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

August 29, 2000

Barbara A. Mazurowski
Director
US Department of Energy
West Valley Demonstration Project
10282 Rock Spring Road
P.O. 191
West Valley, NY 14171-0191

SUBJECT: U.S. NUCLEAR REGULATORY COMMISSION MONITORING VISIT 00-02

Dear Ms. Mazurowski:

On July 25-28, 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 your staff on July 27, 2000, and with WVNS management on July 28, 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. 00-02

cc:
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U.S. NUCLEAR REGULATORY COMMISSION
REGION I

MONITORING REPORT

Report No.	00-02
Site Visited:	U.S. Department of Energy West Valley Demonstration Project
Location:	10282 Rock Springs Road West Valley, NY 14171-0191
Visit Dates:	July 25-28, 2000

Monitor: ***/RA/*** ***08/29/00***

Todd J. Jackson, CHP — date
Health Physicist

Approved By: ***/RA/*** ***08/29/00***

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

Document Name: C:\lus department of en.090820~.wpd

EXECUTIVE SUMMARY

U.S. Department of Energy
West Valley Demonstration Project
NRC Monitoring Report No. 00-02

A routine monitoring visit was conducted July 25-28, 2000, to observe site operations and current project status at the West Valley Demonstration Project. Areas reviewed included site organizational changes, recent operational events, self-assessment, vitrification operations, high level radioactive waste projects, head end cell work, site operations and facility closure projects, radioactive waste management, environmental monitoring, 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 July 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 April 2000, with emphasis on the following:

Organization Changes
Recent Site Events (Reportable and Non-Reportable)
Self-Assessments
High Level Radioactive Waste Projects
Site Operations and Facility Closure Projects
Radioactive Waste Management
Spent Fuel Project
Environmental Monitoring

II. Organization Changes

DOE had named Alice Williams new Director for the WVDP, to replace Barbara Mazurowski. Ms. Williams was expected to arrive at West Valley in August 2000. WVNS personnel described adjustments to the WVNS organization and structure. WVNS staffing is at 795 total, compared to about 820 personnel one year ago.

III. Recent Site Events

Events occurring at the WVDP since the last visit in April 2000 had limited consequences, were investigated to correct specific problem areas, and were documented for lessons-learned value by WVNS. Details of selected recent operational and performance issues and events were reviewed by the monitor and are discussed below.

Improper Use of MSA Breathing Hoses (Critique CM2000-010): A Quality Assurance (QA) surveillance was performed in December 1999 to verify previous corrective actions taken to assure that breathing air hoses were not used for purposes other than breathing air. That surveillance determined breathing air hoses were again being used for general purpose utility hoses in the Vitrification Facility, a recurrence of the problem first identified in November 1998. Corrective actions following the December 1999 QA findings included documenting the problem in the Operations Safety newsletter and incorporating into respiratory protection training the subject of breathing air hoses and fittings, as well as a discussion of the prohibition on using breathing air equipment for any other purpose. Use of a different type of hose fitting for breathing air hoses was initiated to make these hoses more difficult to adapt to other applications.

Subcontractor Exceeded Authorized Work Scope Prior to Completing Lock Out/Tag-Out (LO/TO) Requirements (Critique CM 2000-011): A contractor was authorized to set-up a job prior to the hanging of tags, with work to modify utility water and utility air lines to begin only after lock-out tags had been hung. The contractor misunderstood the limitations on work authorized and removed components prior to the hanging of tags, cutting into potentially energized lines. Corrective actions included reviewing the LO/TO policy with the contractor's employees and issuing a Lessons Learned notice to WVNS Operations, Construction, and Maintenance personnel.

Deviation from Written Work Instructions (Occurrence Report FRS-2000-0003): Underground piping near the Fuel Receiving and Storage (FRS) building cooling tower was being cut and removed from the ground in accordance with a written work instruction. The work had been performed successfully for several days. One individual decided to change the method used and convinced other workers to deviate from the work instruction. When the change was noticed by a Radiation Protection Supervisor the work was immediately stopped. Work was allowed to continue when workers understood the work instruction, and subsequently proceeded in compliance with the instruction.

Energized Electrical Wires Cut During Removal of Deactivated Equipment (Occurrence Report CF-2000-0003): Personnel were removing equipment from the Main Plant Off Gas Aisle when sparks were observed coming from the electrical conduit being cut. Work was immediately stopped and an investigation conducted into why the conduit contained a live 120 volt wire. It was determined that the work order did not adequately identify the boundaries for the work or the precise location where cuts were to be made, and the worker chose a location on the conduit which contained live wires. No pictures or drawings were provided depicting the precise location to be cut. Additionally, there was a significant delay period from the date the work order was prepared in December 1999 and the performance of the work in May 2000. Corrective actions included developing an electrical safety briefing for decontamination and decommissioning (D&D) personnel, developing and proceduralizing methods to identify and integrate safety/work boundaries into D&D work, and training personnel in the methods.

