



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

May 13, 2002

Project No. P00M-032

Alice C. Williams
Director
Department of Energy
West Valley Demonstration Project
10282 Rock Springs Road
P.O. Box 191
West Valley, NY 14171-0191

SUBJECT: U.S. NUCLEAR REGULATORY COMMISSION MONITORING VISIT 2001-002

Dear Ms. Williams:

On November 26-28, 2001, Todd Jackson of this office conducted a routine monitoring visit at the Department of Energy's (DOE) West Valley Demonstration Project to review the activities of West Valley Nuclear Services Company, Inc., the DOE contractor at the site. The purpose of the monitoring visit was to review the status of the contractor's program for the operation of the vitrification facility, high level radioactive waste projects and the site relative to its radiological impact on public health and safety. The results of this monitoring visit were discussed with you and your staff on November 28, 2001. Details of this review are provided in the enclosed report.

As a result of this review, the monitor determined that the contractor has established and maintained controls, processes, and programs adequate to protect public health and safety.

Please contact me at (610)337-5200 with any questions about this report.

Sincerely,

/RA/

Ronald R. Bellamy, Chief
Decommissioning and Laboratory Branch
Division of Nuclear Materials Safety

Enclosure:
Monitoring Report No. 01-02

A. Williams
Department of Energy

2

cc:
Paul Piciulo, Ph.D., Program Director, NYSERDA
J. Spath, NYSERDA
State of New York

A. Williams
Department of Energy

3

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U.S. NUCLEAR REGULATORY COMMISSION
REGION I

MONITORING REPORT

Monitoring Visit No. P00M-032/2001002
Project No. P00M-032
Location: West Valley Demonstration Project
10282 Rock Spring Road
P.O. Box 191
West Valley, NY 14171-0191
Visit Dates: November 26-28, 2001

Monitor: _____
Todd J. Jackson, CHP
Health Physicist
_____ date

Approved By: _____
Ronald R. Bellamy, Chief
Decommissioning and Laboratory Branch
Division of Nuclear Materials Safety
_____ date

EXECUTIVE SUMMARY

US Department of Energy
West Valley Demonstration Project

NRC Monitoring Report No. 2001-02

A routine monitoring visit was conducted November 26-28, 2001, to observe site operations and current project status at the West Valley Demonstration Project. Areas reviewed included site organizational changes, recent operational events, vitrification operations, high level radioactive waste projects, head end cell work, site closure projects, radioactive waste management, and the spent fuel shipping project. As a result of this review, the monitor determined that the Department of Energy's contractor has established and maintained controls, processes, and programs which are adequate to protect public health and safety.

REPORT DETAILS

I. Introduction

This report documents the monitoring visits to the West Valley Demonstration Project (WVDP) on November 26-28, 2001. The monitor observed activities in progress, held discussions with Department of Energy (DOE) and West Valley Nuclear Services (WVNS) personnel, and reviewed related documentation. DOE and WVNS personnel presented status briefings on site activities since the previous monitoring visit in May 2001, with emphasis on the following:

- Organizational changes
- Recent Site Events (Reportable and Non-Reportable)
- High Level Radioactive Waste Projects
- Site Operations and Facility Closure Projects
- Radioactive Waste Management
- Spent Fuel Project

II. Organization

DOE and WVNS staff described the organizational changes at the WVDP since May 2001.

III. Recent Site Events

The monitor reviewed and discussed with WVNS personnel selected recent event fact sheets, critiques, and occurrence reports describing recent operational events at the WVDP. The following were discussed in detail:

Occurrence Report OH-WV-WVNS-HMT-2001-0002, Breached Radioactive Waste Container Discovered During Transportation. On July 30, 2001, the truck carrying the first shipment of low level waste from West Valley on its way to the Nevada Test Site for burial stopped at a rest area in West Wendover, Nevada, near the Utah border. While spraying the truck with water, the driver noticed foaming under one of the containers and contacted DOE at West Valley. DOE concluded there was a possible breach of the waste container, had the driver implement emergency procedures, and dispatched response personnel. Investigation at the truck location confirmed that no radioactive material had leaked, although water absorbing material added to the package had leaked out of the container. The truck load was stabilized and the package integrity restored, and all packages returned to West Valley. DOE and WVNS performed investigations to determine the cause of the package breach. The conclusion of DOE was that a 600 pound metal component had been loaded without adequate packaging to prevent the heavy item from puncturing the container. DOE made a number of corrective action recommendations, with which WVNS concurred. Corrective actions were in the process of being implemented, with shipments of similar waste components suspended pending completion of the corrective actions.

