



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION I
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KING OF PRUSSIA, PA 19406-1415

August 10, 2022

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 NOS.
05000201/2021001 and 05000201/2022001

Dear Mr. Bower:

On October 26 - 27, 2021, and April 12 – 13, 2022, 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. Additional monitoring activities (in office reviews) were conducted remotely as a consequence of the COVID-19 public health emergency (PHE) during the monitoring period. The monitoring visits consisted of observations by the NRC representative, review of documents, interviews with site personnel and plant walkdowns supplemented by in-office reviews and periodic phone calls. The results of the monitoring visits were discussed with you on May 18, 2022, and are provided in the enclosed report. No public health and safety issues of more than minor significance were identified.

No reply to this letter is required. Please contact me at (610) 337-6953 if you have any questions regarding this matter.

Sincerely,

Anthony Dimitriadis, Chief
Decommissioning, ISFSI, and Reactor Health
Physics Branch
Division of Radiological Safety and Security

Docket No. 05000201
License No. CSF-1

Enclosure:
Report No. 05000201/2021001 and 05000201/2022001

cc w/encl: Distribution via ListServ

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SUBJECT: WEST VALLEY DEMONSTRATION PROJECT - U. S. NUCLEAR REGULATORY COMMISSION MONITORING VISIT REPORT NOS. 05000201/2021001 and 05000201/2022001 DATED AUGUST 10, 2022

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SUNSI Review Complete: KWarner After declaring this document "An Official Agency Record" it will be released to the Public. **ML22221A063**

OFFICE	DRSS/RI	DRSS/RI				
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DATE	8/9/2022	8/10/2022				

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U.S. NUCLEAR REGULATORY COMMISSION
REGION I

MONITORING REPORT

Monitoring Visit Nos. POOM-032/2021001 and 2022001

Project No. POOM-032

NRC Docket No. 05000201

NRC License No. CSF-1

Location: West Valley Demonstration Project
10282 Rock Springs Road
West Valley, New York 14171

Monitoring Visit Dates: October 26 – 27, 2021 and April 12 – 13, 2022

Monitoring Visit Exit Date: May 18, 2022

NRC Staff: Katherine Warner, Senior Health Physicist
Decommissioning, ISFSI and Reactor
Health Physics Branch
Division of Radiological Safety and Security

Approved By: Anthony Dimitriadis, Chief
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 Nos. 2021001 and 2022001

Announced monitoring visits were conducted on October 26 – 27, 2021, and April 12 – 13, 2022, 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. Additional monitoring activities were conducted remotely during the monitoring period as a consequence of the COVID-19 public health emergency (PHE). NRC staff also participated in the DOE quarterly public meetings on February 24, May 26, and November 17, 2021, and February 23, 2022. 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 staff, DOE contractors, and New York State Energy Research and Development Agency (NYSERDA) personnel; a review of documents; walkdowns of the facility; observations of prepared work areas and 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 these activities, 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 October 26 - 27, 2021 and April 12 – 13, 2022, by NRC staff at the DOE WVDP site in West Valley, New York supplemented by in-office reviews and periodic phone calls. NRC staff also participated in the DOE quarterly public meetings on February 24, May 26, and November 17, 2021, and February 23, 2022. The program for conducting NRC monitoring visits at the WVDP is described in IMC 0111. The monitoring visits included reviews of programs and activities associated with the WVDP site decommissioning project.

2.0 Annual Site Environmental Report

a. Inspection Scope

The NRC reviewed WVDP's Annual Site Environmental Report (ASER) for calendar year 2020 and discussed the report with DOE and DOE contractor personnel.

b. Observations and Findings

The radiological environmental monitoring program at the WVDP site focuses on measuring radioactivity from site activities in air, surface water, groundwater, food products, soil, and sediment. Direct radiation is also measured through a network of thermoluminescent dosimeters (TLDs) on the site and around the site perimeter. The monitoring program provides information about the environmental radiological conditions at the site and is intended to verify that public health and safety and the environment are protected and that relevant regulatory requirements have been met. The most recent ASER (issued September 2021) for the WVDP documents the calendar year 2020 environmental monitoring program data. Air and surface water pathways are the primary means by which radioactive material could potentially migrate to areas off site. The WVDP's on- and off-site monitoring program includes measuring the concentration of alpha and beta radioactivity in air and water effluents as well as specific radionuclide measurements in all environmental media.

