VERMONT

NUCLEAR DECOMMISSIONING CITIZENS ADVISORY PANEL
PUBLIC SERVICE DEPARTMENT

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

2024

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- Nuclear Decommissioning Citizens Advisory Panel -
2024 Annual Report to the Governor of Vermont and the
Energy Committees of the General Assembly
(House Energy & Digital Infrastructure,
House Commerce & Economic Development,
House Environment, and
Senate Natural Resources & Energy Committees)

I. Statutory Authority and Duties

The nineteen-member Vermont Nuclear Decommissioning Citizens Advisory Panel ("NDCAP" or the "Panel") was established during the 2014 Legislative Session as part of Act 179 (Section E.233; pages 141 through 148 of the Act). Details on the original membership and duties of NDCAP were outlined in this Act., which is available online at: https://legislature.vermont.gov/Documents/2014/Docs/ACTS/ACT179/ACT179%20As%20Enacted.pdf.

Current membership and duties of NDCAP were established during the 2021 Legislative Session as part of Act 54, (Section 13, pages 11 through 16 of the Act). Details on the current membership and duties of NDCAP are available online at: https://legislature.vermont.gov/statutes/fullchapter/18/034

The list of current members of the Panel may be found at: http://publicservice.vermont.gov/vermont-nuclear-decommissioning-citizens-advisory-panel-vt-ndcap (aka, the NDCAP website). Changes in Panel membership during 2024 may be discerned by reviewing the meeting minutes and meeting recordings available at the NDCAP website. As of November 8, four of the Panel's nineteen positions are vacant. The vacancies currently consist of:

- One of the Governor of Vermont citizen-appointees (vacant since September 2023)
- One of the Vermont Senate President Pro Tempore citizen-appointees (vacant since October 2023).
- The optional Panel representative for the Massachusetts towns near the Vermont Yankee site (vacant since late 2020)
- One of the Vermont House Speaker citizen-appointees (vacant with the expiration of Marvin Resnikoff's term at the end of September)

The optional Panel representative for the New Hampshire towns near the Vermont Yankee site was vacant for most of 2024. Marvin Resnikoff was appointed to fill this position on October 16.

The NDCAP website is currently available at: http://publicservice.vermont.gov/vermont-nuclear-decommissioning-citizens-advisory-panel-vt-ndcap.

Prior to December 2022, the NDCAP website was available at: http://publicservice.vermont.gov/electric/ndcap. In instances where Panel documents, including previous Annual Reports, reference this older website, the newer http://publicservice.vermont.gov/vermont-nuclear-decommissioning-citizens-advisory-panel-vt-ndcap website should be accessed instead. Attempts to access the older website will be automatically redirected to the current website.

II. Charter

The NDCAP Charter was adopted on February 25, 2015 and was amended on May 26, 2016. The current Charter is available at: NDCAP_Charter_as_of_2016.05.26. The Charter is also available on the NDCAP website Main Page at:

http://publicservice.vermont.gov/vermont-nuclear-decommissioning-citizens-advisory-panel-vt-ndcap

No changes to the NDCAP Charter were made during 2024. However, changes to the NDCAP Charter may be necessary due to the changes in Panel membership and duties implemented in ACT 54 of the 2021 Legislative Session. Where any discrepancies between Act 54 language and NDCAP Charter exist, the Act 54 language takes precedence.

NDCAP's Federal Nuclear Waste Policy (FNWP) Committee studies federal policy options for nuclear waste and considers how Vermont Yankee is situated within the national landscape. By methodically procuring input from Vermont's federal delegation, industry experts and other stakeholders, the Committee accordingly advances the learning goals of NDCAP. Should the Committee arrive at an affirmative policy position, the Committee will recommend that NDCAP adopt the advisory opinion, pursuant to the Panel's stated purpose, where: "NDCAP shall advise the Governor, General Assembly, the agencies of the state, and the public on issues related to decommissioning."

III. Meeting Highlights

The NDCAP held three Full Panel meetings in 2024; meetings were held in May, September, and December. Additionally, the NDCAP FNWP Committee held four meetings in 2024. FNWP Committee meetings were held in March, June, September, and December. All Full Panel and FNWP Committee meetings were open to the public and opportunities for public comments were provided. All 2024 NDCAP meetings held prior to June 1 were conducted entirely as webcasts, as was permitted by ACT 1 of the 2023 Legislative Session. After June 1, physical meeting spaces were designated for all NDCAP meetings. Remote access to all 2024 NDCAP meetings was available via webcast. Full Panel webcasts were conducted via Zoom using services provided by Brattleboro Community Television (BCTV). FNWP Committee webcasts were conducted and recorded using Microsoft Teams.

All Full Panel meetings were chaired by Chris Campany, the Panel's elected Chair for 2024. All FNWP Committee meetings were chaired by Panel Vice-Chair Lissa Weinmann since she was also the FNWP Committee Chair for 2024.

The May, September, and December Full Panel meetings included updates on recent VY decommissioning activities by both NorthStar and the State of Vermont. Brief summaries of recent FNWP Committee activities were also provided. (Further details on FNWP Committee activities are available in Section XI.B of this report.) Several issue-specific topics were also discussed at these meetings. Opportunities for discussion and comments from Panelists and the public on all covered topics were provided during each meeting. A summary of each Full Panel meeting is presented below.

The minutes of each meeting can be found on the NDCAP website (a dedicated section of the Public Service Department's recently upgraded website) at http://publicservice.vermont.gov/vermont-nuclear-decommissioning-citizens-advisory-panel-vt-ndcap. A complete video or webcast recording for each meeting can be found at: https://www.brattleborotv.org/vt-nuclear-decommissioning-citizens-advisory-panel.

Links to these video recordings are also available through the NDCAP website. Additional information regarding VY's active decommissioning is available at the Public Service Department's "VY Decommissioning" website at: https://publicservice.vermont.gov/public-advocacy/vermont-yankee-decommissioning.

Further details and meeting summaries of the FNWP Committee meetings held in 2024 are available in Section XI.B of this report.

May 13, 2024

The Panel's first regular meeting of the year occurred on May 13. At this meeting, NorthStar and several State Agencies summarized VY decommissioning activities that occurred since the Panel's December 11, 2023 meeting.

- **NorthStar Update on VY Site Decommissioning Activities:**

Panelist Corey Daniels, VY's Senior Spent Fuel Storage Manager, summarized decommissioning activities completed since December 2023. (Slides for this presentation are available from the Panel's website.) NorthStar continues VY decommissioning work without an OSHA Recordable Lost Time Accident since starting VT Yankee's active decommissioning in January 2019. The Nuclear Regulatory Commission (NRC) has issued no cited violations during this time. The project remains on schedule to complete onsite demolitions in 2026. The Reactor Building (RB) is the only power plant building still standing onsite. Demolition of the Turbine Building (TB) has completed, which required establishing a new RB Entry / Exit location (Checkpoint) using sea-land containers located at the building's northeast corner. Progress on dismantling RB

components was described. This includes final clean-out and decontamination of RB Torus basement. Some interior RB walls have been partially demolished to facilitate removal of the remaining interior components and piping. Piping that was imbedded within several RB interior walls is being cut out as part of the preparation for RB demolition.

Construction of an earthen ramp on the south side of the RB was discussed. The ramp will allow heavy equipment to reach the upper levels of the RB exterior. A hole will be punched into the south exterior RB wall. This will facilitate large demolition equipment access to the RB interior for structural demolition.

Remediation activities (mostly separation and removal of contaminated soil) to address diesel and heating oil fuel spills in site Areas of Concern (AOCs) #5 and #7A were described. (These spills occurred during VY's operational lifetime.) To date, no new AOCs have been identified because of VY demolition activities.

Outdoor site activities were also discussed, including the ongoing segmentation and disposal of VY's spare Turbine. The slab for the former radwaste compactor room is being removed. Weekly visual inspections of the onsite rail spur were noted, as was the placement of several new onsite groundwater monitoring wells. Development of the site's post-decommissioning water monitoring program has begun.

Radioactive waste shipment packaging, including grouting efforts (for package stability and particulate control), were discussed. NorthStar is averaging 4 to 5 radioactive waste shipments per week. As of May 1, 84 radioactive waste shipments have occurred this year; 852 shipments have occurred since decommissioning started in January 2019.

- **Department of Environmental Conservation (DEC) Update:**

Graham Bradley, Hazardous Sites Manager in DEC's Waste Management and Prevention Division outlined the Agency of Natural Resources (ANR) / DEC's recent interactions with VY. (Slides for this presentation are available from the Panel's website.)

