); exh. Entergy VY-3 at 3 (Entergy VY-ANR statement that timely transfer of fuel from the pool to the proposed ISFSI is consistent with the general good of the state).

Underground Storage

45. Entergy VY considered storing SNF using the HOLTEC HI-STORM 100U, an underground storage design, but concluded that use of the 100U would be significantly more difficult and substantially more expensive to install (in the range of $30 million) as compared to the above-ground HI-STORM 100 used for the first pad, particularly if the system were also used to store the spent fuel already moved into casks on the existing pad. Thomas pf. at 21:1-6; tr. 2/23/16 at 15:21-22 (Thomas).

46. Given space constraints in the plant's Protected Area, it would be extremely difficult and expensive to excavate to the depths required to build the underground facility within this area. Thomas pf. at 21:6-9; tr. 2/23/16 at 14:23–15:2, 19:1-3 (Thomas).

47. To place the 100U casks all the way into the ground could result in a long-term operational issue because of relatively high groundwater levels at the site. Tr. 2/23/16 at 17:4-7, 25:3 (Thomas).

48. Underground storage would require excavation down to about 25 feet. However, because of the groundwater levels at the Vermont Yankee site, the 100U system would be

limited to somewhere in the range of 14-15 feet below ground, which would mean that the system would extend seven or eight feet above ground. *Id*. at 25:2-7 (Thomas).

49. There is limited operational experience with the 100U system. Two nuclear-plant sites (Callaway and San Onofre) are using or will use the 100U system. The sites are not comparable to the VY Station. The Callaway site has an area adjacent to the operating plant that had previously been excavated (for purposes of installing a second nuclear unit) that greatly facilitated installation of an underground storage system. The San Onofre site has site-specific conditions, such as space limitations and tsunami-protection requirements, that resulted in that site's selection of the 100U system. Thomas supp. pf. at 7:17–8:5.

50. Construction of an ISFSI using the 100U would also delay completion of SNF transfer to dry storage by at least two years. *Id*. at 8:16-19; tr. 2/23/16 at 14:23–15:2, 19:1-3, 25:14-15, 25:25–26:10 (Thomas).

Alternative Pad Locations On- and Off-Site

51. Locating the second ISFSI storage pad on-site but outside of the plant's Protected Area would require new security facilities to comply with NRC security requirements as well as additional facility upgrades to allow transfer of casks to the new ISFSI pad, which would be more difficult and costly. Thomas pf. at 21:19 - 22:5.

52. Locating the ISFSI pad on the north side of the VY Station site is not possible because the existing VELCO substation significantly limits the land area available to site the pad, and land to the north and east of the substation is subject to transmission right-of-way agreements. Thomas reb. pf. at 11:5-8.

53. Locating the pad to the west of the VELCO substation or on the south side of the VY Station site would create problems complying with federal and more stringent Vermont radiation boundary-dose requirements as well as aesthetic problems related to lighting. *Id*. at 11:8-16, 12:2-5.

54. Entergy VY considered locating the pad to the east of the West Cooling Tower, but this location offers no advantages as compared to the proposed pad location, and the West Cooling Tower Deep Basin is planned to remain in-service as a back-up supply of make-up water until all fuel has been removed from the plant's spent fuel pool. *Id*. at 11:17-21.

55. Locating the pad outside of the VY Station's OCA would require amending the station's license or obtaining a new license, because the existing general license established by NRC regulations limits storage of SNF to the VY Station's power-reactor site. See 10 C.F.R. § 72.210(a)(1) (general license for dry fuel storage); 42 U.S.C. §§ 2077, 2111 (NRC licensing requirement for storage of special nuclear material and byproduct material).

56. Entergy VY determined that locating the pad on available land to the west of the OCA would be too close to residential property along Governor Hunt Road considering the potential impacts of radiation dose and security lighting on the neighboring properties. Thomas reb. pf. at 12:16-19.

57. An off-site location for the ISFSI storage pad would have the potential for long delays before Entergy VY could install the proposed ISFSI storage pad and transfer its spent fuel from the spent fuel pool to dry storage because of the need to obtain a new NRC license. *Id.* at 12:19-21; *see N. States Power Co. v. United States*, 78 Fed. Cl. 449, 454 (Fed. Cl. 2007) (NRC license issued approximately ten years after application was submitted to construct a storage

facility on tribal lands); *see also* 10 V.S.A. § 6501(a) (storage facility not located at the VY Station requires the Vermont general assembly's approval).

58. Any new location, off- or on-site, would require a new geological analysis and new engineering designs and a new haul path, which would delay construction for an additional year at a minimum. Tr. 2/23/16 at 20:21–21:17 (Thomas).

59. Since the time the existing ISFSI pad was built, improvements in the analytical programs used to design an ISFSI pad will allow the construction of a second pad in the location proposed by Entergy VY if the new pad has a separation distance of 30 feet from the existing pad. Thomas reb. pf. at 13:13-20.

60. To analyze the pad's response during both static and dynamic conditions, Entergy VY's vendor, Sargent & Lundy, performed and analyzed 19 cone-penetration tests, taking data every two inches in contrast to the first pad where data was taken from eight to ten borings every two to five feet. This data, in conjunction with advances in modeling technology, resulted in a much more accurate, granular model of the soil underlying the second ISFSI pad, enabling quantification of liquefaction and allowing Entergy VY to account for a limited amount of liquefaction settlement in the proposed pad's design. Entergy VY also took soil borings using a drill rig at five locations to confirm the cone-penetration soundings. Thomas supp. pf. at 3:1-9, 19-21; tr. 2/23/16 at 32:2-33:1, 35:5-8 (Thomas).

61. Constructing the second pad near the existing pad will not adversely impact the ability of Entergy VY to decommission the plant and remove existing structures. A change in the approach to demolish the Reactor Building may be required, but the presence of fuel on the

two ISFSI pads will not inhibit demolition or require moving the fuel to another location. Tr. 2/23/16 at 10:21-11:3, 13:6-25 (Thomas), 90:5-17 (Twomey).

62. The second pad would be located further from the Reactor Building than the existing pad is, and as a result would have less of an impact on decommissioning the Reactor Building than the existing pad already has. *Id.* at 38:16-20, 40:3-7 (Thomas), 183:21–184:4 (Recchia).

63. NEC did not identify any specific concerns with the proposed location of the second ISFSI pad and conceded that it had no reason to believe that one of the alternative sites discussed in Entergy VY's prefiled testimony was better than the proposed location. *See id*. at 149:22-150:1, 151:22-152:4 (Shadis).

Discussion

We conclude that Entergy VY has adequately considered alternatives to its proposed means of storage and location for the second ISFSI. We further conclude that there is no evidence that an alternative location exists that has advantages over Entergy VY's proposed location and that can ensure that the remaining SNF will be timely removed from the plant's spent fuel pool, as all parties in this proceeding agree should be done.[4]

Improvements in geotechnical analysis and more comprehensive soil testing and analysis allow a second ISFSI pad to be located near the existing pad. As we conclude later in this decision (Subsection M below), locating the second pad as proposed by Entergy VY will not

[4] The location for an ISFSI is, moreover, within the NRC's exclusive jurisdiction to regulate as demonstrated below in Subsection M.

have a material adverse effect on the demolition and decontamination of the Reactor Building or result in a material increase in cost for the Reactor Buildings' ultimate decommissioning.