Relevant radiological dose limits for the WVDP include U.S. Environmental Protection Agency (USEPA) regulations for air emissions and DOE limits regarding all exposure modes from DOE activities. Radiological air emissions (other than radon) from DOE facilities are regulated by the USEPA under the National Emission Standards for Hazardous Air Pollutants (NESHAP) regulation (40 CFR 61, Subpart H), which establishes a standard of 10 millirem/year effective dose equivalent to any member of the public (via the airborne pathway). In 2015, the USEPA gave final approval for WVDP's use of ambient air monitoring data to demonstrate compliance with the NESHAP regulations and stack effluent measurements were no longer required. DOE established sixteen low-volume ambient air samplers surrounding the site, one in each of the sixteen compass point sectors, and used the radiological analysis of air sampler filters and modeling assumptions to demonstrate compliance with the NESHAP regulations. DOE Order 458.1 sets the DOE primary standard of 100 millirem/year effective dose equivalent for members of the public considering all exposure modes from

DOE activities. For 2020, information in the ASER indicates that the estimated dose to a member of the public was less than 0.5 millirem/year from all WVDP sources. The ASER continues to document elevated Strontium-90 (Sr-90) concentrations in groundwater and groundwater surface seeps from the area north of the Permeable Treatment Wall (PTW). The results from direct radiation measurements from perimeter TLD locations were not significantly different as compared to background levels.

c. Conclusions

No offsite public health and safety issues were identified. Calculated doses from radiological air and liquid effluents were well below EPA or DOE limits.

3.0 MPPB Deactivation

a. Inspection Scope

The NRC reviewed DOE's continuing progress for the deactivation of the Main Plant Process Building (MPPB) in preparation for eventual demolition, with a specific focus of the mock-up and operation of decontamination activities in Product Purification Cell - South (PPC-S), Ventilation Wash Room, and the Acid Recovery Cell. The monitoring visit consisted of interviews with DOE staff and contractor personnel including discussions with cognizant personnel on the deactivation process. NRC staff performed observations of Ventilation Wash Room and PPC-S operations, as available. NRC staff performed walk-downs of the accessible areas of the MPPB.

b. Observations and Findings

WVDP continues deactivation of the MPPB in preparation for eventual demolition. Work during this monitoring period included grouting of the General Purpose Cell and continued deactivation preparations and work in the PPC-S, Acid Recovery Cell, and the Ventilation Wash Room. Additional work was scoped into the current contract including shipment of soil and debris from the permeable treatment wall excavation. Work at WVDP other than essential activities was halted again in November 2020 due to the COVID-19 PHE and restarted gradually in summer 2021. At the time of the October 2021 on-site visit, the site was conducting select on-site activities while still employing telework for DOE employees, as appropriate and in accordance with DOE and New York state guidelines associated with COVID-19 restrictions. Demolition of the Load-In-Facility, one of the ancillary buildings, was conducted during this monitoring period.

As part of the deactivation work, DOE directed its contractor to reduce the material at risk (MAR) in PPC-S. Significant contamination on PPC-S's surfaces under a difficult-to-remove fixative applied during previous decommissioning activities, combined with tight cell dimensions created numerous challenges for decontamination. The NRC staff previously reviewed the operation and additional documentation information may be found in Monitoring Reports 2020001 and 2020002 (ML20041D726 and ML20307A612, respectively). The NRC monitor noted that in-cell decontamination activities commenced on January 6, 2020, but had been significantly restricted during the COVID-19 PHE resulting in delays. As of May 5, 2022, the site reported that approximately 1442 square feet had been aggressively decontaminated via high-powered liquid nitrogen.

