UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of:

Entergy Nuclear Operations, Inc., Vermont Yankee Nuclear Power Station Post-Shutdown Decommissioning Activities Report

Docket No. NRC-2015-0004
Docket No. 50-271

Comments of the State of Vermont

Submitted: March 6, 2015

OFFICE OF THE ATTORNEY GENERAL
William H. Sorrell
Attorney General
Scot L. Kline
Environmental Protection Division Chief
Kyle H. Landis-Marinello
Assistant Attorney General
109 State Street
Montpelier, Vermont 05609

DEPARTMENT OF PUBLIC SERVICE
Christopher Recchia
Commissioner
Aaron Kisicki
Special Counsel
Anthony Z. Roisman
Of Counsel
112 State Street
Montpelier, Vermont 05602

AGENCY OF NATURAL RESOURCES
Department of Environmental Conservation
David Mears
Commissioner
Chuck Schwer
Waste Management and Prevention Division Director
Jordan Gonda
Associate General Counsel
One National Life Drive
Montpelier, VT 05620

DEPARTMENT OF HEALTH
Harry Chen, M.D.
Commissioner
William Irwin, Sc.D., CHP
Radiological and Toxicological Sciences Program Chief
108 Cherry Street
Burlington, VT 05401

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INTRODUCTION

The State of Vermont and its citizens have a direct and ongoing interest in all aspects of the decommissioning, spent fuel management, and site restoration of the nuclear power plant that lies within the State's borders. The Vermont Yankee Nuclear Power Station (Vermont Yankee) is in Vernon, Vermont, on the banks of the Connecticut River. After 42 years of generating power, Vermont Yankee has now ceased operations. On December 19, 2014, Entergy Nuclear Operations, Inc. (Entergy) submitted its Post Shutdown Decommissioning Activities Report (PSDAR), including a site-specific Decommissioning Cost Estimate (DCE) (ADAMS Accession No. ML14357A110). On that same day, Entergy submitted several other filings, including an Updated Irradiated Fuel Management Plan (ADAMS Accession No. ML14358A251) and an Updated Decommissioning Funding Status Report (ADAMS Accession No. ML14358A250). On January 6, 2015, Entergy filed an exemptions request to allow it to access the Nuclear Decommissioning Trust (NDT) Fund for spent fuel management expenses (ADAMS Accession No. ML15013A171).

The State of Vermont objects to these filings. While Entergy has previously worked with the State toward mutually agreeable solutions on a number of matters, including an omnibus Settlement Agreement in December 2013 that resolved many legal and policy disputes between the parties, Entergy's latest round of filings were made with full knowledge that the State objected to many aspects of these filings.

The State respectfully requests that the Nuclear Regulatory Commission (NRC) act immediately to force Entergy to address the many concerns the State raises in its Comments below and in the attachments to these Comments.

I. The NRC Should Require Entergy to Address the State's Concerns—Expressed Today and in Comments the State Previously Provided to Entergy—and Hold a Full Adjudicatory Hearing on Whether Entergy Can Proceed with Its Decommissioning Plans

In December 2013, after Entergy had announced its plans to shut down by the end of 2014, the State of Vermont and Entergy signed an omnibus Settlement Agreement that resolved many legal and policy disputes between the parties. Entergy has attached that Settlement Agreement to its recently submitted PSDAR. In paragraph 6 of the Settlement Agreement, Entergy agreed to provide the State with a comprehensive site assessment study. Paragraph 6 then states that Entergy "shall review the results of the study" with the Department of Public Service, the Agency of Natural Resources, and the Department of Health, and Entergy "shall consider any comments provided by those parties for inclusion in the PSDAR." To ensure that this occurred, the Settlement Agreement imposed a minimum period of "sixty (60) days after completing the site assessment study" before Entergy could submit its PSDAR. The clear intent of this paragraph was that a meaningful dialogue would occur between Entergy and the State during the 60-day waiting period when Entergy was required to review and consider the State's comments. Unfortunately, Entergy effectively ignored the substantive comments provided by three separate State agencies during this 60-day time period.

On December 13, 2014, within the required 60-day waiting period, Vermont Department of Public Service Commissioner Christopher Recchia sent Entergy detailed comments from three separate State agencies, including 190 itemized comments explicitly requesting a response or additional information from Entergy to better understand Entergy's post-closure plans and thus allow the agencies to determine whether Entergy's post-closure activities will comply with applicable law.

Despite its contractual obligation to "consider" the State's comments before submitting its PSDAR (Settlement Agreement ¶ 6), Entergy appears to have not done so. The PSDAR that Entergy submitted to the NRC on December 19, 2014 contains an internal date on every page of "December 2, 2014"—which is 11 days *before* the State provided Entergy with the comments Entergy was required to consider.

The entirety of the State's December 13, 2014 submittal is attached—and expressly incorporated into—these Comments. *See* Exhibit 1. Entergy's site assessment study and the draft filings it provided to the State in October 2014 are also attached. *See* Exhibit 2. Although Entergy—on February 28, 2015, more than two months after it already submitted the PSDAR—provided a limited response to some of the comments the State submitted, its response was inadequate and did not provide the State agencies with the information they requested. *See* Exhibit 3. In its February 28, 2015 letter, Entergy responded to only a portion of the State's comments, and although Entergy stated that it was responding to all of the State's comments on the PSDAR, it did not do that. It did not address the State's

comments on draft documents like the TLG Maximum SAFSTOR Cost Estimate, even though that document was incorporated (without any apparent changes) into Appendix C of the Decommissioning Cost Estimate that was included with Entergy's PSDAR.[1] The NRC should require Entergy to provide a detailed response to all of the State's December 13, 2014 comments before the NRC allows Entergy to proceed with its decommissioning plans.

The NRC should also require Entergy to respond to the State's Comments provided today before the NRC allows Entergy to proceed with its decommissioning plans. If there is to be any meaning given to the State's rights under NRC regulations to comment on Entergy's proposed PSDAR, the NRC should require Entergy to respond to the State's concerns.

In these circumstances, the NRC can—and should—"find[] that a hearing is required in the public interest" and provide a full adjudicatory hearing. 10 C.F.R. § 2.104. Many of Entergy's specific requests for exemptions, License Amendment Requests, and its December 19, 2014 filings, including the PSDAR and Decommissioning Cost Estimate, are interrelated, amend the terms of their license, and should be addressed comprehensively in an adjudicatory hearing. As explained below, Entergy's PSDAR, Decommissioning Cost Estimate, and related filings raise a number of previously unaddressed issues that greatly affect the public interest. This is particularly important in light of the piecemeal approach that Entergy has

[1] Further, even for the State comments that Entergy responded to, many of its responses were simply cross-references that were in fact unresponsive to the issues raised by the State.

taken to its post-closure-related filings with the NRC over the last year. The public interest requires a full adjudicatory hearing to address the concerns expressed in these Comments.

II. The NRC Should Require the PSDAR, Decommissioning Cost Estimate, and Related Filings to Provide Reasonable Assurance that Adequate Funds Will Be Available for Decommissioning

NRC regulations do not allow Entergy to take any decommissioning actions that would "[r]esult in there no longer being reasonable assurance that adequate funds will be available for decommissioning." 10 C.F.R. § 50.82(6)(iii). Entergy's PSDAR, Decommissioning Cost Estimate, and other December 19, 2014 filings, including updates to its Irradiated Fuel Management Plan and Decommissioning Funding Status Report, make clear that Entergy intends to access the NDT Fund for non-decommissioning uses, including spent fuel management expenses. Entergy's January 6, 2015 exemption request explicitly seeks permission to use the NDT Fund for spent fuel management expenses. The NRC should reject that request and take all other necessary actions to ensure that each of Entergy's withdrawals from the NDT Fund complies with applicable NRC regulations and with the Master Trust Agreement that Entergy signed when it bought Vermont Yankee. *See* Exhibit 4.

A. To Ensure Adequate Funding for Decommissioning, the NRC Should Require Entergy to Revise Its Cost Estimates

Entergy's Decommissioning Cost Estimate includes a number of assumptions that undermine Entergy's claim of reasonable assurances that it will meet its legal obligation to decommission Vermont Yankee. The NRC should require Entergy to

revise its cost estimates to address the risk that some of these assumptions may prove incorrect. In evaluating any claim that the NDT Fund contains "excess" funds—as Entergy asserts in its December 19, 2014 filings and its January 6, 2015 exemptions request—the NRC must take into account recognized contingencies that would increase the total cost for decommissioning, spent fuel management, and site restoration.

It is no great insight that Entergy's financial analysis and its claim of "excess" funds are based upon many assumptions that may not come to be. Indeed, the only significant change between the draft PSDAR that Entergy provided the State in October 2014 and the later version that Entergy submitted to the NRC appears to be the addition of a regulatory commitment "to provide a total in parental assurance of up to 10% of the remaining trust fund balance or $40 million, whichever is less." PSDAR List of Regulatory Commitments. This addition to the PSDAR is telling because it is triggered "[i]n the event that additional financial assurance beyond the amounts contained in the remaining trust fund . . . is required." *Id.* In other words, Entergy concedes—as it must—that the trust fund might turn out to be inadequate, thus triggering "the event that additional financial assurance" is needed. *Id.* But at that point, the NRC regulations have failed to assure adequate funding for decommissioning.

At that point, where "additional financial assurance . . . is required," Entergy should not place a *limit* on how much assurance it will provide, much less a limit that decreases the lower the fund balance goes, as occurs with Entergy's

"commitment" of $40 million or "10% of the remaining trust fund balance . . . whichever is less." *Id.* Depending on the circumstances (e.g., market decline), the amount should be *increased* the lower the fund balance goes. Yet Entergy's parental assurance "commitment" literally goes to $0 once the NDT Fund goes to $0.

In other words, at the very moment when a parental guarantee may well be needed, it no longer exists.

The lack of a true parental guarantee is not a small matter, particularly given that Vermont Yankee is one of the first merchant generators to undergo the decommissioning process. As the NRC heard from numerous members of the public during the public hearing on February 19, 2015, Vermonters are greatly concerned about whether the corporation of Entergy will exist decades from now when Entergy must begin radiological decontamination and dismantlement. If at any point Entergy fails to pay for all of the radiological decommissioning and spent fuel management that is needed at the site, the State's concern is that uncovered costs may ultimately fall upon the citizens of Vermont. The NRC has a legal duty to ensure that this does not occur. At the February 19, 2015 hearing, NRC officials assured Vermonters that Entergy would not be allowed to walk away from its legal obligations. The NRC made similar reassurances in a later statement to the press:

> "We're not going to just let them walk away. Even if it involved working with the Department of Justice to go after the parent company," said NRC spokesperson Neil Sheehan. "Even if the company dissolves, they still have assets. Entergy owns a

> transmission company . . . and they own other nuclear power plants other than this."

VTDigger.org, *Residents Seek Assurance from Feds on Vermont Yankee Decommissioing* (Feb. 22, 2015), http://vtdigger.org/2015/02/22/residents-seek-assurance-feds-vermont-yankee-decommissioning/.

While the State of Vermont appreciates these reassurances, such statements are not a substitute for the NRC's legal obligation to uphold regulatory requirements that ensure that Entergy will have adequate funds to decommission Vermont Yankee. This is especially important in light of the fact that Entergy has already publicly expressed its view that, although it expects the fund to have enough money to decommission the plant, Entergy expects litigation between the State of Vermont and the company over any shortfall. *See* VTDigger.org, *Entergy Makes First Withdrawal from Decommissioning Fund*, http://vtdigger.org/2015/02/11/entergy-makes-first-withdrawal-decommissioning-fund/ ("If the fund comes up short, [the Entergy representative] said there would be litigation between the state and the company as to how to pay for it.").

If such a lawsuit is ever brought by the State of Vermont, by the NRC working with the Department of Justice, or by all three governmental agencies working cooperatively, everyone will look back at the decisions the NRC makes (or fails to make) over the next few months and wonder what went wrong. And if such lawsuits fail, or succeed in a pyrrhic way because even the parent company is insolvent at that point, the State of Vermont could be left with a radiologically

contaminated site and spent nuclear fuel within its borders. The State asks the NRC to do everything within its power now to ensure that this does not occur.

In particular, as noted in more detail below, there are several concrete steps that the NRC can—and should—take now to ensure adequate funding for decommissioning.

i. The NRC should require Entergy to do additional radiological and non-radiological site characterization. Although Entergy chose to submit its PSDAR more than two years before this filing is due, Entergy has until December 2016 to submit its PSDAR. The NRC should require Entergy to use this time to engage in a more thorough radiological and non-radiological site characterization. This is especially important in light of the recent discovery of radionuclides like strontium-90 in locations where those contaminants have not previously been discovered.