DEC's ongoing interactions with VT Yankee were briefly outlined (regular status calls, permit reviews, corrective action plan reviews, and some post-demolition surveys). Sampling programs for non-radiological contaminants continue to show no significant contamination issues at the VY site, nor have any unexpected site contaminations been identified. Per-Fluoroalkyl and Polyfluoroalkyl Substances (PFAS) contamination has been found adjacent to the site's leach fields. Leach field sampling thus far indicates that the maximum concentration is 50 parts per trillion (ppt); Vermont's PFAS limit is 20 ppt. Additional sampling is planned. Corrective actions, most likely long-term monitoring, will follow. No PFAS contaminations have been found in any of the Areas of Concern (AOCs) being sampled for other contaminants. Progress on remediations for previously identified petroleum contaminations were described. Soil excavation was used to remediate fuel oil leaks in AOC #5. Soil sampling determined that a larger than initially planned excavation area was needed in AOC #5; however, this remediation is now complete. In contrast, a

smaller than expected exaction was required to remediate AOC #7A. Soil sampling to confirm that AOC #7A remediation is complete are still being analyzed. Several minor changes to the water monitoring program permits were also described. DEC expects that it will have more issues to discuss at future Panel meetings.

- **Public Service Department (PSD) Update:**

PSD Special Counsel Eric Guzman outlined PSD's fiscal oversight of the VY Decommissioning project required by the Memorandum of Understanding (MOU) in effect as part of NorthStar's purchase of VY. Nick Capik of Four Points Group (FPG), PSD's consultants for overseeing the project, was also present to provide additional information, as needed. (Slides for this presentation are available from the Panel's website.)

PSD's financial and technical oversight role was outlined, which includes receiving updates on work completed versus work remaining and project expenditures versus funds remaining. PSD coordinates with other State Agencies and FPG to assess project status and whether decommissioning trust fund reimbursement requests are consistent with the work completed. PSD also meets with NorthStar regularly to conduct any follow-up necessary on NorthStar's self-reporting. Regular site visits by FPG are conducted to observe completed work. The most recent visits occurred in mid-March. The site visits continue to show that project progress is consistent with that described in NorthStar's status reports.

NorthStar's required project Annual Financial Disclosures were received before their March 31 deadline and continue to be reviewed by PSD. The Nuclear Decommissioning Trust (NDT) is invested in US Treasury Bonds. The NDT value reflects the current worth of these bonds. If the bonds are held to maturity, as expected, their value will be sufficient to cover the currently expected cost to complete decommissioning. PSD continues to monitor NDT values. Reviews of the Annual Disclosure and NorthStar's monthly reports thus far have not raised any causes for concern for completing the VY decommissioning project on schedule and within available funding.

- **In Response to Panel Questions**: PSD representatives indicated that they would report on the likely tax revenue that the State and the Town of Vernon would receive while VY's Spent Nuclear Fuel remained onsite. It was noted that the VY site's four electrical switchyards, which are managed by VELCO, will remain following VY's decommissioning.

It was also noted that Reactor Building concrete radiological contamination is monitored by VY staff, subject to NRC review. This concrete is largely inert but does contain trace levels of tritium. Panelist Bill Irwin added that Vermont Department of Health continues to independently monitor radiological conditions immediately around the VY site. Vermont Health samples are collected from immediately offsite locations, including Vernon Elementary School (across the street from the VY Site) as well as Connecticut River water monitoring upstream and downstream of the VY Site. Results from VY's overall monitoring program are regularly reported to the NRC, which also

reviews the implementation of the monitoring program on a regular basis. Air monitoring within the RB is conducted continuously.

In response to a question from Panelist Lissa Weinmann, PSD's Eric Guzman reported that any leftover funds in the VY Site Restoration Trust Fund would go to NorthStar, in accordance with the NorthStar Vermont Yankee Purchase Memorandum of Understanding (MOU).

- **In Response to Public Questions** (from Ann Darling): Public Service Commissioner June Tierney agreed that links to NRC reports on VY's radiological monitoring could be added to the Panel website. Panelist Corey Daniels confirmed that concrete from VY's demolition is shipped to WCS Andrews County, TX disposal facilities.

- **In Early Public Comments:** Ann Darling (Citizens Awareness Network, Easthampton, MA): stated that NRC sites should consider climate change impacts at individual nuclear power plant sites. Older flood risk data is still being used to evaluate safety conditions at these sites. Perhaps States could look at newer flood risk data faster than the NRC? She also noted that the Yankee Rowe site is fully decommissioned except for the spent nuclear fuel that remains at the site. While currently regarded as safe, the fuel could experience an increased flood risk due to climate change effects.

- **Discussion of Federal Nuclear Waste Policy (FNWP) Committee Activities:**

Lissa Weinmann, Chair of the Panel's Federal Nuclear Waste Policy Committee, provided a verbal summary of the Committee's most recent meeting, held on March 4. (Further details regarding this meeting are available in Section XI.B of this report.) At this meeting, energy policy staff members from Vermont's Congressional Delegation (Senator Sanders, Senator Welch, and Congresswoman Balint) discussed several nuclear energy policy-related bills that have been introduced during the current Congressional session. A recording of this discussion is available through the Committee webpage and at:

https://www.youtube.com/watch?v=6RsVn7KXWi8

The Committee continues to examine aspects of current and potential Federal nuclear waste policies. One possible future subject would be to consider what happens if VY's spent fuel does not leave site by the currently projected 2052 date. She also noted that she will be attending the Radwaste Summit (a nuclear power industry conference) in early June. She will report observations from the Summit back to the Panel.

- **Summary of Meeting with Windham Delegation:**

Panel Chair Chris Campany verbally summarized his recent meeting with several Windham County Vermont Legislators (aka the Windham County Delegation) to discuss the Panel's recently published (2023) Annual Report. Joining Chris in the meeting were Panelist Corey Daniels and State Nuclear Engineer Tony Leshinskie. Chris noted that he had originally

requested whether any of the Legislature's Committees required testimony from the Panel regarding its Annual Report or ongoing VY Decommissioning activities. No such requests were received. Nonetheless, a meeting / webcast session was arranged with six members of the Windham County Delegation to see if they needed additional details regarding the 2023 Annual Report. No one from the Delegation had specific concerns or questions on the Annual Report. The Delegation did express appreciation for the Panel's efforts in following VY Decommissioning activities.

Chris recommended that the Panel approach the Legislature very early in the start of its next session (i.e., in early 2025) with a follow-up request to provide testimony on Panel activities. The Legislature is more often open to a broader scope of testimony at the beginning of its biennium.

- **General Public Comments:** None were received during the Public Comment Period.

During meeting wrap-up, the Panel requested that NorthStar and the usual State Agency presenters have their meeting presentations available five days in advance of future Panel meetings to allow pre-meeting reviews of the presented materials.

September 23, 2024

Much like the Panel's May 13 meeting, the September 23 meeting consisted of reports from NorthStar and several State Agencies on recent VY decommissioning activities.

- **NorthStar Update on VY Site Decommissioning Activities:**

NorthStar Panelist Corey Daniels summarized decommissioning activities completed since May 2024. (Slides for this presentation are available from the Panel's website.) NorthStar continues VY decommissioning work without an OSHA Recordable Lost Time Accident since starting active decommissioning in January 2019. The Nuclear Regulatory Commission (NRC) has issued no cited violations at VY during this time. The project remains on schedule to complete onsite demolition in 2026. The Reactor Building (RB) is the only power plant building still standing onsite. Progress on removing the remaining RB components was described. This includes removing the Reactor Vessel Refueling Bellows, the Reactor Recirculating Water System Pumps and associated piping, and the Radwaste Clean-Up System Heat Exchangers. Piping and components removal continues in the RB Drywell.

Work within the RB is transitioning to final decontamination of emptied RB spaces in preparation for free releasing the building for its upcoming demolition. As part of decontamination effort, the Spent Fuel Pool (SFP) walls and floor have been sandblasted. Preparations for conducting sandblasting / decontamination in the Dryer-Separator Pit (DSP) are underway. Final cleaning in the Torus area and on various RB levels were shown.

Construction of an earthen ramp on the south side of the RB continues. The ramp will allow heavy equipment to reach the upper levels of the RB exterior and facilitate RB structural demolition.

Backfilling in AOCs #5 and #7 have completed. To date, no new AOCs have been identified because of VY demolition activities. Excavations to remove piping at the Cooling Towers Spray Pond were conducted; the affected areas have been backfilled. Coffer dam construction to support preliminary demolition at the River Discharge Structure has begun.

Several new onsite groundwater monitoring wells have been installed based on ANR feedback. Development of the site's post-decommissioning water monitoring program continues with ANR input.

Radioactive waste shipment packaging was discussed. NorthStar is averaging 4 to 5 radioactive waste shipments per week. As of September 16, 151 radioactive waste shipments have occurred this year; 920 shipments have occurred since decommissioning started in January 2019.

- **Department of Environmental Conservation (DEC) Update:**

Graham Bradley, Hazardous Sites Manager in DEC's Waste Management and Prevention Division outlined the ANR / DEC's recent interactions with VY. (Slides for this presentation are available from the Panel's website.) Regular status calls, draft permit, and corrective action plan reviews continue. Sampling programs for non-radiological contaminants continue; no unexpected site contaminations have been identified thus far. ANR/DEC continues to work closely with NorthStar's remediation contractor, Haley & Aldrich, and DEC's consultant, Atlas, on plans for addressing potential contaminant issues at VY's previously identified Areas of Concern (AOCs). DEC continues to monitor onsite PFAS contaminations. PFAS levels of up to 50 parts per trillion have been observed, particularly in onsite leach fields, which exceed DEC's 20 parts per trillion limit. The observed PFAS levels are similar to those seen at other industrial sites within Vermont. Long-term monitoring and restrictions on any new onsite drinking water wells will likely be needed to address.