Locating the second ISFSI pad at another location on-site will require significant additional time and expense to perform the required geotechnical analysis and engineering work to design a new pad as well as to obtain NRC approval for any location outside the OCA. Further, locating the pad elsewhere on land available within the OCA would result in elevated radiation levels at adjacent (including residential) properties and raise compliance issues with the NRC and State of Vermont's boundary-dose requirements as well as aesthetic, security and cost considerations.

Locating the second ISFSI pad off-site will result in even greater delay and added cost because of the need to obtain a new NRC license and to satisfy other licensing requirements. There is no evidence, moreover, that the NRC would license such a site, even assuming the State of Vermont supported such a license application. As DPS Commissioner Recchia testified, "introducing a radiological component to a place that has not had one before does not seem prudent . . . ." Tr. 2/23/16 at 184:8-9 (Recchia).

We therefore do not accept NEC's recommendation to require Entergy VY to look into additional alternatives for the second ISFSI pad. We observe that NEC did not argue that the proposed location was not appropriate but only that we should require Entergy VY to prepare a "good comparison," which NEC asserts will only result in a delay of approximately six months. Tr. 2/23/16 at 149:13-15, 153:20-22 (Shadis). We conclude that the comparison undertaken by Entergy VY was reasonable and sufficient, and that the speculative benefits from any further analysis are significantly outweighed by the likely significant additional costs and delays from

the implementation of any change in location as well as by even a six-month delay in transferring SNF from the spent fuel pool to dry storage.

B. General Good of the State

64. All parties in this docket concur that expeditious removal of SNF from the spent fuel pool to dry storage is desirable and promotes the public interest. *See* Finding 44, *supra.*

65. It is in the economic interest of Vermonters to have the SNF removed from the spent fuel pool and transferred to dry cask storage as soon as possible. Recchia pf. at 2:2-4.

66. It is not prudent to introduce a radiological component to a location that does not already have one when considering where to site the second ISFSI pad. Tr. 2/23/16 at 184:6-10 (Recchia).

67. Based on our findings under applicable Section 248 criteria that follow and the benefits of transferring the VY Station's SNF to dry storage as expeditiously as possible, we find that the general good of the state will be promoted by siting a second ISFSI pad in the location proposed by Entergy VY.

C. Orderly Development of the Region [30 V.S.A. § 248(b)(1)]

68. The Project will not unduly interfere with the orderly development of the region, with due consideration having been given to the recommendations of the municipal and regional planning commissions and the legislative bodies and the land conservation measures contained in the Vernon town plan. This finding is supported by findings 69 through 77 below.

69. The Project is essential to the orderly and timely closure and eventual dismantling of the VY Station. Dodson pf. at 25:2-4.

70. By enabling decommissioning, the Project will facilitate potential re-use of the site. Twomey pf. at 5:8-11.

71. The Project does not impact the land-conservation measures of the Vernon Town Plan related to the preservation of the town's rural scenic character, scenic roads, natural resources and historic and environmental resources and the plan's promotion of downtowns and villages. Dodson pf. at 26:6-12.

72. The Project is within the existing VY Station site, which is and will remain an industrial area. *Id.* at 26:8-9.

73. The Project is minimally visible to small portions of the surrounding area. *Id.* at 26:9-10.

74. The Project will not have any impacts on historic resources, villages or scenic roads. *Id.* at 26:10-12.

75. The Vernon Selectboard voted unanimously to support the Project, finding that it is in the best interest of the Town of Vernon. Twomey pf. at 4:7-9; exh. EN-TMT-2.

76. The Vernon Planning Commission voted unanimously that the Project will not unduly interfere with the orderly development of the region. Twomey pf. at 4:9-11; exh. EN-TMT-2.

77. The Windham Regional Commission did not present evidence on the Project's impact on the orderly development of the region.

D. Need for Present and Future Demand for Services [30 V.S.A. § 248(b)(2)]

78. While Section 248(b)(2) does not apply to the Project, the construction of a second ISFSI storage pad is needed to store SNF from the VY Station's prior operations that, as determined by the Board in prior dockets, met the present and future demand for electric service at that time. Twomey pf. at 5:1-5.

79. Construction of a second ISFSI storage pad is necessary to enable decommissioning of the VY Station site. After decommissioning, the VY Station site could at some point in the future be reused for electric-generation purposes to meet the need for present and future demand for service at that time, due to the site's existing high-voltage infrastructure and location relative to VELCO's 345/115 kV Vernon Substation. *Id.* at 5:6-11.

E. System Stability and Reliability [30 V.S.A. § 248(b)(3)]

80. The Project does not include any components that could adversely affect the electric system's stability or reliability. *Id.* at 8:9-11.

F. Economic Benefit [30 V.S.A. § 248(b)(4)]

81. The Project's construction will promote economic activity in Vermont and is anticipated to benefit the local economy through Entergy VY employees and contractors frequenting local merchants that provide lodging and food services. *Id.* at 5:15-19.

82. The Project is needed to decommission the VY Station so that the site may be reused for an economically-beneficial purpose. *Id.* at 5:20-22; Recchia pf. at 2:11-15.

83. This Project will not significantly delay the demolition of existing VY Station structures or restoration of the VY Station site so that the site may eventually be reused. *See* tr. 2/23/16 at 13:16-18, 38:23–39:4 (Thomas), 173:2-7 (Recchia).

G. Aesthetics, Historic Sites, Air and Water Purity, and the Natural Environment and Public Health and Safety [30 V.S.A. § 248(b)(5)]

84. The Project will not have an undue adverse effect on aesthetics, historic sites, air and water purity, the natural environment or the public health and safety, with due consideration having been given to the criteria specified in 10 V.S.A. §§ 1424a(d) and 6086(a)(1) through (8) and (9)(K). This finding is supported by Findings 85 through 165 below.

Public Health and Safety [30 V.S.A. § 248(b)(5)]

85. The Project will not have an undue adverse effect on the public health and safety generally or on the Town of Vernon. Goodell pf. at 9:5; exh. EN-TMT-4; exh. EN-TMT-5.

86. The boundary dose of spent fuel in casks loaded on the pads is expected to be less than 11.6 millirem per year and complies with Vermont's Radiological Health Rule. Thomas pf. at 9:12-14.

87. The Project will not be an undue burden on the provision of adequate police services in Windham County or the Town of Vernon. Twomey pf. at 6:16–7:1; exh. EN-TMT-4.

88. The Project will not be an undue burden on the Vernon Fire Department's ability to provide adequate fire-protection services. Twomey pf. at 7:3-7; exh. EN-TMT-5.

Water Pollution [10 V.S.A. § 6086(a)(1), (A)-(C), (E)-(G), (a)(2), (a)(3)]

89. The Project will not cause undue water pollution and will comply with applicable regulations adopted by the Vermont Department of Environmental Conservation ("VDEC"). Goodell pf. at 3:11, 5:3; findings 90-93, below.

90. The Project will not impact any wells or water sources on the VY Station site. Goodell pf. at 5:6-7.

91. During construction, stormwater will be managed in accordance with the Project's Erosion Control Plan, which includes the use of stone check dams, silt fence and construction fencing to limit the area of disturbance. *Id.* at 5:8-10; exh. Entergy VY-1.

92. Upon completion of construction, the Project will result in approximately 5,350 square feet of new impervious surface area at the site, and runoff will be treated in accordance with VDEC requirements and use spare capacity in the existing, sand-filter treatment tank. Goodell pf. at 5:12-14; Goodell supp. pf. at 3:15-18; exh. EN-JG-9.

93. Entergy VY has obtained a Vermont Individual Stormwater Permit to address the new impervious surface area that the Project will create at the site. Exh. Entergy VY-1.

