



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

REGION I  
475 ALLENDALE ROAD  
KING OF PRUSSIA, PA 19406-1415

May 8, 2000

Barbara A. Mazurowski  
Director  
U.S. Department of Energy  
West Valley Demonstration Project  
10282 Rock Springs Road  
P.O. Box 191  
West Valley, NY 14171-0190

SUBJECT: U.S. NUCLEAR REGULATORY COMMISSION MONITORING VISIT 00-01

Dear Ms. Mazurowski:

On April 3 - 7, 2000, 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 April 6, 2000, and with WVNS management on April 7, 2000. 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,

***Original signed by Ronald R. Bellamy***

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

Enclosure:  
Monitoring Report No. 00-01

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

B. Mazurowski  
U.S. Department of Energy

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U.S. NUCLEAR REGULATORY COMMISSION  
REGION I

MONITORING REPORT

Report No. 00-01  
Site Visited: U.S. Department of Energy  
West Valley Demonstration Project  
Location: 10282 Rock Springs Road  
West Valley, NY 14171-0191  
Visit Dates: April 3-7, 2000

Monitor:	<b><i>Original signed by Todd J. Jackson</i></b>	<b><i>May 5, 2000</i></b>
	_____ Todd J. Jackson, CHP Health Physicist	_____ date
Approved By:	<b><i>Original signed by Ronald R. Bellamy</i></b>	<b><i>May 8, 2000</i></b>
	_____ Ronald R. Bellamy, Chief Decommissioning and Laboratory Branch Division of Nuclear Materials Safety	_____ date

## **EXECUTIVE SUMMARY**

U.S. Department of Energy  
West Valley Demonstration Project  
NRC Monitoring Report No. 00-01

A routine monitoring visit was conducted April 3-7, 2000, to observe site operations and current project status at the West Valley Demonstration Project. Areas reviewed included site organizational changes, recent operational events, conduct of operations reviews, vitrification operations, high level radioactive waste projects, head end cell work, site operations and facility 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 routine monitoring visit of April 2000 to observe site operations and current project status at the West Valley Demonstration Project (WVDP). 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 last monitoring visit in December 1999, with emphasis on the following:

- Organization Changes
- Recent Site Events (Reportable and Non-Reportable)
- Conduct of Operations Reviews
- High Level Radioactive Waste Projects
- Site Operations and Facility Closure Projects
- Radioactive Waste Management
- Spent Fuel Project

### **II. Organization Changes**

DOE and WVNS personnel described the staff and supervisory changes made in the organizations since December 1999. Barbara Mazurowski, Director, DOE-WVDP, had been named as the Director of the DOE Rocky Flats project and was expected to soon depart WVDP to assume her new responsibilities. A new WVDP Director had not yet been selected.

Within WVNS, several management positions had new personnel assigned. WVNS personnel described the related changes in organization and staffing. Additionally, a new project staffing functional organization had been established to better define project responsibilities across regular WVNS organization lines. The project staffing plan had recently been implemented and WVNS indicated that the progress and experience gained in using the project plan would be reported during future monitoring visits.

### **III. Recent Site Events**

Documentation of recent operational and performance issues and events were reviewed by the monitor. Events occurring since the last visit in December 1999 had limited consequences, were investigated to correct specific problem areas, and were documented for lessons-learned value. Details of selected recent events at the site were reviewed by the monitor.

#### **Evaluation of Fuel Assembly Data Identifies an Unanalyzed Condition (Critique CM 2000-02)**

This critique was convened following identification of errors in a data table in the Safety Analysis Report (SAR) addressing Big Rock Point (BRP) fuel assemblies (SAR-012). The data in the table, used for the calculations documented in SAR-002, omitted information on mixed oxide rods incorporated into four of the BRP assemblies. Corrective actions and followup confirmed that the calculations already performed sufficiently bounded the conditions created by the different fuel rods incorporated into these assemblies, and therefore the SAR-002

conclusions were still valid. An additional issue examined by the critique was that a similar data error was identified in 1998 (documented in critique CM98-028), however the corrective actions defined at that time had not been fully completed. According to WVNS personnel, successful completion of those corrective actions could have prevented this recent analytical error from occurring. WVNS determined that the direct cause of this event was the acceptance and use of incorrect data by WVNS when responsibility for the data was transferred to WVNS, in addition to the lack of formal tracking and closure of corrective actions identified in 1998.

#### Personnel Entered Controlled Area Without Complying with Sign Postings (CM-2000-003)

The area around a crane had been posted to restrict access during lifting of heavy loads. Personnel were discovered within the area during lifting operations, and the Main Plant Operations Shift Supervisor (MPOSS) was not aware of their presence. All personnel were immediately asked to exit the area, and work was suspended until it was determined why personnel had entered the area contrary to the posting. WVNS determined that the direct cause was inattention to detail, that communications between workers and the MPOSS had not been complete or effective, and that not all necessary persons were present at all daily pre-job briefings. Additionally, permission for access granted on one day was assumed to apply on a succeeding, different day and shift. Corrective actions included refreshing the importance of complete communications, establishment of policies requiring confirmation of access permission (additional formality in the communications process), and increasing surveillance of work area boundary postings.