Remediation (mostly soil removal) to known fuel oil leaks onsite were discussed. Remediation at AOCs #5 and #7 are complete. Contaminant surveys at AOC #6 (Radwaste Building Compactor Room) and AOC #11 (South Warehouse Area) have been conducted following removal of their concrete slabs. No significant contaminants have been found.

- **Public Service Department (PSD) Update:**

PSD Special Counsel Caroline Daniels outlined PSD's fiscal oversight of the VY Decommissioning project required by the MOU in effect as part of NorthStar's purchase of VY. Nick Capik of Four Points Group (FPG), PSD's consultants for overseeing the project, was also present to provide additional information, as needed. (Slides for this presentation are available from the Panel's website.) PSD's oversight includes receiving updates on work completed versus work remaining and project expenditures versus funds remaining. PSD coordinates with other State Agencies and

FPG to assess project status and whether Nuclear Decommissioning Trust (NDT) reimbursement requests are consistent with the work completed. PSD also meets with NorthStar regularly to conduct any follow-up necessary on NorthStar's self-reporting. Regular site visits by FPG are conducted to observe completed work. The most recent visit occurred in early July. These visits continue to show observed project progress that is consistent with that described in NorthStar's status reports.

Updates on the Decommissioning and Site Restoration Trust Funds were provided. As of August 31, the projected cost to complete Decommissioning and License Termination is $81.1 million, but the current value of the NDT is $76.3 Million. The NDT is invested in US Treasury Bonds. The NDT value reflects the current worth of these bonds. If the bonds are held to maturity, as expected, their value is expected to increase to $77.1 million. However, this does not include NDT interest earnings. Considering the additional $55 million available via the Financial Assurance Escrow and the $140 million Support Agreement established in the NorthStar VY Purchase MOU, PSD assessments continue to show that the NDT and other available funding will be sufficient to cover the current costs of VY decommissioning. PSD continues to monitor VY funding values. Based on NorthStar's most recent monthly reports, NorthStar continues to remain on track to complete the project on schedule and within available funding.

- **During Panel Questions on NorthStar and State Agencies Reports**: Panelist David Eastman asked several questions regarding PFAS and hazmat monitoring at VY. Graham Bradley emphasized that these monitoring programs were still evolving for long-term monitoring. Additional monitoring wells will be added and additional sampling will be done as needs are identified. It was noted that Vermont's PFAS contamination limits are quite low. Essentially, if PFAS is detectable, it must be remediated.

Panel Vice-Chair Lissa Weinmann asked (through chat messages) how exposures are monitored onsite. Corey Daniels briefly described the personnel monitoring required for anyone within demolition zones onsite. He also noted that air sampling is conducted on a continuous basis within the RB. Air filters within the RB are regularly changed. One of the ways that exposures are controlled is by using the proper staffing for specific jobs. For example, in the recent sandblasting work, NorthStar brought in its own specialists for the work, all of whom wore the proper Personal Protective Equipment (PPE) for the job and are good at what they do. NorthStar does not subcontract critical project work.

- **Public Questions on NorthStar and State Agencies Reports:**

Schuyler Gould (Citizens Awareness Network, Brattleboro, VT) asked for a clarification on what grout is, since it gets mentioned a lot in radioactive waste packaging discussions. Corey Daniels replied that grout is a low-density concrete that is added to many of VY's radwaste shipments that helps assure that package contents do not shift during transportation.

In response to an additional public question, Panelist Bill Irwin briefly described Vermont Department of Health's radiological monitoring program at VY. He emphasized that Health does

not have an onsite monitoring program. However, the area surrounding the VY site is monitored through several means. Several monitoring points are set along VY's fence line. These points hold TLDs (Thermo-Luminescent Detectors) that are routinely processed to assess radiological dose at the monitoring locations. Additionally, there are water and air sampling stations surrounding the VY site. One of the air sampling stations is located at Vernon Elementary School, which is across the street from VY's Main Entrance.

- **Early General Public Comments:**

Ann Darling (Citizens Awareness Network, , Easthampton, MA) expressed thanks to State Nuclear Engineer Tony Leshinskie for his assistance in locating several of VY's annual radioactive waste volume reports.

With prior consent from Panel Chair Chris Campany, Jasper Gilardi introduced himself as a representative of the Good Energy Collective. The Collective is one of thirteen DOE funding awardees in the Spent Nuclear Fuel Repository Consent-Based Spent Siting Development program. The Collective has chosen the VY area as one of several communities it will survey to identify the range of public perceptions regarding nuclear power plant operations and public relations, plant decommissioning, and the likelihood of Spent Nuclear Fuel remaining in the community for the next several decades. The Collective hopes to interview approximately 40 to 50 area residents for this survey. Volunteers are invited to attend survey workshop sessions which will be held on October 20, 21, and 22 at the Governor Hunt House in Vernon.

Dr. Thomas Webler (Turners Falls, MA) introduced himself as a representative of the Social & Environmental Research Institute, another DOE Consent-Based Siting Development program awardee, who will be gathering information from the VY area. His information-gathering effort is separate from Good Energy Collective's workshops. He will also be working with communities near the Connecticut Yankee, Maine Yankee, and Yankee Rowe Spent Fuel Storage Facilities as part of his efforts. He will have more information available on these efforts in the near future.

- **Discussion of Federal Nuclear Waste Policy (FNWP) Committee Activities:**

Due to laryngitis, Lissa Weinmann, Chair of the Panel's Federal Nuclear Waste Policy Committee, was unable to provide a report on the Committee's recent activities. State Nuclear Engineer Tony Leshinskie briefly described the Committee's most recent meeting, held on June 17. At this meeting, the Committee received a presentation from several DOE officials regarding the development of the facility design for Federal Spent Nuclear Fuel Storage facilities. The presentation and its subsequent Q&A session were recorded for future reference. The recording is available from the Committee's webpage (which is part of the Panel's website), if anyone is interested in learning more about the presentation. (Further details regarding this meeting are also available in Section XI.B of this report.)

Part of the DOE presentation discussed a technology currently under development evaluating degradation in spent fuel storage cannister integrity after multiple years of use. This part of the

presentation resulted in a rather engaging discussion. A copy of DOE's presentation is also available via the Committee webpage.

The Committee is currently planning its next meeting for September 9. Details regarding this meeting will be announced as they become available. (Note: this meeting was later postponed to October 21.) Through meeting chat messaging, Lissa Weinmann added that she was supposed to provide a verbal report this evening regarding her attendance at the National Radwaste Summit held in Louisville in early June. Because of her laryngitis, she needs to postpone making this summary until the Panel's December meeting.

- **Advanced Availability of NDCAP Presentations:**

The Panel agreed that it would continue to require its regular reporting agencies (NorthStar and the several State Agencies that routinely provide Panel presentations) to have Panel presentations publicly available five days prior to Full Panel meetings.

- **General Public Comments:** None were received during the Public Comment Period.

During meeting wrap-up, Chris Campany noted the small in-person attendance at tonight's meeting. He suggested that the December 9 meeting be conducted solely as a webcast, since this is now permissible for Advisory Panels like VT-NDCAP. Several Panelists stated a preference for having an in-room option. Chris agreed to check on using the Windham Regional Commission Conference Room as the December 9 meeting space, which could still accommodate tonight's small in-person attendees.

The December 9 meeting will discuss the Panel's 2024 Annual Report. State Nuclear Engineer Tony Leshinskie committed to having a draft of the report available for Panelist review by the week of November 18. Tony agreed to send out reminders to the Panelists about the December 9 meeting once the report draft is available for Panelist review.

December 9, 2024

In addition to receiving reports from NorthStar, DEC and PSD on recent VY decommissioning activities, the Panel received a verbal report from Vice-Chair Lissa Weinmann regarding the national Radwaste Summit meeting she attended in early June. The Panel's Annual Report was also finalized. Panel Officer Elections for the 2025 Calendar Year were conducted. With 10 Panelists in attendance at the start of the meeting, a quorum (9 Panelists required) was present. After 2 additional Panelists subsequently joined the meeting; attendance in excess of quorum requirements was met throughout the meeting. Due to deteriorating weather conditions at the meeting's physical space, review and approval of the Panel's Annual Report and the Election of Panel Officers were conducted first, since these were items that required a vote (in case the meeting was adjourned early).

- **Draft Annual Report for 2024**:

The current draft of the Panel's 2024 Annual Report to the Legislature, authored by State Nuclear Engineer Tony Leshinskie, was reviewed. Actions for finalizing the report by its January 15, 2025 due date were determined. During Panel discussion of the report, Panelist Dave Eastman expressed concern that access to report content may deteriorate over time because of its reliance on electronic document links. What assurances are there that the various links included in the document remain active long-term? Tony Leshinskie outlined the steps that the Public Service Department takes to check electronic links on the Department's (including the Panel's) website remain valid. These include the weblinks that appear in the Annual Report.

