



VERMONT

**NUCLEAR DECOMMISSIONING CITIZENS ADVISORY PANEL
PUBLIC SERVICE DEPARTMENT**

**Nuclear Decommissioning
Citizens Advisory Panel
Annual Report to the Governor
and the Vermont Legislature**

2015

**Submitted to the Governor of Vermont
and to the House and Senate Committees on
Natural Resources and Energy
of the Vermont General Assembly**

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**Nuclear Decommissioning Citizens Advisory Panel
2015 Annual Report to the Governor of Vermont and
the Energy Committees of the General Assembly**

I. Background and Statutory Authority

The nineteen member Nuclear Decommissioning Citizens Advisory Panel (NDCAP) was established under 18 V.S.A. Chapter 34 passed in the 2014 legislative session, and replaces the seven member Vermont State Nuclear Advisory Panel (VSNAP) that had been in place since the sale of Vermont Yankee to Entergy in 2002. The new panel added six citizen members, two each to be appointed by the Governor, the Senate Pro-Tem and the House Speaker.

The members of the Nuclear Decommissioning Citizens Advisory Panel in 2015 were:

- the Secretary of Human Services designee; **Dr. William Irwin**
- the Secretary of Natural Resources designee; Department of Environmental Conservation **Commissioner David Mears***
- the Commissioner of Public Service, ex officio; **Commissioner Chris Recchia**
- the Secretary of Commerce and Community Development, ex officio; **Secretary Patricia Moulton**
- one member of the House Committee on Natural Resources and Energy, chosen by the Speaker of the House; **Representative Michael Hebert**
- one member of the Senate Committee on Natural Resources and Energy, chosen by the Committee on Committees; **Senator Mark MacDonald**
- one representative of the Windham Regional Commission or designee, selected by the Regional Commission; **Executive Director Chris Campany**
- one representative of the Town of Vernon or designee, selected by the legislative body of that town; appointed is **Stephen Skibniowsky**
- six members of the public, two each selected by the Governor, the Speaker of the House, and the President Pro Tempore of the Senate. Under this subdivision, each appointing authority initially appointed a member for a three-year term and a member for a four-year term: **Kate O'Connor (4), Martin Langeveld (3), Jim Matteau (4), Jim Tonkovich (3), David Deen (4), Derrik Jordan (3)** Subsequent appointments under this subdivision shall be for terms of four years.
- two representatives of the Vermont Yankee Nuclear Power Station (VYNPS or Station) selected by the owner of the Station; **Christopher J. Wamser**, Site Vice-President and **T. Michael Twomey***, Vice-President External Affairs, ENVY
- a representative of the International Brotherhood of Electric Workers (IBEW)

selected by the IBEW who shall be a present or former employee at the VYNPS;

David Andrews

- one member who represents collectively the Towns of Chesterfield, Hinsdale, Richmond, Swanzey, and Winchester, New Hampshire, when selected by the Governor of New Hampshire at the invitation of the Commissioner of Public Service; **Senator Molly Kelly***, Keene, NH and
- one member who represents collectively the Towns of Bernardston, Colrain, Gill, Greenfield, Leyden, Northfield, and Warwick, Massachusetts, appointee is MA **Representative Paul W. Mark** (2nd Berkshire District of the MA State Legislature)

*Three Panel members resigned and their replacements appointed: Trey Martin, Deputy Secretary of the Agency of Natural Resources filled the seat vacated by Commissioner David Mears; Paul Paradis, Decommissioning Director, ENVY filled the seat vacated by Mike Twomey, Vice President External Affairs, ENVY; and Diane Becker, Chief of Technological Hazards, New Hampshire Emergency Management and Homeland Security filled the seat vacated by Sen. Molly Kelly.

II. NDCAP Statutory Duties and Other Provisions of the Charter

The Panel serves in an advisory capacity. The duties of the Panel as outlined by the statute are:

- To hold a minimum of four public meetings each year for the purpose of discussing issues relating to the decommissioning of the Vermont Yankee Nuclear Power Station (VYNPS). The Panel may hold additional meetings;
- To advise the Governor, the General Assembly, the agencies of the State, and the public on issues related to the decommissioning of the VYNPS, with a written report being provided annually to the Governor and to the energy committees of the General Assembly;
- To serve as a conduit for public information and education and to encourage community involvement in matters related to the decommissioning of the VYNPS;
- To receive written reports and presentations on the decommissioning of the Station at its regular meetings;
- To periodically receive reports on the Decommissioning Trust Fund and other funds associated with decommissioning of or site restoration at the VYNPS, including fund balances, expenditures made, and reimbursements received;
- To receive reports regarding the decommissioning plans for the VYNPS, including any site assessments and post-shutdown decommissioning assessment reports; provide a forum for receiving public comment on these plans and reports; and
- To provide comment on these plans and reports as the Panel may consider

appropriate to State agencies, the owner of the VYNPS and in the annual report.

The Charter can be found in **Appendix A**.

III. Meeting of the NDCAP

The NDCAP held eight meetings in 2015 on January 28, February 26, March 26, May 28, June 25, September 24, November 12 and December 12. All meetings were open to the public and opportunities for comments from the public were provided. The minutes of each meeting can be found on the PSD website at www.publicservice.vermont.gov. A video of each meeting can be found at www.brattleborotv.org. Key decisions and topics of each meeting are summarized below:

January 28, 2015

- ***Nuclear Regulatory Commission (NRC) Presentation on Post-Shutdown Decommissioning Activities Report (PSDAR) Process.*** Bruce Watson, (Chief of the Reactor Decommissioning Branch), Doug Broadus and Marc Ferdis of the NRC explained the PSDAR process.
- ***Entergy Update on Decommissioning Activities.*** Chris Wamser, Site Vice President, Vermont Yankee provided an overview of the status of Vermont Yankee. After 633 consecutive days of generating electricity, VY ceased operations on December 29, 2014. Final defueling and certification of permanent cessation of power operations was completed on January 12, 2015. Staff reductions (528 to 343) reflecting VY final shutdown and transition to SAFSTOR occurred on January 19. Of the released staff, all but six have either retired or found other jobs. Current VY staffing will remain stable through mid-2016. Off-Site Emergency Plans are fully funded through the end of 2015. The focus is now on transitioning the site to long-term storage (SAFSTOR) of plant facilities prior to final decommissioning / dismantling, continued compliance with federal regulations and Settlement Agreement with the State, completion of second Independent Spent Fuel Storage Installation (ISFSI/dry cask storage pad) and establishment of Site Restoration Standards.
- ***Leadership Selection:*** Kate O'Connor was elected chair. Martin Langeveld was elected vice chair.

February 26, 2015

- ***Role of NDCAP and priorities for 2015.*** An Issues Committee was formed to make recommendations to the Panel at the March 26 meeting regarding topics for discussion at future meetings. Members of the committee: Chair: Dave Andrews, members Chris Campany, Martin Langeveld, Jim Matteau, and Kate O'Connor.

- ***NDCAP Charter.*** The Panel adopted its Charter.
- ***Entergy Update on Decommissioning Activities.*** Joe Lynch, Government Affairs Manager, Entergy Vermont Yankee, provided an update on recent activities. VY is under the decommissioning inspection program. Support buildings are being removed, systems are being drained for long-term storage, security modified and the site is planning for a second Independent Spent Fuel Storage Installation (ISFSI/ dry cask storage pad) to transfer fuel to dry storage.
- ***State of Vermont Update on Decommissioning Activities.*** David Mears, Commissioner of the VT Department of Environmental Conservation, provided the State's update on recent activities. The State is looking for answers from Entergy to the comments submitted on the draft Post Shutdown-Decommissioning Activities Report (PSDAR). The State is looking forward to negotiating site restoration standards with a full, open and public process.
- ***Entergy Presentation on Emergency Preparedness.*** Mike McKenney, VY Emergency Planning Manager, presented an update on VY emergency plans including VY's emergency plan (EPlan) timeline; EPlan decommissioning status; post shutdown emergency plan; EPlan exemptions sought from the NRC; implementation of permanently defueled emergency plan to take place in April 2016; and ISFSI EPlan set to be implemented after all fuel is transferred to the ISFSI, currently planned for 2020.
- ***Panel Discussion on Emergency Preparedness.*** Commissioner Recchia explained that the State is appealing a ruling by the Atomic Safety and Licensing Board (ASLB). The State wants Entergy to keep the Emergency Response Data System (ERDS) or a comparable system in place at VY until 2020 when all the spent fuel is moved into dry casks.