The characterization of the site (radiological and non-radiological) has not yet occurred. Rather, Entergy has elected to wait decades until nearly the end of the allowed SAFSTOR period before engaging in this characterization. The decision to delay characterization makes it incredibly difficult for the NRC and the State of Vermont, including the Department of Health, the Agency of Natural Resources, and the Department of Public Service, to evaluate the PSDAR. The decision to delay characterization also calls into question all of the cost estimates that Entergy has provided in its PSDAR and related filings. Without a full site characterization,

there is no way to determine what it will ultimately cost to perform radiological decommissioning, spent fuel management, and site restoration.

Overall, the PSDAR is written with inadequate detail for the Department of Health to be confident that the public health and the environment are protected during any of the five plant status types—transition from operations, SAFSTOR dormancy, preparations for dismantling and decontamination, dismantling and decontamination, and site restoration. For instance, the PSDAR does not adequately estimate the number and type of personnel onsite to accomplish work, especially: wet spent fuel operations; fire protection; monitoring of structure, system, and component integrity; and radiological environmental monitoring.[2] The PSDAR also fails to identify what external resources (local, state, or federal) Entergy is relying on to protect the health and safety of the public during the various phases of post-shutdown activities. Without adequate information on these and other matters, the Department of Health cannot be certain that public health and safety will be served to the degree needed.

The PSDAR also does not describe the depth and breadth of the planned radiological environmental monitoring program. Doing so is important because of the large volume of radioactive materials generated by plant operations and to be maintained within the structures, systems, and components during each phase of

[2] It is unclear why the plant staffing is not adequately identified, given that such information is routinely included in supplemental data developed by TLG in performing decommissioning costs estimates. The PSDAR should provide the staffing plan for each phase of post-shutdown activities and describe how the plant activities and programs are expected to change over the phases of post-shutdown activities.

decommissioning. At multi-unit sites like Millstone 1 and Indian Point 1, there is a robust radiological environmental monitoring program that covers the unit that is in SAFSTOR. The PSDAR provides no indication that robust radiological environmental monitoring is planned or will be executed at Vermont Yankee.

The PSDAR also inadequately describes radiological emergency preparedness during decommissioning. The basis of emergency planning ignores hostile action based scenarios that could destroy key structures storing radioactive materials or result in a zirconium fuel cladding fire while fuel remains in the spent fuel pool.

The Department of Health has concerns for public health during the time to prepare for SAFSTOR and when spent fuel is transferred from the spent fuel pool to dry casks. Plans are inadequately described in the PSDAR to assure the Department of Health that accidents and releases that may affect the environment and public health can be managed by Entergy with a dramatically reduced work force. The Department of Health is concerned as well about radioactive material releases during the period of decontamination and dismantling just before license termination. Concerns arise due to the complex and unique nature of the radiological industrial and transportation activities to occur during decontamination and dismantling.

Throughout the SAFSTOR years, large quantities of radioactive materials in solid and liquid form will be left in storage onsite where leaks have occurred in the past, and may occur again. In addition to radioactive material storage, inventory management and monitoring, and response to leaks into the environment, there is a

serious concern about fire protection for the structures, systems, and components containing radioactive materials in storage. Capabilities to monitor for and respond to these kinds of radiological emergencies are not adequately addressed in the PSDAR.

The inadequacy of the PSDAR's site characterization violates directly applicable NRC regulatory guidance. For instance, the NRC has directed that "[t]he cost of remediating known environmental contamination should be included (soil, groundwater, surface water, etc.)" in the PSDAR. NRC Regulatory Guide 1.185 at 8. Entergy's PSDAR does not meet this requirement because such costs cannot be estimated without more detailed site characterization.

One clear omission from the PSDAR (and the Site Assessment Study that Entergy did before completing the PSDAR) is the recent discovery of strontium-90 in locations where that contaminant had not previously been discovered. *See* Vermont Department of Health Communications Office, *Strontium-90 Detected in Ground Water Monitoring Wells at Vermont Yankee* (Feb. 9, 2015), http://healthvermont.gov/news/2015/020915_vy_strontium90.aspx. The Department of Health also found cesium-137, strontium-90, and other long half-life radioactive materials in soil samples taken in 2010. *See* http://healthvermont.gov/enviro/rad/yankee/laboratory_testing.aspx. The Department of Health's publication of results regarding strontium-90 in groundwater wells occurred *after* Entergy submitted its PSDAR. At this point, we already know of at least one way in which the Decommissioning Cost Estimate is

incorrect—namely, the analysis underlying the estimated amount of soil removal that will be needed surrounding the advanced off-gas (AOG) building. On that issue, Entergy has stated the following:

> It should be noted that no additional remediation of the soil in the vicinity of the AOG building was included, based upon the earlier remediation (soil removal) performed by Entergy VY and the findings from the GZA groundwater investigation that *only tritium had migrated into the groundwater*. Tritium is a low-energy beta emitter with a half-life of approximately 12.3 years, decaying to non-radioactive helium. As such, any residual sub-grade tritium is not expected to require any further remediation at the time of decommissioning in order to meet site release criteria.

Decommissioning Cost Estimate, § 3, page 12 (emphasis added; footnote omitted).

The Decommissioning Cost Estimate is clearly out-of-date and incorrect in its claim that "only tritium ha[s] migrated into the groundwater" in this area. *Id.* This new data on strontium-90 creates doubt regarding Entergy's claim in the PSDAR that previous excavation of the AOG leakage site eliminates the need to excavate deeper than three feet below grade. *See id.*; *see also id.* at § 3, page 13 (noting that foundations and building walls will only be removed "to a nominal depth of three feet below grade"). Many long-lived radionuclides are likely to be found in soils and groundwater far from the small excavation made to repair the leaks that likely allowed reactor condensate to enter into the site soils for many years. In addition, these same long-lived radionuclides are likely to be found in the structures, systems, and components left during SAFSTOR and then later decontaminated and dismantled.

At an absolute minimum, the recent discovery of strontium-90 requires further analysis by Entergy and revision of the PSDAR to take this into account.

This is an important issue because the presence of strontium-90 or other long-lived radionuclides could greatly increase the costs of decommissioning and site restoration. NRC regulatory guidance on the requirements of a PSDAR specifically directs that "[t]he cost of remediating known environmental contamination should be included (soil, groundwater, surface water, etc.)." NRC Regulatory Guide 1.185 at 8. Entergy's PSDAR does not meet this requirement.

Long half-life radioactive materials are to be expected to be found in soils at Vermont Yankee. These include 5,730-year half-life carbon-14, 100-year half-life nickel-63, 29-year half-life strontium-90, 30-year half-life cesium-137, 13.5-year half-life europium-152, and 12.3-year half-life hydrogen-3. *See* Abelquist, Eric W., *Decommissioning Health Physics, A Handbook for MARSSIM Users* (2d Ed. 2014). These radioactive materials and hard-to-detect radionuclides were found in the decommissioning of both Maine Yankee and Connecticut Yankee in addition to transuranics, radioisotopes of plutonium, curium, neptunium, and americium. *See* Letter from Thomas L. Williamson, Maine Yankee Director of Nuclear Safety and Regulatory Affairs to NRC (Jan. 16, 2002) (ADAMS ML020440651). Further, as the State pointed out to Entergy in the State's December 2014 comments, carbon-14 has been a major issue in the decommissioning of other sites such as Yankee Rowe and is expected to be a concern in the decommissioning of future sites such as San Onofre. Despite the State's explicit request, Entergy has not yet provided any

evaluations, analyses, or other bases for assuming that carbon-14 will not be of concern in decommissioning Vermont Yankee.

Conversations with Health Department staff in Maine and with Environmental Conservation Department staff in Connecticut indicate that decommissioning is likely to reveal unanticipated radioactive sources to be remediated. These included pockets of highly contaminated groundwater dammed up by existing structures at Maine Yankee and a 25-foot-deep 225-foot-long excavation of soil around the reactor water storage tank at Connecticut Yankee. These kinds of potential situations are not adequately accounted for in the PSDAR. The PSDAR provides no assurance that the challenges of remediating these radioactive materials are factored into the planning and funding for the decommissioning of Vermont Yankee.

Even if strontium-90 had not recently been discovered, the PSDAR would be deficient given other evidence that soil contamination exists—and that remediation is thus likely to be needed—more than three feet below grade. The October 2014 Site Assessment Study documents the 1991 leak in the chemistry lab drain line, the AOG reactor condensate leaks confirmed in 2009, the piping leaks between the radioactive waste building and the AOG building discovered in 2010, and other spills and leaks of radioactive materials. The area between the Connecticut River, the intake structure, the discharge structure, and the reactor, turbine, and radioactive waste buildings may contain large volumes of contaminated soil requiring excavation to meet the derived concentration guideline levels for

appropriate remediation in accordance with the Multi-Agency Radiation Survey and Site Investigation Manual. Significant leakage of reactor condensate and radioactive materials spills have occurred: in the AOG piping tunnel; in piping between the AOG building and the radioactive waste building; in and around the radioactive waste building; in the condensate storage tank courtyard; and between the Connecticut River and the reactor, radioactive waste, and AOG buildings. Entergy should sample soils at depths greater than three feet and be prepared to remove contaminated soil for off-site disposal when necessary. If Entergy fails to remediate beyond three feet below grade, contamination could reach the groundwater and river water down-gradient of these areas. The PSDAR provides no information to determine whether the human and financial resources required for all necessary soil removal and other remediation will be available at the time the remediation must occur.

Because an adequate characterization of the site (radiological and non-radiological) has not yet been done, Entergy cannot provide an accurate estimate of the scope of work and resulting costs for decommissioning. Indeed, Entergy's Decommissioning Cost Estimate explicitly recognizes (at page vii) that it "may not reflect the actual plan to decommission Vermont Yankee."

More generally speaking, the PSDAR does not provide sufficient information about the plans and resources to be dedicated to post-shutdown decommissioning activities at Vermont Yankee. The lack of sufficient information in the PSDAR leaves the Department of Health unable to ensure that Entergy will leave the site

in a safe condition that will not lead to adverse health effects. Entergy must provide the NRC and the State of Vermont with substantial additional information before the NRC allows Entergy to proceed with its decommissioning plans. This would provide, among other things, the needed assurance that there will be: (1) robust environmental surveillance of this site where large volumes of radioactive material as well as asbestos, lead, and other hazardous materials may be stored for fifty years or more before disposal[3]; (2) adequate staff and other resources to monitor the integrity of structures, systems, and components that contain these radiological and other hazardous materials; and (3) adequate plans and funding to assure the removal of soils and other sources of radioactive and other hazardous contamination that resulted from 42 years of operation in Vermont, including many years of long-unidentified leaks and identified radiological and non-radiological incidents.

As noted above, Entergy has until December 2016 to submit its PSDAR, and the NRC should require Entergy to use this time to engage in a more thorough site characterization so that it can make a more accurate Decommissioning Cost Estimate in connection with its PSDAR. At a minimum, if a more detailed site characterization is not going to occur until after the SAFSTOR period, then the

[3] The Department of Health has comprehensive regulations governing asbestos and lead. *See* Department of Health, *Vermont Regulations for Asbestos Control* (1995), http://healthvermont.gov/regs/asbestos_control_reg.pdf; Department of Health, *Vermont Regulations for Lead Control*, http://healthvermont.gov/regs/VRLCFINAL0912.pdf. The PSDAR does not explain what actions Entergy plans to take to ensure compliance with these regulations during post-closure operations.

NRC should require Entergy to plan for contingencies that may not be discovered until that time.

As it stands, although Entergy's Decommissioning Cost Estimate claims to take into account "contingencies," it in fact does not do so. Rather, Entergy puts forth an estimate "based on ideal conditions" and then factors in "a percentage contingency" based on "unforeseeable events that are *almost certain to occur* in decommissioning, based on industry experience." Decommissioning Cost Estimate at xii (emphasis added). Entergy goes on to note that "[c]ontingency funds . . . are *expected to be fully expended*." *Id.* (emphasis added); *see also id.* at § 3, page 4 ("Contingency funds are expected to be fully expended throughout the program."). If such funds are "expected to be fully expended," then—by definition—they are not really contingencies, but rather expenses that are expected to occur.