Following Panel discussion, the report was unanimously approved, subject to implementing the authorized changes.

Panel Chair Chris Campany indicated that he hoped to arrange a meeting with the Legislature's Windham County Delegation to discuss the Panel's 2024 activities in more detail. This meeting date will be announced to Panelists once it is known.

Election of New Panel Officers:

Before opening nominations for Panel Chair, Chris Campany announced that he would not be seeking reelection as Panel Chair. When the floor was opened for Chair nominations, none were made. The Panel then discussed how it could function without a Chair; would the Panel Vice-Chair need to assume the Chair's duties? Public Service Commissioner June Tierney noted that the Legislation establishing the Panel allows for the Public Service Commissioner to act as Chair. However, she noted that she was retiring from State service at the end of December. The interim Commissioner could act as Panel Chair until a new Public Service Commissioner is named.

Following nominations for Vice-Chair, Lissa Weinmann was subsequently re-elected Panel Vice-Chair for a 1-year term. Afterwards, Chris Campany added that sometimes "things have to germinate." It was okay to have not elected a Panel Chair. Commissioner Tierney and outgoing Panel Chair Campany were thanked by several Panelists for their efforts on behalf of the Panel.

- **NorthStar Update on VY Site Decommissioning Activities:**

NorthStar Panelist Corey Daniels summarized decommissioning activities completed since September 2024. (Slides for this presentation are available from the Panel's website.) NorthStar continues VY decommissioning work without an OSHA Recordable Lost Time Accident since starting active decommissioning in January 2019. The Nuclear Regulatory Commission (NRC) has issued no cited violations at VY during this time. The project remains on schedule to complete onsite demolition in 2026. The Reactor Building (RB) remains as the only power plant building still standing onsite. Progress on removing the last remaining RB components was described. Structural steel removal continues in and around the RB Drywell but is nearing completion.

Work within the RB continues to transition to final decontamination of emptied RB spaces in preparation for free releasing the building for its upcoming demolition. As part of decontamination effort, the Spent Fuel Pool (SFP) walls and floor have been sandblasted. Preparations for conducting sandblasting / decontamination in the Dryer-Separator Pit (DSP) are underway. Demolition of the RB structure is expected to start in early 2025.

Construction of an earthen ramp on the south side of the RB continues. The ramp will allow heavy equipment to reach the upper levels of the RB exterior and facilitate RB structural demolition. Coffer dam construction to support preliminary demolition at the River Discharge Structure continues. Additionally, the concrete slab from the site's former Construction Office Building has been removed and backfilled.

NorthStar's average number of radioactive waste shipments has slowed to 1 per week but will increase again in early 2025. As of November 13, 161 radioactive waste shipments have occurred this year; 936 shipments have occurred since the start of decommissioning. NorthStar continues to meet regularly with State Agencies to discuss project status.

- **Department of Environmental Conservation (DEC) Update:**

Graham Bradley, Hazardous Sites Manager in DEC's Waste Management and Prevention Division outlined the Agency of Natural Resources (ANR) / DEC's recent interactions with VY. (Slides for this presentation are available from the Panel's website.) Regular status calls, draft permits, and corrective action plan reviews continue. Sampling programs for non-radiological contaminants continue to show no significant contamination issues at the VY site. No unexpected site contaminations have been identified thus far. ANR/DEC continues to work closely with NorthStar's remediation contractor, Haley & Aldrich, and DEC's consultant, Atlas, on plans for addressing potential contaminant issues at VY's previously identified AOCs. DEC continues to monitor onsite PFAS contaminations. Groundwater sampling for PFAS is underway in the former Construction Office Building leach field.

Planning for remediation (mostly soil removal) along the site rail spur is in progress. Additional shallow soil removal and disposal for AOC #3 (South Warehouse) remediation is also being planned. Routine renewals for site drinking water and stormwater permits are also underway.

- **Public Service Department (PSD) Update:**

PSD Special Counsel Caroline Daniels outlined PSD's fiscal oversight of the VY Decommissioning project required by the MOU in effect as part of NorthStar's purchase of VY. PSD Consultant Nick Capik (of FPG) was present to provide additional information, as needed. (Slides for this presentation are available from the Panel's website.) PSD's oversight was outlined similarly to that previously described during the September 23 meeting. PSD coordinates with other State Agencies and FPG to assess project status and whether Nuclear Decommissioning Trust (NDT) reimbursement requests are consistent with the work completed. PSD also meets with NorthStar regularly to conduct any follow-up necessary on NorthStar's self-reporting. Regular site visits by FPG are conducted to observe completed work. The most recent visit occurred in early

November. These visits continue to show observed project progress that is consistent with that described in NorthStar's status reports.

Updates on the Decommissioning and Site Restoration Trust Funds were provided. As of October 31, the projected cost to complete Decommissioning and License Termination is $73.9 million, but the current value of the Nuclear Decommissioning Trust (NDT) is $68.4Million; the Site Restoration Trust (SRT) value is $46.4 Million. The NDT and SRT are invested in US Treasury Bonds. The NDT and SRT values reflect the current worth of these bonds. If the bonds are held to maturity, as expected, their value will be sufficient to cover the current cost of decommissioning. PSD will continue to monitor the fund values. Overall, NorthStar remains on track to complete the project on schedule with the currently available funding.

In Response to Panel Questions: Corey Daniels provided the following additional details on current VY Decommissioning work:

- Excluding VY security staff, between 60 to 100 people work onsite; the exact number of workers varies on a weekly basis and is dependent upon the work tasks scheduled for the week.
- Approximately 1 year of work remains to complete Reactor Building demolition; an additional year will be needed to clear out debris from this demolition.
- VY will require on site staff for monitoring spent fuel storage through (at least) 2052.
- The remaining radioactive waste from this demolition will ship to the Texas Compact Commission Low Level Radioactive Waste Disposal Facilities in Andrews County, TX. Most of the shipments will be conducted by rail; however, some of the more contaminated components will be trucked to the Texas Compact Facilities using appropriate radwaste cannisters (e.g. model 14-170 containers, etc.). All shipments qualify as low-level radioactive waste; none of the remaining waste is Greater-Than-Class-C waste.
- The remaining activity in the radwaste is from metal isotopes such as nickel and cobalt; very little activity due to tritium remains.
- Silica particulates resulting from concrete demolition on site is monitored at the VY site fence line. Additional monitoring is conducted at Vernon Elementary School (which is across the street from the VY site). Water sprays are used during VY demolition activities to mitigate airborne dust and silica.

Panelist Bill Irwin suggested that NorthStar provide a Panel Presentation on its environmental monitoring program during one of the 2025 calendar year meetings. Learning more about the long-term radioactive and hazmat monitoring programs for the VY Site would also be useful.

In response to several Panelist questions regarding the fiscal health of the VY Decommissioning project, PSD's Caroline Daniels indicated that while much of the financial monitoring of the decommissioning project relies on information reported by VY's ownership (NorthStar), the Department and its consultants (FPG) verify the reporting via site visits and independent

evaluations as much as possible. FPG's Nick Capik added that he regularly monitors NorthStar's actual expenditures against the fixed prices set for individual tasks in the 900+ item VY Decommissioning budget. NorthStar's Corey Daniels added that much of the financial success of VY's decommissioning to date can be attributed to no "surprises" have been found requiring significant unplanned site radiological or hazmat clean-ups. Panelist Chris Campany noted that the cleanliness of the VY site could be attributed to the late Steve Skibniowsky's efforts in monitoring and controlling onsite contaminants during VY's operational lifetime. (Steve was also one of the first appointees to VT-NDCAP and briefly served as Panel Chair in 2023 immediately prior to his passing.)

- **During Public Questions & Comments on the NorthStar and State Agencies Reports:**

Ann Darling (Citizens Awareness Network, Easthampton, MA) expressed her satisfaction with NorthStar's efforts in VY's decommissioning thus far. Additionally, she suggested that the Panel should pursue receiving a presentation from Waste Control Specialists (WCS) to learn more on how VY's radwaste is processed for disposal at the Texas Compact Facilities. State Nuclear Engineer Tony Leshinskie committed to arranging for such a presentation to occur, noting that it had been several years since the Panel had received a presentation regarding the Texas Compact Facilities.

- **During Discussion of FNWP Committee Activities:**

Lissa Weinmann, Chair of the Panel's Federal Nuclear Waste Policy Committee, discussed her observations from attending the National Radwaste Summit held in Louisville in early June. (Due to laryngitis, she was unable to make this presentation at the September 23 meeting as originally planned.)

Presentations at the Summit discussed US radioactive waste inventories from both Department of Defense and commercial activities, which helped to bring the scope of the spent nuclear issues into perspective. Were Yucca Mountain to open today, it would easily be filled to capacity by the current US nuclear fuel inventory; the current US inventory is considerably larger than Yucca Mountain's proposed capacity. The current US inventory comprises roughly one quarter of the world's nuclear waste. (State Nuclear Engineer Tony Leshinskie later noted that the spent fuel stored at VY accounts for roughly 0.5% of the US inventory.) While several countries are working on national repositories, Finland is the only country that is close to opening a consolidated deep geological repository.