March 26, 2015

- ***Issues Committee.*** The committee met on March 6, 2015 and decided to recommend to the full Panel that future NDCAP meetings have five key elements: (1) decommissioning activities update from Entergy; (2) decommissioning activities update from the State of Vermont; (3) public comment; (4) educational segment; and (5) issues segment. The committee is exploring a possible trip to Connecticut Yankee and the Millstone 1 SAFSTOR facility.
- ***Entergy Update on Decommissioning Activities.*** Joe Lynch, Government Affairs Manager, Entergy Vermont Yankee, provided an update on decommissioning activities. In preparation for long-term dormancy, power was removed from select buildings, systems drained, security modified and some buildings removed from the site. A map of the site with completed and anticipated changes was displayed. Building removal is being done with state agency review and permitting.

- **Presentation on Dry Cask Storage.** Jay Tarzia, Certified Health Physicists, Principal of Radiation Safety and Control Services and Chairman of the New Hampshire State Radiation Advisory Committee gave a general overview of the characteristics of dry fuel storage.
- **Presentation by State of Vermont Departments and Agencies on the State's Role in Decommissioning.** David Mears, Commissioner of the VT Department of Environmental Conservation (DEC); Dr. William Irwin, designee for the Secretary of Human Services; and Christopher Recchia, Commissioner of the Public Service Department outlined their department's role in the decommissioning process. The Department of Environmental Conservation focuses on non-radiological contamination such as PCBs, lead paint, standard industrial contaminants, storm water, wastewater permitting and plays a regulatory role in petroleum storage. The Health Department conducts radiological and environmental monitoring of the VY site and works with the Vermont Division of Emergency Management on the emergency response plan. The Public Service Department takes the lead role as public advocate and designated state nuclear liaison with the NRC. The department reviews, with the Public Service Board, the certificate of public good (CPG) for the second ISFSI (dry cask storage pad). The department is seeking to coordinate with Entergy on the many filings with the NRC including emergency planning zone, site fence line, decommissioning trust fund and data feed for emergency response.
- **New Panel Member.** The Governor of New Hampshire appointed Diane Becker, Chief of Technological Hazards, New Hampshire Emergency Management and Homeland Security to replace Sen. Molly Kelly who resigned.

May 28, 2015

- **Entergy Update on Decommissioning Activities.** Joe Lynch, Government Affairs Manager, Entergy Vermont Yankee, provided an update on recent activities. Fifty-two systems on site will be "laid up" for long-term dormancy, seven are complete and twenty-two are currently in process. Security modifications at the site include increased signage and notifications. Seven buildings have been removed from the site. Entergy, the states of Vermont and New Hampshire, FEMA and the NRC completed a hostile action based exercise on May 13. The performance was graded excellent.
- **State of Vermont Update on Decommissioning Activities.** Anthony Leshinski, Vermont State Nuclear Engineer and David Mears, Commissioner of Environmental Conservation, provided an update on the recent decommissioning activities by the State. The Public Service Department and the Attorney General's office are involved in a number of appeals including the State's objections to Entergy's application to reduce the emergency planning zone, questions about the use of the Nuclear

Decommissioning Trust (NDT) and the discontinuation of the Emergency Response Data System (ERDS). A Hazardous Waste Compliance Evaluation Inspection of the VY site by the Agency of Natural Resources Waste Management and Prevention Division identified issues with labeling, waste characterization and inventory records.

- ***Entergy Presentation on Certificate of Public Good Process (CPG) on Second Independent Spent Fuel Storage Installation (ISFSI).*** Joe Lynch, Government Affairs Manager, Entergy Vermont Yankee, provided an overview of Entergy's CPG application. Currently, there is a permitted ISFSI (dry cask storage pad) onsite with a capacity of thirty-six casks. Thirteen dry casks are currently on the pad. Fifty-eight casks will be needed to store all the fuel from VY's operating life. The proposal before the Public Service Board (PSB) is to build a second pad, adjacent to the first, to hold twenty-two casks. The planned construction schedule, based on obtaining a CPG by early May 2016, will meet the goal of having all fuel in dry storage by 2020. The design option chosen was the best fit based on soil analysis, security plans, the same earthquake/flooding analysis and efficiencies created by the proximity to the existing ISFSI.
- ***State of Vermont Overview of Certificate of Public Good Process (CPG).*** Aaron Kisicki, Staff Attorney, Department of Public Service, provided an overview of the CPG process for the second ISFSI. The Public Service Board will consider the project's impacts on orderly development, economics, the environment, and public health/safety. The Board must find there is adequate financial assurance and commitment to move spent fuel to certified long-term storage in the Entergy spent fuel management plan. The process is currently in the discovery phase. It will move through testimony, rebuttal testimony, cross examination, briefing, review and decision.
- ***State of Vermont Agency of Natural Resources Presentation on CPG Process.*** David Mears provided an overview of the ANR's role in the CPG process. ANR is an automatic party or statutory party to the process and also has independent permitting authority. The Public Service Board must find that the project will not negatively impact the environment or use of natural resources. The Agency will participate in discovery and hearings looking specifically at river corridor issues like inundation risks and erosion, along with storm water capture/treating and other water quality issues.

June 25, 2015

- ***Entergy Update on Decommissioning Activities.*** Joe Lynch, Government Affairs Manager, Entergy Vermont Yankee, gave an update on recent activities. Fifty-two systems on site will be drained or "laid up" for long-term dormancy, eight are

complete and fifteen are in process. Buildings continue to be transitioned to stable, long-term lay-up condition. Security modifications are ongoing. The site held a training drill June 10, 2015. The Public Service Board (PSB) visited the site on June 4, 2015 as part of the CPG process. Entergy received approval of an exemption request to allow access to the Nuclear Decommissioning Trust (NDT) for applicable costs of spent fuel management and physical decommissioning. NRC resident staff will transition to inspection only as of June 26, 2015. The NRC has scheduled a routine radiological inspection in July and a security inspection in August.

- ***State of Vermont Update on Decommissioning Activities.*** Anthony Leshinskie, Vermont State Nuclear Engineer and Chris Recchia, Commissioner of the Public Service Department, provided an update on recent filings made by the State regarding Entergy's planned reduction of the emergency planning zone (EPZ) in 2016; the NRC's ruling that the Nuclear Decommissioning Trust (NDT) Fund can be used for spent fuel management; and the NRC's waiver of the 30-day notice for withdrawal of funds from the NDT.
- ***Presentation by Holtec International on the Dry Cask.*** Dr. Kris Singh, President and CEO of Holtec International presented information on the HI-STORM 2 MPC STORAGE SYSTEM that is and will continue to be used at Vermont Yankee for dry fuel storage.
- ***Panel Discussion on the Advisory Opinion Process.*** The legislation that formed the NDCAP states that one of the Panel's duties is to "advise the Governor, the General Assembly, the agencies of the State, and the public on issues related to the decommissioning of the VYNPS." A committee was formed to recommend an advisory opinion process to the full Panel at the September 24 NDCAP meeting. Panelist serving on the committee: David Deen, Chris Campany, Kate O'Connor, Jim Matteau, and Martin Langeveld.

September 24, 2015

- ***Entergy Update on Decommissioning Activities.*** Joe Lynch, Government Affairs Manager, Entergy Vermont Yankee, provided an update on recent activities. No issues were identified during an on-site inspection (groundwater, radiation controls, system abandonment work and design work) completed the week of 9/14-9/17. Entergy's funding of the emergency plan (EPlan) will decrease in April 2016. Entergy has signed a continued funding agreement with New Hampshire and is in discussions with Massachusetts. To date no agreement has been reached with the State of Vermont. Entergy has withdrawn its License Amendment Request (LAR) to opt out of the current requirement that they provide 30-day notice prior to making withdrawals from the Nuclear Decommissioning Trust Fund.

- ***State of Vermont Update on Decommissioning Activities.*** Anthony Leshinskie, Vermont State Nuclear Engineer gave an update on recent activities. The State has filed a number of contentions, including the discontinuation of the Emergency Response Data System (ERDS) and the reduction of the emergency planning zone (EPZ). The State is awaiting a ruling from the NRC. An address has been set up for the Panel to receive public comment: PSD.ndcap@vermont.gov.

Commissioner Recchia noted that although Entergy has withdrawn its License Amendment Request in regards to the 30-day notification of withdrawals from the NDT, the State is still going before the Atomic Safety and Licensing Board (ASLB) asking that Entergy be required to provide information on how the funds will be used.