Air Pollution [30 V.S.A. § 248(b)(5) and 10 V.S.A. § 6086(a)(1)]

94. The construction and operation of the Project will not cause undue air pollution. Goodell pf. at 3:11.

95. Construction of the Project will not result in any significant sources of air emissions, other than construction-related dust and exhaust from construction equipment. If necessary, Entergy VY can control construction-related dust by use of water. *Id.* at 3:12-15.

96. The VY Station has an Air Source Registration, because it is a registered source under the Vermont Air Pollution Control Regulations. Entergy VY makes the required reports and payments of fees for the annual review of this registration. *Id.* at 3:16-18.

97. The proposed 200-kW diesel generator is a backup source of power and does not require an Air Pollution Control Operating Permit. Entergy VY will include emissions associated with the new 200-kW diesel generator in its annual Air Emissions Inventory Report to the Agency. *Id.* at 4:7-10.

Noise [10 V.S.A. § 6086(a)(1)]

98. Noise from the construction and operation of the Project will not be unduly adverse. *Id.* at 4:13.

99. Construction noise will consist of construction vehicles and equipment working at the VY Station site, similar to previous construction projects at the site. *Id.* at 4:13-15.

100. Operation noise will consist primarily of routine test runs of the proposed 200-kW diesel generator. This generator, which has an overall sound level of 84.6 dBA at 49.2 feet when operating at full load, will be installed in a sound-attenuating enclosure designed to provide a minimum of 25-dBA noise reduction. Goodell pf. at 4:16-21.

101. The proposed 200-kW diesel generator will be installed at least 400 feet from the nearest property line and should not have a noise level materially different from the existing 175-kW diesel generator that is being removed as part of the Project. *Id.* at 4:21–5:2.

Greenhouse Gases [30 V.S.A. § 248(b)(5)]

102. Efficient and economical construction of the Project will minimize truck trips to limit the amount of greenhouse gas emissions. *Id.* at 6:9-11.

103. The forecasted number of truck visits during construction is 450 (900 truck trips). Goodell supp. pf. at 4:1-3.

104. Once construction of the Project is completed, the only source of greenhouse gases will be test runs of the 200-kW diesel generator, which is EPA Tier 3 compliant. Goodell pf. at 6:13-16.

105. Neither the construction of the Project nor future operation of the generator will cause an undue adverse impact with respect to greenhouse gases. *Id.* at 6:16-18.

Outstanding Resource Waters [10 V.S.A. § 1424a(d) & 30 V.S.A. § 248(b)(8)]

106. The Project is located near the Connecticut River, which is not designated as an outstanding resource water. The Project therefore will have no adverse effect on any outstanding resource waters. *Id.* at 13:15-18.

Headwaters [10 V.S.A. § 6086(a)(1)(A)]

107. The Project will not have an undue adverse impact on headwaters. This finding is supported by findings 108 through 109, below.

108. The Project is located in a drainage area greater than 20 square miles (the Connecticut River) but is not located in the headwaters of applicable watersheds, characterized by steep slopes and shallow soils, is not over 1,500 feet in elevation, is not in the watershed of a

public-water supply as designated by the VDEC's Water Supply Area, and is not in a significant aquifer-recharge area. *Id.* at 6:21–7:8.

109. Surface water at the VY Station either leaches into the ground and travels a short distance through sandy soil where it discharges along the riverbank of the Connecticut River or is collected in the existing storm-drain system and directly discharged into the river. *Id.* at 7:3-7.

Waste Disposal [10 V.S.A. § 6086(a)(1)(B)]

110. The Project will meet the applicable VDEC regulations and the requirements in the Stipulation concerning the disposal of waste, including non-radiological hazardous waste. *Id.* at 7:13-14; exh. Entergy VY-3 at 6.

111. The Project does not involve the injection of waste materials or harmful toxic substances into groundwater or wells. Goodell pf. at 7:14-15.

112. Entergy VY will manage excavated soil under NRC requirements for on-site disposal of slightly radiologically contaminated material, and Entergy VY will follow the Vermont Department of Health asbestos regulations, as necessary, when removing the North Warehouse structure from the site. *Id.* at 7:16-18, 8:1-3; Thomas pf. at 11:6-17, 16:18–17:8.

113. Entergy VY will recycle, store and dispose of other materials in accordance with Entergy VY protocols, Vermont solid-waste requirements applicable to those materials, and the Stipulation. Goodell pf. at 8:3-5; Thomas reb. pf. at 10:6-10; exh. Entergy VY-3 at 6.

114. The Stipulation requires Entergy VY to determine whether cable sheathing removed during construction is subject to regulation as non-radiological hazardous waste pursuant to Section 7-202(b) of the Vermont Hazardous Waste Management Regulations

("VHWMR"), and if it is, to manage and dispose of the cable sheathing in accordance with the VHWMR. Exh. Entergy VY-3 at 6.

115. The Stipulation also requires Entergy VY to notify the Agency of its intention to manage low-level mixed waste under the federal Mixed Waste Rule. *Id.*

116. Entergy VY will remove the existing underground oil storage tank associated with the 175-kW diesel generator in compliance with the Vermont Underground Storage Tank Rules and the Vermont Underground Closure and Site Assessment Regulations. Thomas pf. at 12:4-11. Finding 36, supra.

Water Conservation [10 V.S.A. § 6086(a)(1)(C), (a)(2), (a)(3)]

117. The Project will not have water-supply or wastewater connections and is not anticipated to increase water use at the VY Station. Goodell pf. at 8:12-15.

Floodways & Erosion [10 V.S.A. § 6086(a)(1)(D), (a)(4)]

118. The Project will maintain the natural condition of streams and will not endanger the health, safety or welfare of the public or adjoining landowners. *Id.* at 9:5.

119. The Project is not located within a floodway or floodway fringe. *Id.* at 8:18; Goodell reb. pf. at 2:16-17.

120. The Project site is well outside of the 100-and 500-year floodplains, and the Project is located approximately 900 feet away from the closest stream and 300 feet from the mean high water mark of the Connecticut River. Goodell pf. at 8:18-21, 9:5-11; Goodell reb. pf. 2:17-18; exh. EN-JG-4.

121. The Project site is located "at an elevation that is more than 20% above the 1% annual chance flood elevation and thus is not within the regulatory Floodway Hazard Area." Evans pf. at 6:14-15.

122 The Project will not increase flood elevations, velocities, or exacerbate fluvial erosion." *Id.* at 8:15-18.

123. The Stipulation requires Entergy to obtain a state floodplain permit for the Project under the Agency's Flood Hazard Area and River Corridor Rule prior to the start of site preparation and construction activities for the Project and to comply with the permit's terms. Exh. Entergy VY-3 at 6-7.

124. The Agency issued Entergy VY a Flood Hazard Area and River Corridor permit for the Project on February 17, 2016. Exh. Entergy VY-2.

125. The Project's total ground disturbance is 1.07 acres and triggers the need for coverage under the Vermont Construction General Permit 4213-9020, which Entergy VY received on June 12, 2015. Goodell supp. pf. at 3:2-7; Gianfagna pf. at 3:18-19 and 4:1-2.

126. Entergy VY will manage the construction site in accordance with the Project's Erosion Control Plan, which requires the use of control practices and inspection and report keeping, and with the Vermont Low Risk Site Handbook for Erosion Prevention and Control, which reflects the requirements of the Vermont General Construction Permit 3-9020 for low risk sites. Goodell pf. at 10:18-21; Goodell supp. pf. at 3:7-10; exh. EN-JG-9.