#### Out of Position Valve During Operational Leak Check (CM-2000-04)

During start-up testing of newly installed piping in the liquid waste treatment system (LWTS), a small amount of liquid was discharged through an open grab-sample valve onto both the floor and an operator's leg. The open valve was one of several which were not labeled and the operators did not correctly understand which valves were to be operated. The valves were not regular process valves, and were required to be operated during system startup. Procedures WVDP-257 and SOP 00-30 require that equipment/components must be identified in the field by either permanent or temporary labels. In this case, valves on the skid were not labeled and the location descriptions in the work order were not sufficient to prevent the valve being left open when it should have been closed. WVNS determined that the direct cause of the event was that the policy on labeling had not been enforced. Corrective actions were to label all unlabeled components in the affected system, and to revise the checklist for work order preparation to require labeling of all affected components prior to issuing a work order. WVNS and DOE also noted in the critique analyzing this event that a good equipment/component labeling program contributes to a high-quality conduct of operations program.

### **IV. Conduct of Operations Reviews**

DOE conducted in January 2000 a semi-annual review of WVNS Conduct of operations, covering all 18 aspects of the DOE and WVNS Conduct of Operations (ConOps) manual. The review produced one concern (defined as the determination of a programmatic breakdown or widespread problem supported by one or more findings), which was supported by 33 findings (defined as an individual item which does not meet requirements). The concern identified was that there is a lack of rigor and discipline with respect to WVNS' ConOps implementation.

WVNS conducted a root cause analysis in response to the DOE ConOps assessment and determined the root cause to be that the conduct of operations standards, policies, and administrative controls in use at WVDP require frequent interpretation, which allows lower standards to be used. WVNS corrective actions include, in part, clarifying facility-specific standards, policies and administrative controls, as well as establishing new standards for the amount of time to be spent in the field by line management. An objective of the corrective actions is to increase the amount of time that supervisors and managers personally interact with workers in the field, emphasizing and clarifying expectations and standards.

A self-assessment conducted by WVNS in February 2000 confirmed that ConOps principles were still not a priority for many workers and that workers did not believe that the application of ConOps principles was addressed frequently enough by management. The self-assessment was a candid presentation of worker perceptions regarding the implementation of ConOps principles. Findings stated that workers believed ConOps was still not a priority issue, that communication of expectations are not clear (are inconsistent and changing), that accountability needs to be uniform and consistently enforced, that senior management needs to be more visible in the field, that expectations for field use of procedures are not clear, that workers want to be more involved in the observed evolution activities (a self-assessment activity in which procedures are critically reviewed and work activities evaluated for improvement), and that workers want more involvement with, and input to, the drafting of event fact sheets, critiques, and occurrence reports for events. This self-assessment was an excellent example of a targeted review that identified significant issues, resolution of which may provide major positive impact to routine operations. The quality and focus of this self-assessment report indicates a significant improvement to the site self-assessment program.

## V. High Level Waste Projects

### Vitrification

The melter was in idle during this monitoring visit, with the 247<sup>th</sup> canister in position under the melter feed pour spout. A primary focus for work related to vitrification during the week of the monitoring visit was the replacement of the off-gas HEPA filters, one of which was changed successfully during the week. Work was also continuing to remove as much radioactive materials as possible from the “heels” remaining in the high level waste tanks 8D-1 and 8D-2. WVNS estimates radioactivity remaining in the tanks is as follows:

<b>Curies Remaining*</b> <b>(change since 11/5/99)</b>	<b>Tank 8D-1</b>	<b>Tank 8D-2</b>	<b>Combined Total</b>
<sup>137</sup> Cs	320,000 (+3,000)	60,000 (-127,000)	380,000 (-124,000)
<sup>90</sup> Sr	<5,000 (0)	10,000 (-52,000)	~15,000 (-50,000)
<b>Total</b>	~325,000 (+3,000)	70,000 (-179,000)	~395,000 (-174,000)

\*As of March 15, 2000 (derived from 1/1/96 activity estimate baseline).

The objective is to transfer as much of the radioactivity to the melter as possible, and some may be moved between the tanks during the efforts to mobilize residual materials. This is the reason for the increase in tank 8D-1 radioactivity, while the combined total was reduced through transfer to the melter. Tank 8D-2 also contains most of the inventory of long-lived alpha emitting radionuclides, which are not included in the above table. WVNS estimates approximately 300 curies of these materials remain in Tank 8D-2. Other activities to enable further removal of tank heel materials include development of a HLW tank residue sampling system, procurement of a gamma camera to pinpoint radiation source locations, and consideration of design options to enable HLW transfers directly from tank 8D-1 to the concentrator feed makeup tank (CFMT) (rather than through tank 8D-2, which is now necessary).