- ***Presentation on Emergency Response During Decommissioning.*** Erica Bornemann Chief of Staff, Vermont Division of Emergency Management and Homeland Security (DEMHS) made a presentation on the Radiological Emergency Response Program (RERP). DEMHS is responsible for local and State plan development, revision, equipment maintenance, training and exercise. The State of Vermont believes there should be some level of emergency planning while fuel remains in the spent fuel pool. The State is looking for a “step-down” approach to emergency preparedness until 2020 when all the fuel is removed from the pool.
- ***Presentation on Emergency Response During SAFSTOR and Decontamination.*** Dr. Bill Irwin, Vermont Department of Health, made a presentation on the emergency response during SAFSTOR and decontamination. The NRC and Entergy contend that no offsite emergency capabilities are necessary beyond April 2016 because no accidents will result in doses in excess of the EPA Protective Action Guides. The State disagrees and believes that some funding is necessary. The State should continue to independently monitor environmental media around the station. The Department of Health can develop a scaled-back budget for what is appropriate during SAFSTOR and DECON.
- ***Adoption of Advisory Opinion Process.*** The Panel approved a process by which the group will make advisory opinions (**Appendix B**). The Panel agreed to move four topics forward: (1) public engagement in the NRC’s decommissioning process; (2) certificate of public good for the second dry cask storage pad at the Vermont Yankee site; (3) Vermont Department of Health groundwater monitoring; and (4) funding for the continuation of the Radiological Emergency Response Plan (RERP). Draft opinions will be written and discussed at the November 12 NDCAP meeting.
- ***New Panel Members.*** Trey Martin, Deputy Secretary of the Agency of Natural Resources filled the seat vacated by David Mears, Commissioner, Department of

Environmental Conservation. Paul Paradis, Decommissioning Director, ENVY filled the seat vacated by Mike Twomey, Vice President External Affairs, ENVY.

November 12, 2015

- ***Entergy Update on Decommissioning Activities.*** Joe Lynch, Government Affairs Manager, Entergy Vermont Yankee, provided an update on recent activities. VY conducted an emergency plan (EPlan) drill on October 21, 2015 as part of ongoing training and Emergency Response Organization (ERO) qualifications. A test of the sirens was successfully completed. The NRC conducted an on-site inspection the week of October 26. The third quarter NRC Decommissioning Power Reactor Inspection Report was issued on October 22, 2015 with no findings.

On September 22, Entergy withdrew its License Amendment Request regarding the requirement that it provide written notification 30 days prior to withdrawing funds from the Nuclear Decommissioning Trust (NDT) Fund. Entergy determined that it was not an undue burden to file the notices. On October 16, the Atomic Safety and Licensing Board (ASLB) granted Entergy's motion with two conditions: (1) The company must notify the State when any new License Amendment Request regarding the NDT is filed with the NRC; and (2) Entergy must specify whether the disbursements fall under one of following categories: Payment to \$5 million state settlement agreement; emergency preparedness costs; shipments of non-radiological asbestos waste; insurance or property taxes; replacement of structures related to dry cask storage; or legal costs associated with these categories.

- ***State of Vermont Update on Decommissioning Activities.*** Anthony Leshinskie, Vermont State Nuclear Engineer gave a status report on three filings the State has before the NRC: (1) Elimination of the Emergency Response Data Systems (ERDS) for the Vermont Radiological Emergency Response Plan (RERP); (2) Valid uses of the Nuclear Decommissioning Trust Fund; and (3) Opposition to the reduction of the emergency planning zone (EPZ). To date the NRC has upheld the ASLB's ruling that the Emergency Response Data Systems (ERDS) for the Vermont Radiological Emergency Response Plan (RERP) is no longer required.
- ***Entergy Update on Status of the Nuclear Decommissioning Trust Fund.*** Joe Lynch, Government Affairs Manager, Entergy Vermont Yankee, provided an update on status of the Nuclear Decommissioning Trust (NDT) Fund. As of September 30, 2015, the balance in the fund was \$595,733,175. Changes in the NDT are due to market losses/gains, reimbursement from the NDT and payment of trust expenses. ENVY continues to implement initiatives to reduce costs: staff reductions consistent with the SAFSTOR plan; emergency plan reductions with NRC approval; inventory

reductions; and energy cost reductions through building closures and system abandonment.

- **Entergy Update on Spent Fuel Management Plan.** On December 19, 2014, Entergy submitted its update to the VY (Spent) Irradiated Fuel Management Plan (IFMP) to the NRC. On October 5, 2015, the NRC approved the plan indicating that it was adequate and provided sufficient detail regarding the funding mechanisms and there was ample funding for spent fuel management based on the estimates Entergy provided in December 2014.
- **Advisory Opinion.** The Panel adopted an advisory opinion on *Engaging Host Communities in the Nuclear Regulatory Commission Reactor Decommissioning Rulemaking.* (Appendix C)

December 12, 2015

- **Panel Discussion on Advisory Opinion on Second ISFSI.** The Panel discussed sending an advisory opinion on the certificate of public good for the second ISFSI (dry cask storage pad) to the Public Service Board. Two opinions were drafted. Neither opinion was moved forward, instead a working group was formed to draft a consensus opinion to be acted upon at the January 28, 2016 NDCAP meeting. The working group includes: Jim Matteau, Chris Recchia, Chris Company, Steve Skibniowsky, Paul Paradis and Kate O'Connor.

IV. Major Milestones and Activities at the Vermont Yankee Site

- January 12, 2015 - Removal of all spent fuel from the reactor and placement in spent fuel pool. Spent fuel will remain in spent fuel pool through 2020.
- January 12, 2015 - VY certified to the NRC that reactor was defueled and confirmed its intention to permanently cease operations.
- January 19, 2015 - Workforce reduced from 550-316.
- January 20, 2015 - VY exited the NRC Reactor Oversight Process (ROP) and commenced the decommissioning inspection program.
- January 29, 2015 - Federal lab confirms finding of low levels of Strontium-90 in water samples taken from VY monitoring wells in August 2014.
- February - Decommissioning preparation activities continue: system draining/lay up; building power removal to "cold and dark"; security modifications.
- February 5, 2015 - Post-shutdown emergency plan implemented.
- February 16, 2015 - NRC staff site visit including planned inspection activities.
- March - Decommissioning preparation activities continue: system draining/lay up; building power removal to "cold and dark"; security modifications.

- May - Decommissioning preparation activities continue: system draining/lay up; building power removal to “cold and dark”; security modifications.
- May - Select structure/building removal completed
- May 13, 2015 - Hostile Action-Based (HAB) graded exercise conducted at VY. FEMA and NRC rate overall performance excellent with all objectives met.
- May 18, 2015 - Hazardous Waste Compliance Evaluation Inspection of VY site by the Agency of Natural Resources Waste Management and Prevention Division notes issues with labeling, waste characterization and inventory records. VY received a Notice of Alleged Violation (NOAV) from ANR on July 31. Entergy notified ANR on September 9 that all issues had been corrected.
- June - Decommissioning preparation activities continue: system draining/lay up; building power and services removal ongoing.
- June 10, 2015 - Emergency plan drill conducted at VY as part of ongoing training and Emergency Response Organization (ERO) qualifications.
- June 16-17, 2015 - NRC/Nuclear Security Incident Response (NSIR) on-site review of Phase 1 changes conducted.
- June 26, 2015 - On-site NRC Resident Inspector transitioned to inspection-based oversight.
- September - Decommissioning preparation activities continue: system draining/lay up; building power and services removal ongoing.
- September - Security plan changes – Phase 1 and Phase 2 modifications completed.
- September 14-17, 2015 - NRC conducted on-site inspection. No issues identified.
- October 21, 2015 - Emergency plan drill conducted at VY as part of ongoing training and Emergency Response Organization (ERO) qualifications.
- October 22, 2015 - NRC quarterly inspection report found no issues of safety significance.
- December 16, 2015 - Entergy announced that it will begin transferring spent nuclear fuel from the spent fuel pool to dry cask storage starting in 2017, two years earlier than originally planned. The anticipated timeline for completing the transfer remains the end of 2020.

V. Post Shutdown-Decommissioning Activities Report

Entergy submitted the Post Shutdown-Decommissioning Activities Report (PSDAR) to the Nuclear Regulatory Commission on December 19, 2014. The NRC hosted a public meeting in Brattleboro on February 19, 2015 to obtain public comment on the PSDAR.