Changes in Federal law are necessary if the US is to effectively address its spent fuel inventory. Issuing Panel Advisory Opinions on spent-fuel policy topics would help to move this effort along.

A written summary of Lissa Weinmann's observations from the June 2024 National Radwaste Summit is available at:

https://publicservice.vermont.gov/document/report-june-2024-radwaste-summit.

- **In Discussing the Panel Meeting Schedule for 2025:**

The Panel voted (11-0, with Commissioner Tierney abstaining) to approve the following meeting dates for 2025:

- May 12
- September 22
- December 8

The Panel also expects to hold a Special Meeting in early 2025 to receive a US DOE presentation on the Department's recently published VY Site-Specific Spent Nuclear Fuel De-Inventory Report. Further details regarding the Panel's discussion while setting its 2025 meeting dates are available in Section XII of this report.

IV. Major Milestones and Activities at the Vermont Yankee Site During 2024

- 1/2 Site Decommissioning Activities resume following Holiday Break.
- 1/2 Reactor Building (RB) Components & pipe removal resumes (Torus area, Dry Well, Dry Well Anteroom, & intervening RB 252-foot level spaces); Turbine Building (TB) concrete pad (south end of TB) removal begins; RB exterior ramp (to facilitate RB demolition) construction using crushed TB concrete resumes; Downsizing of TB structural steel for offsite shipment resumes; Advanced Off-Gas (AOG) Building Foundation demolition and components removal resume; Radioactive waste shipments via railcars resume; Backfilling of the Off-Gas Systems trenches (near former Effluent Stack site) begins.
- 1/2 Decontamination of several RB 318-foot level spaces resumes (includes Reactor Water Clean-Up System (RWCU) Hold Pumps Room & Spent Fuel Pool (SFP) Skimmer Pump Room).
- 1/8 Structural Steel removal in RB Torus area, Dry Well, & Dry Well Anteroom begins.
- 1/12 Dry Well Anteroom components & piping removals completed; Decontamination of the (RWCU) Hold Pumps Room & SFP Skimmer Pump Room completed, AOG Building basement components removal completed
- 1/15 RWCU Phase Separator Room components removal begins; RWCU Main Pump Room decontamination begins; Debris removal from TB Basement footprint begins; AOG Building basement hazmat surveys begin.
- 1/15 AOG Building basement hazmat surveys completed; survey evaluations begin.
- 1/17 Downsizing of original VY Turbine Rotor begins.
- 1/22 Decontamination in several RB 280-foot level spaces begins.
- 1/26 Last scheduled AOG Building Basement clean-out activities completed.
- 1/29 RWCU Phase Separator Tanks removal begins; Asbestos abatement in AOG Building Pipe Vault begins.
- 1/31 AOG Building Pipe Vault asbestos abatement competed.
- 2/5 Segmentation of RWCU Phase Separator Tanks begins.

- 2/12 Cooling Tower Spray Pond piping removal begins.
- 2/19 Excavation for Effluent Stack foundation removal begins.
- 2/20 NRC Second Half 2023 Inspection Report published – no reported issues, findings, or violations identified.
- 2/22 Cooling Tower Spray Pond piping removal completed.
- 2/26 Decontamination in most RB 280-foot level spaces completed; RB Neutron Detector Calibration Room decontamination begins.
- 2/26 First Nuclear Regulatory Commission (NRC) onsite inspection of the year occurs (2/26 through 2/29).
- 2/27 NorthStar withdraws VY Reactor License Termination Plan (LTP) from NRC review for rework.
- 2/29 Segmentation and removal of RWCU Phase Separator Tanks completed; RWCU Phase Separator Room decontamination begins; RB Neutron Detector Calibration Room decontamination completed.
- 3/14 TB concrete pad removal (from building's sections without a basement) completed.
- 3/16 Backfilling of the Off-Gas Systems trenches completed; soil grading & stabilization at trench sites begins.
- 3/20 Soil remediation in hazmat Area of Concern (AOC) #5 (South Warehouse Site) begins
- 3/27 NorthStar files required Annual VY Decommissioning Trust Fund & Spent Fuel Management Fund reports.
- 3/28 VY Electric Fire Pump permanently removed from service; RB Torus area components & pipe removals completed; RWCU Phase Separator Room decontamination completed; TB structural steel downsizing & offsite disposal completed.
- 4/1 Soil remediation in hazmat AOC #7 (Fuel Oil Storage Tank) begins.
- 4/8 RB Torus space final decontamination begins.
- 4/15 Second NRC onsite inspection of the year occurs (4/15 through 4/18); Transition in NRC Inspector Staff announced due to retirement of VY primary NRC inspector on 6/30.
- 4/18 Soil grading & stabilization at Off-Gas Systems trenches site completed; Backfilling, soil grading, & stabilization at Spray Pond discharge piping trench begins.
- 4/22 RWCU Heat Exchangers segmentation begins (last heat exchangers in RB).
- 4/29 Construction of several onsite PFAS monitoring wells begins .
- 5/6 Annual site roadway assessment completed (required by Town of Vernon).
- 5/13 Internal RB wall cutting to facilitate RWCU components removals begins.
- 5/16 First samples from new onsite PFAS monitoring wells taken.
- 5/20 Third NRC onsite inspection of the year occurs (5/20 through 5/23); Last onsite Inspection conducted by Steve Hammann, primary NRC Inspector for VY since mid-2015.
- 5/21 VY site road maintenance (pothole repairs) completed.
- 6/3 RB embedded piping epoxy fillings begin (contamination spread preventative once RB demolition begins).
- 6/10 Compactor Building concrete slab removal begins; backfilling of hazmat AOC #5 begins.

- 6/14 Downsizing of original VY Turbine Rotor completed (several scraps remain).
- 6/24 RB Steam Tunnel asbestos abatement begins; sandblasting (decontamination) of SFP steel liner begins.
- 6/25 New NRC Project Managers for VY Decommissioning announced.
- 6/27 Backfilling of hazmat AOC #5 completed.
- 6/27 VY Staff Emergency Drills satisfactorily completed (6/26 & 6/27).
- 7/1 NRC First Half 2024 Inspection Report Issued – no reported issues, findings, or violations identified.
- 7/8 Backfilling of hazmat AOC #7 begins; Coffer dam construction at River Discharge Structure begins.
- 7/11 Backfilling of hazmat AOC #7 completed.
- 7/12 RB Drywell asbestos abatement begins; Steam Tunnel asbestos abatement completed.
- 7/15 Refueling Bellows removal from the RB Drywell begins.
- 7/29 Recirculating Water System Pump removals begin.
- 8/5 Cooling Tower Spray Pond demolition begins.
- 8/8 Refueling Bellows & Recirculating Water System Pump removals completed
- 8/12 RB Drywell Sumps clean-out underway.
- 8/15 SFP steel liner sandblasting completed; Cooling Tower Spray Pond demolition completed.
- 8/19 Fourth NRC onsite inspection of the year occurs (8/19 through 8/22); first inspection with new NRC site inspector.
- 8/22 Last RWCU Heat Exchanger removed from VY Site; Drywell Sumps clean-out complete.
- 8/30 Cooling Tower Spray Pond pipe removals completed.
- 9/4 Sandblasting (decontamination) of Dryer / Separator Pit (DSP) begins.
- 9/9 High Pressure Coolant Injection (HPCI) Room clean-out & backfill begins.
- 9/18 Additional onsite PFAS monitoring wells constructed; Annual testing of VY Security Diesel Generator successfully completed.
- 9/23 Blowdown System structural steel removal begins.
- 9/25 HPCI Room clean-out & backfill completed.
- 9/26 First samples from newest onsite PFAS monitoring wells collected.
- 9/30 General decontamination of RB spaces begins.
- 10/3 Coffer dam construction at River Discharge Structure completed; drain down for for Liquid Effluents Piping removal begins.
- 10/7 Liquid Effluents Piping removal at River Discharge Structure begins.
- 10/11 Dryer / Separator Pit (DSP) sandblasting completed.
- 10/21 Final SFP and DSP clean-outs begin; Decontamination & final clean-out of Drywell lower levels completed.
- 10/21 VY site rail spur maintenance completed (10/21 through 10/24); Construction Office Building concrete pad demolition underway.
- 10/24 Liquid Effluents Piping removal at River Discharge Structure completed.
- 10/28 Electrical hardware clean-out at River Discharge Structure begins.

- 10/28 Backfilling of Effluent Stack base begins.
- 10/31 River Discharge Structure hardware clean-out completed.
- 11/4 RWCU Building basement clean-out begins.
- 11/7 All planned RB embedded piping removals completed.
- 11/18 Fifth NRC onsite inspection of the year occurs (11/18 through 11/21).
- 12/2 Decontamination of Reactor Core Isolation Cooling (RCIC) System Corner Room Begins.
- 12/9 RCIC System Corner Room decontamination completed.
- 12/20 Onsite demolition and decommissioning activities suspended for the remainder of 2024.
- 12/29 10th Anniversary of VY disconnecting from the Electrical Grid for the last time.