Occurrence Report OH-WV-WVNS-CF-2001-0002, Radiologically Contaminated Blacktop Identified during Excavation. On November 27, 2001, a section of asphalt on a formerly used roadway was found to have a spot of contamination. The roadway was exposed during excavation and had been

buried under about 2 feet of soil. Work was immediately stopped, the area surveyed, and soil that had been removed prior to identifying the spot was also surveyed. No other contamination was detected, and the procedures for planning and performing work in areas where there is the potential for legacy contamination (generated at some time during past plant operations) worked as intended.

Occurrence Report OH-WV-WVNS-FRS-2001-0001, Failure of Load Cell During Spent Fuel Shipping Rigging Operations. On May 23, 2001, the overhead crane was used to install an impact limiter on a spent fuel shipping cask in the Fuel Receiving and Storage (FRS) building. The heavy load lift had been completed, and approximately 1500 pounds remained loaded in the rigging. No personnel injury or damage to equipment occurred as a result of the failure. WVNS identified the event as a near-miss and formed an investigative team of experts to determine why the load cell failed. The failed load cell had been used for about 20 lifts prior to the failure. The investigative team found several pertinent issues related to the load cell requiring corrective action, and concluded that the load cell failed due to a fracture that initiated at the location of a material defect. The material was found to have a less than expected design safety factor than specified originally. The load cell may also have been damaged in use due to inadequate controls to limit side loading per manufacturer specifications, a limitation of which WVNS was not aware. The investigation was inconclusive regarding whether the load cell failure was caused by the material defect, inadequate design safety factor, or side loading. The investigation identified several contributing factors for which corrective actions were implemented.

IV. High Level Waste Projects

DOE staff described a review of WVDP status conducted during August 2001, which was an independent evaluation of vitrification and proposed future activities to complete vitrification operations. The DOE review team had provided several recommendations in a report to WVNS and was expecting WVNS to respond and comment on the report, leading to a final determination of the expected approach for vitrification. The DOE review team concluded overall that "a phased shutdown of the WVDP melter could be accomplished by the end of fiscal year 2002".

The melter continued in idle status during this monitoring visit, with the 263rd canister in position under the melter feed pour spout. The estimated radioactivity remaining in tanks 8D-1 and 8D-2 had not changed significantly since the previous monitoring visit. Tank inventory varies, depending on the activities at WVDP which add material to the tanks versus waste transfers to the melter feed systems. WVNS estimates of the activity remaining in the tanks are described in the following tables. Differences in the data below compared with the previous report are primarily due to refinements in the characterization of tank contents, rather than significant changes in the tanks. Fixed contamination fraction is not listed separately because data has indicated that most of the activity remaining in the tanks is in the mobile fraction, and the reported data is therefore listed as tank totals.

Remaining Curies x 1000* (change since December 2000)	Tank 8D-1	Tank 8D-2	Combined Total
	Total (Upper Bound Estimate)	Total (Upper Bound Estimate)	Total (Upper Bound Estimate)
¹³⁷ Cs	174 (206)	105 (110)	279 (316)
⁹⁰ Sr	1.3 (1.4)	38 (45)	39 (47)
Total	176 (208)	143 (155)	318 (363)

*As of July 31, 2001.

α-TRU Curies Remaining *	Tank 8D-1	Tank 8D-2	Combined Total
	Total (Upper Bound Estimate)	Total (Upper Bound Estimate)	Total (Upper Bound Estimate)
Transuranics	1.02 (2.07)	371 (436)	372 (438)

*As of July 31, 2001.

Work continued on improving the characterization of radioactivity remaining in the tanks, as well as identifying where in the tanks the activity is located. Additional sample collection and analysis had been done, more beta and gamma radiation measurements made of tank surfaces, and imaging completed using the gamma camera. Work was in progress to thoroughly map the interior of tanks 8D-1 and 8D-2.

WVNS staff described the ongoing work to wash tank 8D-2 walls to remove as much surface contamination as possible within the tank. Data collected during the washing project showed significant reduction in measured radiation levels following pressure washing. As of November 2001 most wall and internal support column surfaces above the bottom structural gridwork had been washed. Only about 28% of tank structure surfaces in the lower three feet of the tank had been washed. Continued washing of the more difficult to reach areas was planned to continue through December 2001.