VI. Certificate of Public Good for the Construction of a Second ISFSI (Dry Cask Storage Pad) at the Vermont Yankee Site

On April 29, 2015 the Vermont Public Service Board (PSB) held a status conference on Entergy's petition for a certificate of public good (CPG), authorizing the construction of a second ISFSI (dry cask storage pad) and related improvements, including installation of a new diesel generator with an electrical rating of approximately 200 kW, at the VY site. Currently, there is a permitted pad onsite with a capacity of thirty-six casks. Fifty-eight casks will be needed to store all the fuel from VY's operating life. The proposal before the Public Service Board is to build a second pad, adjacent to the first, to hold twenty-two casks. A schedule for the CPG process was set with a ruling by the Public Service Board expected in early 2016. On June 4, the Public Service Board held a public hearing on the petition in Vernon. The Public Service Department and Agency of Natural Resources are automatic formal parties to the proceedings.

VII. Nuclear Decommissioning Trust Fund

The balance in the Nuclear Decommissioning Trust (NDT) Fund as of January 1, 2015 was \$664,558,000. As of December 31, 2015 the fund total was \$595,433,076. The fund was reduced by \$69 million: Entergy withdrew \$58 million in 2015, trust expenses (i.e. mostly taxes - local, state and federal) further decreased the fund by \$16 million and investment income increased it by \$5 million. The estimated cost of decommissioning was \$1.242 billion in 2014 dollars.

Entergy applied for and was granted an exemption by the Nuclear Regulatory Commission allowing money from the fund to be used for long-term spent fuel management at the Vermont Yankee site. Entergy's planned expenditure is \$225 million. The Vermont Attorney General and Public Service Department are contesting the NRC's decision to allow the funds to be used for this purpose. The State argues that the trust fund should only be used for activities associated with radiological decommissioning and doing otherwise may result in insufficient funds to complete the decommissioning process in a timely manner.

VIII. Visit to Connecticut Yankee Site

On June 26, 2015 members of the NDCAP visited the Connecticut Yankee site in Haddam Neck, Connecticut. Panel members and staff attending: David Andrews, Chris Campany, Bill Irwin, Jim Matteau, Kate O'Connor, Steve Skibniowsky and State Nuclear Engineer Tony Leshinskie. The group met with Brantley Buerger, CY ISFSI Manager and Bob Capstick, Director of Regulatory Affairs for the Yankee Companies. The group visited the

ISFSI site and received a briefing on the decommissioning process from Buerger and Capstick. A full report of the trip can be found in **Appendix D**.

IX. Advisory Opinion Process

The Nuclear Decommissioning Citizens Advisory Panel was created under 18 V.S.A. Chapter 34 in 2014. The statute authorizes the Panel to “*advise the Governor, the General Assembly, the agencies of the State, and the public on issues related to the decommissioning of the VYNPS . . .*” and “*receive reports regarding the decommissioning plans for the VYNPS, including any site assessments and post-shutdown decommissioning assessment reports . . . and to provide comment on these plans and reports as the Panel may consider appropriate to State agencies and the owner of the VYNPS and in the annual report described in subdivision (2) of this section.*”

In order to provide the advice and comment authorized by statute, the Panel adopted an advisory opinion process that allows for panel discussion, public comment and completion of the process in a timely manner. Because there is no language limiting who the Panel can advise, the Panel decided it would issue advice to individuals and organizations beyond those listed in state law. **(Appendix B)**

The Panel voted to move four topics forward for discussion: (1) public engagement in the NRC’s decommissioning process; (2) certificate of public good (CPG) for the second dry cask storage pad at the Vermont Yankee site; (3) Vermont Department of Health groundwater monitoring; and (4) funding for the continuation of the Radiological Emergency Response Plan (RERP).

The Panel approved an opinion on *Engaging Host Communities in the Nuclear Regulatory Commission Reactor Decommissioning Rulemaking*. **(Appendix C)** On December 12, 2015 the Panel discussed sending an advisory opinion on the CPG for the second dry cask storage pad to the Public Service Board. Two opinions were drafted. Neither opinion was moved forward, instead a working group was formed to draft a consensus opinion to be acted upon at the January 28, 2016 NDCAP meeting. A discussion on the groundwater monitoring and RERP opinions will take place in 2016.

X. Letter to Vermont, Connecticut, Maine and Massachusetts Congressional Delegations on the Storage of Spent Nuclear Fuel

The chairs of the Vermont, Connecticut, Maine and Massachusetts citizen panels sent a joint letter to their respective congressional delegations urging approval of an interim,

centralized storage facility so the nuclear waste currently stored at shuttered plants can be moved offsite. **(Appendix E)**

XI. Nuclear Regulatory Commission Advance Notice of Proposed Rulemaking

On November 19, the Nuclear Regulatory Commission published an advance notice of proposed rulemaking (ANPR) – the first step toward developing clear requirements for the decommissioning of nuclear power reactors. The NRC anticipates that the rulemaking process will be completed in 2019. The NRC set January 4, 2016 as the deadline for public comment on the ANPR. At the December 12, 2015 NDCAP meeting fifteen members of the Panel signed a letter asking the NRC to extend the public comment period until at least February 4, 2016 and hold public meetings in the communities where a plant decommissioning has begun or will in the near future **(Appendix F)**. On December 24 the NRC announced that the comment period will be extended to March 18, 2016.

XII. Financial Needs of the NDCAP

The Department of Public Service will continue to provide administrative and financial support to the Panel. Entergy will continue to provide in-kind administrative support and in-kind meeting resources (i.e. audio-visual equipment for presentations (laptop and projector), microphones, copies of meeting materials, etc.). The Panel is currently assessing what, if any, funds it may require from the State of Vermont to carry out its mission.

XIII. Workplan for 2016

The Panel reserved the option to meet monthly in 2016. To date meetings have been set for January 28 and February 25.

Appendix A

Vermont Yankee Nuclear Decommissioning Citizens Advisory Panel Charter Adopted February 26, 2015

I. Purpose

The Vermont Yankee Nuclear Decommissioning Citizens Advisory Panel (NDCAP or Panel) is established pursuant to Title 18 of Vermont Statutes, Chapter 34, Sections 1700 -1702.¹ The NDCAP is to serve as a conduit for public information and education, to encourage open communication and community involvement in matters related to the decommissioning process of the Vermont Yankee Nuclear Power Station (VYNPS), and to receive written reports and presentations on the decommissioning of the Station at its regular meetings. The NDCAP shall advise the Governor, General Assembly, the agencies of the state, and the public on issues related to decommissioning. The Panel shall serve in an advisory capacity only and shall not have authority to direct decommissioning of the VYNPS. Although this charter expands on the language contained in the enabling statute, it is understood that the statute remains the ultimate authority.

II. Duties:

Duties shall be:

- To receive written reports & presentations on the decommissioning at its regular meetings. The reports received by the NDCAP address decommissioning plans, including:
 - All Site Assessments
 - The Post-Shutdown Decommissioning Activities Report (PSDAR) and amendments
 - Periodic reports on the Decommissioning Trust Fund and other funds associated with Site Decommissioning and/or Site Restoration including fund balances, expenditures made & reimbursements received.
 - Any progress reports on decommissioning activities by Vermont Yankee as submitted to the Panel
- To provide a forum for receiving public comments on Vermont Yankee Decommissioning plans and reports
- To provide comments on plans and reports as the Panel may consider appropriate to the State Agencies and the Vermont Yankee owners
- To provide an annual report to the Governor & Energy Committees of the General Assembly due January 15, of the following year, which

¹ <http://legislature.vermont.gov/statutes/fullchapter/18/034>
15 of 37

- Includes comments on received Decommissioning Plans & Reports, as the Panel may consider appropriate.
- Shall assess further changes to the Panel's membership or duties as appropriate.
- Shall include recommendations on such changes.