Actual contingencies—such as the discovery of strontium-90 and other radionuclides in places not previously thought to be contaminated—have historically led to enormous escalations in decommissioning costs. For instance, at Connecticut Yankee, the discovery of strontium-90—the very same radiological contaminant that was recently discovered in the groundwater at Vermont Yankee—led to an enormous decommissioning cost escalation during the radiological decontamination and dismantlement phase that Entergy intends to postpone until the end of its SAFSTOR period. Yet Entergy categorizes all of these types of potential expenses as "financial risks" and explicitly notes that it "does not add *any*

additional costs to the estimate for financial risk." Decommissioning Cost Estimate § 3, page 6 (emphasis added).

The NRC cannot allow Entergy to ignore contingencies that may not be discovered until the site is characterized after the SAFSTOR period. This is particularly true in light of Entergy's January 6, 2015 exemption request and other filings that explicitly request that the NRC rely upon this already-outdated Decommissioning Cost Estimate as proof that there are allegedly "excess" funds in the NDT Fund.

ii. The NRC cannot allow Entergy to assume that it will have no spent fuel management expenses after 2052. Entergy's cost estimates include *no* funding for spent fuel management beyond 2052, and thus provide no explanation for how decommissioning costs might escalate if spent fuel remains onsite at the time that decontamination and dismantlement begins. Further, Entergy's claim of "excess" funds in the NDT Fund is predicated on the assumption that all spent fuel will be removed by 2052. This assumption conflicts with federal law, historical and current political realities, and recent statements from the NRC, the U.S. Court of Appeals for the District of Columbia Circuit, and the Vermont Public Service Board.

The NRC cannot allow Entergy to make assumptions that require, among other things, changes to current law. Yet, according to the U.S. Government Accountability Office (GAO), a change to current law is precisely what is needed to allow the U.S. Department of Energy (DOE) to begin accepting spent fuel in 2026 and complete the removal of spent fuel by 2052, as Entergy assumes will occur.

Entergy's entire Updated Irradiated Fuel Management Plan, and all of its cost estimates for spent fuel management expenses, depend upon DOE's plan to attempt to site an interim storage facility by 2025. (There is clearly no prospect of Yucca Mountain opening within the next 10 years.) But the GAO has stated that an interim storage facility requires congressional action because "new legislative authority is needed for developing interim storage that is not tied to Yucca Mountain." GAO 15-141, *Spent Nuclear Fuel Management* at 20 (October 2014), *available at* http://www.gao.gov/assets/670/666454.pdf. Further, "experts and stakeholders generally [have] noted that because the Congress has not agreed on a new path forward for managing spent nuclear fuel since funding was suspended in 2010, nor have DOE officials proposed legislation requesting new authority, obtaining specific legislative authority in time to meet DOE's proposed time frames might be challenging." *Id.* In other words, not only does Entergy's spent fuel management plan require congressional action before it can be implemented, but it requires congressional action that has not yet even been proposed and that would be "challenging" to get passed even if it were proposed. *Id.*

And even if DOE were to receive legislative approval to site an interim storage facility, the GAO report lists several other challenges to the actual siting of such a facility. *Id.* at 19-37. These include technical challenges to transporting high-burnup fuel (which Vermont Yankee has), as well as the political and societal challenges that have historically proved insurmountable in past attempts to site nuclear waste storage facilities at Yucca Mountain and elsewhere. As the U.S.

Court of Appeals for the District of Columbia recently held, the societal and political barriers to siting an offsite nuclear waste storage facility require the NRC to analyze the very real possibility that spent fuel will be stored onsite at plants like Vermont Yankee indefinitely. *See generally New York v. NRC*, 681 F.3d 471 (D.C. Cir. 2012). The NRC itself recognized this possibility in its recently issued Continued Storage Rule, which includes an analysis of onsite spent nuclear fuel storage under an "indefinite timeframe to address the possibility that a repository never becomes available." NUREG-2157 at iii. Given the NRC's acknowledgement that spent fuel might be stored onsite at plants like Vermont Yankee indefinitely, the NRC cannot allow Entergy to assume that all fuel will be removed by 2052.

Indeed, even Entergy's own Decommissioning Cost Estimate notes a number of the reasons that spent fuel removal is unlikely to occur by 2052. For instance, Entergy notes that "the country is at an impasse on high-level waste disposal." Decommissioning Cost Estimate at xiv; *id.* at § 1, page 5. Further, the prospect of an interim storage facility—which is a necessary prerequisite to Entergy's spent fuel storage plan—is identified merely as one of the Blue Ribbon Commission on American's Nuclear Future's "recommendations" that "*may* impact decommissioning planning." *Id.* at xv & § 1, page 6 (emphasis added). And the Decommissioning Cost Estimate candidly admits that Entergy's spent fuel storage plan depends upon "the appropriate authorizations from Congress." *Id.* Further, other sections of the Decommissioning Cost Estimate recognize—as Entergy must—that the fuel may not be removed by 2052. For instance, in discussing

decommissioning of the dry-cask storage pad and facilities, Entergy notes that this will occur "at the time of plant decommissioning *or after DOE has removed all spent fuel from the site*." Decommissioning Cost Estimate § 2, page 6 (emphasis added).

Also, as Entergy is well aware, in 2006 the Vermont Public Service Board, in its Docket 7082 Order and Certificate of Public Good, required Entergy to address the possibility of spent nuclear fuel remaining onsite as long as through 2082. *See* http://www.state.vt.us/psb/orders/2006/files/7082cpg.pdf. Entergy's PSDAR fails to explain why it has chosen to ignore the Order of the Vermont Public Service Board requiring an analysis based on spent fuel being onsite for at least 30 years longer than Entergy assumes in its PSDAR.

In short, Entergy's 2052 date for the completion of the removal of spent nuclear fuel is not only unrealistic and dependent on a change to current federal law, but it is also directly contrary to statements of the Vermont Public Service Board, the NRC, and the U.S. Court of Appeals for the D.C. Circuit. When the Vermont Yankee reactor was licensed in 1972, the Atomic Energy Commission stated that the reactor's spent fuel would be promptly transported to an out-of-state reprocessing facility soon after that fuel was removed from the reactor. *Vermont Yankee Nuclear Power Station Final EIS* at 93-94 (July 1972) (ML061880207). More than forty years later, none of the spent nuclear fuel has been removed, nor is there any likely prospect that removal will occur in the near future. Just as the U.S. Court of Appeals for the D.C. Circuit recently forced the NRC to confront this reality in the context of its Continued Storage Rule, the NRC must confront that

reality here as well. Indeed, even Entergy candidly admits that, based upon a number of "performance assumptions," it "anticipates" that spent fuel removal "could" be complete by 2052. Decommissioning Cost Estimate at xi. The NRC cannot allow Entergy to make assumptions about what "could" happen, particularly when Entergy is attempting to use those assumptions in related filings to claim an alleged "excess" of funds. Any claimed "excess" quickly disappears as soon as the NRC recognizes, as it must, that spent fuel could remain onsite after 2052.[4]

iii. The NRC cannot allow Entergy to assume that site restoration will cost only $57 million. Because Entergy has chosen to put Vermont Yankee into SAFSTOR, the PSDAR provides only general summaries of the non-radiological aspects related to how final site restoration will be achieved. Further, Entergy's cost estimate of $57 million for site restoration ignores evidence that the Department of Public Service has presented to the Vermont Public Service Board in Docket #7862 that a more reasonable estimate for site restoration would equate, adjusted for current 2014 dollars, to around $100 million and could be as high as $133 million once contingencies are taken into account. And as both the NRC and Entergy have recognized on numerous occasions, the ultimate site restoration standards that apply to Vermont Yankee are a matter of State authority. Thus, if

[4] Entergy's claimed "excess" of around $176 million at the end of decommissioning in 2076 mostly disappears if Entergy includes the estimated annual expenses of $4 million (and consequent lost interest) for spent fuel management from 2053 to 2076 (rather than assuming, as Entergy does, that those expenses are "$0"). And even if a small portion of that alleged "excess" money still remains in the NDT Fund by 2076, it would not be nearly enough to pay for ongoing spent fuel management expenses in the future.

Entergy is going to provide the NRC with estimates about the cost of site restoration, it should assume that these costs could be as high as $133 million.

B. To Ensure Adequate Funding for Decommissioning, the NRC Should Limit Entergy's Use of the Vermont Yankee NDT Fund at This Time to Activities that Reduce Radiological Contamination

As the State recently explained in two letters to NRC Nuclear Reactor Regulation Director William Dean (dated January 26, 2015 and January 27, 2015), the NRC has a statutory duty to ensure that Vermont Yankee's owners and operators have—and will continue to have—the ability to pay for decommissioning. The NRC is charged with overseeing each nuclear power plant's NDT Fund to ensure that each fund is sufficient to fully decontaminate the site to below the NRC's allowed radiological limits. As the U.S. Court of Appeals for the Seventh Circuit recently held, "[t]he decommissioning of nuclear facilities is closely regulated by the Nuclear Regulatory Commission, and its regulatory authority embraces every potential malfeasance or misfeasance of assets dedicated to the decommissioning process." *Pennington v. Zionsolutions LLC*, 742 F.3d 715, 719 (7th Cir. 2014) (Posner, J.). As "the designated policeman of decommissioners," the NRC is tasked with "assess[ing] the management of the complex, technologically sophisticated process of nuclear decommissioning." *Id.*

Entergy's proposed funding approach for decommissioning, spent fuel management, and site restoration is problematic for at least two reasons. First, applicable NRC regulations do not allow Entergy to use NDT Funds for anything other than radiological decommissioning. Those regulations serve an important

purpose, and the NRC should not exempt Entergy from those regulations. Second, the Vermont Yankee NDT Fund is subject to a Master Trust Agreement that Entergy signed when it purchased Vermont Yankee, and the Master Trust Agreement does not allow Entergy to make the withdrawals it seeks to make.

i. NRC regulations limit NDT disbursements to activities that reduce radiological contamination. Applicable statutes and NRC regulations do not allow Entergy to use NDT Funds for anything other than radiological decommissioning. Disbursements from the NDT Fund "are restricted to decommissioning expenses." 10 C.F.R. § 50.75(h)(1)(iv). All withdrawals must be "for legitimate decommissioning activities consistent with the definition of decommissioning in [10 C.F.R.] § 50.2." *Id.* § 50.82(a)(8)(i)(A). The NRC's definition of "Decommission" is limited to activities that "reduce residual radioactivity." 10 C.F.R. § 50.2. As the NRC has made clear, "Decommissioning activities do not include the removal and disposal of spent fuel which is considered to be an operational activity or the removal and disposal of nonradioactive structures and materials beyond that necessary to terminate the NRC license." *General Requirements for Decommissioning Nuclear Facilities*, 53 Fed. Reg. 24018-01, 24018 (1988). Because decommissioning only includes activities that reduce radiological contamination, it "do[es] not include the cost of demolition and removal of noncontaminated structures, storage and shipment of spent fuel, or restoration of the site." *Id.* at 24028.

The NRC's regulations on the creation and use of NDT Funds explicitly state that these funds are intended to cover only radiological decontamination necessary for site closure: "Amounts [required to be set aside in the NDT Funds] are based on activities related to the definition of 'Decommission' in § 50.2 of this part and do not include the cost of removal and disposal of spent fuel or of nonradioactive structures and materials beyond that necessary to terminate the license." 10 C.F.R. § 50.75 n.1. The NRC's regulations on financial qualifications for nuclear decommissioning similarly note that NDT Funds address "only those decommissioning costs incurred by licensees to remove a facility or site safely from service and reduce residual radioactivity," which does not include, "for example, the costs of dismantling or demolishing non-radiological systems and structures." *Standard Review Plan on Power Reactor Licensee Financial Qualifications and Decommissioning Funding Assurance*, NUREG-1577, Rev. 1, at 16, § 2(A)(3) (1999). In short, the NRC has made abundantly clear that, absent a waiver, only costs that "reduce residual radioactivity" can be withdrawn from the NDT Fund. *Standard Review Plan for Decommissioning Cost Estimates for Nuclear Power Reactors*, NUREG-1713, Final Report, at 4, § (B)(3) (2004).

