



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
2100 RENAISSANCE BOULEVARD, SUITE 100
KING OF PRUSSIA, PENNSYLVANIA 19406-2713

October 1, 2013

Docket No. 05000201

License No. LSF-1

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. 05000201/2013001, WEST VALLEY DEMONSTRATION PROJECT, WEST
VALLEY, NEW YORK

Dear Mr. Bower:

On February 20, March 18, May 7-8, and September 16-17, 2013, the NRC conducted a series of 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, interviews with personnel, and an examination of representative records. The results of the monitoring visits were discussed with you on September 17, 2013, and are provided in the enclosed report. No public health and safety issues were identified.

No reply to this letter is required. Please contact Mark Roberts at (610) 337-5094 if you have any questions regarding this matter.

Sincerely,

Original Signed by Marc S. Ferdas

Marc S. Ferdas, Chief
Decommissioning Branch
Division of Nuclear Materials Safety

Enclosure:
Inspection Report No. 05000201/2013001

cc w/enclosure: Christopher Eckert, Safety and Site Programs Team Leader
Mark Bellis, Project Manager
John Rendall, Vice President, Regulatory Affairs
Paul Bembia, Program Director

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U.S. NUCLEAR REGULATORY COMMISSION
REGION I

INSPECTION REPORT

Monitoring Visit No. POOM-032/2013001

Project No. POOM-032

NRC Docket No. 05000201

NRC License No. LSF-1

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

Monitoring Visit Dates: February 20, March 18, May 7-8, and
September 16 - 17, 2013

Monitoring Visit Exit Date: September 17, 2013

NRC Staff: Mark C. Roberts, Senior Health Physicist
Decommissioning Branch
Division of Nuclear Materials Safety
Region I

Stephen Hammann, Senior Health Physicist
Decommissioning Branch
Division of Nuclear Materials Safety
Region I

Approved By: Marc S. Ferdas, Chief
Decommissioning 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. 2013001

A series of routine, announced monitoring visits were conducted on February 20, March 18, May 7-8, and September 16-17, 2013, by United States Nuclear Regulatory Commission (NRC) staff at the DOE WVDP site in West Valley, New York. 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 in-progress work activities. NRC staff also participated in the July 30, 2013, WVDP Regulatory Roundtable Meeting. 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, a series of routine, announced monitoring visits were conducted on February 20, March 18, May 7-8, and September 16-17, 2013, by NRC staff at the DOE WVDP site in West Valley, New York. 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 High Level Waste Relocation Storage Project

a. Inspection Scope

The NRC reviewed DOE's plans for the relocation of the vitrified High Level Waste (HLW) canisters at the WVDP site. The monitoring visits consisted of interviews with DOE and DOE contractor personnel; a review of documents; tours of the facility; and observation of in-progress work activities associated with the construction of the HLW cask storage pad.

b. Observations and Findings

The NRC verified that the 275 stainless steel canisters of vitrified HLW were being adequately controlled in the chemical process cell in the Main Plant Processing Building (MPPB). Relocation of the canisters is necessary in order to proceed with demolition preparations for the MPPB. The HLW canisters are to be relocated to a concrete pad under construction at the south end of the site. The HLW canisters are to be placed in specially designed and fabricated multi-purpose storage and transportation canisters (MPCs) and stored in shielded casks on the concrete pad. NAC International has been selected as the sub-contractor for this project. Relocation of the HLW canisters is expected to be conducted from 2016 – 2018.

Five HLW canisters will be remotely loaded into specially fabricated MPCs and the MPC lids welded shut. A total of 55 MPCs will be required for the HLW canisters and 2 additional MPCs required for miscellaneous debris and material associated with the HLW vitrification process. Each of the MPCs will be located inside a concrete and steel vertical storage cask (unloaded weight approximately 133,500 pounds). Special transporters will be used for movement of the storage casks within the building and for transport to the HLW storage pad. The vertical storage casks will be fabricated in a specially prepared area on site.

