

**West Valley Demonstration EM Project(s)**  
**Baseline Summary**  
**June 2008**

**BACKGROUND**

The West Valley Demonstration Project (WVDP) is a unique operation within the Department of Energy. It came into being through the West Valley Demonstration Project Act of 1980. The Act requires that the Department is responsible for solidifying the high-level waste, disposing of waste created by the solidification, and decommissioning the facilities used in the process. The land and facilities are not owned by the Department. Rather, the project premises are the property of the New York State Energy Research and Development Authority (NYSERDA) and represents only 200 acres of the larger Western New York Service Center, which is approximately 3,300 acres, also owned by NYSERDA. After DOE's responsibilities under the Act are complete, the Act requires that the premises be returned to New York State. Until that time, the Act requires New York State to pay 10 percent of the Project costs, and the Department pays the remaining 90 percent.

Located about 40 miles south of Buffalo, the WVDP occupies the site of the only commercial nuclear fuel reprocessing facility to have operated in the United States. During commercial operations of the site in the late sixties and early seventies, approximately 640 metric tons of spent nuclear fuel was reprocessed. Reprocessing operations were halted between 1972 and 1976 to support facility modifications, but operations never resumed. When DOE became responsible for the site in 1980, approximately 600,000 gallons of liquid high level waste (HLW) were stored in two single shelled, carbon steel underground tanks.

Since then, DOE has performed waste disposition, decontamination, deactivation, and disposition of facilities, and infrastructure/landlord activities. To date, the site has solidified over 600,000 gallons of HLW into 275 canisters and shipped over 1,000,000 cubic feet of low level waste (LLW).

**SCOPE DESCRIPTION**

The complete Integrated Performance Baseline covers the period from October 1, 2007 to September 30, 2040, and is comprised of two distinct planning periods. First, the near term baseline begins October 1, 2007 and ends September 30, 2012. The completion of the following activities is anticipated during this time frame;

- Removal of all legacy waste,
- Decontamination and deactivation of the Main Plant Process Building (MPPB), while still maintaining the required systems for the continued storage of the HLW Canisters,
- Decontamination, deactivation and demolition of the Balance of Site Facilities,

- Decontamination and deactivation of the Remote Handled Waste Facility (RHWF) and Vitrification Facility (VF),
- Isolation of the HLW Tanks and removal of the former transfer line,
- Design and approval of the HLW Canister storage systems,
- Installation of the Tank / Vault Drying System,
- Near-term management and containment of groundwater contamination on the North Plateau Groundwater Plume, and
- Continued O&M and S&M activities.

The second planning period, the out year planning period, begins October 1, 2012 and extends through September 30, 2040. During this period, the following activities are planned;

- Packing of the HLW Canisters and relocation to a new on site storage area,
- Decommissioning of the facilities used by DOE,
- Continued maintenance of the Nuclear Regulatory Commission Licensed Disposal Area,
- Management of the HLW Tank Farm including the Tank / Vault Drying System,
- Transport of the HLW Canisters off-site to an appropriate Federal repository for permanent disposal, and
- Decommissioning of the HLW Tanks.

## **PROJECT MANAGEMENT**

Based on the direction from EM Headquarters, the West Valley Demonstration Project office developed the near-term baseline for each of its projects. These project baselines have undergone an independent review to verify the reasonableness of the scope, cost, and schedule for each project. An approved near-term baseline reflects the identified scope that can reasonably be accomplished for the identified cost in the identified time period if near-term baselines are funded as profiled and contingency funds are provided as required during project execution. It also establishes the baseline as an acceptable point from which to track and control future change. The review and approval process accommodates the likely changes in the EM complex, site priorities and funding plans. These changes could affect both near-term (within the next five years) and life-cycle cost, schedule and scope. Such future changes may be required to comply with applicable environmental legal obligations while maintaining essential functions necessary to protect human health, the environment and national security; reflect funding different from the baseline assumptions; incorporate technological advances; realize specific programmatic risks; or implement programmatic/business cases. Because the cleanup extends beyond the near-term, out-year planning estimates (ranges) have also been developed and independently reviewed.