Entergy is well aware of this restriction—hence it has filed its January 6, 2015 exemptions request in an attempt to avoid having to comply with long-standing and directly applicable NRC regulations. Entergy has recently asserted that the NDT Fund can be used for planning costs associated with spent fuel management, citing NRC Regulatory Guide 1.184. *See* Letter from T. Michael

Twomey to Kyle H. Landis-Marinello and Christopher Recchia at 2 & n.7 (Feb. 9, 2015). But that very same passage of the NRC regulatory guidance also highlights the general rule that NDT Funds cannot be used for spent fuel management expenses:

> [F]unds collected and set aside in the decommissioning trust for decommissioning are *exclusively for radiological decommissioning* as defined in 10 CFR 50.2. Therefore, the amount set aside for radiological decommissioning as required by 10 CFR 50.75 should not be used for: (1) the maintenance and storage of spent fuel in the spent fuel pool, (2) the design, construction, or decommissioning of spent fuel dry storage facilities directly related to permanent disposal, (3) other activities not directly related to, radiological decontamination, or dismantlement of the facility or site.

NRC Regulatory Guide 1.184 at 6 (emphasis added).

ii. The Master Trust Agreement limits NDT disbursements at this time to activities that reduce radiological contamination. Just as applicable statutes and regulations place important limitations on what disbursements are allowable from the NDT Fund, the Master Trust Agreement—which Entergy signed when it purchased Vermont Yankee—also places limitations on NDT Fund disbursements.[5] The Master Trust Agreement imposes legal restrictions on when and for what purposes Entergy can withdraw money from the NDT Fund. Such restrictions are not surprising given that Vermont ratepayers contributed the majority of the principal funds that currently exist in the NDT Fund—Entergy has never contributed any money to that Fund. Rather, Entergy inherited the NDT

[5] The NRC's approval of the sale of Vermont Yankee explicitly required that the "decommissioning trust agreement must be in a form acceptable to the NRC," including 30-day notice to the NRC before any disbursements. *Order Approving Transfer of License and Conforming Amendment*, Docket No. 50-271 (May 17, 2002) (ADAMS ML#020390198).

Fund—subject to numerous conditions in the Master Trust Agreement—as part of its purchase of the plant in 2002, and Entergy has never made a payment to the NDT Fund. The Vermont Legislature has directed the Vermont Department of Public Service to advocate for prudent use of the ratepayer contributions that created the NDT Fund. *See* Vt. Stat. Ann. tit. 30, § 2(d). The State has a significant interest in ensuring that this money is spent consistent with NRC regulations and the terms of the Master Trust Agreement. The NRC should apply extra scrutiny to disbursements from the Vermont Yankee NDT to ensure that Vermont ratepayer money is spent prudently and appropriately.

Further, Vermont ratepayers have an existing 55% interest in any leftover funds. That direct interest is noted in several provisions of the Master Trust Agreement, including Exhibits D and E. The 55% interest is also required under various Vermont Public Service Board Orders and Certificates of Public Good that remain in effect today. When Entergy sought to purchase the Vermont Yankee plant in 2002, the Vermont Public Service Board approved that sale only upon a number of conditions, including the return of any excess NDT funds to ratepayers: "Upon completion of the decommissioning of Vermont Yankee, any property remaining in [Entergy's] Decommissioning Trust funds shall be distributed by the Trustee for the benefits of the customers of Vermont Yankee's sponsors." *Investigation into General Order No. 45 Notice filed by Vermont Yankee Nuclear Power Corporation re: proposed sale of Vermont Yankee Nuclear Power Station to Entergy Nuclear Vermont Yankee, LLC, and related transactions*, Docket No. 6545

(June 13, 2002) at p.158, *available at* http://www.state.vt.us/psb/6545.htm, *aff'd*, *In re Proposed Sale of Vermont Yankee Nuclear Power Station*, 829 A.2d 1284 (Vt. 2003); *see also* Entergy's 2002 Certificate of Public Good, Docket No. 6545 (June 13, 2002), Condition 2, *available at* http://www.state.vt.us/psb/6545.htm (same); Entergy's 2014 Amendment to 2002 Certificate of Public Good, Docket No. 7862 (Mar. 28, 2014), at p.2, *available at* http://psb.vermont.gov/sites/psb/files/orders/2014/2014-03/7862%20%20CPG%20Amendment.pdf.

As the Vermont Public Service Board noted in a related ruling, "the disposition of any potential future excess decommissioning funds has expressly been an issue throughout this proceeding" and was "fully litigated" as part of the proceeding that approved Entergy's purchase of Vermont Yankee. *Order re: Motions to Alter or Amend, Enter Final Judgment, and Stay Pending Appeal*, Docket No. 6545 (July 30, 2002), at 6 n.17, *available at* http://www.state.vt.us/psb/6545.htm. In fact, the Vermont Public Service Board rejected a proposal that would have denied Vermont ratepayers their full 55% interest in leftover NDT Funds, finding that such a proposal was inconsistent with ratepayer expectations under provisions of the previous decommissioning trust that had been in place since 1988. *Final Order*, Docket No. 6545, at 36-38. The Vermont Public Service Board concluded that "these funds were collected from ratepayers for a specific purpose and, if not needed for that purpose, should be returned" to ratepayers. *Id.* at 152.

Given their 55% interest in any leftover funds, Vermont ratepayers have a direct interest in ensuring that every disbursement from the NDT Fund complies with applicable statutes, regulations, and the Master Trust Agreement. Vermont ratepayers are directly harmed by any money that the Bank of New York Mellon improperly disburses.

The Master Trust Agreement places numerous restrictions on any use of the NDT Fund. Most importantly, the Master Trust Agreement:

(1) requires that all radiological decontamination and decommissioning be complete before any money from the NDT Fund can be used for spent fuel management or site restoration[6]; and

(2) once radiological decontamination and decommissioning is complete, allows withdrawals only for spent fuel management costs that were not recovered from the Department of Energy.[7]

The "exclusive purpose" of the Master Trust Agreement is "to accumulate and hold funds for the contemplated Decommissioning of the Station and *to use such funds, in the first instance, for* expenses related to the *Decommissioning of the Station as defined by the NRC in its Regulations* and issuances, and as provided in

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[6] The Master Trust Agreement recognizes that "Decommissioning" may at times include activities that, though not directly reducing radiological contamination by themselves, are nevertheless necessary to allow radiological decommissioning and decontamination, such as the removal of spent fuel from the reactor to the spent fuel pool.

[7] Noticeably absent from Entergy's January 6, 2015 exemption request is any reference to the legally binding Master Trust Agreement or to the fact that Entergy's request seeks to use the NDT Fund to pay for certain expenses that the U.S. Department of Entergy (DOE) is legally required to undertake.

the licenses issued by the NRC for the Station and any amendments thereto." Master Trust Agreement § 2.01 (emphasis added). As discussed above, NRC regulations clearly define decommissioning as activities that reduce radiological contamination, and explicitly exclude expenses such as spent fuel management and site restoration. The Master Trust Agreement's "exclusive purpose" is to follow these NRC regulations by ensuring that NDT expenses are used in the first instance to reduce radiological contamination. Thus, the Master Trust Agreement requires that all radiological decontamination and decommissioning be complete before any money from the NDT Fund can be used for spent fuel management or site restoration.

Other sections of the Master Trust Agreement similarly require the Bank to refrain from disbursing funds for anything other than radiological decontamination and decommissioning until those activities are complete. In particular, the Master Trust Agreement, in several sections, specifically sets up a sequencing of disbursements that requires all radiological decontamination and decommissioning activities to be "completed" before any other disbursements are allowed. Master Trust Agreement § 4.01.

Section 4.01 of the Master Trust Agreement, like the applicable NRC regulations discussed above, limits disbursements from the NDT Fund to "paying costs, liabilities and expenses of Decommissioning or, if so specified, administrative expenses." The Master Trust Agreement defines "Decommissioning" as "the removal of the Station from service and disposal of its components in accordance

with Applicable Law." Master Trust Agreement § 1.01(j). Only "[o]nce Decommissioning is *completed*" can the Bank release NDT Funds to Entergy for uncovered "Spent Fuel Costs and Site Restoration Costs." *Id.* § 4.01 (emphasis added).[8]

This sequencing is explained further by Exhibit D of the Master Trust Agreement. Exhibit D—labeled "Decommissioning Requirements"—explicitly defines the "Completion of Decommissioning" as "plant *dismantlement and decontamination to NRC standards* plus the completion of additional activities agreed to or imposed in the course of [the sale docket] before the Vermont Public Service Commission or pursuant to any subsequent law or proceeding, but *excluding spent fuel management and any site restoration*." Master Trust Agreement Ex. D (emphasis added). In other words, spent fuel management and site restoration expenses could be recovered from the NDT Fund only if they occurred *after* the completion of radiological decommissioning.

And even then, the NDT Fund can only be used to cover expenses that the U.S. Department of Energy (DOE) does not have to pay. The Master Trust Agreement was signed in 2002. At that point, four years after DOE breached its

[8] Although Entergy notes that section 4.01 refers to spent fuel and site restoration costs "to the extent not included in Decommissioning," that parenthetical statement does not mean that the Master Trust Agreement's definition of "Decommissioning" includes all such costs. First, the language "to the extent not included" implies that there are spent fuel costs that are not included in "Decommissioning." Further, as noted in detail below, the definition of "Decommissioning" in the Master Trust Agreement states that it includes "non-DOE spent fuel storage" expenses incurred during "pre-shutdown activities." Master Trust Agreement § 1.01(j). Those limitations cannot be reconciled with Entergy's apparent position that "Decommissioning" includes all costs of spent fuel management during the post-closure period.

contractual obligation to remove spent nuclear fuel from nuclear sites such as Vermont Yankee, it was clear that Entergy would have the ability to sue DOE for spent fuel management expenses. In fact, the Purchase and Sale Agreement for Vermont Yankee explicitly transferred all rights to such lawsuits, and Entergy has since recovered tens of millions of dollars from DOE for spent fuel management expenses that would not have occurred had DOE removed the fuel in 1998.

The continuation of these lawsuits was anticipated by the Master Trust Agreement, which set up a process to ensure that Entergy did not double recover for spent fuel management expenses by using NDT Funds for expenses that it would later recover from DOE through litigation. In particular, the definition of "Decommissioning" in the Master Trust Agreement states that it includes "*non-DOE* spent fuel storage." Master Trust Agreement § 1.01(j) (emphasis added). Similarly, Exhibit D of the Master Trust Agreement sets up the following provision to address the "return of excess funds" from the NDT—a provision that clearly requires Entergy to obtain all possible relief from DOE before it attempts to use NDT Funds for spent fuel management expenses:

> Return of Excess Funds in accordance with the second following paragraph, shall occur following the earliest of (i) the date Completion of Decommissioning has occurred and the Company has satisfied all of its responsibilities for spent fuel management and site restoration or (ii) the date on which Completion of Decommissioning occurs and any of the following occur: (x) *settlement* between the Company and the US Department of Energy ("DOE") with respect to spent fuel management responsibilities for the Station, (y) *final resolution of litigation* by the Company against DOE with respect to spent fuel management responsibilities for the Station, *or (z) satisfactory performance by DOE* of its spent fuel responsibility with respect to the Station.

Master Trust Agreement Ex. D (emphasis added). Exhibit D then notes that "excess funds" excludes costs "not otherwise payable by the federal government in accordance with (x), (y) or (z) above."

Section 5.02 of the Master Trust Agreement similarly notes that it is "upon termination of this Master Trust or such Funds, [that] the Trustee shall distribute all funds necessary for Spent Fuel Costs and Site Restoration Costs to the Company." That is because, as NRC regulations require, the NDT Fund must cover all necessary radiological decontamination and decommissioning expenses before any disbursements can be made to cover other expenses such as spent fuel management and site restoration. That sequencing is the only way to ensure, as the NRC must do, that Entergy maintains sufficient funds to radiologically decontaminate the site.

The sequencing mentioned above is also required by the Master Trust Agreement—for the same safety reasons that the NRC requires it, but also because Vermont ratepayers have a direct interest in all excess funds. In particular, as mentioned above, Vermont ratepayers will obtain 55% of all excess funds from the NDT Fund. Thus, the Master Trust Agreement contains numerous provisions to ensure proper care of these funds by Entergy and the Bank of New York Mellon—including, for instance, the requirement that Entergy not spend any NDT Funds on expenses that DOE is legally required to undertake.