III. Organization and Membership

A. Membership

- Secretary of Human Services or designee (ex officio)
- Secretary of Natural Resources or designee (ex officio)
- Commissioner of Public Service or designee (ex officio)
- Secretary of Commerce and Community Development or designee (ex officio)
- Representative of the Town of Vernon, selected by Vernon select board
- Six members of the public – two each appointed by the Governor, The Speaker, and the Senate President Pro Tem. Under this subdivision, each appointing authority initially shall appoint a member a three-year term and a member a four-year term. Subsequent appointments under this subdivision shall be for terms of four years;
- One representative of the Windham Regional Commission appointed by the Commission
- Two representatives of Vermont Yankee, selected by the owner of VYNPS
- One representative of the International Brotherhood of Electrical Workers (IBEW), selected by IBEW, who is a past or present employee at Vermont Yankee
- One member representing the towns of Chesterfield, Hinsdale, Richmond, Swanzey, and Winchester, NH, appointed by the Governor of NH
- One member representing the towns of Bernardston, Colrain, Gill, Greenfield, Leyden, Northfield, and Warwick, MA, appointed by the Governor of MA
- One member of the House Committee on Natural Resources and Energy, chosen by the Speaker of the House
- One member of the Senate Committee on Natural Resources and Energy, chosen by the Committee on Committees

B. Officers

- The NDCAP shall have a Chairperson and Vice-Chairperson or Co-Chairs elected by a majority vote of the Panelists.
- The Commissioner of the Public Service Department will serve as the Chair until the Panel elects a Chair or Co-Chairs.
- The Chair shall perform the following duties:

- Call meetings of the NDCAP
- Prepare and/or approve agendas for meetings
- Preside at NDCAP meetings
- Submit all recommendations adopted by the NDCAP to the Governor, legislature, state agencies and the plant owner
- Vice-Chairperson shall perform all the duties of the Chairperson in her/his absence.
- The term for the Chairperson and Vice-Chairperson or co-chairs will be one year, or as otherwise determined by the Panel, but not for more than one year.

C. Term of Membership: Ex officio members shall serve for the duration of their time in office or until a successor has been appointed. Members of the General Assembly shall be appointed for two years or until their successors are appointed, beginning on or before January 15 in the first year of the biennium. Representatives designated by ex officio members shall serve at the direction of the designating authority.

D. Designees: Certain statutory positions on the panel may to be represented by designees. It is understood that the preference is for designees to serve on a permanent basis, and that for the purposes of continuity, the use of alternates on a meeting-by-meeting basis is to be avoided.

E. Reimbursement: Members of the NDCAP who are not ex officio members, employees of the State of Vermont, representatives of the VYNPS, or members representing towns outside Vermont, and who are not otherwise compensated or reimbursed for their attendance shall be entitled to \$50.00 per diem and their necessary and actual expenses. Funds for this purpose shall come from the monies collected under 30 V.S.A. section 22 for the purpose of maintaining the Department of Public Service. Legislative members shall not be entitled to a per diem under this section for meetings while the General Assembly is in session.

F. Committees: Committees, sub-committees or similar working groups will be designated by the Chairperson and Vice Chair or Co-Chairs as needed to carry out the work of the NDCAP and may include designees who are not members of the Panel. Such committees, sub-committees or working groups will serve at the discretion of the NDCAP as a whole. Every effort should be made to appoint members of the committees who represent the broad interests reflected on the NDCAP. Committees serve to support the NDCAP and may not themselves take action other than to advise or report to the Panel. Committees may seek participation by and presentation from other parties and the public. Committees of the NDCAP are likewise subject to all provisions of the Vermont Open Meeting Law.

G. Administration

- The Public Service Department, the Agency of Human Services, and the Agency of Natural Resources will furnish administrative support, with assistance from the owners of the VYNPS as the Commissioner of the Public Service may consider appropriate.
- The Commissioner of Public Service shall manage administrative support to the Panel, including:
 - Manage administrative support including scheduling meetings and securing meeting locations, providing public notice of meetings, producing minutes of meetings, and assisting in the compilation and production of the Panel's annual report
 - Inform Panel on status of decommissioning matters
 - Timely notify Panel of new decommissioning information
 - Upon request, provide all Panel members with all relevant information within Public Service Department control.
 - Provide workshops, training for Panel members, as appropriate.
 - Hire experts, contract for services, and provide for materials and other reasonable and necessary expenses of the Panel as the Commissioner may consider appropriate on request of the Panel from time to time.

IV. MEETINGS

A. Frequency: The NDCAP will meet a minimum of four times a year, although additional meetings can be called at the Chair's or Co-Chairs' discretion or by request of a minimum of five of the NDCAP members via the Chair or Co-Chairs. Meetings will be announced a minimum of two days in advance. The Chair, Co-Chairs, or at least five Panel members may call a special meeting with a minimum of one day advance notice.

B. Agendas: The agenda will be drafted by the Chair and Vice-chair or Co-chairs with input from other members. Issues brought before the NDCAP that are not on the meeting agenda must be considered as the first item of business, and if discussed, any action should be deferred to a later meeting unless urgent.

C. Quorum: A majority of members will constitute a quorum for a meeting of the NDCAP at which a vote or other official action is to be taken. In the absence of a quorum, the NDCAP may convene the meeting and adjourn until such time as a quorum is present. No official action may be undertaken by the NDCAP at a meeting that lacks a quorum.

D. Virtual meetings: As long as the requirements of the open meeting laws are met, the Panel may conduct business and vote to take an action at a regular, special or emergency meeting by electronic or other means without being physically present at a designated

meeting location. In this situation the Panel will follow all the requirements outlined in 1 V.S.A. § 312(a)(2).

V. Decision-making process

A. The NDCAP will strive to reach consensus on **key** issues by conducting their deliberations through dialogue and joint learning.² **Consensus** means that the group strives to clarify disagreements and tries to work through them to reach agreement on options that everyone can “live with.”³

B. To work towards consensus, the Panelists will:

- engage in a thoughtful, thorough deliberation
- advocate for the interests of his/her agency or constituency
- share relevant information with the other group members
- keep constituencies informed and advocate within constituent organizations for support of the group’s work
- keep the group informed about constituent perspectives
- work to identify promising and innovative options
- openly discuss and evaluate those options
- refrain from undermining group recommendations and reports

C. However, if consensus cannot be achieved on **key issues** within a reasonable timeframe as determined by the Chair or Co-chairs, the Panel shall act by majority vote of its entire membership & only at meetings called by the Chair, Co-Chairs or by any 5 Panelists.

D. Minority reports will be part of the NDCAP record.

E. Roberts Rules of Order will govern all NDCAP meetings.

VI. Public Engagement and Transparency

A. All NDCAP meetings will be open to the public.

² **Joint learning** means that there are opportunities for people to learn from trusted and credible sources about the science and technology and to learn about the concerns, perspectives, and needs of all interested and affected parties.

³ **Consensus does not mean** that decisions devolve to the least offensive solutions. If managed skillfully, the process of building consensus can generate a better understanding of alternative perceptions of the problem, identify options for solving the problem that are innovative and have not been considered before, and create more value for all stakeholders involved.

B. Comments will be solicited from the public in attendance at least once during the meeting and more often at the discretion of the Chair and Co-Chairs.

C. Written comments may be submitted at any time. Provisions will be made to solicit and take into account written comments from all interested stakeholders on NDCAP reports. To the extent practical, the NDCAP will explain how comments from the public were considered in written recommendations or reports.

D. Minutes shall be kept of all NDCAP meetings and will include a record of members present, a complete and accurate description of matters discussed and conclusions reached, and copies of all reports received, issued or approved by the NDCAP. Draft minutes shall be posted on the PSD website within five days of the meeting. Minutes will be adopted by the next scheduled NDCAP meeting.

E. The records of the NDCAP consist of this Charter, meeting agendas, meeting minutes, reports submitted to or drafted by the NDCAP, studies made available to or prepared by the NDCAP, correspondence related to substantive issues under consideration by the NDCAP. All such records shall be made available to the public on request.

F. The NDCAP may provide opportunities outside of formal meetings for information sharing and dialogue with stakeholders.

VII. Communication

Whenever feasible electronic mail will be the preferred method of communicating administrative issues with and among NDCAP members.

Appendix B

Nuclear Decommissioning Citizens Advisory Panel Advisory Opinion Process Adopted by NDCAP on September 24, 2015

1. A topic is introduced by a Panel member at an NDCAP meeting. The majority of the Panel must vote in favor of moving the topic forward before an advisory opinion is drafted.
2. If the topic moves forward, a member of the Panel will write an opinion. The first draft must be submitted to the NDCAP chair 4 weeks prior to the next scheduled NDCAP meeting. The draft will be circulated to members of the Panel and posted on the Department of Public Service website for public comment. Alternative draft opinions must be submitted to the NDCAP chair no later than one week prior to the next scheduled NDCAP meeting. The draft(s) will be circulated to Panel members and posted on the Department of Public Service website for public comment.
3. The draft opinion(s) will be on the agenda for a vote at the next scheduled NDCAP meeting, unless expert testimony is necessary. In this case, the vote will take place at a future meeting, but at the earliest date possible.
4. If a draft is presented and approved by a majority vote, it becomes a position or recommendation of NDCAP. In the event two or more alternative draft opinions on a particular issue are presented, the Panel will vote their preference on the multiple options. Assuming that one option receives a majority vote, any alternative draft opinions will be appended to it as minority opinions, provided they are supported by at least two members. If no option receives a majority, the Panel does not have a position or recommendation on that issue.
5. A record of how each Panel member votes will be included on all opinions.