Suspect Transuranic (TRU) Moved Without Completion of Required Documentation (Occurrence Report LAG-2000-0001): Procedural controls require a screening of waste packages prior to transferring them to a site storage location. One container was transported without the proper screening performed. In this case the paperwork was also subject to review during processing, and reviews did not identify the document discrepancies. Corrective actions included briefing waste generators and processing personnel on proper procedure use and the details of procedure requirements, and also a revision to the applicable procedure to improve the process flow and to improve accountability by clarifying in the documentation who performs each step.

The above reports attribute to occurrences causes that have commonly been identified in the past, indicating that some past corrective actions may not have been effective in preventing recurrence. Previously identified causes of events have commonly included personnel deviating from work instructions or procedures, workers deciding to proceed with work when the

instructions were not sufficiently clear, and inadequate communication between the procedure writer and the persons performing the work.

The WVNS program to identify and document problem areas is a strength. The threshold is low for entering problems or precursors into the corrective action program, and managers are willing to elevate issues to a higher category if they believe there is benefit to giving the issue a higher profile or a more thorough investigation. As a result of this approach to the corrective action program, WVNS has been collecting valuable data which enables effective identification of trends. As the program has matured over the last 2-3 years, more issues of lesser significance have been identified before they have become significant problems. It is important to note that the aggressive nature of the program to identify issues may produce more reports and a higher number of active issues than a less aggressive program, although the significance of the typical issues is lesser. Such an aggressive program can be more effective in preventing significant problems and should be viewed as a strength at the WVDP.

When events occur, WVNS clearly works to obtain the maximum information from the investigation. The monitor also noted that the investigation and documentation of operational issues and events at WVDP has provided valuable objective and candid information about worker's actions and motivations, enabling otherwise unavailable insights into the root causes of events. Efforts to maintain high quality investigations should continue; an example in which quality could be improved was Critique CM2000-022, which provided unclear information and conclusions, and which had been closed before the investigation had been completed.

An additional Occurrence Report (Potentially Defective Bullard Airline Filters, OH-WV-CF-2000-0004) was of interest due to the possibility of impact on NRC licensees. WVNS identified a manufacturing defect in Bullard airline filters, Series 41AF, and notified the manufacturer. Letters from the manufacturer to WVNS confirmed incorrect packing of a top carded-cotton filter in some of the filter assemblies with package identification listed as S/O 80929, manufactured on January 20, 2000. The incorrect packing resulted in the top carded-cotton filter component rattling loosely in the filter assembly, creating the possibility of airflow bypassing the filter element. The manufacturer also stated to WVNS that the filters are designed to be used only with Grade D breathable air as defined by the Compressed Gas Association CGA G7.1, and that use of the affected filters will not result in any personnel safety hazard. Bullard also offered to replace any affected filters. The monitor contacted the manufacturer's technical marketing manager, who confirmed that there was no personnel safety concern for the defect, and also that the filters are manufactured when ordered by a customer. As a result, no customers other than WVNS purchased the defective filter assemblies and there is no concern regarding use of similar equipment by NRC licensees.

IV. Self-Assessments

The WVNS self-assessment program has continued to improve and has become stronger by including more organizations into a more focused effort, with continued emphasis on conduct of operations (ConOps). Self-assessments are scheduled on a bimonthly basis. A new aspect of the program is to create dedicated teams for each self-assessment, composed of members from each site operating organization. Teams are led by a WVNS Facility Manager, with the

seven site Facility Managers rotating the responsibility. Teams include one supervisor and one worker from each of the seven organizations, and a supervisor and worker are paired to review one of the organizations. One member of the pair is from the organization being reviewed, and the second is from a different site organization. Management determines the focus for each bimonthly assessment based upon the program areas they want examined, and the team members provide varied perspectives when performing the in-depth analysis. The teams include different members each time, which expands the number of people getting experience in the self-assessment review process.

WVNS presented the results of the April and June ConOps self-assessments. These reviews produced several valuable comments and observations from team members and workers, and provided significant opportunities to improve routine ConOps. The current approach to performing self-assessments is a notable advancement in the program's quality and has made it a strength.

WVNS staff demonstrated a new lessons-learned database available to all site personnel over the local area network intranet. The database is searchable and enables staff to evaluate past experience for use in planning and trending.