While Entergy's February 9, 2015 letter attempts to assert a different interpretation of the Master Trust Agreement, Entergy's position is untenable and in fact demonstrates why the NRC cannot allow Entergy to withdraw NDT Funds for spent fuel management during the post-closure period before radiological decommissioning is complete. For instance, Entergy claims that Exhibit D of the Master Trust Agreement should effectively be ignored since it only addresses the "Completion of Decommissioning" and not the ability of the Bank to disburse funds for decommissioning itself. Entergy Feb. 9, 2015 Letter at 3. Yet, as discussed above, section 4.01, which governs distributions by the trustee, contains limits and sequencing of payments consistent with Exhibit D.

Entergy also asserts that only "FERC has the authority to determine the disposition of any excess trust funds." *Id.* at 4. If anything, FERC regulations provide yet another reason why the Master Trust Agreement must be interpreted as limiting initial NDT Fund expenditures in the post-closure period to decommissioning activities as defined by NRC regulations, since Entergy does not have FERC approval to use the NDT Fund for anything other than radiological decommissioning: "Absent express authorization of [FERC], no part of the assets of the [NDT] Fund may be used for, or diverted to, any purpose *other than to fund the costs of decommissioning* the nuclear power plant to which the Fund relates, and to pay administrative costs and other incidental expenses, including taxes, of the Fund." 18 C.F.R. § 35.32(6) (emphasis added). Thus, as both NRC and FERC regulations require, it is only once decommissioning activities are complete (and

thus NRC oversight complete) that excess funds can be used for other purposes, such as spent fuel management. Also, Entergy's argument ignores FERC's approval of the 2002 sale and transfer of the NDT Fund. *See Vermont Yankee Nuclear Power Corp. et al.*, 98 FERC ¶ 61,122, *order on reh'g*, 98 FERC ¶ 61,358; *see also New England Coalition v. Vermont Yankee Nuclear Power Corp.*, 101 FERC ¶ 61,239.

For these and other reasons, the NRC should reject all aspects of Entergy's proposed PSDAR and related filings, including its January 6, 2015 exemptions request, insofar as Entergy seeks permission to spend NDT Funds at this time on anything other than reducing radiological contamination at the site. At a minimum, this means the following:

(1) The NRC should reject all requests by Entergy to use the Vermont Yankee NDT Fund for spent fuel management expenses during the post-closure period before radiological decommissioning is complete. This would include rejecting Entergy's January 6, 2015 exemptions request, as well as Entergy's December 19, 2014 Updated Irradiated Fuel Management, Updated Decommissioning Funding Status Report, and proposed PSDAR and Decommissioning Cost Estimate insofar as those documents rely on using the Vermont Yankee NDT Fund for spent fuel management expenses before radiological decommissioning is complete. The NRC should then require Entergy to submit revised filings of its December 19, 2014 filings, including a revised plan for spent fuel management expenses that is consistent with the requirements of 10 C.F.R. § 50.54bb.

(2) The NRC should analyze Appendix C of Entergy's Decommissioning Cost Estimate and prohibit Entergy from withdrawing money from the Vermont Yankee NDT Fund for all items that fail to meet the NRC's definition of decommissioning, including, at a minimum, the following:

a. The $5 million payment (lines 1a.2.22 & 1b.2.22) that Entergy is making to the State as part of the Settlement Agreement;

b. Emergency preparedness costs (*e.g.*, line 1a.2.23)[9];

c. Shipments of non-radiological asbestos waste (*e.g.*, line 1a.2.27);

d. Insurance (*e.g.*, line 1a.4.1);

e. Property taxes (*e.g.*, line 1a.4.2);

f. Replacement of structures during SAFSTOR (*e.g.*, line 2b.1.4);

g. Any costs associated with offsite buildings that are not radiologically contaminated; and

h. All other listed costs that relate to activities that do not reduce radiological contamination.

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[9] Expenses for emergency preparedness do not reduce radiological contamination at the site and are thus not proper uses of the NDT Fund. Entergy would therefore need an exemption (which has neither been requested nor granted) before it could withdraw NDT Funds for emergency preparedness expenses. Nevertheless, in addition to listing emergency planning as a license termination expense in Appendix C of its Decommissioning Cost Estimate, an Entergy spokesperson recently stated that Entergy intends to use NDT Funds not only for emergency preparedness measures, but also for "any *legal* costs" resulting from the State's challenges to Entergy's planned reductions in emergency preparedness. VTDigger.org, *State Appeals Decision on Vermont Yankee Monitoring*, http://vtdigger.org/2015/02/26/state-appeals-decision-on-vermont-yankee-emergency-monitoring/ (emphasis added). According to the Entergy spokesperson, these legal costs are "'part of our decommission costs,' he said. 'This is money that's going to be coming from trust fund.'" Entergy's reasoning was that "[b]ecause the plant is no longer generating revenue, [the Entergy spokesperson] said any legal costs the company incurs will come out of the decommissioning trust fund." *Id.* The NRC cannot allow that to happen.

(3) The NRC should request that Entergy explain, in light of its merchant-generator status, how Entergy will fund items such as those listed above, as well as costs that are not currently listed in its Decommissioning Cost Estimate, such as employee pension fund liabilities. Entergy's ability or inability to fund such liabilities bears directly on Entergy's ability to fund radiological decommissioning expenses should those expenses turn out to be larger than anticipated. Entergy erroneously places all projected costs into three categories: NRC License Termination costs, Spent Fuel Management costs, and Site Restoration costs. The NRC should make clear that certain costs, such as those noted above, fall outside of these three categories, and the NRC should ask Entergy to add a fourth category for those costs. In addition to those items listed above, this fourth category would also contain expenses such as Entergy's "NEI Annual Fee" (e.g., line 1a.2.38 of Appendix C). Further, the NRC should require Entergy to revise some of those costs. For instance, Entergy states in Appendix C of its Decommissioning Cost Estimate that it expects to pay only around $7,000 per year in property taxes beginning in 2020 (e.g., lines 2aa.4.2 & 2b.4.2). This is incorrect. Although Entergy notes that its payments under the generation tax will "cease once the plant is permanently shutdown" (Decommissioning Cost Estimate § 3, page 18), Entergy fails to account for the fact that the generation tax is the basis for Entergy's current exemption from otherwise applicable state property

taxes. Entergy has no basis for assuming that its current exemption from those taxes will continue once the generation tax ceases to provide revenue to the State of Vermont. Entergy similarly has no basis for its claim that local authorities will tax Vermont Yankee "as vacant land." Decommissioning Cost Estimate § 3, page 18. Entergy has not explained how it will pay for any higher property taxes that may apply either at the state or local level.

(4) The NRC should take all other actions necessary to protect the money in the NDT Fund until radiological decommissioning is complete. *See, e.g.*, 10 C.F.R. § 50.82(a)(8)(i)(A) (requiring that all withdrawals from NDT Funds must be "for legitimate decommissioning activities consistent with the definition of decommissioning in [10 C.F.R.] § 50.2"); Master Trust Agreement § 2.01 (stating that the "exclusive purpose" of the Master Trust Agreement is "to accumulate and hold funds for the contemplated Decommissioning of the Station and *to use such funds, in the first instance, for* expenses related to the *Decommissioning of the Station as defined by the NRC in its Regulations* and issuances, and as provided in the licenses issued by the NRC for the Station and any amendments thereto" (emphasis added)).

III. In Accordance with the National Environmental Policy Act, the NRC Must Analyze the Environmental Impacts of Entergy's Proposed PSDAR and Related Filings

The National Environmental Policy Act (NEPA) requires federal agencies to prepare "a detailed statement . . . on the environmental impact" of any proposed major federal action "significantly affecting the quality of the human environment." 42 U.S.C. § 4332(1)(C)(i); *see generally* 42 U.S.C. §§ 4321 *et seq*. At a minimum, if an agency is going to allow a licensee to engage in activities with environmental impacts without the agency first issuing a detailed environmental impact statement, the agency must do an environmental analysis and issue a "finding of no significant impact" (FONSI). 40 C. F. R. § 1501.4; *id.* § 1508.14.

The requirements of NEPA apply not only to affirmative actions by an agency (such as a licensing decision), but also to actions of a licensee that "are *potentially* subject to Federal control and responsibility," such as the PSDAR. *Id.* § 1508.18 (emphasis added). "Actions include the circumstance where the responsible officials fail to act and that failure to act is reviewable by courts or administrative tribunals under the Administrative Procedure Act or other applicable law as agency action." *Id.* Under the Administrative Procedure Act, the requirements of NEPA apply equally to an agency's actions as to an agency's "failure to act." 5 U.S.C. § 551(13). Thus, although the NRC takes the position that it need not formally approve a PSDAR, it nevertheless has duties under NEPA to review the environmental impacts of decommissioning plans. NEPA responsibilities are triggered by the fact that a federal agency "has actual power to control the project." *Ross v. Fed.*

Highway Admin., 162 F.3d 1046, 1051 (10th Cir. 1998). Here, there is no doubt that the NRC has authority over the decommissioning of nuclear power plants, and the NRC itself has explicitly recognized its authority to "find the PSDAR deficient." NRC Regulatory Guide 1.185, *Standard Format and Content for Post-Shutdown Decommissioning Activities Report* at 10 (June 2013).

At least one federal circuit court of appeals has already made clear that "[r]egardless of the label the [Nuclear Regulatory] Commission places on its decision," the act of "permitting [a licensee] to decommission the facility" requires NEPA review: "An agency cannot skirt NEPA or other statutory commands by essentially exempting a licensee from regulatory compliance, and then simply labelling its decision 'mere oversight' rather than a major federal action. To do so is manifestly arbitrary and capricious." *Citizens Awareness Network, Inc. v. Nuclear Regulatory Comm'n*, 59 F.3d 284, 293 (1st Cir. 1995). Another federal circuit court of appeals has similarly held in an analogous situation that when a federal agency has a "mandatory obligation to review" plans, the agency's "failure to disapprove" of those plans constitutes "major federal action" triggering NEPA review. *Ramsey v. Kantor*, 96 F.3d 434, 445 (9th Cir. 1996).

The required NEPA analysis must be comprehensive and address all "potential environmental effects" unless those effects are so unlikely as to be "remote and highly speculative." *San Luis Obispo Mothers for Peace v. Nuclear Regulatory Comm'n*, 449 F.3d 1016, 1030 (9th Cir. 2006). Potential environmental

impacts from the storage of spent nuclear fuel include impacts resulting from "the possibility of terrorist attack." *Id.* at 1031.

Before the NRC allows Entergy to proceed with decommissioning, the NRC must perform the required NEPA analysis of potential environmental impacts associated with Entergy's specific PSDAR and related filings. This would necessarily include analyzing the environmental and economic impacts of the PSDAR's election of the maximum SAFSTOR period.

A comprehensive analysis is required here in part to avoid segmenting environmental analyses into discrete parts without ever looking at their full combined effects—an approach that NEPA does not allow. *See e.g. Del. Riverkeeper Network v. FERC*, 753 F.3d 1304, 1314 (D.C. Cir. 2014) ("The justification for the rule against segmentation is obvious: it prevents agencies from dividing one project into multiple individual actions each of which individually has an insignificant environmental impact, but which collectively have a substantial impact." (quotation and alteration marks omitted)); *see also, e.g.*, *NRDC v. Callaway*, 524 F.2d 79, 88 (2d Cir. 1975) (NEPA is meant to provide "a more *comprehensive approach* so that long term and cumulative effects of small and unrelated decisions could be recognized, evaluated and either avoided, mitigated, or accepted as the price to be paid for the major federal action under consideration" (emphasis added)). The NRC has previously underscored the value of a comprehensive NEPA analysis: "While NEPA does not require agencies to select particular options, it is intended to foster both informed decision-making and informed public participation, and thus to

ensure that the agency does not act upon incomplete information, only to regret its decision after it is too late to correct." *In Re Duke Energy Corporation (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units and 2)*, CLI-02-17, 56 N.R.C. 1, 10 (2002).

In short, NEPA does not allow the NRC to permit Entergy to proceed with its decommissioning activities without further analysis by the NRC of the potential environmental impacts of those activities. The PSDAR as it currently stands is insufficient to identify and assess the site-specific environmental impacts of Entergy's decommissioning activities to facilitate proper planning. The process outlined in NRC Regulatory Guide 1.185 requires a conclusion to be made based on comparison to pre-defined and generic environmental impacts that may or may not be applicable to all nuclear power plants. Additionally, the range of environmental impacts addressed by Entergy's PSDAR does not include environmental impacts associated with non-radiological contaminants and the generation and storage of non-radiological wastes. Thus, the PSDAR fails to provide sufficient information to allow the NRC, the State, and the public to assess all of the environmental impacts associated with Entergy's decommissioning activities.