Streams [10 V.S.A. § 6086(a)(1)(E)]

127. The Project will not impact a small, unnamed stream located 900 feet to the north of the Project area, because stormwater discharged from the Project area will either leach into sandy soil or be treated in the existing sand-filter tank and discharged into the nearby Connecticut River via the drainage piping that currently exists at the site. Goodell pf. at 7:3-7, 9:5-9.

Shorelines [10 V.S.A. § 6086(a)(1)(F)]

128. The Project does not involve construction on or the use of shorelines. Once constructed, the second ISFSI storage pad will be located over 300 feet from the mean high water mark of the Connecticut River. *Id.* at 9:16-18.

129. The Project will not change the natural conditions of the waters or the lands adjacent to the Connecticut River, because the Project site has already been extensively developed. *Id.* at 9:18-20.

130. The Project will not affect existing access to the Connecticut River, which is already prohibited for security and safety reasons. *Id.* at 10:1-3.

Wetlands [10 V.S.A. § 6086(a)(1)(G)]

131. There will be no undue adverse impacts to wetlands, because the Project area is already highly-developed and does not have wetlands that would be subject to U.S. Army Corps of Engineers or state requirements. *Id.* at 10:6-8.

Transportation [10 V.S.A. § 6086(a)(5)]

132. The Project's construction will not cause unreasonable congestion or unsafe conditions with respect to transportation. Goodell pf. at 11:20-22.

133 The Project will require approximately 85 truck visits (170 truck trips) on the day the concrete is poured for the second ISFSI storage pad, which is anticipated to be the heaviest construction-related traffic day of the Project. Even on this day, traffic will be less than for other projects and previous refueling outages at the VY Station. *Id.* at 11:11-16; Thomas pf. at 19:9-10.

134. The Project will require approximately 450 truck visits (900 truck trips) for all construction activities, but no special traffic requirements will be necessary, other than local traffic management around the construction site. Goodell pf. at 11:17-20; Goodell supp. pf. at 4:1-3.

Education and Municipal Services [10 V.S.A. § 6086(a)(6), (7)]

135. The Project will not change the number of Entergy VY employees or the number of employee children educated in the area; therefore, the Project will have no impact on educational services. Goodell pf. at 12:4-6.

136. The Project will not unreasonably burden municipal services. *Id.* at 12:10-12; Twomey pf. at 4:6-11, 6:15–7:7; exh. EN-TMT-2; exh. EN-TMT-4; exh. EN-TMT-5.

Aesthetics [30 V.S.A. § 248(b)(5) & 10 V.S.A. § 6086(a)(8)]

Findings

137. The Project will not have an undue adverse impact on aesthetics or scenic or natural beauty of the area. This finding is supported by findings 138 through 157, below.

138. The Project will be located inside the Protected Area of the VY Station, among many existing industrial structures, including the existing ISFSI pad that was previously permitted and constructed. Dodson pf. at 3:4-9, 4:15-20.

139. The immediate surroundings of the Project currently include the VY Station's Turbine Building and attached administration building 30 feet to the south and the existing ISFSI pad 30 feet to the east. *Id.* at 8:10-12; exh. EN-HLD-19.

140. The existing ISFSI pad is surrounded on the east and the north by a wooden screening wall approximately 22 feet above site grade. Dodson pf. at 8:12-14; exh. EN-HLD-19.

141. The site of the proposed second ISFSI pad is surrounded by a chain-link security fence approximately 12 feet high, occasional guard houses, lighting and security towers. The site is illuminated at night for security purposes. Dodson pf. at 8:14-18.

142. The second ISFSI pad and casks will be visible at a distance of up to one mile to the northeast as a minor visual element within a much larger industrial complex. Dodson pf. at 11:3-5.

143. Under existing conditions, the area from which the Project will be visible is mostly limited to sections of open water on the Connecticut River and portions of the banks of the river in Hinsdale, NH. Some portions of the bluff along the river in Hinsdale will have

partial, screened views of the second ISFSI storage pad and casks in winter. *Id.* at 11:5-9; exh. EN-HLD-15; tr. 2/23/16 at 50:23–52:1 (Dodson).

144. Wooded hills in Hinsdale approximately two to three miles from the site will not have significant views of the Project due to their distance from the site, the relatively small size of the Project and the fact that the hills are covered by dense forest. Dodson pf. at 11:10-12; exh. EN-HLD-15.

145. All views of the Project will be limited, mostly seen as a background view. Dodson pf. at 11:15.

146. After the VY Station is decommissioned, views of the Project from the northeast will remain unchanged. Although views of the Project from the southeast will increase, they will remain limited. *Id.* at 11:19–12:3; exh. EN-HLD-16; exh. EN-HLD-20; exh. EN-HLD-21.

147. In areas where the Project will be visible, visual impacts will be minimal due to the Project's relatively small size, the distance from most views of the Project and the role of the bluffs in reducing the extent of such views. Dodson pf. at 12:6-8.

Quechee Analysis

148. The Project will fit in with the existing industrial components of the VY Station. *Id.* at 12:11–13:21; tr. 2/23/16 at 54:21–55:1 (Dodson).

149. The Project will include industrial structures similar in design, though much smaller in scale and mass to the other industrial structures and buildings adjacent to and in the immediate vicinity of the Project. Dodson pf. at 14:2-4.

150. The colors used for the Project will fit in with the surrounding structures. The casks will be metal, and will be painted grey with a flat finish. *Id.* at 14:6-8.

151. The barrier wall surrounding the proposed diesel generator will be constructed with a surface of Cor-Ten steel, which forms a rust-like dark brown appearance when exposed to weather. The Cor-Ten steel will blend in with the existing buildings and security infrastructure on-site as well as the pine forest in the background of the site. Dodson supp. pf. at 3:6-15.

152. The aesthetic characteristics of the Project are consistent with the policies of the Vernon Town Plan. The Project will not violate any clear written community standards applicable to scenic resources in the Vernon Town Plan or Windham Regional Plan. Dodson pf. at 17:13–19:16.

153. The Project will not offend the sensibilities of the average person because it will have limited visibility and will appear to be an integral part of an existing industrial complex. Dodson pf. at 22:11–23:2.

154. Entergy VY has taken generally available mitigating steps to improve the harmony of the Project with its surroundings, including locating it within the existing industrial complex and using colors that blend in with existing structures. *Id.* at 23:6-10.

155. Further mitigation measures, such as plantings, creating berms and screening, are not possible due to Entergy VY's security requirements. *Id.* at 23:13-14. Any revegetation to reduce on block views of the Project from the southeast may only be done if feasible (due to such security requirements). Tr. 2/23/16 at 60:5 – 61:6 (Dodson).

156. Extending the existing wooden screen, or line-of-sight barrier, located east and north of the existing ISFSI pad would accomplish minimal visual mitigation and would make the Project more prominent by introducing a large and uniform visual element into the site. *Id.* at 23:20-22; tr. 2/23/16 at 64:19–66:15 (Dodson).

157. Extending the existing wooden screen would result in greater impacts than the impacts of the Project without screening and would detract from the visual quality of the area. Dodson pf. at 23:33–24:2; tr. 2/23/16 at 57:16–58:24, 64:19–66:15 (Dodson).