V. Nuclear Decommissioning Trust (NDT) and Site Restoration Trust (SRT) Fund Updates

(Based on latest available data for 2024).

NDT	SRT
$112.8 M Balance on December 31, 2023	$49.4 M Balance on December 31, 2023
$ 98.7 M Balance on March 31, 2024	$47.9 M Balance on March 31, 2024
$ 84.2 M Balance on June 30, 2024	$47.3 M Balance on June 30, 2024
$ 72.4 M Balance on September 30, 2024	$46.6 M Balance on September 30, 2024
$ 68.4 M Balance on October 31, 2024	$46.4 M Balance on October 31, 2024
$ 61.6 M Balance on December 31, 2024	$46.5 M Balance on December 31, 2024

Monthly balances for the NDT and SRT are available at:
https://publicservice.vermont.gov/public-advocacy/vermont-yankee-decommissioning/trust-balances

Summaries of monthly expenditures for the Vermont Yankee Decommissioning Project are available: https://publicservice.vermont.gov/public-advocacy/vermont-yankee-decommissioning/public-reports

The NDT and SRT are invested in US Treasury Bonds. The NDT and SRT values provided here reflect the worth of these bonds on the listed dates. If the bonds are held to maturity, as expected, their value will be greater than the values reported here. Several NDT and SRT values at bond maturity were reported to the Panel at its December 9 meeting. These values are available in the following presentation:

https://publicservice.vermont.gov/document/vt-public-service-department-december-2024-decommissioning-update

As of December 31, 2024, the NDT value would be $62.1 Million and the SRT value would be $47.1 Million if both funds were held to maturity.

VI. Spent Nuclear Fuel Status at Vermont Yankee

The last of VY's spent fuel inventory was transferred to dry cask storage on August 1, 2018. The VY Independent Spent Fuel Storage Installation (ISFSI) consists of a total of 3,880 spent fuel assemblies (used over the course of VY's 42 years of power generation) contained in 58 dry casks. No changes in the configuration of VY's dry casks have occurred since the placement of the last spent fuel dry case in 2018. However, on October 19, 2022, an additional (59th) dry cask containing VY's Greater-Than-Class C (GTCC) low-level radioactive waste was added to the ISFSI. (This GTCC waste consists of several highly contaminated VY Reactor Vessel internal components which had been stored temporarily in VY's Spent Fuel Pool following their removal from the RV.) With this move, all VY GTCC waste resides at the VY ISFSI. VY's spent fuel will

remain at the VY ISFSI until the US Department of Energy fulfills its obligation to provide a national spent nuclear fuel repository. VY's GTCC waste will remain at the VY ISFSI until a US radioactive waste disposal facility is licensed to accept GTCC waste.

A total of 6 vacant cask spaces remain on VY's ISFSI pads. Four of these are required should the arrangement of the dry casks on the two ISFSI pads need to be changed for any reason. The remaining two spaces were designated for storing additional VY GTCC Low Level Radioactive Waste. Early (circa 2014) GTCC volume estimates suggested that VY could require as many as three GTCC waste casks. More refined estimates (circa 2018 and later) determined that only one GTCC waste cask would be necessary.

VII. Significant Vermont Yankee Site Changes

Monitoring of the Vermont Yankee Spent Nuclear Fuel is controlled from the site's Central Alarm Station (CAS) Building, which became operational on August 23, 2018. No significant changes to Vermont Yankee's spent fuel monitoring programs occurred during 2024. All Vermont Yankee site changes occurring in 2024 resulted from the continuation of decommissioning activities, which commenced on January 11, 2019.

Very few onsite structures remain standing at the VY site in 2024. These include:

- The Reactor Building
- The River Intake & Discharge Structures
- The Plant Support Building (PSB)
- Several security-related buildings

RB demolition efforts throughout 2024 continued to remove the remaining abandoned reactor systems components, piping, conduit, and non-loadbearing walls within its interior. (Reactor Vessel removal was completed in October 2022.) Where feasible, all RB interior embedded piping has been removed (this effort was completed in early November). Decontamination of the RB's remaining interior surfaces continued throughout the year. Demolition of the RB itself is expected to begin in early 2025.

Removal of all remaining hardware at the River Intake & Discharge Structures occurred in 2024. Demolition of the structures themselves is expected in 2025. Additionally, the Cooling Tower Spray Pond and its remaining systems piping was demolished in 2024. Throughout 2024, concrete pads from previously demolished site buildings have been removed and crushed to gravel to support construction of a construction vehicle ramp on the south side of the RB. This ramp will facilitate RB demolition in 2025.

Personnel access into the Reactor Building continues through a doorway cut into the northeast corner of the Reactor Building in late 2023. Radiation Protection Checkpoint functions are

performed in Gatehouse #2 (as was implemented in 2022) and in a Sea-Land container adjacent to the current RB doorway.

Other than pothole repair, no significant onsite road repairs occurred this year. Onsite rail spur maintenance occurred on an as-needed basis but did not impact radioactive waste and debris shipments to offsite facilities.

VIII. Vermont Yankee Water Management Program

While rainfall totals through August 2024 at VY were similar to those for the same period in 2023, minimal rainfall has occurred since mid-August 2024. The VY site was under drought conditions for most of October and November. As a result, the groundwater volume collected from the Reactor Building and the Turbine Building footprint this year is somewhat lower than the total volume reported in 2023. .

- Roughly 892,000 gallons of in-leakage water shipped in 2024 (down from the 1,149,000 gallons shipped in 2023)
    - Approximately half of VT Yankee water shipments, 434,800 gallons in total, were sent to Waste Control Specialists' (WCS) NRC-licensed disposal site in Andrews County, Texas during 2024.
    - The remaining 456,700 gallons of in-leakage water was shipped to US Ecology's hazardous waste disposal facility in Grandview, Idaho. Vermont Yankee previously received NRC approval in 2021 to ship up to 2,000,000 gallons of contaminated water to this facility. (2023 was the first year that VY used this shipment approval.) Vermont Yankee was previously allowed to ship a total of 200,000 gallons of contaminated water to this facility during 2019 and 2020.
    - 41 in-leakage water shipments occurred in 2024; all shipments made were via tanker rail cars.
    - On average, each in-leakage water shipment contained less than 0.001 Curies of radioactive materials.
    - Because of drought conditions at VY during the last quarter of 2024, no in-leakage water shipments occurred between early September and mid-December; in-leakage water storage capacity at VY was sufficient to hold the accumulated volume collected during this time.
    - In-leakage (groundwater) shipments to WCS and US Ecology Idaho facilities will continue "as-needed" in 2025.
- A total of 4,184,000 gallons of in-leakage water have been shipped to date.
- No substantial Process Water inventory was generated at VY during 2024. Hence, no Process Water inventory shipped from VY during 2024.

IX. Decommissioning Waste Shipments Summary

A summary of radiological and hazardous waste shipments made from the Vermont Yankee site during 2024 follows.

IX.A Radioactive Waste Shipments Summary

An annual summary of Vermont Yankee's radioactive waste shipments is published in mid-May of the following calendar year as part of the "Radioactive Effluent Release Report" filed with the US Nuclear Regulatory Commission and the Vermont Public Service Department. Preliminary radioactive waste volume data available as of January 9. 2025 indicates that approximately 393,734 cubic feet of radioactive waste was shipped from the Vermont Yankee site during 2024 (less than 40% of the ~1,028,000 cubic feet shipped in 2023). The total weight of the waste shipped in 2024 exceeds 24,600,000 pounds (~12,330 tons).

The total radiological activity of the shipped waste is 62.8 Curies. From the data below, this activity is significantly lower than those shipped in most previous years, but is similar to the total activity shipped in 2023:

Year	Total Shipped Activity (in Curies)
2024	62.8
2023	42.3
2022	7,500
2021	27,460
2020	522.8
2019	126.8

All radioactive waste shipments in 2024 were sent to Waste Control Specialists' (WCS) disposal facility Andrews County, Texas. 126 radioactive waste shipments (excluding contaminated water shipments) were made in 2024; 113 of which were made via railcar. The remaining 13 shipments were made by truck. Over 936 radioactive waste shipments have occurred since the start of VY's active decommissioning in 2019.

Based on data provided by NorthStar in response to Panel questions in April 2021, the total activity of radioactive waste stored at the VT Yankee site is estimated as follows:

- Total activity stored at the VY Independent Spent Fuel Storage Installation (ISFSI), consisting of 3880 spent fuel bundles stored in 58 spent fuel cannisters: 117,176,000 Curies (roughly 2,054,000 Curies per cannister)

- The Greater-Than-Class-C radioactive waste cask stored on the VY ISFSI since October 2022 contains approximately 175,000 Curies.

IX.B Hazardous Waste Shipments Summary

As of January 13, 2025, NorthStar Staff is still compiling its 2024 Hazardous Waste Shipments summary. Preliminary values for 2024 are as follows:

- 184,760 pounds (92.38 Tons) of ferrous and non-ferrous scrap metal was shipped to Mattuchio Scrap Metal (Everett, MA) facilities for recycling.
- 13,000 pounds (6.5 Tons) of ferrous and non-ferrous scrap metal was shipped to Minchello Brothers (Lowell, MA) facilities.