Monitoring continues of the accumulation of noble metals in the melter. Little additional noble metals are being added to the melter because of the reduced transfers from the HLW tanks. WVNS is preparing to collect a sample from the melter to validate the modeling used to predict noble metal build-up. Sampling equipment is being tested by Pacific Northwest National Laboratory in a non-radioactive melter and is expected to be available for use at WVDP this fiscal year.

WVNS continued to develop and expand the vitrification expended materials processing (VEMP) program to reduce the size and volume of materials used inside the vitrification cell which have become contaminated with HLW. Several components which had portions coated in the melter with HLW-containing glass had the contamination part separated from the rest, thus allowing disposal of the remaining material as low level waste. WVNS was evaluating the possibility of placing the glass-coated components into HLW canisters as they are filled, as an option for disposing of the items.

## **VI. Site Operations and Facility Closure Projects**

### Head End Cells

Preparatory work continued to enable access to the Process Mechanical Cell (PMC) and the General Purpose Cell (GPC). Initial focus for both cells is enabling work on the in-cell cranes to make them useable for decommissioning work. Design work was completed for the GPC crane room extension enclosure, and work continued on the GPC "B" window to enable its use for viewing into the cell. Removal and refurbishment of some of the shield glass had not enabled clear viewing into the cell, and therefore additional work will be necessary.

An enclosure had been constructed around the PMC crane room and was nearing readiness for use to enable work to begin on the bridge crane and crane-room shield door. Fabrication was ready to begin on the bridge-mounted remote manipulator systems, which will be used for work within the PMC.

### Other Projects

No roof replacements are planned for the FY2000 construction season. In the main plant, removal of utility lines and tanks is in progress in the off gas aisle. Removal of the abandoned cooling tower in the fuel receipt and storage area is being planned.

Additional work will be accomplished on the site railroad spur to enable its use for future planned spent fuel shipments. Detailed design work is in progress for repairs to the Buttermilk Creek culvert, also to enable use of the rail line supported by the culvert.

## **VII. Waste, Fuel, and Environmental Projects**

### Radioactive Waste Management

Waste shipping activities continued, with emphasis on developing options to use intermodal containers and rail shipping to reduce costs. DOE had completed the process to enable WVDP access to DOE waste disposal sites, and WVNS was in the process of implementing the programs, procedures, and processes to enable use of the DOE disposal system.

The new Integrated Waste Tracking System was implemented in February, replacing the site's outdated database. Bar coding is planned to be introduced to augment the system, and will enable real-time tracking of waste packages on-site. The "touch waste once" program had been implemented site-wide, requiring waste producers to package materials and provide adequate information on packages to enable direct shipping rather than requiring re-packaging. The monitor observed the waste collection point in the main plant, near the former loading docks at the rear of the building.

The new LSA-4 structure was complete, having replaced the fabric covering with a stronger and more durable pre-engineered structure. The new shipping facility was nearing completion, enabling trucks to park and be loaded indoors.

### Spent Fuel Project

Preparations to ship spent fuel in 2001 from WVDP to Idaho National Engineering Lab were on schedule. Coordination and information meetings had commenced with governmental organizations along potential shipment routes. Personnel training and certification activities were in progress for staff that will be involved in fuel movement and cask loading. Upgrades to the 100-ton overhead crane in the fuel storage building are complete, with the crane certified for the loads required by the project. Engineering analyses in support of the shipping cask certifications were in progress, and discussions were continuing among NRC, DOE, and WVNS.

## **VIII. Exit Meeting**

The monitor presented the results of this visit to senior DOE management on April 6, 2000, and to WVNS management on April 7, 2000.

## PARTIAL LIST OF PERSONS CONTACTED

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

Barbara Mazurowski, Director  
T.J. Jackson, Associate Director  
William Hammel, High Level Waste Projects Team Leader  
Ken O'Connor, Engineer, High Level Waste Projects Team  
Ahmad Al'Douk, Engineer, D&D and Low Level Waste Projects Team

### West Valley Nuclear Services

Jim Little, Acting President and Executive Vice President  
Robert Lawrence, Waste, Fuel, and Environmental Projects Manager  
Paul Valenti, High Level Waste Projects Manager  
Stuart MacVean, Site Operations and Facility Closure Projects Manager  
Joe Jablonski, Spent Fuel Shipping & Main Plant Operations Manager  
Jack Gerber, Environmental Affairs Manager  
Ken Schneider, Head End Cells Project Manager  
Robert Keel, Operations Planning and Support Manager  
John Cwynar, Conduct of Operations Team Leader  
John Mahoney, Spent Fuel Shipping Manager  
Rand Dunn, HLW Tank Farm Operations Manger  
Dan Meese, Tank Farm and IRTS Engineering Manager  
Craig Repp, Environmental Projects Manager  
Bob Steiner, Senior Environmental Engineer  
Bruce Covert, Deputy Site Manager  
John Chamberlain, Public Affairs Manager  
Ed Yusis, Event Investigation Team Coordinator