Appendix C

Vermont Nuclear Decommissioning Citizens Advisory Panel Advisory Opinion Adopted 11.12.15

Effectively and Substantively Engaging Host Communities* in Nuclear Regulatory Commission Reactor Decommissioning Rulemaking

Current Decommissioning Policy: Federal policy, administered by the U.S. Nuclear Regulatory Commission (NRC), establishes the guidelines by which a nuclear power plant conducts radiological decommissioning. The choice of how a plant decommissions is left to the plant operator and is explained in a document developed by the plant operator called the Post Shutdown Decommissioning Activities Report (PSDAR). The PSDAR includes a decommissioning activities plan, a review of related decommissioning cost estimates and assumptions about the sufficiency of decommissioning trust funds. The NRC reviews the PSDAR but does not have an approval requirement. The NRC does not have oversight of non-radiological decommissioning activities or site restoration and related costs. Local governments and the public have the opportunity to comment on the PSDAR to the NRC during one public meeting and may submit written comments. Because of the current absence of decommissioning rules, as a plant decommissions it applies to the NRC for amendments to its current license and exemptions from NRC operating reactor regulations. Following and engaging in license amendment and exemption procedures are difficult for state agencies and are effectively beyond the capacity of local or regional government entities.

Our Request: Nuclear Regulatory Commission (NRC) staff have initiated the process of reactor decommissioning rulemaking. We would like host communities to be actively and substantively engaged in this process from the outset. The Nuclear Energy Institute serves as a unified industry voice and has formed a Decommissioning Task Force to advise the NRC. We believe it is in the best interest of the public and the industry to have host communities similarly engaged. To this end, we suggest that the NRC support an organization such as the National Association of Development Organizations to convene host communities to inform federal policy by 1) documenting the local experience of past decommissionings including economic, fiscal, employment, and environmental impacts, all of which are to be assessed by the NRC in its development of decommissioning Environmental Impact Statements; 2) assessing host community costs, benefits and risks of deferred radiological and non-radiological decommissioning and site restoration versus prompt decommissioning and related local government policy concerns; and 3) forming a Host Community Decommissioning Policy Task Force to provide local government insight to the NRC in its rulemaking.

**Host Communities: Those where nuclear facilities are sited, and include all those within the operational facility's ten mile Emergency Planning Zone.*

Panel Members Voting Yes

David Andrews (IBEW); Chris Campany (Windham Regional Commission); David Deen (Citizen Appointee); Dr. Bill Irwin (Agency of Human Services); Derrik Jordan (Citizen Appointee); Martin Langeveld (Citizen Appointee); Trey Martin (Agency of Natural Resources); Mark MacDonald (Vermont Senate); Jim Matteau (Citizen Appointee); Pat Moulton (Agency of Commerce and Community Development); Kate O'Connor (Citizen Appointee); Paul Paradis (Entergy); Chris Recchia (Public Service Department); Jim Tonkovich (Citizen Appointee); Chris Wamser (Entergy)

Panel Members Voting No

Diane Becker (State of New Hampshire); Steve Skibniowsky (Town of Vernon)

Appendix D

Connecticut Yankee ISFSI Site Visit
June 26, 2015

NDCAP members and staff attending: Chair Kate O'Connor; Members Dave Andrews, Chris Company, Bill Irwin, Jim Matteau and Steve Skibniowsky; and staff Tony Leshinskie. Following is a bullet list of main points taken, along with very helpful technical additions by Tony (those notes are in italics).

- Our hosts at the site were Brantley (Brant) Buerger, CY ISFSI Manager, and Robert (Bob) Capstick, Director of Regulatory Affairs for the Yankee Companies.
- The visit included a brief orientation meeting, a visit and discussion at the ISFSI site, and a wrap up discussion.
- The site cleanup was completed in 2007 (see chart and note).

Yankee Atomic Plants; Shutdown & DECON Timelines					
Source: http://www.meredithangwin.com/yankee_decommissioning.pdf for CY, MY & YR					
		Connecticut Yankee	Maine Yankee	Yankee Rowe	Vermont Yankee
	Operation Begins	1968	1972	1960	1972
	Shut Down	1996	1997	1992	2014
	Years in Service	28	25	32	42
	DECON begins	1998	1998	1992	?
	DECON Complete	2007	2005	2007	?
	Years for DECON	9	7	15	?
	Years Shut Down to DECON Complete	11	8	15	?

Note: The 2007 date for the CY site clean-up completion is the date that the NRC released CY from its Reactor Operating / Possession (10 CFR 50) license. Technically, site clean-up to Connecticut state environmental standards is still on-going. It is expected that CT will release the portions of the CY site not required for the CY ISFSI for unrestricted use sometime this year. (I intend to learn more about this. The NRC reports that a total of 10 former power reactors have completed decommissioning / license release, including CY, Maine Yankee & Yankee Rowe. However, Brant noted that once the CY site receives its formal release for unrestricted use from Connecticut,

it will be only the second former power reactor site released for unrestricted “green field” use. The other released site is Fort St. Vrain, a former high temperature, gas-cooled reactor in Colorado that was converted to a gas-fired power station).

- Current staff: 2 FT and several PT, mostly security.
- Important maintenance tasks include monitoring vents and clearing if needed to avoid loss of airflow and overheating.
- Staff operates on what they call a “fire house model”, in which each person takes responsibility for several tasks and functions. A primary reason is to avoid the boredom that likely would result from doing long repetitive tasks in a quiet, isolated environment.
- Related to the above, each guard spends 1 hour at a time in the security building, rotating
 - out to other jobs.
- The DFS system is NAC, vertical casks similar to Holtec. (<http://www.nacintl.com>)
 - *Note: DFS / Dry Cask Storage System: one significant difference between Holtec and NAC dry casks is that the Holtec overpack casks include both an inner and outer steel casing. The NAC overpacks (used at CY) do not have an outer steel casing. Also, NAC’s cask moving system is considerably different than Holtec’s. NAC’s system moves the casks to an ISFSI via a specialized tractor-trailer vehicle. Holtec’s moving system, nicknamed ‘Cletus,’ is reminiscent of the tracked vehicle NASA used to move space shuttles and Saturn V rockets to Cape Canaveral launch pads.*
- The site’s annual operating budget is \$10 million.
- The owner controlled area is a 300 meter radius.
 - 100 meters is the minimum requirement. Site conditions, including the presence of the former discharge canal, made the larger area desirable.
 - *Note: The minimum Owner Controlled Area radius of 100 meters is required by 10 CFR 72.106. An additional reason for CY implementing a 300 meter (~985 feet) radius OCA was based on the results of a “cask breach” accident analysis*
- The total site is 525 acres, of which the ISFSI is 5 acres.
- The specific facility site was excavated 3 feet and backfilled.
 - A major exception is the exact location of the reactor building itself, which was leveled and mounded with 3 feet of gravel.
 - It was noted that locating the ISFSI well away from the facility made

decommissioning easier.

Note: Potential future CY site use: It was noted that during CY's active decommissioning, there were parallel efforts to redevelop the site as a gas-fired or alternate fuel source electric generating station. (This factored into the decision to locate the ISFSI considerably away from the reactor facilities.) These efforts collapsed during the 2008 Recession. There are currently no efforts for any site redevelopment.

- The site manager stated that CY found prompt decommissioning to be the superior option for reasons of:
 - lower cost;
 - institutional memory;
 - community benefit; and
 - potential future use.

CEO Wayne Norton had planned to join the meeting by phone but was unable to do so. He wrote an experience report about the Maine, Connecticut and Rowe Yankee stations which is available here: http://www.meredithangwin.com/yankee_decommissioning.pdf

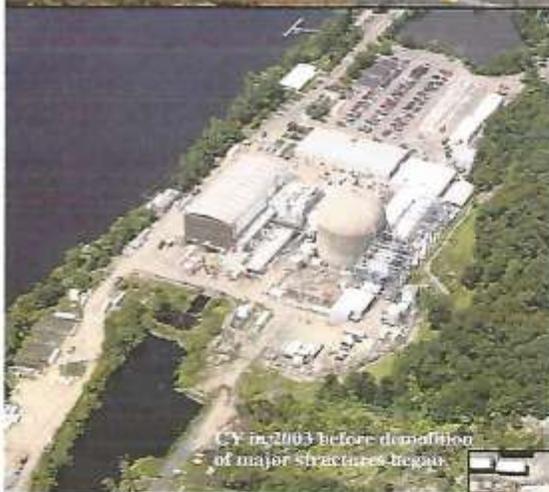
Two handouts were received during the site visit, and they are attached.