Construction work has commenced on the HLW storage pad. The pad area is being excavated to a depth of up to 12 feet. A compacted engineered backfill material will be placed prior to placement of the approximately 2800 cubic yards of concrete. The 3-foot thick reinforced concrete pad will have dimensions of 144 feet by 110 feet. An

engineered approach pad and crane pads will also be features of the construction. During pad excavation activities, sub-surface contamination was identified in one corner of the excavation. This anomaly was still under evaluation at the conclusion of this monitoring visit. DOE planned to document the anomaly and proceed with the HLW pad installation.

c. Conclusions

No public health and safety issues were identified. The HLW canisters are appropriately being controlled within the MPPB. DOE is planning for the relocation of the canisters to an onsite interim storage facility and has commenced construction of the storage pad for the shielded storage casks.

3.0 North Plateau Permeable Treatment Wall

a. Inspection Scope

The NRC reviewed the performance of the Permeable Treatment Wall (PTW) installed on the WVDP north plateau for mitigation of the previously documented strontium-90 (Sr-90) groundwater plume. The monitoring visits consisted of interviews with DOE and DOE contractor personnel, a review of documents, and tours of the facility.

b. Observations and Findings

The NRC reviewed information in the 2013 PTW Annual Monitoring Report, which summarizes the performance and condition of the PTW through the first two years following installation. The report includes summaries of the Sr-90 concentrations in ground water monitoring well samples in the 66 specific PTW wells installed up gradient, in, and down gradient of the PTW, and the network of existing wells in the PTW vicinity. The report indicates that the performance of the PTW is meeting the established Remedial Action Objectives and functional requirements. These key objectives and requirements include a reduction in the down gradient Sr-90 concentrations (compared to up gradient concentrations) from the PTW, minimizing expansion of the contaminated groundwater plume, and no substantial diversion or alteration in groundwater flow. The NRC determined that the PTW continues to be removing Sr-90 from the plume as evidenced by the very low or non-detectable concentrations of Sr-90 in monitoring well samples within the wall. Concentrations of Sr-90 in monitoring well samples immediately down gradient of the PTW were generally lower than the corresponding up gradient wells. This reduction is also evident in wells within the existing network of wells down gradient side of the PTW. The groundwater flow patterns have remained consistent with conditions prior to PTW installation. There does not appear to be any expansion of the plume except for areas that were already on the down gradient side of the PTW. Visual inspections of the PTW have not identified any substantial changes to the PTW system.

c. Conclusions

No public health and safety issues were identified. Review of the second year PTW Annual Monitoring Report indicates that the performance of the PTW is meeting the established Remedial Action Objectives and functional requirements.

4.0 Demolition of the 01-14 Building

a. Inspection Scope

The NRC reviewed DOE's progress on and completion of the open-air demolition of the 01-14 Building. The monitoring visits consisted of interviews with DOE and DOE contractor personnel, reviews of documents, reviews of radiological sampling and survey data, and tours of the area.

b. Observations and Findings

The 01-14 Building is a 60-foot tall metal, block, and concrete building covering an area of approximately 2200 square feet. The building housed support equipment for early WVDP operations and later housed equipment for the HLW vitrification off-gas treatment system. Although a separate building, it is attached to the MPPB and contains piping and electrical systems leading from the MPPB and the HLW vitrification facility.

DOE performed a number of pre-demolition activities intended to physically disconnect the 01-14 Building from the remaining facilities and place the contaminated components and systems in a condition that greatly reduced the potential for release of radiological contamination as a result of the demolition activities. Piping, ventilation, and electrical systems were isolated and capped. Vessels and piping with significant internal contamination were drained, filled with a grout mixture for shielding and contamination control, and capped. Major contaminated components were identified with readily identifiable spray paint to indicate special handling and controls during the demolition process. Debris piles generated from the demolition activities were coated with a spray-on dust fixative at the end of the day to prevent airborne radioactivity releases. The NRC representative noted that the DOE staff was implementing lessons learned in their work plans from previous major demolition projects that DOE had conducted at other sites. The NRC representative also noted that the project staff was drafting a document that captured lessons learned and good practices developed from this project for use in demolition of the MPPB and other structures.

The NRC reviewed the radiological controls, local air sampling, and radiological surveys employed during project operations. Local air samplers were frequently checked with handheld radiation detectors to identify any elevated airborne activity trends. The local air sampling data did not identify any airborne concentrations of radioactive material different than background levels. In addition to the local air sampling, the inspector noted that a network of offsite environmental air samplers surrounding the site was in place to monitor potential ground level airborne releases. Data from air samples collected at these locations were also not different than background concentrations.

