



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

REGION I  
2100 RENAISSANCE BLVD., SUITE 100  
KING OF PRUSSIA, PA 19406-2713

October 25, 2018

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

**SUBJECT: U. S. NUCLEAR REGULATORY COMMISSION MONITORING VISIT REPORT  
NO. 05000201/2018002, WEST VALLEY DEMONSTRATION PROJECT, WEST  
VALLEY, NEW YORK**

Dear Mr. Bower:

On July 9 – 10 and September 12 – 15, 2018, the Nuclear Regulatory Commission (NRC) conducted 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, review of documents, and interviews with personnel. The results of the monitoring visits were discussed with you during on September 15, 2018, and are provided in the enclosed report. No public health and safety issues were identified.

No reply to this letter is required. Please contact Katherine Warner at (610) 337-5389 if you have any questions regarding this matter.

Sincerely,

Raymond J. Powell, Chief  
Decommissioning, ISFSI, and Reactor HP  
Branch  
Division of Nuclear Materials Safety

Docket No. 05000201  
License No. CSF-1

Enclosure:  
Report No. 05000201/2018002

cc w/Encl: Craig Rieman, Deputy Director  
Maira Maloney, Regulatory Strategy  
and Environmental Compliance  
Janice Williams, Regulatory Affairs  
Paul Bembia, Program Director

U. S. NUCLEAR REGULATORY COMMISSION MONITORING VISIT REPORT NO.  
05000201/2018002, WEST VALLEY DEMONSTRATION PROJECT, WEST VALLEY, NEW  
YORK DATED October 25, 2018

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**U.S. NUCLEAR REGULATORY COMMISSION  
REGION I**

**INSPECTION REPORT**

Monitoring Visit No. POOM-032/2018002

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: July 9 – 10 and September 12 – 15, 2018

Monitoring Visit Exit Date: September 15, 2018

NRC Staff: Harold Anagnostopoulos, Senior Health Physicist  
Decommissioning, ISFSI and Reactor  
Health Physics Branch  
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Mark C. Roberts, Senior Health Physicist  
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Approved By: Raymond J. Powell, Chief  
Decommissioning, ISFSI and Reactor  
Health Physics Branch  
Division of Nuclear Materials Safety, Region I

Enclosure

## **EXECUTIVE SUMMARY**

U.S. Department of Energy (DOE)  
West Valley Demonstration Project (WVDP)  
NRC Monitoring Visit Report No. 2018-002

A series of routine, announced monitoring visits were conducted on July 9 – 10 and September 12 – 15, 2018, by United States Nuclear Regulatory Commission (NRC) staff at the DOE WVDP site in West Valley, New York. NRC staff also participated in the DOE quarterly public meeting on August 22, 2018, via telephone and webinar. NRC staff also attended the Citizen's Task Force meeting on September 12, 2018. The program for conducting NRC monitoring visits at the WVDP is described in Inspection Manual Chapter (IMC) 0111, "Region I Monitoring Activities for the DOE West Valley Demonstration Project." The monitoring visits included a review of programs and activities associated with the WVDP site decommissioning project. The monitoring visits consisted of interviews with DOE, DOE contractor, and New York State Energy Research and Development Agency (NYSERDA) personnel; a review of documents; tours of the facility; and observations of prepared work areas and in-progress work activities. Based on the results of these activities, no public health and safety issues 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, routine, announced monitoring visits were conducted on July 9 – 10 and September 12 – 15, 2018, by NRC staff at the DOE WVDP site in West Valley, New York. NRC staff participated in the DOE quarterly public meeting on August 22, 2018, via telephone and webinar. NRC staff also attended the Citizen's Task Force meeting on September 12, 2018. The program for conducting NRC monitoring visits at the WVDP is described in IMC 0111. The monitoring visits included a review of programs and activities associated with the WVDP site decommissioning project.

### **2.0 Vitrification Facility Demolition Project**

#### **a. Inspection Scope**

The NRC reviewed DOE's continuing progress for the open-air demolition of the vitrification facility at the WVDP site. The monitoring visit consisted of interviews with DOE and DOE contractor personnel including discussions on the overall status of the vitrification facility demolition, radiological control status, water control issues, and waste packaging and shipping issues. NRC staff also discussed the crane maintenance room shield door removal and cutting.

