UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD, SUITE 102
KING OF PRUSSIA, PA 19406-1415

July 8, 2025

Bryan C. Bower
Director
West Valley Demonstration Project
U. S. Department of Energy
10282 Rock Springs Road
West Valley, NY 14171

SUBJECT: WEST VALLEY DEMONSTRATION PROJECT - U.S. NUCLEAR REGULATORY COMMISSION MONITORING VISIT REPORT NO. 05000201/2025001

Dear Bryan Bower:

On March 3 – 4 and April 8, 2025, the Nuclear Regulatory Commission (NRC) conducted announced monitoring visits at the U.S. Department of Energy's West Valley Demonstration Project site to review ongoing decommissioning activities. The monitoring visits consisted of observations by the NRC representatives, a review of documents, interviews with site personnel and site walkdowns supplemented by in-office reviews and periodic phone calls. The results of the monitoring visits were discussed with you, Jennifer Dundas, and Jamie Prowse of your staff on July 2, 2025, and are provided in the enclosed report.

Based on the results of this monitoring period, no public health and safety issues of more than minor significance were identified.

No reply to this letter is required. Please contact Andrew Taverna of my staff, at (610) 337-5119 if you have any questions regarding this matter.

Sincerely,

ELISE EVE Digitally signed by ELISE EVE
Date: 2025.07.08 06:57:28 -04'00'

Elise Eve, Team Leader
Decommissioning Team
Decommissioning, ISFSI, and Reactor Health Physics Branch
Division of Radiological Safety and Security

Docket No. 05000201
License No. CSF-1

Enclosure:
Report No. 05000201/2025001

cc w/encl: Distribution via ListServ

Jennifer Dundas, Associate Director, Office of Technical Services
Stephen Busquet, Associate Director
Paul Bembia, NYSERDA Program Director

SUBJECT: WEST VALLEY DEMONSTRATION PROJECT - U. S. NUCLEAR REGULATORY COMMISSION MONITORING VISIT REPORT NO. 05000201/2024002 DATED July 8, 2025

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U.S. NUCLEAR REGULATORY COMMISSION
REGION I

MONITORING REPORT

Monitoring Visit No.	POOM-032/2025001
Project No.	POOM-032
NRC Docket No.	05000201
NRC License No.	CSF-1
Location:	West Valley Demonstration Project
Monitoring Visit Dates:	March 3 – 4, 2025 April 8, 2025
NRC Staff:	Andrew Taverna, Health Physicist Decommissioning, ISFSI, and Reactor Health Physics Branch Division of Radiological Safety and Security Nick Eckhoff, Health Physicist Decommissioning, ISFSI, and Reactor Health Physics Branch Division of Radiological Safety and Security Katherine Barnes, Health Physicist Decommissioning, ISFSI, and Reactor Health Physics Branch Division of Radiological Safety and Security Katherine Warner, Health Physicist Decommissioning, ISFSI, and Reactor Health Physics Branch Division of Radiological Safety and Security Cynthia Barr, Senior Risk Analyst Risk and Technical Analyst Branch Division of Decommissioning, Uranium Recovery, and Waste Programs

Enclosure

Cardelia Maupin, Project Manager
Low Level Waste and Projects Branch
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Office of Nuclear Material Safety and Safeguards

Approved By:

Elise Eve, Team Leader
Decommissioning Team
Decommissioning, ISFSI, and Reactor
Health Physics Branch
Division of Radiological Safety and Security

EXECUTIVE SUMMARY

U.S. Department of Energy (DOE)
West Valley Demonstration Project (WVDP)
NRC Monitoring Visit Report No. 2025001

Announced monitoring visits were conducted on March 3 - 4 and April 8, 2025, by U.S. Nuclear Regulatory Commission (NRC) staff at the DOE WVDP site in West Valley, New York, supplemented by in-office reviews and periodic phone calls. The monitoring visits included reviews of programs and activities associated with the West Valley site decommissioning project. The monitoring visits consisted of interviews with DOE, DOE contractors, and New York State Energy Research and Development Agency (NYSERDA) personnel; a review of documents; walkdowns of the facility; and observations of in-progress work activities. The program for conducting NRC monitoring visits at the WVDP is described in Inspection Manual Chapter (IMC) 0111, “Region I Monitoring Activities for the Department of Energy West Valley Demonstration Project.”

Based on the results of this monitoring period, no public health and safety issues of more than minor significance were identified.

REPORT DETAILS

1.0 Introduction

In accordance with the WVDP Act of 1980 and as implemented by a Memorandum of Understanding between the DOE and the NRC, announced routine monitoring visits were conducted on March 3 - 4 and April 8, 2025, by NRC staff at the DOE WVDP site in West Valley, New York, supplemented by in-office reviews and periodic phone calls. The program for conducting NRC monitoring visits at the WVDP is described in IMC 0111. The monitoring visit included reviews of programs and activities associated with the WVDP site decommissioning project.

2.0 Main Plant Process Building (MPPB) Demolition

a. Monitoring Visit Scope

The Main Plant Process Building (MPPB) was the main facility used for commercial nuclear fuel reprocessing; the MPPB was built between 1963 and 1966 and used by Nuclear Fuel Services from 1966 to 1972. The building consisted of a series of cells, aisles, and rooms that are mostly above grade with some extending below ground surface. Portions of the MPPB were modified over the past four decades by the WVDP to support mission activities such as solidifying high-level waste.