Connecticut Yankee

Operation, decommissioning,
and the interim storage of spent nuclear fuel.



The Connecticut Yankee Independent Spent Fuel Storage Installation (ISFSI).



CY in 2003 before demolition of major structures began.

Connecticut Yankee (CY) operated a 619 megawatt pressurized water reactor from 1968 until permanent shutdown in 1996 at the Haddam Neck site. The plant produced more than 110 billion kilowatt-hours of electricity during its 28-year operating history.

The nuclear power plant underwent a successful decommissioning from 1998-2007 with all plant structures removed to three feet below grade and the site restored to stringent federal and state clean-up standards.

CY chose immediate dismantlement (the DECON method) with significant decommissioning activities beginning in May 1998 and fully completed in November 2007 with NRC approval of the termination of the operating license on the plant area. In October 2007, the Connecticut Department of Environmental Protection approved a stewardship permit, indicating that remediation of non-radioactive contaminants is complete, and that the only remaining activity is groundwater monitoring, which will extend until approximately 2011, depending upon results.



Left: Primary Auxiliary Building demolition and excavation.
Below: CY after decommissioning.



Connecticut Yankee

2

The approximate gross decommissioning costs for CY were \$871 million, which included all dismantlement and decontamination costs, as well as all spent fuel storage related costs through completion of the plant's decommissioning and final NRC license termination approval.



The CY reactor pressure vessel departing by barge in December 2003.

The CY Independent Spent Fuel Storage Installation (ISFSI) is located about three-quarters of a mile from the former reactor site, tucked in a slight valley between natural ridgelines. The NAC-MPC fuel storage and transport canister system chosen by CY is licensed by the NRC for both storage and transportation.

There are 43 dry storage casks on the 100 by 200-foot, three-foot-thick concrete pad at the CY ISFSI. Forty of the casks contain the 1019 spent fuel assemblies and three casks store sections of the reactor vessel internals that are classified as Greater Than Class C (GTCC) waste. Each vertical concrete cask has a three and a half-inch steel liner surrounded by 21 inches of reinforced concrete. The entire dry storage process -- procuring materials, fabricating the fuel containers, constructing the storage facility, and transferring the fuel -- took approximately three years to complete.



Current aerial view of the CY ISFSI.

Construction of the ISFSI was completed in 2002. Spent fuel loading and transfer from the wet spent fuel pool to dry storage canisters began in the first quarter of 2004 and was completed on March 30, 2005 when the final loaded canister was transferred to the ISFSI.

The average annual cost associated with the continued operation of CY's ISFSI is \$8 million per year.

CURRENTLY CLOSER TO \$10 M.

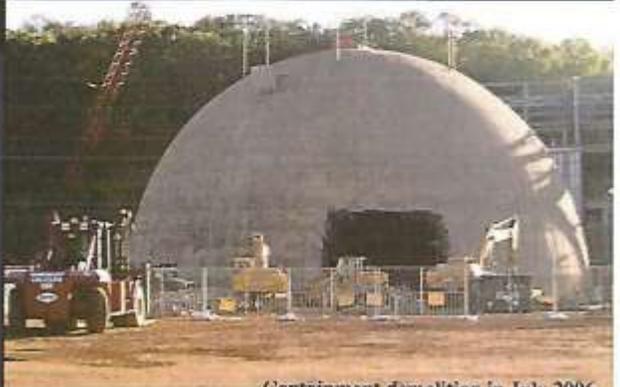


Placement of dry fuel storage casks at the ISFSI.



Fuel transfer cask stackup for transport to the ISFSI.

Connecticut Yankee and sister plants Yankee Rowe and Maine Yankee are each stand-alone single asset companies where all costs such as security, insurance, pensions, and medical are considered decommissioning costs once the plants are permanently shut down. Once the federal government removes the spent nuclear fuel from the Yankee sites, the companies will go out of business.



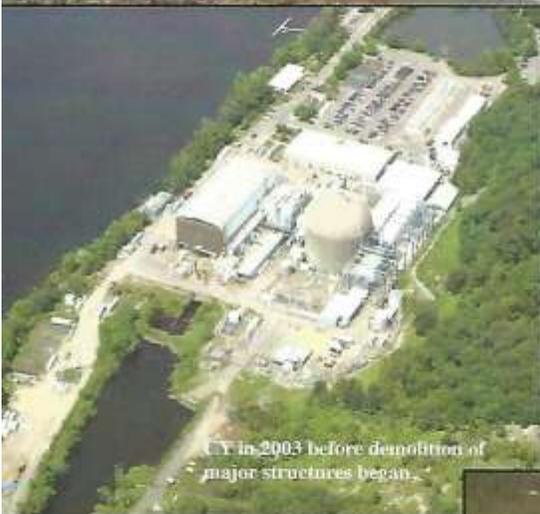
Containment demolition in July 2006.

Connecticut Yankee

An Interim Storage Facility for Spent Nuclear Fuel



The Connecticut Yankee Independent Spent Fuel Storage Installation (ISFSI).



CY in 2003 before demolition of major structures began.

Connecticut Yankee (CY) operated a 619 megawatt nuclear power plant located in Haddam Neck, CT that produced more than 110 billion kilowatt-hours of electricity from 1968-1996 when it was permanently shut down for economic reasons.

The plant was successfully decommissioned between 1998-2007 with structures removed and the site restored to stringent federal and state remediation standards. In November 2007 the U.S. Nuclear Regulatory Commission (NRC) provided notification that the former plant site had been fully decommissioned in accordance with NRC procedures and regulations.

Remaining at the CY site is the Independent Spent Fuel Storage Installation (ISFSI) consisting of 40 dry storage casks containing 1019 spent nuclear fuel (SNF) assemblies used during the years of plant operation and 3 casks containing sections of the reactor vessel internals classified as Greater than Class C waste (GTCC waste). CY uses the NAC-MPC dual-purpose dry cask/canister system which is licensed by the NRC for both storage and transport. The ISFSI is located on approximately 5 acres of the 525 acre CY site about $\frac{3}{4}$ of a mile from the decommissioned reactor location.

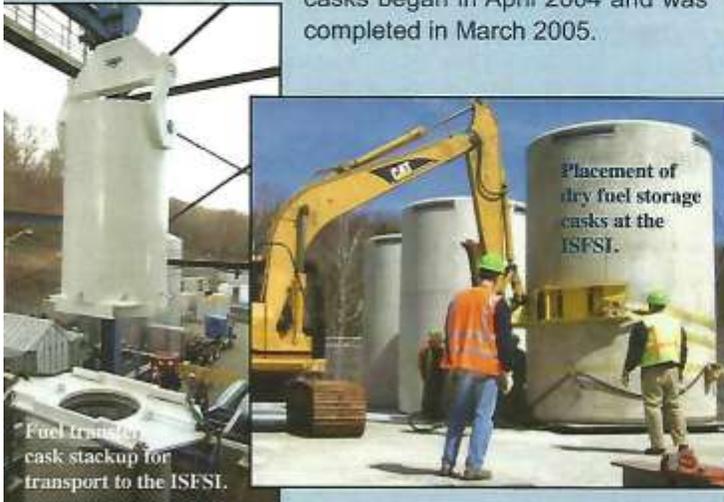


CY reactor pressure vessel shipment by barge during decommissioning.



The CY site after decommissioning.

The transfer of the SNF assemblies and GTCC waste from the plant's spent fuel pool to the stainless steel canisters and then placement of the canisters into the concrete and steel casks began in April 2004 and was completed in March 2005.



Fuel transfer cask stackup for transport to the ISFSI.

Under the Nuclear Waste Policy Act and contracts with the U.S. Department of Energy (DOE), the Federal Government was required to have begun removing the SNF and GTCC waste from CY by January 1998. The DOE has yet to meet this obligation and it is uncertain when it will. In the meantime, it is CY's responsibility as an NRC licensee to safely store the SNF and GTCC waste in accordance with all applicable federal regulations including programs for security, emergency planning, and cask monitoring. Once the Federal Government fulfills its commitment to remove the SNF and GTCC waste from the site, the ISFSI site will be decommissioned and CY will go out of business.

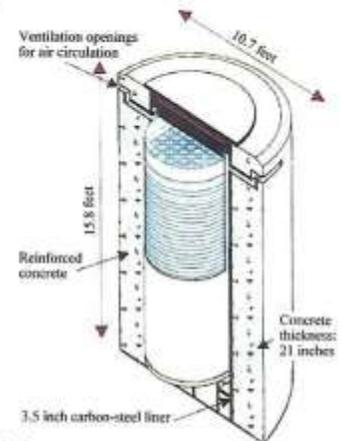


Shipment of the CY pressurizer by rail.