While it is the State's position that a full NEPA analysis is required here before the NRC can allow Entergy to proceed with decommissioning, Entergy's PSDAR is also deficient because it incorrectly claims that all environmental impacts are "bounded" by previously issued environmental impact statements. *See* PSDAR § 5; 10 C.F.R. § 50.82(a)(4)(i); NRC Regulatory Guide 1.185. As an initial matter,

while Entergy states that it "has concluded that the environmental impacts associated with planned VYNPS site-specific decommissioning activities" are bounded by previous environmental impact statements (PSDAR at 22), it is of course the NRC, not Entergy, that is the entity legally responsible for compliance with the National Environmental Policy Act.

Further, Entergy does not and cannot support its "bounding" claim. Entergy attempts to show "bounding" by citing three documents issued between the years 1997 and 2007: the 1997 Generic Environmental Impact Statement in Support of Rulemaking on Radiological Criteria for License Termination of NRC-Licensed Nuclear Facilities (NUREG-1496); the 2002 Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities (NUREG-0586); and the 2007 Generic Environmental Impact Statement for License Renewal of Nuclear Plants, Supplement 30, Regarding Vermont Yankee Nuclear Power Station (NUREG-1437, Supplement 30).

Those three documents, the most recent of which is now eight years old, do not "bound" all of the environmental impacts associated with decommissioning this specific plant under the specific PSDAR that Entergy has just submitted. Entergy asserts—without citation to any scientific or environmental reports, studies, or analyses—that because Vermont Yankee "is smaller than the reference boiling water reactor used in the [2002 Decommissioning] GEIS . . . [it] is therefore bounded by those assessments." PSDAR at 22. But Entergy has provided no scientific basis for concluding that the size of a plant is the exclusive factor for

determining its potential environmental and other impacts during decommissioning.

To the contrary, regardless of a plant's size, other site-specific factors can—and do—affect the potential environmental and other impacts of decommissioning. For instance, Vermont Yankee has an operating elementary school located just 1500 feet from the reactor building. The 2002 Decommissioning GEIS never took that site-specific factor into account. The 2007 Supplemental GEIS also failed to take it into account. In fact, the 2007 Supplemental GEIS does not appear to have addressed *any* site-specific factors at Vermont Yankee, concluding instead that "there are no impacts related to these issues beyond those discussed in the [2002 Decommissioning] GEIS." NUREG-1437, Supplement 30, at 7-2.

The close proximity of an operating elementary school cannot be ignored. At a minimum, this factor calls for imposing common-sense mitigation measures that ensure that schoolchildren are not present during certain decommissioning activities, such as the transfer of spent nuclear fuel or the demolition of buildings containing radioactive or non-radiological hazardous materials like asbestos and lead.[10] It is well known that young children are more vulnerable to adverse health reactions to airborne contaminants such as lead. *See, e.g.*, Vermont Dept. of Health, *Lead Poisoning and Prevention*, http://healthvermont.gov/enviro/lead/ ("Young

[10] Despite specific requests for such information by the Department of Health and the Agency of Natural Resources in the December 2014 comments that the State provided to Entergy, the PSDAR is silent on the presence and eventual disposition of asbestos-containing materials and lead-based paint, and Entergy has failed to provide this requested information to either the Department of Health or the Agency of Natural Resources.

children are at highest risk because their developing bodies absorb lead more easily. Lead dust exposure can have life-long health effects such as lowering a child's IQ.").

Thus, in contrast to Entergy's "bounding" claim, a decommissioning activity such as the demolition of a building that contains lead (and the lead dust created from that) might have minimal or no environmental impacts at a larger plant in an isolated area, but significant consequences at Vermont Yankee if even a small amount of lead dust travels the short distance between the plant and the nearby elementary school. Entergy's PSDAR therefore fails to show that these environmental impacts are bounded by previous analyses.

The failure of Energy's PSDAR to address an issue such as lead dust is particularly problematic in light of the NRC's regulatory guidance requiring the consideration of "impacts from non-radiological hazards, such as *dust*, noise, water use, and hazardous (non-radiological) waste." NRC Regulatory Guide 1.185 at 9 (emphasis added).

More generally, the PSDAR's limited discussion of non-radiological hazards is deficient. Neither the PSDAR nor the October 2014 Site Assessment Study acknowledges or specifies a plan or schedule for ensuring compliance with Vermont's hazardous waste generator closure requirements, outlined in Section 7-309(c) of the Vermont Hazardous Waste Management Regulations. In order for its activities to comply with state laws, including Agency of Natural Resources regulations, Entergy must submit a plan for closure of the site that includes closure of all non-radiological hazardous waste handling and storage areas on site in a

manner that minimizes the need for further maintenance and that appropriately minimizes or eliminates post-closure escape of non-radiological hazardous waste and hazardous constituents to the groundwater and atmosphere, as requested by the Agency in its response to Entergy's October 2014 Site Assessment Study. To date, Entergy has not done so.

Another factor that is clearly not bounded by previous environmental analyses is the potential for environmental impacts associated with the storage of spent nuclear fuel. Entergy's PSDAR for Vermont Yankee raises numerous environmental, safety, and other impacts related to spent fuel storage that are not addressed by any of the environmental analyses that Entergy cites. In fact, the 2002 Decommissioning GEIS did not analyze any environmental, safety, or other impacts related to spent fuel storage, but rather explicitly relied on the NRC's Waste Confidence Decision—a decision that has since been vacated by the U.S. Court of Appeals for the D.C. Circuit. *See New York v. NRC I*, 681 F.3d 471 (D.C. Cir. 2012). Similarly, the 2007 GEIS for Vermont Yankee explicitly relied on the now-vacated Waste Confidence Decision and noted that the 2007 analysis was "based upon the assumption that storage of the spent fuel onsite is not permanent." NUREG-1437, Supplement 30, A-146.

Entergy's PSDAR also makes reference to the NRC's recently issued Continued Storage Rule (NUREG-2157), noting that this Rule "found that the generic environmental impacts of ongoing spent fuel storage are small." PSDAR at 36. Entergy fails to mention that this Rule has been directly challenged by the

State of Vermont and others in a current proceeding in the U.S. Court of Appeals for the D.C. Circuit (*New York v. NRC II*).

Further, Entergy's reliance on the Continued Storage Rule requires Entergy to address the NRC's explicit recognition in that Rule that spent fuel may be stored indefinitely at each reactor site, and the assumption that, in that scenario, each reactor operator will need a Dry Fuel Transfer Station to move spent fuel into new dry casks every 100 years. Entergy's PSDAR is deficient because it fails to explain how it would address the contingency of indefinite onsite storage, including all safety and environmental concerns regarding transferring fuel into new dry casks every 100 years. Entergy's PSDAR, Decommissioning Cost Estimate, and related filings are also deficient because they fail to identify any funding source for: (a) the construction of a Dry Fuel Transfer Station; (b) the purchase of 58 new casks and all other labor and material costs for transferring the fuel every 100 years; and (c) the costs of maintaining security at the site indefinitely.

Other factors at this particular nuclear power plant that are clearly not bounded by previous environmental analyses include:

- Recreational activities take place on the Connecticut River bordering the plant.
- In addition to what Entergy identifies as currently endangered and threatened species, over the next 60 years it is likely that the list of endangered and threatened species will increase due to human activity, climate change, and other factors.

• Indeed, science's increased understanding of climate change—and its ensuing weather events—is an independent factor that the NRC needs to address to properly evaluate the potential environmental impacts of Entergy's current plan to decommission Vermont Yankee. For instance, given this plant's proximity to the Connecticut River, the NRC needs to evaluate whether the current standard for nuclear power plant External Flood evaluations is outdated. The current standard only looks at the 100-year flood plain. Neither Entergy nor the NRC has provided any explanation for why a 100-year flood plain (rather than a 500- or 1,000-year flood plain) suffices in light of our current scientific understanding of climate change—an understanding that was not available during previous environmental analyses. This is particularly true with regard to issues such as placement of the dry-cask storage pad, given that, as the NRC recently recognized in its Continued Storage Rule, spent nuclear fuel could be stored onsite for 500 or 1,000 years, or even longer.

• There is known and unknown contamination at Vermont Yankee from previously identified tritium leaks and the more recently identified presence of strontium-90. The NRC should require Entergy to address the environmental and other effects of any delay during the SAFSTOR period in addressing such leaks, including the well-known fact that migration will increase the area that is contaminated.

• There are unique environmental and economic impacts related to the length of any SAFSTOR period, and numerous reasonable alternatives (each with unique environmental and economic impacts) to the SAFSTOR period that Entergy has elected. Neither the NRC nor Entergy has ever taken into account that, for this particular nuclear power plant, there are negative economic impacts to the surrounding area resulting from Entergy's decision to use the maximum SAFSTOR period rather than a shorter SAFSTOR. Regulations implementing NEPA (such as 40 C.F.R. § 1508.8) require the NRC to analyze the economic impacts of major federal actions significantly affecting the environment. Neither the NRC nor Entergy has ever done such an analysis, which would require, among other things, accounting for the economic costs of leaving the plant dormant (taking up space that could otherwise be used productively), as well as 60 years of downward pressure on property values and area development due to hesitancy to invest in an area that is slated for a major industrial deconstruction project (with attending noise, aesthetic, and other concerns). This analysis is required by federal law, and Entergy cannot proceed with its decommissioning plans until such an analysis is performed.

• Because Vermont Yankee is owned by a merchant generator (rather than a regulated utility), Entergy cannot go back to ratepayers if it has underestimated the costs of decommissioning, spent fuel management, or site restoration. The lack of a guaranteed ratepayer base raises numerous thus-

far-unanalyzed environmental concerns, including the possibility that certain decommissioning or site restoration activities will not occur due to lack of funding.

• Entergy's PSDAR announces for the first time that an estimated 1.3 million gallons of highly radioactive water will be stored in the torus within the reactor building during decades of SAFSTOR. Given that it was not until the PSDAR that Entergy revealed plans to deal with this radioactive water in this manner, this issue raises environmental issues that are obviously not "bounded" by any previous environmental analysis. Nor has Entergy pointed to any previous analysis addressing potential environmental impacts associated with storing radioactive water in this manner. The Department of Health is concerned that Entergy has not yet identified what instrumentation will be used to monitor torus water levels in the PSDAR. Entergy should also describe what kind of inspection regimen for possible leakage will be used until this water is properly disposed of as radioactive waste. Further, Entergy should explain in the PSDAR when disposal of this water will occur and how.

The PSDAR is also inadequate in terms of its environmental analysis related to the need for extensive groundwater monitoring. To protect public health, safety, and the environment, Entergy must extensively monitor groundwater until decommissioning is complete and its license has been terminated. After tritium contamination was measured in groundwater at many nuclear power plants, the

Nuclear Energy Institute developed the Groundwater Protection Initiative (NEI Technical Report 07-07). Throughout the different phases of decommissioning, Entergy should, at a minimum, maintain its current monitoring levels as required by NEI 07-07 at the Vermont Yankee facility until NRC license termination. This is necessary since radioactive materials will remain in storage for decades before decontamination and dismantling. It is particularly important in light of the Department of Health's recent identification of strontium-90 in groundwater.

The recent discovery of strontium-90 in groundwater raises additional concerns regarding soil contamination that may enter the groundwater and move in a way that threatens public health, safety, and the environment. This includes contamination from previously mentioned long half-life radioactive materials, as well as shorter half-life materials in the soils at Vermont Yankee. For instance, cobalt-60, cesium-134, zinc-65, and manganese-54 have been all been documented in soils and as sources in previously investigated leaks at Vermont Yankee. *See* Site Assessment Study; Department of Health, *Laboratory analyses for soil samples collected March 17, 2010 at locations along the Vermont Yankee Advanced Off-Gas Pipe Tunnel leak pathway*, *available at* http://healthvermont.gov/enviro/rad/yankee/documents/VY_Data_soil_samples_march2010.pdf.

Despite the clear need for robust environmental monitoring until license termination, the PSDAR is mostly silent on this subject. For protection of the environment and public health, monthly sampling from all 32 groundwater

monitoring wells and all three drinking water wells currently sampled at Vermont Yankee should continue through license termination, and split samples from those wells should be provided to the Vermont Department of Health for independent confirmatory analysis. In addition, Entergy should continue to perform radiological environmental monitoring of the pathways to the public, direct gamma radiation, soils, sediments, fish and other flora and fauna as conducted during operation of the facility until the large volume of radioactive materials stored onsite are removed by decontamination, dismantling, and licensed disposal.