Discussion

In determining whether a proposed project would have an undue adverse impact on aesthetics, the Board has adopted the Environmental Board's *Quechee* test. The Board has previously summarized the *Quechee* analysis:

> In order to reach a determination as to whether the project will have an undue adverse effect on the aesthetics of the area, the Board employs the two-part test first outlined by the Vermont Environmental Board in Quechee, and further defined in numerous other decisions.
>
> Pursuant to this procedure, first a determination must be made as to whether a project will have an adverse impact on aesthetics and the scenic and natural beauty. In order to find that it will have an adverse impact, a project must be out of character with its surroundings. Specific factors used in making this evaluation include the nature of the project's surroundings, the compatibility of the project's design with those surroundings, the suitability of the project's colors and materials with the immediate environment, the visibility of the project, and the impact of the project on open space.
>
> The next step in the two-part test, once a conclusion as to the adverse effect of the project has been reached, is to determine whether the adverse effect of the project is "undue." The adverse

> effect is considered undue when a positive finding is reached regarding any one of the following factors:
>
> 1. Does the project violate a clear, written community standard intended to preserve the aesthetics or scenic beauty of the area?
>
> 2. Have the applicants failed to take generally available mitigating steps which a reasonable person would take to improve the harmony of the project with its surroundings?
>
> 3. Does the project offend the sensibilities of the average person? Is it offensive or shocking because it is out of character with its surroundings or significantly diminishes the scenic qualities of the area?

The Project in this case meets the requirements of *Quechee* because it will positively impact the area's aesthetics by allowing the surrounding VY Station eventually to be decommissioned and thereby reducing the site's existing profile. Even before the VY Station is decommissioned, construction of the Project will not have an adverse aesthetic effect under the first prong of the *Quechee* test. The Project has been designed and sited such that it fits in with the existing industrial nature of the surrounding VY Station. Both before and after decommissioning, visibility of the Project will be limited. In areas where it will be visible, the Project will appear as a relatively small component of an existing, large industrial site. Finally, the Project will facilitate decommissioning of the VY Station, which will result in a large improvement to the aesthetics of the area.

No party presented evidence sufficient to call these conclusions into question, nor has any party presented sufficient evidence for us to find that the Project's impacts will be adverse. In fact, the only party to challenge the potential aesthetic impact of the Project was NEC, whose representative testified that he had no specific concerns about the proposed location for the second ISFSI. *See* tr. 2/23/16 at 149:24 (Shadis).

Even if the evidence supported a finding of adverse impact to the area's aesthetics, the impact is not unduly adverse. The Project will not violate any clear written community standards applicable to scenic resources in the Vermont Town Plan or Windham Regional Plan, and the Project will not offend the sensibilities of the average person because it will have limited visibility and will appear to be an integral part of an existing industrial complex. Entergy VY has taken generally available mitigating steps to improve the harmony of the Project with its surroundings, including locating it within the existing industrial complex and using colors that blend in with existing structures. Further mitigation measures to hide the Project, such as plantings, creating berms and planting screening, are not possible for security reasons, and extending the existing visual barrier would not improve aesthetics.

Historic Sites [30 V.S.A. § 248(b)(5) & 10 V.S.A. § 6086(a)(8)]

158. The Project will not be visible from the Governor Hunt House or Vernon Grange, which are located approximately 2,000 and 2,800 feet, respectively, from the Project. Dodson pf. at 24:5-7.

159. The Project will not be visible from any of the historic sites identified in the Hinsdale Town Plan. *Id.* at 21:5-6, 24:7-9.

160. The Project will not result in an undue adverse impact to any historic sites because it will not be visible from those sites. *Id.* at 24:12-13.

161. The Project will be located entirely within a previously-disturbed industrial site and will therefore not require any review for archeological resources. *Id.* at 24:16.

Rare & Irreplaceable Natural Areas and Necessary Wildlife Habitat & Endangered Species [10 V.S.A. § 6086(a)(8), (8)(A)]

162. The Project site is located within a previously-disturbed, industrial area and does not have any known occurrences of necessary wildlife habitat; rare, threatened or endangered species; or significant natural communities. Goodell pf. at 12:16-18.

Development Affecting Public Investments [10 V.S.A. § 6086(a)(9)(K)]

163. The VY Station is the most significant quasi-public investment in the immediate area, and the Project will not jeopardize this investment. *Id.* at 13:1-2.

164. Other public or quasi-public investments in the general area are the New England Central Railroad, the Vernon hydroelectric station, the Vernon substation, and the Town of Vernon's roads. The Project is not in close proximity to these investments and will not unnecessarily or unreasonably endanger them. *Id.* at 13:2-11; Thomas pf. at 9:3-7.

165. The Project will have minimal impact, if any, on the Connecticut River. Goodell pf. at 13:6-7.

H. Consistency with Resource Selection/Integrated Resource Plans [30 V.S.A. § 248(b)(6)]

166. This criterion does not apply to Entergy VY as it was a wholesale utility that does not distribute or transmit electricity to the public. Twomey pf. at 8:13-16.

I. Consistency with Electric Plan [30 V.S.A. § 248(b)(7)]

167. The Comprehensive Electric Plan does not take any position with respect to operation of the VY Station or SNF management so the Project is not inconsistent with the Plan, and satisfies this criterion. *Id.* at 7:14-15.

168. Good cause to permit construction of the Project exists because it will eventually allow Entergy VY to decommission the VY Station and permit eventual, economically beneficial reuse of the site. *Id.* at 8:1-4.

J. Outstanding Resource Waters [30 V.S.A. § 248(b)(8)]

169. The Project is not located on any segment of waters designated as outstanding resource waters, and the Project will therefore not affect any outstanding resource waters. Goodell pf. at 13:15-17.

K. Waste to Energy Facilities [30 V.S.A. § 248(b)(9)]

170. The Project does not involve a waste-to-energy facility or a facility that produces electric energy using woody biomass. Twomey pf. at 9:6-8; Thomas pf. at 14:17-19.

L. Transmission [30 V.S.A. § 248(b)(10)]

171. The Project will be served economically by the existing or planned transmission facilities without impact to Vermont utilities or customers because no changes to the transmission system are needed and the VY Station can be served by the existing distribution system on-site. Twomey pf. at 8:20–9:2; Thomas pf. at 14:12-15.

M. Adequate financial assurance [10 V.S.A. § 6522(b)(1)]

Findings

172. Adequate financial assurance exists for the management of SNF at the VY Station for a time period reasonably expected to be necessary, including through decommissioning, and for as long as it is located in the state. This finding is supported by findings 173 through 184, below.

173. The cost of interim spent fuel storage is estimated to be approximately $368 million. Twomey supp. pf. at 2:15-16; exh. EN-TMT-6.

174. Recovery of certain SNF management costs will come from the federal government to the extent the costs were incurred or caused by DOE's breach of its obligation to remove SNF under Section 302(a)(5)(B) of the Nuclear Waste Policy Act. Twomey pf. at 9:13-20.

175. Entergy VY has previously recovered from DOE approximately $41 million for damages incurred through April 30, 2008, as a result of DOE's breach of its contract to remove SNF from the site, and Entergy VY is suing DOE on a regular basis to enforce its rights under DOE's standard contract. *Id.* at 9:21–10:11; tr. 2/23/16 at 89:17-19, 122:17-20 (Twomey).

176. Entergy VY expects to recover the vast majority of SNF management costs from the DOE and conservatively estimates a 90% rate of recovery based on past trial experience. *See* tr. 2/23/16 at 122:6–124:3 (Twomey).