The demolition of the building was conducted in three phases. The first two phases involved areas that had no radiological contamination. Demolition wastes from these areas were surveyed for radiological contamination prior to shipment to an offsite landfill. Radiological wastes from the project were primarily shipped in intermodal containers to a licensed disposal facility in Utah, with some larger components shipped to DOE's

Nevada National Security Site. Wastes were also sent to the Studsvik Bulk Survey for Release facility in Tennessee for disposition.

c. Conclusions

No public health and safety issues were identified. DOE had incorporated lessons learned from a similar DOE demolition project into the 01-14 building demolition project work plans.

5.0 Meetings and Miscellaneous Items

July 30, 2013, WVDP Regulatory Roundtable Meeting

NRC Region I representatives participated in the WVDP Regulatory Roundtable on July 30, 2013 via teleconference. The WVDP Regulatory Roundtable Meeting included representatives from the NRC's Office of Federal and State Materials and Environmental Management Programs, the Environmental Protection Agency (Region II), NYSERDA, the New York State Department of Environmental Conservation, DOE, and DOE WVDP contractors. The purpose of the meetings was to gain an understanding of current and future work activities and to foster dialogue among the participants regarding the regulatory requirements of the project. Items discussed during this meeting included the HLW canister relocation and storage project, waste tank farm status, PTW performance, waste processing and shipping operations, environmental and regulatory programs status, FY2014 budget, Building 01-14 demolition status, remainder of facility demolition and decommissioning activities, and NYSERDA-directed activities. The NYSERDA-directed activities included updates on the Frank's Creek erosion mitigation project and radiological monitoring support for the Thomas Corners Road bridge replacement project. This bridge crosses Buttermilk Creek at the far northern section of the NYSERDA-controlled portion of the WVDP site.

Thomas Corners Road Bridge Replacement Project

During the September 17, 2013, site visit, the NRC representative discussed soil sampling and survey results obtained from the creek banks in the vicinity of the bridge construction project with NYSERDA representatives and toured the site of the bridge replacement project. Initial soil sampling had identified a small isolated spot of radioactive contamination near the bridge, but additional survey and sampling results in the area were not different than background. No public health and safety issues were identified.

6.0 Exit Meeting Summary

On September 17, 2013, the NRC representatives discussed the monitoring visit results with Bryan Bower and other members of the DOE staff. Mr. Bower acknowledged the monitoring visit results.

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Department of Energy

M. Bellis, Project Manager
C. Bohan, Project Manager
B. Bower, Project Director
C. Eckert, Safety and Site Programs Team Leader
J. Prowst, DOE Health Physics Support Contractor

NYSERDA

C. Andrzejewski, Staff Engineer
P. Bembia, Program Director
A. Mellon, Project Manager

CH2MHILL-B&W West Valley, LLC and Contractors

C. Biedermann, Senior Consulting Engineer
N. Bridges, Radiation Protection Supervisor
T. Dogal, Manager, Facilities Disposition
H. Dukes, Nuclear Operations Manager
J. Ebert, High Level Waste Project Manager
J. Rendall, Vice President, Regulatory Affairs
J. Sutton, Radiological Controls Supervisor
K. Winterhuller, Project Manager for demolition contractor

PARTIAL LIST OF DOCUMENTS REVIEWED

Monthly WVDP Project Performance Reports (various)

Weekly WVDP Project Status Reports (various)

Permeable Treatment Wall Performance Annual Monitoring Report – 2013, Rev. 1, June 2013

Presentations from the July 30, 2013, Regulatory Roundtable Meeting, Ashford, New York

WVDP Radiological Controls Manual, WVDP-010, Rev. 35, 8/14/13

Radiation and Contamination Survey Reports related to the 01-14 Building Demolition Project (various)

CH2MHILL B&W West Valley Fact Finding Meeting Minutes, Meeting No. FF2013-14, 9/16/2013

WVDP 2013 Radiation Work Permits (various)

LIST OF ACRONYMS USED

DOE	Department of Energy
HLW	High Level Waste
IMC	Inspection Manual Chapter
MPC	Multi-Purpose Canister
MPPB	Main Plant Processing Building
NRC	Nuclear Regulatory Commission
NYSERDA	New York State Energy Research and Development Authority
PTW	Permeable Treatment Wall
Sr-90	Strontium-90
WVDP	West Valley Demonstration Project