Along with those samples currently split with the Department of Health, including onsite groundwater and drinking water, sediments and fish from the Connecticut River, and direct gamma radiation measurements by dosimeter, the State of Vermont must be provided split samples from the final status surveys that are intended to document that soil and structure remediation will allow release of the site for unrestricted use at NRC license termination. The PSDAR fails to include any such requirement and is thus deficient in this regard.

Further, as noted in Section V.B below, the PSDAR provides an inadequate environmental analysis of potential impacts from a radiological incident.

In summary, it is indisputable that there are many environmental impacts related to decommissioning, and the PSDAR does not analyze those impacts in the manner required by NEPA and other applicable statutes and regulations. It is the State's position that the NRC must engage in a full NEPA analysis of those impacts before allowing Entergy to proceed with decommissioning. Even if the NRC

disagrees with that position, then, at a minimum, the NRC must evaluate the PSDAR for compliance with 10 C.F.R. § 50.92, which requires a supplemental environmental impact statement in situations such as this where new information has not previously been analyzed. *See also, e.g.*, *Marsh v. Oregon Natural Res. Council*, 490 U.S. 360, 374 (1989) (noting that when an agency receives new and significant information casting doubt on a previously issued environmental analysis, the agency must reevaluate the earlier analysis). At a minimum, the NRC should require the PSDAR to list all of the environmental impacts related to decommissioning and identify where each one has been evaluated in another context. Entergy has not done so. Nor could it do so, as many of these impacts have not been previously evaluated. Consequently, further environmental analysis is needed before the NRC allows Entergy to proceed with decommissioning.

IV. The NRC Should Require Entergy to Revise Its Analyses Regarding the Emergency Planning Zone

Entergy's decommissioning plans, including its Decommissioning Cost Estimate and the environmental analysis contained in its PSDAR, seem to assume that Entergy will obtain a number of exemptions requests and License Amendment Requests related to emergency management. *See, e.g.*, Decommissioing Cost Estimate § 3, page 17 (noting that "fees associated with emergency planning are assumed to continue through 2016" at which point "the fees are discontinued"). At least two of those requests—a license amendment that would discontinue the Emergency Response Data System (ERDS), and a license amendment that would reduce the Emergency Planning Zone (EPZ)—are being actively challenged by the

State of Vermont. Unless and until those legal challenges have been resolved, Entergy cannot go forward with a decommissioning plan that assumes that these license amendments will be allowed.

A. Entergy Cannot Assume a Reduced Emergency Planning Zone

The State of Vermont has filed extensive comments and submitted a request for a hearing regarding Entergy's license amendment request to reduce the Emergency Planning Zone. Those comments, provided by three separate State agencies, are attached—and expressly incorporated into—these Comments. *See* Exhibit 5. The attached comments explain why the NRC should not allow Entergy to reduce the Emergency Planning Zone in the way Entergy has requested.

B. Even If Entergy Could Assume a Reduced Emergency Planning Zone, That Assumption Would Require Additional Environmental Analyses to Comply with the National Environmental Policy Act and NRC Regulations

Entergy's PSDAR claims—without citation—that "emergency plans and procedures will remain in place to protect the health and safety of the public while the possibility of significant radiological releases exists." PSDAR at 29. On this basis, Entergy "concludes that the impacts of [Vermont Yankee] decommissioning on radiological accidents are small and are bounded by the previously issued GEIS." *Id.* This analysis is flawed for several reasons.

To begin, Entergy's current plans with regard to the Emergency Planning Zone were not available—and thus could not have been analyzed—until Entergy announced those plans through various detailed requests for exemptions and License Amendment Requests filed within the last year. Those detailed plans are

clearly not bounded by documents from 1997, 2002, and 2007, which were developed many years before Entergy's recently announced plans. Indeed, as noted above, what plans Entergy will actually be allowed to implement is currently an open question and will remain so until the current ERDS and EPZ litigation is complete. A significant part of that litigation relates directly to the State's arguments that Entergy's plan to reduce the Emergency Planning Zone exposes the State and its citizens to unacceptable potential environmental and health impacts. *See generally* Exhibit 4. Entergy cannot seriously claim that documents from 1997, 2002, and 2007 "bound" the potential environmental impacts of plans that were never provided between 1997 and 2007 and that remain uncertain to date because they are the subject of active litigation.

In fact, the 2007 GEIS for Vermont Yankee explicitly disclaimed any environmental analysis of emergency management: "the Commission has determined that there is no need for a special review of emergency planning issues in the context of an environmental review for license renewal." NUREG-1437, Supplement 30, A-213 to A-214. The NRC's rationale was that "[o]ffsite entities such as State and local governments and the U.S. Federal Emergency Management Agency have responsibility for offsite emergency planning" and any "[p]erceived deficiencies . . . in the offsite emergency plans should be directed to the government entities that have responsibility for the specific portions of the plan judged to be deficient." *Id.* at A-214. In other words, the NRC refused to do the requisite environmental analysis because other agencies, including "State and local

governments" were responsible for offsite emergency planning. Yet Entergy has now proceeded with at least two actions related to emergency management—disconnection of the ERDS notification system, and reduction of the EPZ—that are expressly opposed by the State of Vermont and that threaten to diminish the State's ability to meet its emergency planning obligations.

Entergy and the NRC cannot have it both ways. If Entergy and the NRC are going to make emergency management decisions that are opposed by the State of Vermont, they cannot claim that such decisions are "bounded" by an environmental analysis that relied on State authority over these important matters.

Further, the PSDAR has clear inadequacies regarding issues such as radiological spill control during dewatering operations. The PSDAR contains a statement that one of the processes for placing the plant in SAFSTOR is "[p]rocessing and disposal of water and water filter and treatment media not required to support dormancy." PSDAR page 10. These activities present a significant risk for release to the environment. Yet there is inadequate evidence in the PSDAR that these activities are well-planned and that sufficient staff will be employed to prevent accidents.

The PSDAR also inadequately describes what fire protection systems will be in place at Vermont Yankee. Throughout every stage of decommissioning, large quantities of radioactive material will exist within the remaining structures, systems, and components until they are decontaminated and dismantled. In the event of a fire, these materials may result in radioactive contamination of, and

radiation doses to, firefighters and other first responders. Consumption by fire of radioactive materials may also result in offsite contamination. No evidence is provided in the PSDAR that local fire department personnel are fully prepared for onsite firefighting with limited support offered by reduced staff at Vermont Yankee. There is also no evidence in the PSDAR as to how offsite responders can manage offsite contamination that results from fires that consume radioactive materials stored onsite.

The PSDAR claims that the 2002 Decommissioning GEIS "assessed the range of possible radiological accidents during decommissioning" and that "the risk at spent fuel pools is low and well within the NRC's Quantitative Health Objectives." PSDAR at page 29. But this ignores the wide range of hostile-action-based scenarios that were made vividly possible after the attacks of September 11, 2001. These hostile actions, according to the National Academies of Science, could lead to a zirconium fire in the spent fuel pool or severely damage the torus where more than one million gallons of radioactive water will be stored until decontamination and dismantling. *See* National Academies of Science, Committee on the Safety and Security of Commercial Spent Nuclear Fuel Storage Board on Radioactive Waste Management Division on Earth and Life Studies National Research Council, *Safety And Security Of Commercial Spent Nuclear Fuel Storage [Public Report]* (2006).

The U.S. Court of Appeals for the Ninth Circuit has already ruled that "the possibility of terrorist attack" is not so "remote and highly speculative" as to fall outside the bounds of NEPA. *San Luis Obispo Mothers for Peace*, 449 F.3d at 1030.

The NRC thus must assess the potential environmental impacts from, for instance, a terrorist attack that leads to a zirconium fire in the spent fuel pool or severely damages the torus where more than one million gallons of radioactive water will be stored until decontamination and dismantling. *See id.*

V. The NRC Should Require Entergy to Address Numerous Other Deficiencies in the PSDAR and Related Filings

In addition to addressing the overarching concerns raised above, the State requests that the NRC require Entergy to address a number or other deficiencies in its PSDAR and related filings. The State flagged many of these errors and oversights in its December 13, 2014 submission to Entergy—a submission that, as noted earlier, is expressly incorporated into these Comments. *See* Exhibit 1.

In addition:

• A number of aspects of the Site Assessment Study bear directly on the PSDAR, and the NRC should require Entergy to explain aspects of the Site Assessment Study that are unsupported or inconsistent with representations that Entergy makes in the PSDAR. For instance, in § 8.3, page 53, of the Site Assessment Study, Entergy provides a table of "Cost Estimate Results" with numbers that are unexplained and unsupported. The State pointed this out to Entergy in the State's comments in December 2014, but received no response on this issue. The text preceding this section indicates that the vendor estimates were only for license termination work. The implication is that the vendor estimates of license termination were combined with Entergy's estimates for spent fuel management and site restoration to arrive at a total estimate. Thus, one would

expect the difference between each vendor license termination estimate and the total to be roughly the same. One would also expect the difference to be equal to Entergy's cost estimate of a total of about $425 million in spent fuel management and site restoration costs (the difference between $817 million in license termination costs and the total $1.24 billion estimate). Yet neither is the case. Rather than $425 million, each of the three vendor estimates add in around $694 to about $754 million for spent fuel management and site restoration. The NRC should ask Entergy to explain what spent fuel management and site restoration costs were used to arrive at the total decommissioning cost for each vendor, and why these costs differ for each vendor even though the vendors apparently were not asked to estimate those costs.

• Table 2.1 (page 8): The Large Component Removal duration is given as 1.3 years, including reactor vessel internals and reactor vessel segmentation. This is unrealistic given that the Zion decommissioning currently underway began these activities in 2010 and is not yet complete and may take another year or so. The NRC should ask Entergy to explain how the cost for the segmentation work included in the Vermont Yankee estimate would change if the period of performance were four years or more consistent with Zion experience. The NRC should also ask Entergy to explain how any change in the period of performance for this work would affect the overall duration or cost of the license termination work.

• Section 2.2.3: Entergy claims that radioactive decay during the SAFSTOR period will significantly reduce the quantity of contamination and radioactivity that

must be disposed of during decommissioning. But, as the State pointed out to Entergy in its December 2014 comments, the Site Assessment Study shows that there appears to be *no reduction* in waste volume based on decay during SAFSTOR. Similarly, Entergy says as much in its own Decommissioning Cost Estimate: "No process system containing/handling radioactive substances at shutdown is presumed to meet material release criteria by decay alone (i.e., systems radioactive at shutdown [will] still be radioactive over the time period during which the decommissioning is accomplished, due to the presence of long-lived radionuclides.)". Decommissioning Cost Estimate § 5, page 2. While decay would reduce the number of curies to be removed and in that sense the quantity of radioactivity removed, the discussion should be clarified to note that waste volumes are not decreased.

• Section 2.2.4: Assuming that the current cost estimate is based on disposal of waste at the Waste Control Specialists Site (WCS) facility, a comparison of waste disposal costs in the 2012 Vermont Yankee estimate and the current estimate reveals inconsistencies that the NRC should ask Entergy to explain. In the 2012 estimate, it was assumed that a large fraction of the low-level waste would be sent to an off-site processing facility with the remainder being sent to Envirocare for burial. The total cost of waste processing and burial for a total of about 669,000 cubic feet of waste was a little over $60 million dollars. However, in the current estimate it appears no waste would be sent to a processor and all waste would be sent for burial at WCS, with higher disposal cost than Envirocare, but the total waste burial cost is only about $45 million for a total volume of about 666,000 cubic

feet. It is unclear how shifting from the lower cost off-site processing and Envirocare assumption to the WCS assumption results in substantially lower cost. Further, the average cost per cubic foot for disposing of waste through a processor in the 2012 estimate is about $66 per cubic foot. Calculating the average cost of waste disposal at WCS in the current estimate, the cost is about $67 per cubic foot. It is unclear how the per-cubic-foot cost for disposal at WCS could be comparable to the 2012 cost for off-site processing which was cheaper than even disposal at Envirocare. In 2012, the rate for disposal at WCS was about $150 per cubic foot. Using that rate, the total waste burial cost would be about $99 million rather than the $45 million that Entergy estimates in its Decommissioning Cost Estimate. The NRC should ask Entergy to explain the rates assumed for disposal of low-level waste and the basis for this rate.