## LIST OF PROJECTS

The West Valley Demonstration Project consists of the Performance Baseline Summary (PBS) as shown below: The Near-Term Baseline (NTB) for these is from FY 2007 – FY 2012 and the Out Year Planning Estimate Range (OPER) is from FY2012 through FY 2040.

PBS	Date Approved	
	Near Term Baseline (NTB)	Out Year Planning Estimate Range (OPER)
OH-WV-0013 - Solid Waste Stabilization and Disposition	CD 2/3 1/17/08	CD 2/3 1/17/08
OH-WV-0040 - Nuclear Facility Decontamination & Decommissioning	CD 2/3 1/17/08	CD 2/3 1/17/08
OH-WV-0014 - Radioactive Liquid Tank Stabilization and Disposition - West Valley High-Level-Waste Storage	CD 2/3 1/17/08	CD 2/3 1/17/08

## PROJECT SCOPE

### OH-WV-0013 - Solid Waste Stabilization and Disposition

Approximately 6,000 cubic meters of low level, mixed, and transuranic waste is currently stored at the WVDP site. This PBS encompasses the waste disposition and management activities required per the West Valley Demonstration Project (WVDP) Act of 1980 which directed DOE to dispose of low level and transuranic waste generated as a result of high level waste solidification readiness and execution activities. Waste Disposition planned volumes are as follows: Mixed Low Level (130 m<sup>3</sup>), Low Level (4098 m<sup>3</sup>), CH-TRU (1143 m<sup>3</sup>), and RH-TRU (555 m<sup>3</sup>).

### OH-WV-0040 - Nuclear Facility Decontamination & Decommissioning

The decontamination and decommissioning program at the WVDP involves those activities required per the WVDP Act of 1980 to D&D the facilities, tanks, and hardware used in connection with the Project. D&D will be performed to most effectively reduce worker, public and environmental risk at the Project. To support D&D, this program also involves those activities required to safely manage and maintain the site in compliance with federal and state statutes, as well as DOE orders and mandates. An EIS is currently under development by DOE and New York State, the West Valley site owner. Project facilities will be decontaminated and decommissioned, in accordance with the NRC Decommissioning requirements and the Record of Decision for Decommissioning and/or Long Term Stewardship (currently scheduled for 2010). A total of 42 facilities will be demolished including the Main Plant Process Building and the balance of site facilities. In order to minimize surveillance and maintenance of the site, the

HLW canisters will be placed in safe interim storage until the HLW canisters can be transported to an appropriate Federal repository, and any remaining D&D performed.

**OH-WV-0014 - Radioactive Liquid Tank Stabilization and Disposition - West Valley High-Level-Waste Storage**

This PBS includes the activities associated with surveillance, monitoring and maintenance of the WVDP site and high level waste (HLW) canisters following EIS Phase 1 Implementation until such time that the HLW canisters can be dispositioned to a federal repository for permanent disposal. Until disposition to the repository is possible, the HLW canisters produced as a result of HLW solidification activities will be monitored and maintained on-site in safe interim storage.

**PROJECT COST**

(dollars in millions)

Cost Element	Project Number		
	OH-WV-0013	OH-WV-0014	OH-WV-0040
1. Prior Year Costs (1997-2007)	\$190.7	0	\$425.4
2. Total Near-Term Baseline (50% Confidence Level)	\$158.2	0	\$232.4
3. Unfunded Contingency	\$28.4	0	\$19.0
4. Performance Baseline (80% Confidence Level)	\$186.6	0	\$251.4
5. Out Year Planning Estimate Range	0	\$366 - \$407	\$398 - \$470
6. <b>Total Life Cycle Cost</b>	\$377.3	\$407	\$1146.8

### SUMMARY LIFECYCLE BASELINE SCHEDULE