#### **b. Observations and Findings**

The vitrification facility housed the major equipment that was used for mixing liquid high level radioactive waste with molten glass for stabilizing and solidifying the waste in high integrity stainless steel canisters. These canisters are now stored in shielded concrete casks on the high level waste interim storage pad at the south end of the site. The vitrification facility was later used for a number of waste processing operations that included size reduction and repackaging. The vitrification facility was a structural steel and reinforced concrete building approximately 145 feet long, 91 feet wide, and 50 feet high (with a 26-foot vertical extension for the crane house). The vitrification cell within the facility was a robust structure with concrete floors and walls from two to four feet thick and a 3/8-inch thick stainless steel liner. Nearly all of the remaining radioactivity was located within the vitrification cell. The primary radionuclides in the cell included strontium-90, cesium-137, americium-241, and isotopes of plutonium and uranium. Building demolition has continued using heavy construction equipment that use large impact hammers to bring down the concrete walls and shears and claws to bring down less robust features and size-reduce debris to fit into the 30 yd<sup>3</sup> intermodal shipping containers.

Initially, demolition waste from the project was being shipped to either a licensed commercial waste facility in Utah or to the DOE Nevada National Security Site (NNSS) in Nevada. Inspections performed by the staff at the Kingman, AZ facility identified damage to some of the intermodal containers arriving at the facility. The damage, apparently caused by shifting debris during transit, consisted of punctures of the containers and damage to door closures. DOE staff developed immediate corrective measures for subsequent shipments that included armoring the floor and walls of the

container with plywood sheets and reorienting the loaded waste to limit movement within the containers. Another issue arose with the amount of water in some of the intermodals. It was found that durosoil, which was used in the dust suppression spray, does not mix well with the absorbent. Corrective actions include adding more absorbent and limiting the use of durosoil. Corrective actions were put into place as they were developed and no further issues have been identified.

Generally, the rest of the demolition debris from the project is being shipped to a licensed commercial waste facility in Utah. At the time of the July monitoring visit, about 4 intermodals per work day were being trucked to a trans-loading facility (Alaron) in Wampum, Pennsylvania, where the contents are emptied into gondola railcars for train shipment to the disposal site. During subsequent weeks the number of shipments a week varied. DOE representatives indicated that part of the reason to switch to sending to Utah is the short turnaround time for the intermodals of a couple days to Alaron versus a couple of months to Kingman, Arizona. In addition to vitrification demolition debris, WVDP staff recently shipped the third of three dissolvers to Nevada.

The 100-ton crane maintenance room shield door was removed from the vitrification facility during demolition. WVDP staff thermally cut the interferences around the shield door before lowering the door into clean soil. WVDP staff thermally cut the doors into smaller pieces in order to ship the pieces offsite to Nevada. During the thermal cutting of the shield door, airborne activity triggered a level 1 alarm and work was stopped. As discussed in NRC monitoring report 2018001, radiation protection staff monitor an array of air monitors and air samplers used for evaluation of airborne concentrations in the demolition area. Four air sampling monitors are arranged within the work area and real-time data from the monitors are sent to display devices in a nearby trailer. Data are evaluated on a real-time basis by a radiation control technician. Pre-designated alarm levels have been established along with response actions, ranging from stopping work and evaluating results to shelter or evacuate as appropriate. In this case, radiation protection personnel noted increased localized indications and responded in accordance with their procedures. The door was resurveyed, but no unexpected contamination was found. DOE staff conducted a fact finding review and implemented corrective actions prior to continuing the work.

DOE representatives indicated that vitrification facility demolition activities were scheduled to be completed at the end of September with continued waste shipments through the fall. Main Plant Process Building (MPPB) demolition has been scoped out of the current contract and will be performed at a later date.

WVDP staff continue to work on plans for the eventual MPPB demolition. Pre-demolition activities similar to that of the vitrification facility are being conducted including asbestos removal; filling piping and electrical conduits with grout or foam; placing grout on floors to reduce the gamma exposure rate and stabilize the radioactive source term; and removing and disposing of major contaminated systems, structures, and components to reduce the radioactive source term for the future demolition. Work continues on characterization and modeling of the ninety-eight survey units that the MPBB has been divided into. In these characterization and modeling efforts for each area, WVDP staff consider the inventory of the radionuclides of concern and the degree of stabilization of the radioactive material inventory in order to determine the appropriate demolition techniques.

c. Conclusions

No public health and safety issues were identified. The demolition activities appear to be controlling air and water effluents as intended.