• Section 2.2.5 (Removal of Mixed Waste): This section currently states that "[i]f technology, resources, and approved processes are available, the processes will be evaluated to render the mixed waste non-hazardous." Rendering mixed waste non-hazardous may only occur pursuant to 40 C.F.R. 266.235 as adopted by Vermont in VHWMR 7-109(b)(2), when applicable, or pursuant to a hazardous waste treatment facility permit (*see* Subchapter 5 of the Vermont Hazardous Waste Management Regulations). This section of the PSDAR should be revised accordingly to reflect this requirement.

• Section 2.2.6 (Site Characterization): This section currently states that "[d]uring the decommissioning process, site characterization will be performed in

which radiological, regulated, and hazardous wastes will be identified, categorized, and quantified." The State of Vermont regulates and manages non-radiological Hazardous Waste Sites utilizing the Agency of Natural Resources' *Investigation and Remediation of Contaminated Properties Procedure* (IROCPP), which outlines processes for the investigation and remediation of releases of non-radiological hazardous materials. Entergy must prepare and submit a detailed plan outlining its characterization process for the site that is consistent with the IROCPP, as well as a proposed schedule for site assessment and remediation of the site. The PSDAR should be revised to reflect this information.

• Section 2.2.7: This discussion is inappropriately limited to remediation of tritium and fails to account for the recent discovery of strontium-90 in groundwater. Further, even if Entergy could limit this section to tritium contamination, Entergy cannot assume that remediation or removal of structural materials or soil containing tritium will not be required solely because the levels are less than those required by the NRC for license termination. When decommissioning occurred at the Yankee Rowe plant, the licensee processed or removed all material with detectable tritium. The NRC should ask Entergy to explain why it believes that similar remedial measures at Vermont Yankee will not be required.

• Section 4.1, page 21: The PSDAR should explain the rationale for using the HIS Global Insight's Index for CPI, All Urban, All Items, for the escalation of low-level waste costs at WCS. Historically, low-level waste costs have grown at much higher rates than general cost escalation.

• Section 5.4 (Additional Considerations): Entergy's PSDAR reaffirms its commitment to "conduct all activities in Vermont, including at the VY Station site, in accordance with federal and state laws, including VDH's Radiological Health Rule" in accordance with the December 2013 Settlement Agreement. To demonstrate that Entergy's decommissioning and site restoration activities will comply with all state laws, including Agency of Natural Resources regulations, Entergy must submit a more detailed plan and timeline of decommissioning and other activities required to remediate the site. This must include a detailed description and schedule for such non-radiologically related processes as: demolishing buildings on site, removal of underground petroleum storage tanks, the phased closure of waste handling and storage areas on the site, and site characterization and investigation procedures and techniques. As noted earlier, requests for this information as well as other information pertaining to Entergy's plan for decommissioning and remediation of the site were submitted to Entergy by the Agency of Natural Resources in its December 2014 comments. To date, Entergy has not supplied this information to the Agency. The PSDAR should be revised to demonstrate how Entergy's post-closure activities will comply with state laws and regulations.

CONCLUSION

The State of Vermont has a number of concerns with the decommissioning plans that Entergy has submitted to the NRC in Entergy's PSDAR and related filings. For the reasons noted above, the PSDAR is deficient and does not comply

with applicable NRC regulations. Entergy has a lot more work to do before the NRC and State officials can conclude that Entergy's plans for decommissioning Vermont Yankee will comply with all applicable state and federal law.

Entergy's decommissioning plans are also deficient because they delay the site characterization that is needed to determine the true costs of decommissioning, while simultaneously claiming that there is already an "excess" amount of money in the NDT Fund. On that front, the State's request is a modest one—simply that the NRC apply the regulations that already apply to the NDT Fund and not allow Entergy to be exempted from those regulations. This request coincides with what Entergy is already obligated to do under the Master Trust Agreement it signed when it bought the Vermont Yankee plant.

The State of Vermont is a sovereign entity hosting the plant at issue in this proceeding. The State and its citizens are the ones who will ultimately live with the consequences of the decisions that are made in the next few months. The NRC must take the State's concerns seriously.

For the reasons noted above, the NRC should act now to address all of the matters raised in these Comments. For the NRC's convenience, the State has summarized its specific requested actions in the Addendum immediately following these Comments.

The State looks forward to the NRC's response to these Comments and to a continued dialogue with the NRC and Entergy as these matters proceed forward.

ADDENDUM

The State respectfully requests that the NRC should take the following actions now:

- Require Entergy to provide a detailed response to all of the State's December 13, 2014 comments.
- Require Entergy to respond to the State's Comments provided today.
- Provide the NRC's response to each of the State's Comments.
- Provide the State with a full adjudicatory hearing in accordance with 10 C.F.R. § 2.104 to address the State's concerns and protect the public interest.
- Require Entergy to revise its cost estimates as noted above.
- Require Entergy to use the time between now and December 2016 to engage in a more thorough radiological and non-radiological site characterization so that it can make a more accurate Decommissioning Cost Estimate in connection with its PSDAR.
- Require Entergy to plan for contingencies that may not be discovered until the end of SAFSTOR and that would increase the total cost for decommissioning, spent fuel management, or site restoration.
- Not allow Entergy to rely on cost estimates that assume that all spent fuel will be removed from the site by 2052.
- Not grant Entergy's January 6, 2015 exemption request, and find deficient Entergy's December 19, 2014 Updated Irradiated Fuel Management, Updated Decommissioning Funding Status Report, and related portions of the PSDAR and Decommissioning Cost Estimate insofar as Entergy is attempting to use the

Vermont Yankee NDT Fund for spent fuel management expenses during the post-closure period before radiological decommissioning is complete. The NRC should then require Entergy to submit revised filings of its December 19, 2014 filings, including a revised plan for spent fuel management expenses that is consistent with the requirements of 10 C.F.R. § 50.54bb.

- Analyze Appendix C of Entergy's Decommissioning Cost Estimate and prohibit Entergy from withdrawing money from the Vermont Yankee NDT Fund for all items that fail to meet the NRC's definition of decommissioning, including, at a minimum, the following:

  a. The $5 million payment (lines 1a.2.22 & 1b.2.22) that Entergy is making to the State as part of the Settlement Agreement;

  b. Emergency planning costs (*e.g.*, line 1a.2.23);

  c. Shipments of non-radiological asbestos waste (*e.g.*, line 1a.2.27);

  d. Insurance (*e.g.*, line 1a.4.1);

  e. Property taxes (*e.g.*, line 1a.4.2);

  f. Replacement of structures during SAFSTOR (*e.g.*, line 2b.1.4);

  g. Any costs associated with offsite buildings that are not radiologically contaminated; and

  h. All other listed costs that relate to activities that do not reduce radiological contamination.

- Require Entergy to explain, in light of its merchant-generator status, how it will fund items such as those listed above, as well as costs that are not currently

listed in its Decommissioning Cost Estimate, such as employee pension fund liabilities.

- Require Entergy to revise Appendix C of its Decommissioning Cost Estimate to include a fourth category that contains expenses such as the ones listed above and Entergy's "NEI Annual Fee" (e.g., line 1a.2.38 of Appendix C).

- Require Entergy to revise incorrect estimates, such as Entergy's claim that it will pay only around $7,000 per year in property taxes beginning in 2020 (e.g., lines 2aa.4.2 & 2b.4.2).

- Take all other actions necessary to protect the money in the NDT Fund and allow its expenditure only for allowable uses until radiological decommissioning is complete.

- Undertake a NEPA-compliant comprehensive analysis of all potential environmental and economic impacts of Entergy's post-closure plans, including an analysis of all potential impacts related to:

    a. All potential radiological incidents at the site;
    b. The continued storage of spent nuclear fuel, including the possibility of indefinite storage onsite and the possibility of a terrorist attack on stored spent nuclear fuel;
    c. The transfer of spent nuclear fuel and the possibility of accidents during such transfers from the spent fuel pool to dry casks and potentially from old dry casks to new dry casks;

d. The creation and operation of a Dry Fuel Transfer Station to move spent fuel into new dry casks every 100 years, and the funding source for: (1) the construction of a Dry Fuel Transfer Station; (2) the purchase of 58 new casks and all other labor and material costs for transferring the fuel every 100 years; and (3) the costs of maintaining security at the site indefinitely
e. The existence of radiological and non-radiological contamination;
f. The generation and storage of non-radiological contaminants; and
g. Site-specific impacts resulting from:
    i. the plant's close proximity to an operating elementary school (and potential airborne asbestos and lead contamination, as well as potential impacts from a radiological incident);
    ii. recreational activities on the bordering Connecticut River;
    iii. species that may become listed as endangered or threatened in the next 60 years;
    iv. science's increased understanding of climate change, including expected increases in the severity of floods;
    v. known and unknown contamination at Vermont Yankee from previously identified tritium leaks and the more recently identified presence of strontium-90;

vi. unique environmental and economic impacts and alternatives related to the length of any SAFSTOR period, including negative impacts from a longer SAFSTOR period;

vii. the inability to go back to ratepayers if any post-closure costs have been underestimated; and

viii. the storage of an estimated 1.3 million gallons of highly radioactive water in the torus during SAFSTOR.

- Require Entergy to explain how each of the above impacts is allegedly bounded by previously issued environmental impact statements and why Entergy believes that a supplemental environmental impact statement is not needed to meet the requirements of 10 C.F.R. § 50.92.

- Require Entergy to explain how it plans to comply with state law for the closure of non-radiological waste handling and storage areas on site, including whether it has submitted a plan to the Agency of Natural Resources as the Agency requested.

- Require Entergy to extensively monitor groundwater until decommissioning is complete and its license has been terminated, including at a minimum: maintaining its current monitoring levels as required by NEI 07-07; undertaking monthly sampling from all 32 groundwater monitoring wells and all three drinking water wells currently sampled at Vermont Yankee; and providing split samples from those wells to the Vermont Department of Health for independent confirmatory analysis.

- Require Entergy to continue to perform radiological environmental monitoring of the pathways to the public, direct gamma radiation, soils, sediments, fish and other flora and fauna as conducted during operation of the facility.

- Require Entergy to provide the State with split samples from the final status surveys that are intended to document that soil and structure remediation will allow release of the site for unrestricted use at NRC license termination.

- Require Entergy to revise its analyses to reflect the current requirements under its license for maintaining an Emergency Planning Zone.

- Require Entergy to explain what fire protection systems will be in place at Vermont Yankee.

- Perform a NEPA-compliant analysis of any proposed reductions in the Emergency Planning Zone, including analyzing issues such as radiological spill control during dewatering operations and the potential environmental impacts from a terrorist attack that leads to a zirconium fire in the spent fuel pool or severely damages the torus where more than one million gallons of radioactive water will be stored until decontamination and dismantling.

- Require Entergy to explain aspects of the Site Assessment Study that are unsupported or inconsistent with representations that Entergy makes in the PSDAR, including unexplained and unsupported numbers in the table of "Cost Estimate Results" in § 8.3, page 53, of the Site Assessment Study.

- Require Entergy to explain why Large Component Removal will take only 1.3 years at Vermont Yankee when it is taking more than 4 years at Zion, and how a longer period would affect Entergy's cost and duration estimates.

- Require Entergy to clarify that waste volumes will not be decreased as a result of SAFSTOR.

- Require Entergy to explain discrepancies between its current cost estimate for waste disposal at the WCS facility and the estimate it made in 2012.

- Require Entergy to explain how it plans to comply with state law requiring that rendering mixed waste non-hazardous may only occur pursuant to 40 C.F.R. 266.235 as adopted by Vermont in VHWMR 7-109(b)(2), when applicable, or pursuant to a hazardous waste treatment facility permit (*see* Subchapter 5 of the Vermont Hazardous Waste Management Regulations).

- Require Entergy to prepare and submit a detailed plan outlining its characterization process for the site that is consistent with the *Investigation and Remediation of Contaminated Properties Procedure*, as well as a proposed schedule for site assessment and remediation of the site.

- Require Entergy to revise the PSDAR in light of the recent discovery of strontium-90 in groundwater.

- Require Entergy to explain why it assumes that remediation or removal of structural materials or soil containing tritium will not be required if the levels are less than those required by the NRC for license termination, when the licensee at plants like Yankee Rowe processed or removed all material with detectable tritium.

- Require Entergy to explain the rationale for using the HIS Global Insight's Index for CPI, All Urban, All Items, for the escalation of low-level waste costs at WCS, given that historically low-level waste costs have grown at much higher rates.
- Require Entergy to submit a more detailed plan and timeline of decommissioning and other activities required to remediate the site.