In September 2022, CH2M HILL BWXT West Valley, LLC (CHBWV) began the phase of its contracted work to safely demolish the MPPB to grade level (100 +/- 3 ft). All below-grade structures were previously grouted with controlled low-strength material in preparation for demolition activities. Demolition of the above grade portions of the MPPB were completed to grade level as of June 2025. This included the Off-Gas Cell (OGC), Product Purification Cell (PPC), and vit bay 18. Additionally, the site intends to cover the building footprint with a geomembrane. This will mark the end of scope of work for the current contractor, CHBWV. The site will transition to a new contractor, West Valley Cleanup Alliance, for the next phase of work, which is Phase 1B. This phase will include removal of the below-grade structures of the MPPB. There will be a period of planning and preparation prior to commencing significant work. The NRC staff will continue to communicate with site contacts and monitor site activities as appropriate.

The on-site monitoring visits consisted of interviews with DOE staff and contractor personnel, including discussions with cognizant personnel on airborne radioactivity monitoring, groundwater monitoring, waste processing, protected assumption compliance, and radioactive waste shipping. NRC staff performed walk-downs of the site, including the perimeter of the MPPB demolition area, liquid waste processing systems, the remote handled waste facility, the radiological control room, the lag storage facility, and the radioactive waste shipping area. The NRC staff observed ongoing MPPB demolition which included the OGC, PPC, and vit bay 18. Additionally, NRC staff observed waste packaging and loading of Dry Active Wastes (DAW) including surveys by technicians.

During the demolition of the OGC, NRC staff reviewed a work recovery plan. The planned method of demolition for the OGC had changed due to the shared wall of the OGC and the Chemical Process Cell (CPC) unexpectedly separating. The columns remained intact; however, the site could not follow the existing Work Instruction Package

(WIP) due to potential stability issues of the walls and safety. This occurred while personnel were clearing areas around the base of the walls. NRC staff reviewed information provided through communication with site personnel. The discussions included protected assumptions, source term, demolition, and waste packaging.

NRC staff reviewed various documents that included but were not limited to the Memorandum for National Emission Standards for Hazardous Air Pollutants Compliance Monitoring (NESHAP) Dose Evaluation for the PPC, Work Instruction Package for PPC demolition, and Radionuclide Inventory and Dispersion Modeling for Demolition of PPC.

b. Observations and Findings

During site walkdowns, the NRC noted that the demolition activities observed were being conducted in accordance with the WIP and continued use of dust suppression during demolition. The NRC found the waste storage facility and liquid waste processing systems to be in adequate material condition with no evidence of leakage to the environment. The NRC found waste shipping procedures to be adequate to ensure that the Department of Transportation and waste facility requirements are met.

A work recovery plan was created for the planned demolition of the OGC northwest corner. The OGC shared a wall with the CPC where the more significant contamination was on the surface of the inside expansion joint between the two sides. The original planned demolition was to remove the wall in six sections by using a hydraulic hammer to remove the bottom 2-feet of material from each 10-foot block. The block would be supported during the cut and placed directly in a shipping container. Rubble created during this process would be removed and placed in an appropriate shipping container within 12 hours. While clearing around the structure of the shared wall, the OGC and CPC separated. The OGC side moved approximately 15-inches away from the CPC side. The site developed a work recovery plan in response to the change in conditions. Once the plan was developed, the site communicated with NRC staff regarding the changes. Using the changed demolition process, the site brought down the OGC wall as one whole block in a controlled manner. The ground where the wall landed was laid with clean material and wetted prior. The side of the wall with the highest dose based on surveys faced the ground prior to hammering. Then the blocks were packaged and shipped. The work recovery plan was also applied to the CPC. Misting, watering, and fixatives were used throughout the demolition and load-out process to minimize airborne contamination spread. There were no changes to the protected assumptions. NRC staff observed the demolition of the CPC using the adjusted process.

NRC staff reviewed documentation pertaining to the PPC South demolition. This included radionuclide inventory, air dispersion modeling, and work instruction package. PPC South was decontaminated using the Nitrocision® process. It is a cleaning process that uses liquid nitrogen at variable temperature and pressure to reduce the affected area in a safe manner. Radiological surveys and sampling after the Nitrocision® process showed a reduction of greater than the 80 percent assumed for the NESHAP modeling. Onsite workers estimated maximum individual whole-body dose for PPC Demolition is less than 100 mrem for the year. Demolition of the PPC involved mechanical shears and hydraulic hammers. There was no use of Oxylance cutting nor was there any diamond wire cutting conducted. However, the site did have an exception if it needed standard torch cutting/grinding. Pipes of PPC were sealed, foamed, or fixed to minimize emissions during demolition. The scope of work began with areas that are lower in contamination

and progressed to areas with higher contamination. Structural elements were left in place to help minimize potential for airborne release in addition to the use of misting, watering, and fixatives. NRC staff observed demolition of the PPC onsite.

The NRC noted no protected assumptions in the work instruction package were violated in these events. The NRC observed that additional controls were in place at the time of the monitoring visits, such as additional dust suppression and restrictions on certain demolition activities based on wind direction. The NRC reviewed the onsite air monitoring report for the first quarter of 2025 and noted that though there were several minor releases detected during demolition, none exceeded any administrative or regulatory limits.

c. Conclusions

No public health and safety issues of more than minor significance were identified.

4.0 Exit Meeting Summary

The NRC Region I representatives discussed the monitoring visit results with you, Jennifer Dundas, Assistant Director, and Jamie Prowse, DOE contractor, on July 2, 2025.

SUPPLEMENTARY INFORMATION

PARTIAL LIST OF DOCUMENTS REVIEWED

NESHAP Dose Evaluation – Product Purification Cell (PPC) Memorandum
WVDP-617, Radionuclide Inventory and Air Dispersion Modeling for Demolition of the Product Purification Cell, Rev. 0
Work Instruction Package Form, Work Control Number W2304660, Product Purification Cell Demolition
Work Instruction Package Form, Work Control Number W1904751, Main Plant Process Building Demolition
MPPB Demolition Air Monitoring Report, 1st Quarter 2025