**3.0 MPPB Stack Removal**

a. Inspection Scope

The NRC reviewed DOE's plans and observed the removal of the MPPB stack at the WVDP site. The review included interviews with DOE and DOE contractor personnel including discussions on the order of events, radiological controls, plans for waste packaging and shipping, and general safety as well as field observations.

b. Observations and Findings

The NRC discussed the plans for the preparations and removal of the MPPB ventilation stack. Subcontractors Clark Cranes and International Chimney Corporation were hired for this project for their specific expertise. About 110 feet of the 140 foot tall stack was removed. The bottom portion of the stack will be removed as part of the eventual MPPB demolition. During planning, core coupons were removed to help characterize the inside of the stack. Preparations included loosening the guide wires attached to the stack before cutting and lowering them to the ground. NRC staff noted that the guide wires were not required after a previous repair was made to the stack and had been left on out of an abundance of caution. Two trunnions were welded near the top of the stack where the larger crane was rigged on to lift the stack up and a tailing lug was welded near the bottom where the second, smaller crane was rigged on to downend the stack upon removal. Additional preparations included repairs to the ladder on the stack, the addition of scaffolding platforms, and nondestructive evaluation of the welds.

NRC staff observed the removal of the stack on Saturday, September 15, 2018. The NRC representative observed the morning pre-job brief. WVDP staff established a buffer zone to keep workers out of the area. The NRC representative noted that radiological control technicians were actively monitoring the process and performed contamination surveys of the areas that the stack passed over as well as exposure rate and contamination measurements on the stack itself after it was lowered and placed in a horizontal position and set up radiological boundaries accordingly. The stack will be cut and shipped in pieces to NNSS.

c. Conclusions

No public health and safety issues were identified. The stack removal activities appeared to be conducted in a safe industrial and radiological manner.

**4.0 Public Meetings**

DOE WVDP Quarterly Public Meeting

NRC staff participated in the DOE quarterly public meeting on August 22, 2018, via telephone conference and webinar. During the public meeting, DOE, DOE contractor,

and NYSERDA representatives provided updates on the progress of various project milestones.

#### West Valley Citizen Task Force Meeting

NRC staff also attended the West Valley Citizen Task Force meeting on September 12, 2018, where DOE contractor staff provided an update on their progress.

### **5.0 Exit Meeting Summary**

The NRC Region I representatives discussed the monitoring visit results with Bryan Bower, DOE Project Director, on September 15, 2018. Mr. Bower acknowledged the monitoring visit results.



## **SUPPLEMENTAL INFORMATION**

### **PARTIAL LIST OF PERSONS CONTACTED**

#### **Department of Energy**

S. Bousquet, Federal Project Director  
B. Bower, Project Director  
D. Gray, Facility Representative  
D. Sullivan, Project Manager

#### **NYSERDA**

P. Bembia, Program Director  
A. Mellon, Project Manager  
L. Gordon, Project Manager

#### **CH2MHILL-B&W West Valley, LLC and Contractors**

S. Chase, Facilities Disposition Operations Manager  
L. Chilson, Nuclear Facilities Manager  
T. Dogal, Acting Deputy General Manager  
J. Fox, Regulatory Strategy  
T. Fontaine, Radiation and Industrial Safety Manager  
W. Kean, Regulatory Specialist  
D. Klenk, Regulatory Strategy  
D. Lobdell, Waste Management  
P. Loop, Waste Planning and Disposition  
P. Mussel, Quality Assurance Engineer  
M. Pendl, BOSF Support Staff  
J. Rizzo, Manager, Waste Planning and Disposition  
K. Slomba, Waste Planning and Disposition  
A. Steiner, Senior Environmental Regulatory Strategist  
R. Steiner, Regulatory Specialist  
D. Stevens, Engineering Manager  
T. Whelan, BOSF Support Staff  
K. Whitham, Environmental, Safety, and Quality Manager  
J. Williams, Regulatory Strategy

### **PARTIAL LIST OF DOCUMENTS REVIEWED**

Monthly WVDP Project Performance Reports (various)  
Weekly WVDP Project Status Reports (various)  
Presentations from the August 22, 2018, DOE WVDP Quarterly Public Meeting

## **LIST OF ACRONYMS USED**

DOE	Department of Energy
IMC	Inspection Manual Chapter
MPPB	Main Plant Processing Building
NMSS	NRC's Office of Nuclear Materials Safety and Safeguards
NNSS	Nevada National Security Site
NRC	Nuclear Regulatory Commission
NYSERDA	New York State Energy Research and Development Authority
WVDP	West Valley Demonstration Project