NRC staff observed demolition preparatory activities in the Ventilation Wash Room, including areas used for donning protective clothing and observations of the work via camera. Demolition preparations included removing obstructions under ventilation so the ventilation washer would be ready to be lifted in one piece and loaded into its own waste container during demolition and application of fixative once obstructions were removed. Removal of the ventilation washer in one piece rather than multiple allows for easier control of the material inside. This room was posted appropriately as a high radiation area and high contamination area. NRC staff noted that radiation protection technicians were cognizant of the conditions and were continuously monitoring worker dose during entries.

The NRC monitor conducted additional observations of site conditions and held discussions with personnel associated with the decontamination activities planned prior to MPPB demolition. The discussions also included COVID-19 protocols for PPE requirements and processes. The NRC noted that DOE and its contractors appear to be appropriately focused on radiological and industrial safety for high-risk deactivation work. The NRC monitor toured all accessible areas of the MPPB and reviewed material conditions and ongoing preparations for demolition.

c. Conclusions

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

4.0 Occurrence Reporting System

a. Inspection Scope

The NRC monitor reviewed selected occurrence reports and their associated corrective actions. The NRC monitor interviewed cognizant personnel, toured the affected areas, performed walk-downs, and reviewed documentation.

b. Observations and Findings

The NRC reviewed and discussed several occurrence reports with cognizant site personnel, including a declared emergency that occurred during the October 2021 monitoring visit.

On October 26, 2021, the emergency operations center at the WVDP was activated, and an operational emergency was declared when a leak was identified from a SUREPAK container sample port while the SUPERPAK was being transported. A High Integrity Container containing spent resin was inside the SUREPAK. Upon identification of the leak, the workers stopped work, secured the leak, and surveyed the area for potential contamination. The surveys identified areas of contamination on the SUREPAK, the truck bed, and surrounding ground area. Three site personnel were found to have contaminated footwear as a result of this incident. Occurrence Report EM-OH-WVDP-CHBW-WM-2021-0002 was documented and indicated that water samples taken during and after the event showed no detectable activity for off-site release. An update to the occurrence report dated December 27, 2021, describes root causes identified through a site review, including failure to incorporate operating experience from recent legacy container transfer activities (OR EM-OH-WVDP-CHBWV-WM-2019-0002). A recovery plan was developed by

CHBWV and evaluated by DOE staff. The NRC monitor reviewed documentation of the DOE-WVDP Oversight Assessment and noted that several findings were identified, including failure to identify and incorporate risks into the recovery plan requiring a correction. Once the recovery plan was corrected and approved, CHBWV successfully relocated the SUREPAK.

While the NRC did not identify any significant impacts to public health and safety from this event, the NRC staff viewed this lack of incorporation of operating experience for this well-known issue as a missed opportunity. CHBWV provided a corrective action plan in response to the DOE independent assessment on March 31, 2022. The plan included actions for both broad programmatic and incident specific concerns, including improvements in the work control process, the training program, and conduct of operations. It should be noted that the NRC monitor was physically onsite during the declared emergency but due to restricted access to the emergency operations center, was only able to review DOE's response to the emergency by reviewing documentation of the event after the emergency had been terminated. The NRC has since received assurances from DOE senior management that the NRC monitor will have full access in any future emergency as an observer.

The NRC monitor also reviewed documentation surrounding an uncontrolled movement of empty rail cars which damaged a security gate prior to derailling on February 14, 2022. The NRC monitor noted that compensatory measures were taken at the security gate until it could be repaired. The Buffalo Pacific Rail Road was notified and involved in inspections and assessments. One corrective action WVDP listed is developing and issuing a Standard Operating Procedure for rail car operations and providing operators with training on the new procedure. Given the rail cars were empty, the NRC notes that this event was of no actual radiological safety significance. However, given the high forecasted use of the rail system during future decommissioning activities, it is imperative to establish procedures and practices. The site's response and planned corrective actions to this incident appear appropriate and the NRC will plan to observe rail activities during future monitoring visits, as available.