These are considerably less than the final weights reported in 2023, namely:

- 3,418,290 pounds (1709.1 tons) of ferrous and non-ferrous scrap metal was shipped to Mattuchio Scrap Metal (Everett, MA) facilities for recycling.
- 109,611 pounds (54.8 tons) of ferrous and non-ferrous scrap metal was shipped to Minchello Brothers (Lowell, MA) facilities

7 asbestos shipments occurred in 2024, resulting in the removal of 603,500 pounds (15,872 cubic feet or 587.8 cubic yards by volume) of asbestos containing materials. This volume is considerably larger than the 107 cubic yards shipped in 2022 (latest figure available).

X. Vermont Congressional Delegation

While the Vermont Congressional Delegation Staff did not make any presentations at any NDCAP Full Panel meeting in 2024, several energy policy staff members did meet with the NDCAP Federal Nuclear Waste Policy Committee on March 4 to discuss several spent fuel-related policy proposals before the current US Congress. Further details regarding this meeting are available in Section XI.B of this report.

Additionally, at least one Energy Policy staff member from Senator Welch's Office attended the NDCAP Federal Nuclear Waste Policy Committee's October 21 meeting with the Good Energy Collective (details on the Collective available in Section XI.B of this report). The Staff Member (through meeting chat) indicated that he would contact the Collective's representatives separately to learn more about their information-gathering efforts related to DOE's Consent-Based Siting development program. An Energy Policy staff member from Senator Welch's Office also attended the Committee's December 2 meeting. Further details regarding the October 21 and December 2 Committee meetings are available in Section XI.B of this report

XI. Current NDCAP Committees

XI.A NDCAP Issues Committee

The Issues Committee, formed in 2015 and reconstituted in 2019, is intended to provide recommendations for topics to be discussed at meetings of the Full Panel. The Issues Committee did not meet during 2024. For 2024, the Issues Committee's function (selection of meeting topics) was performed by the Full Panel at its regular meetings, with additional interactions between the Panel Chair, the Panel Vice-Chair, and the State Nuclear Engineer as needed.

XI.B NDCAP Federal Nuclear Waste Policy Committee

NDCAP created the Federal Nuclear Waste Policy Committee in December 2020 as a means for the Panel to learn more about US national spent nuclear fuel storage and disposal issues. The Committee is developing recommendations on US nuclear waste policies for the Full Panel to consider as potential Advisory Opinions on these subjects. The Committee currently consists of the following Panel members: Lissa Weinmann (Committee Chair), Corey Daniels, Maddy Arms, Marvin Resnikoff, and David Eastman. The Committee is administered by State Nuclear Engineer Tony Leshinskie.

The Committee met four times in 2024. Physical meeting spaces were designated for the Committee's June, October, and December meetings. All four meetings included a Microsoft Teams webcast to facilitate remote participation during meetings. Most of the Committee's 2024 meetings included guest speakers (who typically joined via webcast) from individual nuclear waste policy stakeholders, which allowed the Committee to learn more about current US national spent nuclear fuel storage and disposal policies. Brief summaries for each meeting are included below. The Committee continued to compile a reading list of relevant materials. This list is available at the Committee's webpage at:
https://publicservice.vermont.gov/public-advocacy/vermont-yankee-decommissioning/vt-ndcap-federal-nuclear-waste-policy

This webpage also includes recordings of the individual Committee meetings.

Through the course of 2024, the Committee built on its prior work in 2021 through 2023. A summary of this earlier work is available from the Committee archive webpages at:

2021 Archive:
https://publicservice.vermont.gov/public-advocacy/vermont-yankee-decommissioning/vt-ndcap-federal-nuclear-waste-policy/2021-fnwp

2022 Archive:
https://publicservice.vermont.gov/2022-fnwp-committee-meeting-archives

2023 Archive:

https://publicservice.vermont.gov/2023-fnwp-committee-meeting-archives

A Committee archive webpage covering 2024 calendar year activities will be created in early 2025.

Additional summaries of the Committee's prior work are available in 2021, 2022, and 2023 Panel Annual Reports.

March 4, 2024 Committee Meeting

At this meeting, the Committee met with energy policy staff members from Vermont's Congressional Delegation and discussed several nuclear energy policy-related bills that have been introduced during the current Congressional session. Speaking at this session were:

Ethan Hinch - Energy Policy staff member from Senator Bernie Sanders' Office
Juliet Walsh – Energy Policy staff member from Senator Peter Welch's Office
Thomas Renner - Energy Policy and Public Outreach staff member from Congresswoman Becca Balint's Office.

Also joining the meeting were **Rebecca Ellis**, State Outreach Director for Senator Peter Welch's Office and Mark Holt, Energy Policies Specialist from the Congressional Research Service. (Mr. Holt was unable to stay for the Questions and Answers portion of this session.)

A recording of this meeting is available at:
https://www.youtube.com/watch?v=6RsVn7KXWi8

and through the Committee webpage.

Most of the meeting discussion centered on portions of the proposed Atomic Energy Advancement Act, which includes some compensation for communities currently hosting spent nuclear fuel storage facilities such as the Vermont Yankee Independent Spent Fuel Storage Installation in Vernon, VT. Proposed funding would make $210 million available to "nuclear plant closure communities" over a six-year period. It was noted that Senator Sanders does not support the Atomic Energy Advancement Act as written at the time since it did not include adequate compensation for communities such as Vernon, VT that presently host spent fuel storage. The Senator is calling for a funding equivalent of at least $15 per kilogram of stored uranium per year.

One provision of the Atomic Energy Advancement Act that is considered vital is the extension of the Price-Anderson Act, which establishes liability funding requirements for accidents at US nuclear power facilities.

The proposed Nuclear Waste Informed Consent Act was also briefly discussed, which would require local community consent for long-term spent nuclear fuel storage at a nuclear power facility.

Senator Welch's representatives added that through the current Senate Energy and Water Subcommittee Bill, $47 million in DOE funding is proposed to research disposition options for spent nuclear fuel. This funding would allow investigations into spent fuel reprocessing viability and whether current DOE regulations are adequate to support spent fuel disposition options.

Thomas Renner reported that Congresswoman Balint had joined the Congressional Nuclear Fuel Solutions Caucus. The Caucus will meet with Paul Murray, DOE's Deputy Assistant Secretary for Spent Fuel and High-Level Waste Disposition, later this month to discuss current DOE spent fuel-related activities.

Questions brought up during this discussion included who would pay for transferring spent nuclear fuel to a new dry cask system should a current cask require replacement for whatever reason. Additional questions included: is Federal Assistance available for extending dry cask operational lifetimes? What dry cask testing is being done to demonstrate that cask integrity has not degraded / become compromised? Would transferring spent nuclear fuel to a new cask require transporting the fuel to a centralized processing facility? If yes, would this entail transporting a potentially degraded storage cannister to such a centralized processing facility? Committee Chair Lissa Weinmann expressed interest in having the Committee pursue answers to these questions.

During meeting discussion, it was also noted that NorthStar had recently withdrawn the Vermont Yankee License Termination Plan that it had submitted for NRC review in October 2023.

June 17, 2024 Committee Meeting

At its June 17 meeting, the Committee heard a presentation from several US Department of Energy (DOE) research and development experts who described DOE's on-going design work for proposed Federal Spent Nuclear Fuel storage and disposal facilities. Much of this presentation was provided by Dr. John Shultz, Storage Program Lead in DOE's Nuclear Energy Office of Storage and Transportation. Additional experts from Pacific Northwest National Laboratory and Dr. Sara Hogan, Transportation Program Manager in DOE's Office of Integrated Waste Management, were also present.

The presentation initially described how the current Federal storage facility design work factors into DOE's Consent-Based Siting Process Development efforts. Through Consent-Based Siting, it is expected that willing and informed potential host communities for spent fuel facilities will be identified by FY2031. Accordingly, it is important to begin designing the spent fuel storage facility and transportation capabilities now. Transportation capabilities are being covered through development of the ATLAS and FORTIS railcars. Having a complete storage facility design allows a prospective host community to "see" a conceptual layout of the proposed facility, which will help clarify the facility's capabilities and foster trust regarding promises about the facility.

DOE's presentation on the facility design is available at:
https://publicservice.vermont.gov/document/us-department-energy-june-17-2024-presentation

which describes the currently expected overall layout and operational support facilities that will likely be included at a Federal Spent Fuel Storage site. Finalization of this conceptual design is expected by 2029.

A proposed spent fuel cannister integrity monitoring system was also discussed at length. The processes behind the proposed system to measure continued fuel storage cannister integrity were outlined.

A recording of this meeting is available at:
https://www.youtube.com/watch?v=0flhqSndVqo

and through the Committee webpage.

October 21, 2024 Committee Meeting

Due to scheduling conflicts among several Committee members, the Committee meeting originally scheduled for September 9 was postponed until October 21.