177. Entergy VY has established two revolving-credit facilities totaling $145 million that will be used to fund the Project, including the construction of the second ISFSI pad, procurement of dry storage systems and transfer of the fuel from the spent fuel pool to the ISFSI. Twomey supp. pf. at 2:17-20; tr. 2/23/16 at 100:7–101:19, 104:7–106:18 (Twomey).

178. Both credit facilities are guaranteed by Entergy Corporation, the parent company of ENVY and ENO. Twomey supp. pf. at 3:5-6; exh. EN-TMT-6.

179. Entergy VY intends to repay the two credit facilities with funds recovered from DOE. Twomey supp. pf. at 2:20–3:2; tr. 2/23/16 at 100:7–101:19, 104:7–106:18 (Twomey).

180. SNF management costs associated with certain operational activities, such as operating and maintaining the ISFSI and the spent fuel pool until all of the SNF is removed from it, will be paid from the plant's NDT. Twomey supp. pf. at 3:16-18; Recchia surreb. pf. at 3:29–4: 1-5; exh. EN-TMT-6; tr. 2/23/16 at 101:22–102:7, 104:7–106:18 (Twomey).

181. Entergy VY expects to recover from DOE the costs that result from DOE's breach of its contract to remove SNF from the VY Station. To the extent that funds from the plant's NDT are used to pay for SNF management costs, the proceeds from DOE recoveries of these costs will be deposited into the NDT or into a separate trust established for decommissioning, SNF management and site restoration. Twomey supp. pf. at 3:19–4:4; Recchia surreb. pf. at 4:2-5; tr. 2/23/16 at 101:22–103:16, 104:17–106:18, 112:20–113: 6 (Twomey); *see id*. at 182:19–183:2 (Recchia) (operational costs, including any incurred after 2052, are recoverable from DOE).

182. Entergy VY submitted its plan to fund SNF management costs to the NRC as part of Entergy VY's Update to Irradiated Fuel Management Program, dated December 19, 2014. Twomey supp. pf. at 2:14-15; exh. EN-TMT-6.

183. The NRC approved Entergy VY's updated Irradiated Fuel Management Program on a preliminary basis on October 5, 2015. Tr. 2/23/16 at 98:10-14 (Twomey); Letter of Matthew S. Stern to Judith Whitney regarding responses to records requests, dated March 2, 2016.

184. The NRC's standards for evaluating the ability to cover SNF management costs are conservative because they do not take into account any recovery of costs from DOE. Twomey reb. pf. at 3:14-16.

Discussion

Entergy VY's position is that there are adequate financial assurances for the Project. No party contests this fact. As a result, we find that this criterion is satisfied.

Federal Law Constrains The Board's Authority Over Decommissioning.

If the Board were to reach another conclusion, however, it would confront significant preemption issues because the NRC has already reviewed the adequacy of the financial assurances for the Project and found no defect in Entergy VY's plan. Federal law constrains the Board's jurisdiction over the nuclear phase of decommissioning and the storage and disposal of SNF. Decommissioning through the end of the removal of radiological material from the site is subject to NRC regulation and therefore preempted from the Board's consideration. *See, e.g., Me. Yankee Atomic Power Co. v. Bonsey*, 107 F. Supp. 2d 47, 51 (D. Me. 2000) (State "authority to regulate [a nuclear power plant's] decommissioning activities is preempted."); *see also Me. Yankee Atomic Power Co. v. Me. Pub. Utils. Comm'n*, 581 A.2d 799, 805-06 (Me. 1990) (finding preempted Maine's attempts to regulate the decommissioning fund of the Maine Yankee Atomic Power Company).

The NRC's regulation of the nuclear phase of decommissioning encompasses review of a plant's decommissioning fund to ensure that it is adequate to cover the costs of decommissioning, and the NRC has considerable authority to ensure that decommissioning is completed. *See Entergy Nuclear Vt. Yankee v. Shumlin*, 733 F.3d 393, 418 (2d Cir. 2013) ("Vermont's . . . economic argument regarding the State's potential future liability for decommissioning costs is also of little weight . . . [because] [n]uclear power plants must provide periodic reports to the NRC concerning the status of such funds for the purpose of providing 'reasonable assurance that funds will be available for the decommissioning process.'" (quoting

10 C.F.R. § 50.75(a)). The NRC reviews the adequacy of funding in the VY Station's trusts for decommissioning annually, and it reserves the right to take action to ensure adequate accumulation of funds in the trusts. 10 C.F.R. § 50.75(e)(2)(vi)(2). When discussing whether the Department could seek additional financial assurances, Commissioner Recchia noted "we have no regulatory hook to deal with much of what you describe." tr. 2/23/16 at 174:6-7 (Recchia).

Similarly, the NRC "was given exclusive jurisdiction to license the transfer, delivery, receipt, acquisition, possession and use of nuclear materials. Upon these subjects, no role was left for the States." *Pac. Gas & Elec. Co. v. State Energy Res. Conservation & Dev. Comm'n ("PG&E")*, 461 U.S. 190, 207 (1983) (citations omitted); *see also Skull Valley Band of Goshute Indians v. Nielson*, 376 F.3d 1223, 1250 (10th Cir. 2004), *cert. denied sub nom. Nielson v. Private Fuel Storage, LLC*, 546 U.S. 1060 (2005) ("Under the federal licensing scheme . . . it is not the states but rather the NRC that is vested with the authority to decide under what conditions to license an SNF storage facility."); *Bullcreek v. NRC*, 359 F.3d 536, 538 (D.C. Cir. 2004) ("[T]he AEA confers on the NRC authority to license and regulate the storage and disposal of [SNF]."); Docket 7082, *Pet. of Entergy VY for a CPG to construct a dry fuel storage facility at the VY Station*, Order of 4/26/06 at 15 (recognizing federal preemption of state-level regulation of SNF management).

Because these areas are subject to exclusive regulation by the NRC, the Board may not regulate them, even for reasons other than radiological health and safety. *Bonsey*, 107 F. Supp. 2d at 55 (State "cannot, under the guise of its radiation neutral Site Law and environmental regulations, interfere with those aspects of Maine Yankee's proposed [SNF storage] project that remain exclusively within the province of the NRC."); *see also PG&E*, 461 U.S. at 212; *Kerr-*

McGee Chem. Corp. v. City of W. Chicago, 914 F.2d 820, 826 (7th Cir. 1990); *Long Island Lighting Co. v. Suffolk Cnty., N.Y.*, 628 F. Supp. 654, 666 (E.D.N.Y. 1986); tr. 2/23/16 at 155:15-18 (Shadis), 173:8–174.11 (Recchia).

To be sure, federal law does not preempt the Board from regulating the post-nuclear (*i.e.*, site-restoration or greenfield) phase of decommissioning, including whether that phase is adequately funded. *See PG&E*, 461 U.S. at 212 ("States exercise their traditional authority over . . . land use."); *Entergy Nuclear Vt. Yankee, LLC, v. Shumlin*, 838 F. Supp. 2d 183, 200-01 (D. Vt. 2012) (describing the Board's 2005 order conditioning approval of a proposed SNF storage facility on Entergy VY's promise to "restore the site to greenfield condition"). Still, federal preemption in the nuclear phase prevents the Board from concluding, contrary to the NRC's conclusion, that there are inadequate financial assurances for the construction and operation of the second ISFSI. The "state cannot stand in the way of Maine Yankee's operational fuel storage plans, once they are approved by the NRC, on grounds that the cost of future transfer or handling of the spent fuel may be high and plaintiff cannot post security satisfactory to the state to cover any economic contingencies." *Me. Yankee Atomic Power Co.*, 107 F. Supp.2d at 55.