Evaluation of a chemical decontamination method had been performed. WVNS staff indicated testing had shown only limited improved results with chemical washing versus water only, and also stated that chemical washing could not be performed by the end of FY2002, and therefore would probably not be implemented. For other tanks in the waste tank farm, appropriate strategies were planned to minimize the residual radioactivity remaining when vitrification is shut down.

Planning and preparations were described by WVNS for flushing the high level waste vitrification systems and melter with non-radioactive feed materials prior to final shutdown. The objective is to minimize the amount of radioactive material contained within the systems and within the glass solidified in the melter when it is shutdown.

V. Site Closure Projects

Spent Fuel Shipping Project: DOE determined on November 18, 2001, that shipment of spent fuel from West Valley would be delayed and not occur during calendar year 2001. All preparations for shipping had been completed, and NRC had issued Certificates of Compliance for the shipping casks that allow the shipment to occur until May 31, 2005, provided the cask surface temperature is greater than -10 degrees F.

As part of the preparations for shipment, WVNS had identified a bolt missing from a cask tie down. The missing bolt was replaced and the vendor who had provided the cask was informed of the nonconformance with expected condition. WVNS also visually inspected and checked the torque of all other tie down fasteners. During these inspections a cracked nut was found and replaced on September 8, 2001. Evaluation of the cracked nut determined that the manufacturing process had created the embrittlement that caused the cracking, and WVNS subsequently resolved this issue by replacing all tie down nuts with nuts manufactured using a different process.

Head End Cell Work and Other Main Plant D&D Work: Since the previous monitoring visit, WVNS had completed all readiness reviews in preparation for work in the Process Mechanical Cell (PMC) and had begun to cut up materials within the cell for disposal. Work continued on upgrading the infrastructure of equipment and facilities associated with the General Purpose Cell (GPC), including removing the old crane and installing a new bridge mounted manipulator, and preparations for refurbishment of one of the GPC shield windows. Preparations were also in progress for readiness reviews to support the start of remediation work in the GPC.

Decontamination of the Acid Recovery Pump Room had been completed and all equipment had been successfully removed. The product preparation and handling glovebox and associated equipment had been removed and shipped for disposal. Preparations were in progress to dismantle and dispose of the fuel storage racks and associated equipment in the FRS storage pool, with size-reduction work to be performed underwater.

VI. Waste, Fuel & Environmental Projects

WVNS staff discussed significant continuing progress in shipping radioactive waste for disposal. During FY2001 approximately \$500,000 had been saved by shipping waste via rail rather than by truck. Rail shipments were planned to be continued and expanded in FY2002. Progress was also described in removing and disposing of mixed radioactive and hazardous waste materials.

WVNS personnel described construction status for the new Remote Handled Waste Facility (RHWF), and the monitor toured the construction site to observe its status. The RHWF, when completed, will handle waste materials that are too large or too radioactive to be handled in existing site facilities. Examples of materials expected to be processed in the RHWF include stored

components previously removed from the main plant chemical process cell (now the storage location for vitrified HLW canisters), equipment from the vitrification cell after melter operations are complete, and waste materials removed from the head end cells.

VII. Exit Meeting

The monitor discussed the results of this visit with DOE site management, and also with WVNS management, on November 28, 2001.

PARTIAL LIST OF PERSONS CONTACTED

Department of Energy, Ohio Field Office-West Valley Demonstration Project

Alice C. Williams, Director

William Hammel, High Level Waste Projects Team Leader

Dan Sullivan, Project Leader

Jennifer Kenyon, Engineer, High Level Waste Projects Team

West Valley Nuclear Services

Stuart MacVean, Site Closure Projects Manager

Tom Kochialski, High Level Waste Projects

Ken Schneider, Head End Cells Project Manager

Scott Roberts, Waste Management Operations Manager

Robert Keel, Operations Planning Manager

Dave Ploetz, Site Closure Projects Deputy Manager

John Mahoney, Facility Characterization Projects Manager

Dan Meess, Tank Farm Engineering and Projects Manager

Rand Dunn, HLW Tank Farm Operations Manger

Kim Downing, Operations Planning

Doug Perkins, Analytical and Process Chemistry Manager

Richard Hazard, Radiation Protection Operations

Bob Steiner, Senior Environmental Engineer

Bruce Covert, Deputy Site Manager

Laurene Rowell, High Level Waste Characterization Manager

Dan Westcott, Regulatory Programs Manager

Sonja Allen, Public Affairs

New York State Energy Research and Development Authority

Paul Piciulo, WVDP Program Director

Colleen Gerwitz, Regulatory Affairs Program Manager