At this meeting, representatives from the Good Energy Collective discussed the information gathering workshops it conducted at the Governor Hunt House Community Center (immediately adjacent to the VY site) on October 20, 21, and 22. The Collective is one of thirteen Department of Energy funding awardees in the Spent Nuclear Fuel Repository Consent-Based Siting Development program. Separate workshop sessions were conducted on each of the three days.

The Collective's workshop sessions are intended to gather opinions from its attendees on topics related to policy consent, such as: what community organizations are essential for obtaining consent; how is consent maintained; what information and resources does a community need to make a consent decision; what additional resources are needed for regional communities to

reach a common decision on consent; and what benefits and drawbacks regarding spent nuclear fuel storage need to be understood for a community to make a well- informed consent decision. The Collective will conduct similar workshops in several communities nationwide, including Jackson, WY, several Texas municipalities, and at least one Native American Community. Follow-up sessions to the October 20, 21, and 22 Vernon, VT workshops will occur in early December (most likely December 2 through 4) and in March 2025 (dates to be determined; see further discussion in the December 2 Committee Meeting Summary). At these follow-up sessions, the volunteers who attended one of the October workshops will have an opportunity to provide feedback on the Collective's findings based on the October discussions.

A recording of this meeting is available at:
https://www.youtube.com/watch?v=ms8fo3NSrb4

and through the Committee webpage. A copy of the Collective's presentation giving to the Committee members is also available through the Committee webpage.

December 2, 2024 Committee Meeting

At its December 2 meeting (recording available at: https://www.youtube.com/watch?v=biNViuRMFYk), the Committee reviewed its 2024 activities. Written summaries for previous 2024 Committee meetings included in the (11/18/2024 version of the) VT NDCAP 2024 draft Annual Report were reviewed. Several minor changes to these summaries were provided by Committee members and the members of the public attending this meeting. Additionally, at the request of the Committee Chair, a summary of 2024 Panel expenditures will be added to the Annual Report.

During discussion of the October 21 Committee meeting summary, it was noted that Good Energy Collective, which had planned to hold follow-up sessions to its October 20, 21, and 22 Consent-Based Sighting Process Development workshops in early December, has notified workshop attendees that the follow-up sessions have been postponed. New follow-up session dates have yet to be announced.

Committee Chair Lissa Weinmann provided a verbal summary of her observations from attending the 2024 RadWaste Summit held in early June. A written summary of these comments is available at:

https://publicservice.vermont.gov/document/report-june-2024-radwaste-summit

Lissa stated that she would discuss her observations further at the December 9 Full Panel meeting.

Additional discussion occurred on whether Committee meetings should generate meeting transcripts to capture all points made at individual Committee meetings. Committee Chair Lissa Weinmann indicated that she would pursue this option further.

The Committee intended to identify potential discussion topics for its 2025 calendar year meetings. However, since several Committee members were not present, this discussion was postponed. Several topics that the Committee identified previously that still need to be pursued in 2025 include:

- DOE's Next Steps in Developing a Consent-Based Siting Process
- A presentation by Waste Control Specialists (WCS) on its Radwaste Disposal Operations
- Continued Learning on Low-Level Radioactive Waste Disposal in General
- Use of the US Justice Department's Judgement Fund for Spent Fuel Storage Expenses
- Issuing a Statement Emphasizing the Need to Resolve Nuclear Waste Issues
- Issuing a Statement Calling for an Independent Agency to Manage the US Nuclear Waste Inventory (rather than DOE)

Committee meeting dates for 2025 were briefly discussed. The Committee's next meeting will be held on February 3, 2025. Since several Committee members were not present, it was agreed that additional discussion will be needed before subsequent meeting dates are set in 2025.

Additional Committee meeting dates will be considered in 2025 as necessary.

For its February 3 meeting, the Committee plans to invite representatives from California Congressman Mike Levin's Office to discuss the Nuclear Waste Administration Act (H.R. 9786) that he introduced in September 2024. Representatives from Vermont's Congressional Delegation will also be invited for their input on H.R. 9786 and any other spent nuclear fuel policies currently being considered by Congress. Liv Marshall, an energy policy advisor from Senator Peter Welch's Office, indicated that she would attend the Committee's February 3 meeting.

Committee meeting times will continue as nominally 12 noon to 1:00 PM and will be conducted primarily as webcasts. Physical meeting spaces will be designated on a case-by-case basis. Lissa Weinmann will continue as FNWP Committee Chair at least through the February 3, 2025 Committee meeting.

XII. Meeting Schedule and Priorities for 2025

During the Panel's December 9 meeting, the Panel unanimously approved the following meeting dates for 2025:

- May 12: Regular meeting discussing and assessing the Decommissioning Project Annual Status Reports (required by PUC Case 8880); additional agenda items to be determined as needed.
- September 22: Regular meeting; agenda items to be determined
- December 8: Regular meeting; agenda items to be determined

Additionally, the Panel expects to meet in February or March 2025 to receive a US DOE presentation on the recently published VY Site-Specific Spent Nuclear Fuel De-Inventory Report. The date of this meeting will be scheduled based upon the availability of appropriate DOE Presenters and most of the VT-NDCAP members.

The Panel will continue to conduct its meetings primarily as webcasts. Small physical meeting spaces will be made available for Panel meetings on a case-by-case basis. (A physical meeting space was provided for the December 9 meeting at the request of several Panelists; at the conclusion of this meeting, the requesting Panelists agreed that a physical meeting space was not essential for conducting Full Panel meetings.)

The Panel's main priority for 2025 will be to continue its work as outlined in the Panel Charter and required by the legislation that established the Panel's composition and duties. The Panel will also continue to consider improvements in its public outreach. Any changes to these priorities will be communicated to the Legislature and the Governor's Office once they are known.

XIII. Panel Composition and Duties Change Recommendations

As part of the Panel Duties outlined in Part II of the Panel Charter (see Section II of this Report), the Panel "shall assess further changes to the Panel's membership or duties as appropriate." The most recent changes in Panel composition and duties are those approved by the Legislature in Act 54 of the 2021 Session. The Panel currently has no additional change recommendations for its composition or duties.

Appendix A: Panel Advisory Opinions Approved in 2024

No Advisory Opinions were approved in 2024.

Appendix B: Summary of Panel Expenditures During the 2024 Calendar Year

The Public Service Department (Commissioner) responsibilities for VT NDCAP administration are enumerated in 18 V.S.A §1700(g). 18 V.S.A §1700(g)(6) establishes a $35,000 annual (fiscal year) budget for VT NDCAP, to be billed to the owners of the VT Yankee site. Legislation establishing VT NDCAP is available at:

https://publicservice.vermont.gov/document/2021-vt-legislation-revising-ndcap-composition-duties-and-funding

or through Vermont Statutes Online at:

https://legislature.vermont.gov/statutes/chapter/18/034

A breakdown of Panel expenses incurred in the 2024 calendar year follows:

Meeting Space Rentals	$1240.00
Meeting Webcast & Recording Services	$2600.00
Panelist Travel Reimbursements	$ 2258.89
Total Panel Expenditures in CY 2024:	**$6,098.89**

Appendix C: List of Acronyms Used in this Report

ANR	Vermont Agency of Natural Resources
AOC	Area of Concern (potential hazardous materials contamination location)
AOG	Advanced Off-Gas (system)
BCTV	Brattleboro Community Television
CAS	Central Alarm Station
CBS	Consent-Based Siting
CISF	Consolidated Interim Storage Facility
DEC	Vermont Department of Environmental Conservation (part of Agency of Natural Resources)
DOE	United States Department of Energy
DSP	Dryer / Separator Pit
EPA	United States Environmental Protection Agency
FNWP	Federal Nuclear Waste Policy (an active VT NDCAP Committee)
FPG	Four Points Group (a PSD consultant for VT Yankee's decommissioning)
GCUS	Geographic Center of the United States
GTCC	Greater-than-Class-C (a type of low-level Radioactive Waste)
HEPA	High-Efficiency Particulate Air
IOG	Interim Off-Gas (system)
ISFSI	Interim Spent Fuel Storage Installation
LTP	License Termination Plan
MOU	Memorandum of Understanding
NDCAP	Vermont Nuclear Decommissioning Citizens Advisory Panel (VT NDCAP also used)
NDT	Nuclear Decommissioning Trust (fund)
NRC	United States Nuclear Regulatory Commission
NWPA	Nuclear Waste Policy Act
ORISE	Oak Ridge Institute for Science and Education
OSHA	United States Occupational Safety and Hazards Administration
PCBs	Polychlorinated Biphenyl substances
PFAS	Per-Fluoroalkyl and Polyfluoroalkyl Substances
PSD	Vermont Public Service Department
PSDAR	Post-Shutdown Decommissioning Activities Report
RB	Reactor Building
RFI	Request for Information
RV	Reactor Vessel
RWCU	Radioactive Waste Clean-Up (system)
RWS	Recirculating Water System
SFP	Spent Fuel Pool
SRT	Site Restoration Trust (Fund)

Appendix C: List of Acronyms Used in this Report *(continued)*

TB	Turbine Building
VOCs	Volatile Organic Compounds
VY	Vermont Yankee
WCS	Waste Control Specialists (a sister company to NorthStar)