We need not confront issues of federal preemption here, however, because we find that adequate financial assurances exist for the construction and operation of the Second ISFSI.

The Fund Is Adequate To Finance The Construction And Operation Of The Second ISFSI.

Entergy VY has demonstrated that multiple layers of financial assurance are in place to cover the costs of SNF management for as long as the fuel is located in Vermont.

First, as a matter of law DOE has a statutory and contractual obligation to dispose of VY Station SNF and is obligated to pay damages for its failure to timely remove spent fuel. The Nuclear Waste Policy Act of 1982 ("NWPA"), 42 U.S.C. § 10101 *et seq.*, was enacted "to establish the Federal responsibility, and a definite Federal policy, for the disposal of such waste and spent fuel." 42 U.S.C. § 10131(b)(2). The NWPA required DOE to enter into contracts with all commercial nuclear operators to set forth procedures for collecting, transporting and storing SNF in a permanent repository. *Id*. at § 10222. Federal courts have ruled that DOE breached its contractual responsibilities when it failed to begin to remove nuclear waste from nuclear power plants in 1998. *See, e.g., Me. Yankee Atomic Power Co. v. United States*, 225 F.3d 1336, 1343 (Fed. Cir. 2000). Entergy VY has demonstrated that it has and will recover SNF management costs caused by the DOE's breach.

Entergy VY has already completed its first suit for breach of contract against DOE and recovered approximately $41 million in damages to ENVY for SNF storage expenses, including nearly all of Entergy VY's claimed damages that were directly related to SNF management activities. *See* Twomey pf. at 9:21–10:13; *Entergy Nuclear Vermont Yankee, LLC v. United States*, Docket No. 03-2663C (Fed. Cl. March 12, 2013).

Entergy VY intends to continue pursuing its damages claims against DOE as they arise, at appropriate intervals of time, to obtain reimbursement for all costs related to the failure of DOE to remove spent fuel from the VY Station. Twomey pf. at 10:3-11; tr. 2/23/16 at 89:17-19 (Twomey). We accordingly conclude that the vast majority of costs incurred for SNF management will be recovered from the Federal Government.

Entergy VY has also demonstrated that the $145 million credit facilities it established to fund the estimated $143 million Project costs are sufficient and that there are adequate funds in the NDT to pay for operational costs associated with spent fuel management. The NRC has completed a review of Entergy VY's plan to fund spent fuel management, *see* exh. EN-TMT-6, and the NRC approved Entergy VY's plan on a preliminary basis on October 5, 2015, *see* Letter of Matthew S. Stern to Judith Whitney regarding responses to records requests, dated March 2, 2016. In doing so, the NRC concluded that Entergy VY "demonstrated reasonable assurance that funding will be available to maintain the [Irradiated Fuel Management Plan] until the fuel is transferred to the Department of Energy for permanent disposal." *Id*. at 7.

No party introduced evidence to the effect that Entergy VY has not demonstrated adequate financial assurance for the management of SNF. While the Department of Public Service disagrees with Entergy VY's plans to use NDT funds to pay for certain SNF management costs,[5] it nevertheless agrees that Entergy VY has provided "sufficient information to find that this criterion [10 V.S.A. § 6522(b)(1)] has been met." Recchia pf. at 2:22-24; *see also* Recchia surreb. pf. at 3:3-9. Mr. Recchia testified that he believes ". . .with the 145 million dollar financial instruments that are – that Entergy is suggesting, plus the likely recovery of the – most of those costs from the Department of Energy should be considered adequate financial assurance." Tr. 2/23/16 at 178:14-18 (Recchia).

N. Commitments to remove all spent fuel [10 V.S.A. § 6522(b)(2)]

185. Entergy VY has committed through memoranda of understanding in Dockets 6545 and 7082 to "use its commercial best efforts to ensure that high-level SNF stored at the [VY] Station is removed from the site in a reasonable manner and as quickly as possible to an

[5] For the reasons set forth above, federal law preempts Board examination of this issue.

interim or permanent location outside of Vermont." Twomey pf. at 13:7-10; Leshinskie pf. at 2:11-13.

186. Entergy VY's commitments remain in full force and applies to all spent fuel stored at the VY Station. Twomey pf. at 13:10-11.

187. Entergy VY has satisfied this criterion, as the Department testified. Leshinskie pf. at 2:16-19.

O. Spent fuel management plan [10 V.S.A. § 6522(b)(3)]

188. Entergy VY has a Spent Fuel Management Plan in place. Twomey pf. at 14:6-8; exh. EN-GT-3.[6]

189. The Spent Fuel Management Plan includes a plan for moving SNF from the spent fuel pool to dry cask storage. Entergy VY will start loading casks and moving them to the existing ISFSI pad beginning in 2017. Transfer from the spent fuel pool to dry cask storage is expected to be complete by the end of 2020. Thomas reb. pf. at 3:1-4; exh. EN-GT-3; tr. 2/23/16 at 8:11-18 (Thomas).

190. The Spent Fuel Management Plan also includes procedures for long-term storage of SNF at the station. In accordance with the Board's order in Docket 7082, the plan addresses the possibility that SNF could remain at the VY Station through 2082. Exh. EN-GT-3 at 5.

[6] In submitting its Spent Fuel Management Plan under 10 V.S.A. § 6522, Entergy VY notes that the NRC has "exclusive authority over [commercial nuclear] plant construction and operation." The U.S. Supreme Court in *PG&E*, 461 U.S. at 207 found that the NRC "was given exclusive jurisdiction to license the transfer, deliver, receipt, acquisition, possession and use of nuclear materials" and "[u]pon these subjects no role was left for the states." "Under the federal licensing scheme. . . it is not the states by rather the NRC that is vested with authority to decide under what conditions to license a [spent nuclear fuel] storage facility." *Skull Valley Band of Goshute Indians v. Nielson*, 376 F.3d 1223, 1250 (2004), *cert. denied sub nom. Nielson v. Private Fuel Storage, LLC*, 546 U.S. 1060 (2005). *See* exh. EN-GT-3.

191. The Spent Fuel Management Plan includes transfer and closure procedures for the eventual removal of SNF to an off-site facility. Exh. EN-GT-3.

192. Entergy VY has satisfied this criterion, as the Department testified. Leshinskie pf. at 3:3-5.

P. Compliance with memoranda of understanding [10 V.S.A. § 6522(b)(4)]

193. Entergy VY is in substantial compliance with all MOUs entered with the State, including those in Dockets 6545, 6812, 7082 and 7862. Twomey pf. at 14:19–16:7; tr. 2/23/16 at 113:22–114:3 (Twomey).

VII. CONCLUSION

Based on our findings of facts and analysis of the record evidence, we conclude that the Project as proposed by Entergy VY, subject to the conditions to which Entergy VY agreed in the Stipulation, meets all of the siting criteria established by 30 V.S.A. § 248 as well as the specific criteria for SNF storage established by 10 V.S.A. § 6522. Construction of a second ISFSI storage pad as expeditiously as possible to enable transfer of all of the VY Station's SNF to dry storage and installation of a backup generator will promote the general good of the state.