Additionally, the NRC monitor reviewed documentation associated with a fire that ignited in the Ventilation Wash Room during diamond wire cutting. Specifically, on November 1, 2021, diamond wire cutting was being conducted to remove obstructions in the room as part of demolition preparation activities described in the section above. The site review of the incident determined that the hazard for fire was well analyzed and the response was effective with no spread of contamination. However, additional precautions to reduce the hazard were warranted, including removal of excess foam exterior to the duct during setup.

c. Conclusions

No significant public health and safety issues were identified. However, the NRC monitor noted concern with the lack of incorporation of the site's significant operating experience with water in outdoor storage containers, including an incident documented in monitoring report 05000201/2020001. The site monitor will continue to review site incorporation of operating experience in decontamination and demolition preparation activities during future visits as well as plans for future demolition of the MPPB. Additionally, the NRC staff will follow up on the site's progress on the corrective actions report associated with the programmatic issues given the number of recent low-level incidents.

5.0 Public Meetings

DOE WVDP Quarterly Public Meetings

NRC staff also participated in the DOE quarterly public meetings on February 24, May 26, and November 17, 2021, and February 23, 2022. During the public meetings, DOE staff, DOE contractors, and NYSERDA representatives provided updates on the progress of various project milestones. The NRC noted that these meetings were via an online format due to the ongoing COVID-19 PHE.

6.0 Exit Meeting Summary

The NRC Region I representative discussed the monitoring visit results with Mr. Bryan C. Bower, Director of the West Valley Demonstration Project and other members of the WVDP staff on May 18, 2022.

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Department of Energy Staff and Contractors

B. Bower, Project Director
C. Reiman, Deputy Project Director
B. Freaney, Work Group Supervisor
D. Gray, Facility Representative
S. McCabe, Acting Facility Representative
J. Prowse, DOE Contractor
J. Runge, Radiation Protection Technician

NYSERDA

P. Bembia, Program Director
B. Frank, Program Manager
A. Mellon, Project Manager

PARTIAL LIST OF DOCUMENTS REVIEWED

Monthly WVDP Project Performance Reports (various)
Weekly WVDP Project Status Reports (various)
2020 Annual Site Environmental Report, September 2021
Corrective Action Plan for U.S. Department of Energy West Valley Demonstration Project
(DOE-WVDP) Independent Assessment of the October 26, 2021, Movement and Leak of
SUREPAK SP-080-B (A21-047E), March 31, 2022
Fact Finding, FF2021-005, November 15, 2021
Fact Finding, FF2022-004, March 15, 2022
Occurrence Report EM-OH-WVDP-CHBW-WM-2021-0001
Occurrence Report EM-OH-WVDP-CHBW-WM-2021-0002
Occurrence Report EM-OH-WVDP-CHBW-WM-2022-0001
Root Cause Analysis to Support EM-OH-WVDP-CHBW-WM-2021-0002, Emergency Operations
Center Activated Following the Discovery of a Leaking SUREPAK during Relocation,
December 8, 2021

LIST OF ACRONYMS USED

ASER	Annual Site Environmental Report
CHBWV	CH2M HILL BWXT West Valley, LLC
CFR	Code of Federal Regulations
DOE	Department of Energy
GPC	General Purpose Cell
IMC	Inspection Manual Chapter
MAR	Material at Risk
MPPB	Main Plant Processing Building
NRC	Nuclear Regulatory Commission
NESHAP	National Emission Standards for Hazardous Air Pollutants
NYSERDA	New York State Energy Research and Development Authority
PHE	Public Health Emergency
PPC-S	Product Purification Cell – South
PPE	Personal Protective Equipment
PTW	Permeable Treatment Wall
TLD	Thermoluminescent Dosimeters
USEPA	U.S. Environmental Protection Agency
WVDP	West Valley Demonstration Project