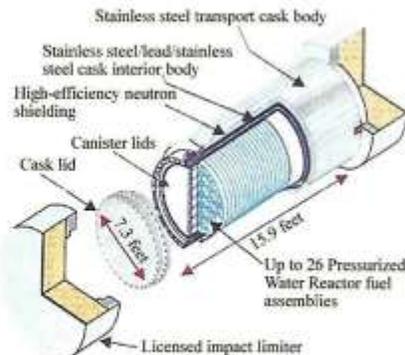
The annual cost to operate the Connecticut Yankee ISFSI is on the order of \$10 million per year. For more information about the storage of spent nuclear fuel and decommissioning at Connecticut Yankee, as well as litigation with the DOE seeking to recover the cost of storing this material resulting from the Federal Government's failure to fulfill its obligations to remove it, go to 3yankees.com.

The 43 dry storage casks stand on a two-foot-thick concrete pad approximately the size of a hockey rink. Each concrete cask is comprised of a three and a half-inch steel liner surrounded by 21 inches of reinforced concrete.

Each cask weighs about 126 tons and contains a sealed stainless steel canister. The cask/canister system is completely passive with vents at the base and top of each cask circulating the air that removes heat from the canisters.



Above: diagram of vertical concrete storage cask with canister.



Left: diagram of transport cask with canister.

As currently planned, when the time comes to remove the SNF and GTCC waste, the dual-purpose canister will be removed from each cask, placed in an NRC licensed shipping cask, and likely transported from the site by barge or heavy haul truck. Both means of transportation were used for shipment of heavy components from the site during decommissioning.



Aerial view of the CY ISFSI.

Appendix E

**Letter to Vermont, Connecticut, Maine and Massachusetts
Congressional Delegations on the Storage of Spent Nuclear Fuel**

*The enclosed letter is addressed to Senator Patrick Leahy.
Similar letters were sent to Senator Bernie Sanders and US Representative Peter Welch.*

Maine Yankee Community Advisory Panel on Spent Nuclear Fuel Storage & Removal - Yankee Rowe Spent Fuel Storage & Removal Community Advisory Board - Connecticut Yankee Fuel Storage Advisory Committee - Vermont Nuclear Decommissioning Citizens Advisory Panel

November 16, 2015

The Honorable Patrick Leahy
437 Russell Senate Office Building
Washington, D.C. 20510

Dear Senator Leahy:

We represent the four New England community advisory groups for the former nuclear power plant sites in our communities that continue to store spent nuclear fuel (SNF) and high-level radioactive waste (HLW) because the federal government has failed to meet its contractual and statutory obligations under the Nuclear Waste Policy Act of 1982 to remove this material beginning in 1998 from Maine Yankee, Connecticut Yankee, Yankee Rowe, and Vermont Yankee. The ratepayers of New England have paid for the removal and disposal of the SNF/HLW and have received nothing in return. We are writing to you and other members of the New England delegation urging meaningful action in this session of Congress to overcome the national nuclear waste management policy impasse. Indefinite on-site storage of this material stranded in the communities we live and work in is unacceptable.

We believe that the federal government can meet its obligation in the nearer term by implementing a pilot consolidated interim storage project focused initially on the removal of SNF from sites without an operating reactor as has been proposed in the Senate's Nuclear Waste Administration Act of 2015 (S. 854), the Senate's FY-2016 Energy & Water Development Appropriations bill (H.R. 2028), and the Interim Consolidated Storage Act of 2015 (H.R. 3643) that was recently introduced in the House. The pilot concept has bipartisan support; was a recommendation of the 2012 President's Blue Ribbon Commission on America's Nuclear Future; and is a milestone in the Department of Energy's 2013 report, "Strategy for the Management and Disposal of Used Nuclear Fuel and High-Level Radioactive Waste".

Consolidating SNF from the shutdown reactor sites would return these sites to productive use in the host communities, make the storage and security of this material more efficient, more cost effective, and arguably more safe, while ending the federal government's increasing liability at these sites. We are encouraged by news of the two entities in Texas and New Mexico proposing to license, construct and operate consolidated interim storage facilities in volunteer host communities with plans to be operational in the 2020 timeframe. We strongly urge your support of legislation that directs DOE to engage with entities and communities interested in storing the SNF/HLW from our sites on an interim basis. Progress toward a repository must also occur, but not at the expense of addressing the needs of our communities that could be achieved in the nearer term.

We are counting on your leadership to resolve this critical community issue and await your reply.

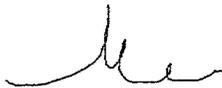
Sincerely,



W. Donald Hudson, Jr. Ph.D., Chair
Maine Yankee Community Advisory Panel on Spent Fuel Storage & Removal
26 Mosquito Run
Arrowsic, Maine 04530



Leonard J. Laffond, Chair
Yankee Rowe Spent Fuel Storage & Removal Community Advisory Board
205 Hazelton Road, Rowe, MA 01367



Melissa J. Schlag, Chair
Connecticut Yankee Fuel Storage Advisory Committee
Town of Haddam
30 Field Park Drive
Haddam, CT 06438



Kate O'Connor, Chair
Vermont Nuclear Decommissioning Citizens Advisory Panel
P.O. Box 6206
Brattleboro, VT 05302

Appendix F

**NDCAP Letter Requesting Comment Period Extension and Public Meetings for the
NRC's Advanced Notice of Proposed Rulemaking on
Regulatory Improvements for Decommissioning Power Reactors**



State of Vermont

Nuclear Decommissioning Citizens Advisory Panel

c/o Department of Public Service

112 State Street [phone]: (802) 828-2811
Drawer 20 [fax]: (802) 828-2342
Montpelier, VT 05620-2601 [tty]: (800) 734-8390

PSD.NDCAP@vermont.gov

<http://publicservice.vermont.gov/topics/electric/nuclear>

December 11, 2015

Secretary
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001
Attn: Rulemakings and Adjudications Staff

Re: Docket ID NRC-2015-0070

Subject: Request for Comment Period Extension and Public Meetings

We are writing as members of the Vermont Nuclear Decommissioning Citizens Advisory Panel. Vermont's nineteen member panel was formed by the Vermont legislature in 2014 in response to Entergy Corporation's announcement that it would close the Vermont Yankee Nuclear Power Station in Vernon, Vt.

We are pleased that the Nuclear Regulatory Commission has begun the process of developing rules for the decommissioning of nuclear power reactors and look forward to taking part in the process. To that end, we are writing to request that the comment period for the recently published Advance Notice of Proposed Rulemaking (ANPR) be extended until at least February 4, 2016 and ask that the NRC hold public meetings in the communities where a plant decommissioning has begun or will in the near future.

The rulemaking will have a direct impact on the communities that host nuclear power plants. Therefore, it is important that the public has the opportunity to participate and has confidence that the process is open and inclusive.

Meetings held at the local level will give members of the public the chance to ask questions and get a better understanding of what the rulemaking will mean to them. The extension of the comment period will allow for adequate time to formulate meaningful comments – something made difficult by the publication date of the ANPR and the upcoming holidays.

We appreciate your consideration of this request and look forward to continued public engagement as the rulemaking process moves forward.

Sincerely,

David Andrews, *International Brotherhood of Electrical Workers*

Diane Becker, *Appointee of Gov. Maggie Hassan*

Chris Company, *Windham Regional Commission*

Rep. David Deen, *Appointee of Speaker of the House Shap Smith*

Dr. William Irwin, *Vermont Department of Health*

Derrick Jordan, *Appointee of Speaker of the House Shap Smith*

Martin Langeveld, *Appointee of Gov. Peter Shumlin*

Rep. Paul Mark, *2nd Berkshire District of the Massachusetts State Legislature*

Trey Martin, *Deputy Secretary, Vermont Agency of Natural Resources*

Jim Matteau, *Appointee of Senate President John Campbell*

Pat Moulton, *Secretary, Vermont Agency of Commerce and Community Development*

Kate O'Connor, *Appointee of Gov. Peter Shumlin*

Chris Recchia, *Commissioner, Vermont Public Service Department*

Stephen Skibniowsky, *Town of Vernon, Vt.*

Jim Tonkovich, *Appointee of Senate President John Campbell*

Cc: Senator Patrick Leahy
Senator Bernie Sanders
Congressman Peter Welch

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