VIII. ORDER

IT IS HEREBY ORDERED, ADJUDGED AND DECREED by the Public Service Board of the State of Vermont:

1. The construction of a dry fuel storage facility and a 200-kW diesel generator and ancillary facilities at the Vermont Yankee Nuclear Power Station by Entergy Nuclear Vermont Yankee, LLC, and Entergy Nuclear Operations, Inc. ("Entergy VY"), as proposed in Entergy VY's petition and supporting testimony and exhibits, will, subject to the conditions set out in this Order, promote the general good of the State of Vermont in accordance with 30 V.S.A. § 248 and meets the requirements for storing SNF of 10 V.S.A. § 6522, and we shall issue a Certificate of Public Good to that effect in the form attached to this Order as Attachment 1.

2. Entergy VY shall comply with the conditions set forth in paragraph 3 of the Stipulation Between Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc. and the Vermont Agency of Natural Resources, dated as of the 18th day of February, 2016.

3. The Certificate of Public Good hereby issued shall apply to the Vermont Yankee Nuclear Power Station, regardless of the owner of the facilities, and the conditions of the Certificate of Public Good and the requirements of this Order shall apply to any future owner.

DATED at Montpelier, Vermont, this ___ day of _____, 2016.

_____) PUBLIC SERVICE
)
_____) BOARD OF
)
_____) VERMONT

OFFICE OF THE CLERK
FILED:
ATTEST: _____
Clerk of the Board

NOTICE TO THE READERS: This decision is subject to revision of technical errors. Readers are requested to notify the Clerk of the Board (by e-mail, telephone or in writing) of any apparent errors, in order that any necessary corrections may be made. (E-mail address: psb.clerk@vermont.gov

Appeal of this decision to the Supreme Court of Vermont must be filed with the Clerk of the Board within thirty days. Appeal will not stay the effect of this Order, absent further Order by this Board or appropriate action by the Supreme Court of Vermont. Motions for reconsideration or stay, if any, must be filed with the Clerk of the Board within ten days of the date of this decision and order.

STATE OF VERMONT

PUBLIC SERVICE BOARD

Petition of Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc., for a certificate of public good, pursuant to 30 V.S.A. § 248 and 10 V.S.A. § 6522, authorizing the construction of a second independent spent fuel storage installation storage pad and related improvements, including installation of a new diesel generator with an electrical rating of approximately 200 kW, at the Vermont Yankee Nuclear Power Station in the Town of Vernon, Vermont	)	Docket No. 8300

CERTIFICATE OF PUBLIC GOOD

IT IS HEREBY CERTIFIED that the Public Service Board of the State of Vermont on this date finds and adjudges that the issuance of a Certificate of Public Good to Entergy Nuclear Vermont Yankee, LLC, and Entergy Nuclear Operations, Inc. ("Entergy"), to construct a dry fuel storage facility and a 200-kW diesel generator at the Vermont Yankee Nuclear Power Station and ancillary improvements (the "Project") will promote the general good of the State of Vermont. This Certificate is subject to the following conditions:

1. Entergy shall comply with each of the following terms and conditions agreed in the Stipulation between Entergy and the Agency of Natural Resources:

   a. Entergy shall develop a site investigation work plan in accordance with the "Investigation and Remediation of Contaminated Properties Procedure (IROCPP), effective April 2012" for soils within the Project Boundaries that are free of radiological contamination and submit the plan to the Agency for review and approval prior to commencement of any Project-

related construction activities. The Project Boundaries are shown in Attachment 1 to this Stipulation. More specifically, Entergy shall retain an OSHA HAZWOPER-certified environmental scientist to develop a site investigation work plan that will include, at a minimum, collection of representative soils samples from the soil sampling and boring locations shown on Attachment 1 unless both Parties agree to modify the sampling and boring locations shown on Attachment 1. The site investigation work plan will specify that all samples will be sent to a certified laboratory for the analysis of total petroleum hydrocarbons, volatile organic compounds, semi-volatile organic compounds, polychlorinated biphenyls, and TAL metals. If the Agency determines that a dioxins analysis is required for samples collected within the Project Boundaries and outside the footprint of the North Warehouse building based on historical records or other evidence, the laboratory analysis will also include dioxins for those samples.

b. The Agency agrees to review Entergy's site investigation work plan as expeditiously as possible. Entergy shall implement the approved plan and submit the results and findings to the Agency prior to commencement of Project excavation activities.

c. If the Agency determines that sampling conducted as part of the approved site investigation work plan indicates that one or more of the eight conditions identified in Chapter 4 of the IROCPP that requires corrective action under the IROCPP exist, Entergy shall develop a corrective action

plan in accordance with Chapter 4 of the IROCPP for any release of hazardous material or excavated soils within the Project Boundaries that are free of radiological contamination. Entergy shall submit the corrective action plan to the Agency for review and approval. At the time Entergy submits the corrective action plan, Entergy shall identify those corrective actions, if any, that Entergy believes will create an actual and irreconcilable conflict with the Nuclear Regulatory Commission's authority under the Atomic Energy Act, undermine the structural integrity of the existing ISFSI storage pad and related infrastructure, and/or impact the engineering design of the proposed ISFSI storage pad and related infrastructure; provide an explanation for such conflict; and propose an alternative corrective action that does not create an actual and irreconcilable conflict with the Nuclear Regulatory Commission's authority under the Atomic Energy Act, undermine the structural integrity of the existing ISFSI storage pad and related infrastructure, and/or impact the engineering design of the proposed ISFSI storage pad and related infrastructure. The Agency agrees to review any corrective action plan submitted by Entergy as expeditiously as possible.

d. The Agency agrees that Entergy shall not be required to implement any corrective actions that Entergy demonstrates, based on engineering evaluation, would undermine the structural integrity of the existing ISFSI storage pad and related infrastructure. Entergy shall implement any approved corrective actions and will submit a corrective action report in

accordance with the timeline in the approved corrective action plan. The Parties agree that corrective actions necessary for soils or any other releases of hazardous materials that are beyond the Project Boundaries are not governed by this Stipulation.

e. Prior to disposal, Entergy shall determine whether sheathing on cables that are removed from the Project Site is subject to regulation as non-radiological hazardous waste. Such determination shall be made pursuant to VHWMR § 7-202(b). Any cable sheathing that is determined to be non-radiological hazardous waste shall be managed and disposed of pursuant to applicable provisions of the VHWMR.

f. Entergy shall notify the Agency of Entergy's intention to manage low-level mixed waste under the Mixed Waste Rule as required by 40 C.F.R. §§ 266.230 and/or 266.345(a), depending on the applicable exemption(s) described in 40 C.F.R. Part 266, Subpart N that Entergy claims (both of which require this notification), which is/are incorporated by reference through VHWMR § 7-109(b)(2). Required notices shall be submitted to:

> Department of Environmental
> Conservation Waste Management and
> Prevention Division Hazardous Waste
> Management Program One National
> Life Drive, Davis 1 Montpelier, VT
> 05620-3704

g. Prior to commencing Project-related site preparation and construction activities, Entergy shall obtain a state floodplain permit for the Project under the Flood Hazard Area and River Corridor Rule. Entergy shall comply with the terms of the state floodplain permit. The Agency

acknowledges that Entergy reserves all objections to the application of Flood Hazard Area and River Corridor Rule and River Corridor Protection Procedure to the Project.

2. This Certificate of Public Good applies to the Vermont Yankee Nuclear Power Station, regardless of the owner of the facilities, and the conditions of this Certificate of Public Good and requirements of the accompanying Order in this Docket will apply to any future owner.

DATED at Montpelier, Vermont, this ___ day of _____, 2016.

_____) PUBLIC SERVICE
)
_____) BOARD OF
)
_____) VERMONT

OFFICE OF THE CLERK
FILED:
ATTEST: _____
Clerk of the Board

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