V. High Level Waste Projects

Vitrification

The melter was in idle during this monitoring visit, with the 251st canister in position under the melter feed pour spout. Work continued to focus on removing as much radioactive material 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:

Curies Remaining* (**change since April 2000**)	**Tank 8D-1**	**Tank 8D-2**	**Combined Total**
^{137}Cs	150,000 (-170,000)	150,000 (+90,000)	300,000 (-80,000)
^{90}Sr	<1,000 (-4,000)	<5,000 (-5,000)	~5,000 (0)
Total	~150,000 (-175,000)	155,000 (+85,000)	~300,000 (-95,000)

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

The radioactivity in these two tanks may increase because there are also process inputs into the tanks, which can add radioactive material as part of vitrification operations.

Because it is increasingly harder to transfer radioactive material in the tank heels to the melter, multiple boil-downs are now required to produce one batch to feed the melter. Noble metal buildup has not changed, and operational data is closely following model predictions. A sampler to collect a noble metal sample was tested in a non-radioactive melter and is expected to be delivered to WVDP before October 2000.

Two approaches to obtaining detailed characterization data for the inside of the high level waste tanks are planned. The monitor observed the testing of a gamma camera on the WVDP test stand. This equipment will enable determination of the location of significant sources of gamma radiation. Other radiation detectors are also being deployed into the tanks to better characterize radiation fields remaining. Sampling equipment is also being developed to enable the collection of samples from tank inside surfaces.

VI. Site Operations and Facility Closure Projects

Head End Cells

Construction of the Process Mechanical Cell (PMC) crane room enclosure was complete, and the structure was turned over to Main Plant Operations. The PMC bridge-mounted manipulator systems had been fabricated. Construction work had started on the General Purpose Cell Crane Room Extension Enclosure.

Other Projects

Some of the abandoned process tanks had been removed from the Main Plant offgas aisle and from the old O2 low level waste treatment building, with more removals in progress. Removal of the FRS cooling tower and associated equipment was in progress.

Rail cars had been transported to the site, demonstrating the ability to use the site rail line. Repairs to the Buttermilk Creek culvert were nearly complete and will enable full use of the rail line supported by the culvert. Other rail maintenance and preparation work will be completed so the line can be used to transport waste for disposal and the spent fuel from the FRS storage pool.

VII. Waste, Fuel, and Environmental Projects

Radioactive Waste Management

Additional low-level radioactive waste was shipped for burial since the last monitoring visit, using the newly completed waste shipping facility. Some waste had been shipped via truck to a rail head in Pennsylvania, and then transported to the burial site via rail. The first rail shipment of low level waste from the site is being planned, and may occur as early as September 2000.

Efforts to reduce the site inventory of radioactive waste have continued, with site mixed hazardous and radioactive waste down 80% from October 1999 to June 2000. Progress was made in preparations for waste disposal at DOE's National Test Site (NTS) facility, with plans on-track to host an NTS certification audit in January 2001. The audit is the last step in the certification process to qualify WVDP as a shipper to NTS.

Spent Fuel Project

Preparations continued for shipment of spent fuel in 2001 from WVDP to Idaho National Engineering Lab. Facilities and equipment were nearly ready, pending approval of the Safety Analysis Reports for the shipping cask. A WVNS management self-assessment team to assess site readiness for shipping had been selected, and a DOE operational readiness review team has been established to fully examine and confirm the status of preparations.

The monitor observed activities in the FRS and on the fuel transport bridge involved in training personnel as part of the preparations for the fuel handling aspect of the spent fuel project. Personnel training was in progress to appropriately qualify personnel for fuel handling necessary to load the shipping cask. Training included operators, supervisors, quality assurance inspectors, and radiation protection technicians. Discussions were also continuing with potentially affected governmental entities along possible transport routes

VIII. Environmental Monitoring

WVNS presented the summary results of the 1999 environmental monitoring program, which are described in detail in the 1999 Site Environmental Report. The monitor also observed the changing of weekly air samples from the waste tank farm permanent ventilation system (PVS). Radiation dose consequences to the public continue to be very small, with the estimated dose to the maximally exposed off-site individual at 0.068 mrem (0.00068 mSv) for 1999. This calculated dose includes airborne and liquid release exposure pathways, and is 0.068% of the DOE limit for a member of the public.

IX. Exit Meeting

The monitor presented the results of this visit to senior DOE management on July 27, 2000, and to WVNS management on July 28, 2000.

PARTIAL LIST OF PERSONS CONTACTED

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

Elizabeth Lowes, Acting 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
Scott Roberts, Operations Manager-Waste Management
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
Anthony Nagel, Environmental Affairs
John Chamberlain, Public Affairs Manager
Ed Yusis, Operations Planning and Support
Douglas Wallon, Senior Engineer