West Valley Demonstration Project Decommissioning Status

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Department of Energy

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Phased Decision Making

In 2010, DOE published the Final Environmental Impact Statement and Record of Decision (ROD) for Decommissioning and/or Long-Term Stewardship at the West Valley Demonstration Project (WVDP) and the Western New York Nuclear Service Center (WNYNSC)

- Phased Decisionmaking ROD
- Phase 1 Decommissioning Plan

Phase 1 Decommissioning
(Complete by 2020*)

Phase 1 Facility Disposition
- Relocate 275 HLW Canisters to new dry cask storage facility
- Demolish Vitrification Facility (Vit) and Main Plant Process Building (MPPB)
- Remove auxiliary facilities
- Ship legacy Low Level Waste

Phase 1 Soil Remediation
- Remove Below Grade Portion of MPPB (including source area of plume), VR-C1-14
- Remove Lagoons and Liquid Waste Treatment Facility
- Ship Legacy TRU Waste
- Remove Remote Handled Waste Facility and remaining auxiliary facilities
- Remediate at WMA 1 & 2 Soil

* Based on funding at $75 M/yr

- Final Decommissioning ROD
- Phase 2 Decommissioning Plan

Phase 2 Decommissioning
(Decisions made by 2020)

Phase 2 Decisions
- HLW Canister Shipment (permanent disposal decision)
- Closure decision for Waste Tank Farm
- Closure decisions for NRC-licensed Disposal Area and State-licensed Disposal Area
- Construction and Demolition Debris Landfill
- Contaminated media
**Phase 1 Facility Disposition**

- **Scope of work includes:**
  - Complete high level waste (HLW) canister relocation at WVDP
  - Process, ship and dispose of all legacy waste off-site
  - Demolition and removal of the Main Plant Process Building (MPPB)
  - Demolition and removal of the Vitrification (Vit) Facility
  - Complete all work described in the Performance Work Statement
    - Remove ancillary facilities
    - Manage and maintain site infrastructure
    - Conduct environmental monitoring
    - Maintain the underground storage tanks, the NRC-licensed disposal area, and the Permeable Treatment Wall

- **Scope of work performed by CH2M HILL B&W West Valley, LLC (CHBWV) [contract awarded in 2011]**

**Phase 1 Soil Remediation**

- **Plan scopes of work for Phase 1 soil remediation in ~2018***
- **Award contract(s) in ~2019***
- **Planned scopes of work will include:**
  - Remove below grade portions of MPPB and vitrification facility, including the source area of the plume
  - Remove the lagoons and liquid waste treatment facility
  - Ship the legacy transuranic (TRU) waste (potentially)
  - Remove the RHWF and remaining ancillary facilities (after shipment of TRU waste)
  - Remediate WMA 1 & 2 soil

*Schedules for Phase 1 soil remediation are contingent upon the end date of the Phase 1 facility disposition scope of work.*
End of Phase 1 Decommissioning

At the end of Phase 1 decommissioning (Phase 1 facility disposition plus Phase 1 soil remediation) six facilities/areas will remain:

- Tank farm with the tank and vault drying system
- HLW storage casks
- NDA with cap and barrier wall
- SDA with cap and barrier wall
- Non-source area of groundwater plume
- Construction and Demolition Debris Landfill

Waste Management Areas

The Final Environmental Impact Statement for Decommissioning and/or Long-Term Stewardship at the West Valley Demonstration Project and Western New York Nuclear Service Center addresses the developed portion of the site in 10 waste management areas (WMA)
WMA 1 includes:
• Main Plant Process Building (MPPB)
• Plant office building
• Vitrification Facility
• Load-in/Load-out Facility
• Utility Room
• Fire Pump House
• Water storage tank
• Laundry
• Fuel Receiving and Storage
## WMA 1 Status

<table>
<thead>
<tr>
<th>Facility</th>
<th>January 2014 Status</th>
<th>Planned for End of Phase 1 Facility Disposition</th>
<th>Planned for End of Phase 1 Decommissioning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Plant Process Building</td>
<td>Removed: 86% of contaminated vessels 84% of piping and conduit 95% of asbestos</td>
<td>Demolished to slab at grade</td>
<td>Removal of slab, below-grade structures, &amp; source area of plume</td>
</tr>
<tr>
<td>Vit Facility</td>
<td>99% decontaminated: contaminated equipment removed, floor cleaning &amp; electrical isolations underway; cold chemical building demolished to the slab</td>
<td>Demolished to slab at grade</td>
<td>Removal of below-grade structures</td>
</tr>
<tr>
<td>Fuel Receiving &amp; Storage</td>
<td>Vent building demolished; pool drained and cleaned; surface &amp; airborne contamination remain</td>
<td>Remains in place</td>
<td>Removal of above- and below-grade structures</td>
</tr>
<tr>
<td>Plant Office Building</td>
<td>Rooms emptied, asbestos removal underway</td>
<td>Demolished to slab at grade</td>
<td>Removal of below-grade structures</td>
</tr>
</tbody>
</table>

## WMA 1 Status continued

<table>
<thead>
<tr>
<th>Facility</th>
<th>January 2014 Status</th>
<th>Planned for End of Phase 1 Facility Disposition</th>
<th>Planned for End of Phase 1 Decommissioning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utility Room</td>
<td>In service, contains significant quantity of asbestos</td>
<td>Demolished to slab</td>
<td>Removal of below-grade structures</td>
</tr>
<tr>
<td>Load-in/Load-out</td>
<td>In service, available for load-out of HLW canisters</td>
<td>Demolished to the slab</td>
<td>Removal of below-grade structures</td>
</tr>
<tr>
<td>Water Storage Tank &amp; Fire Pump House</td>
<td>In service</td>
<td>Operational</td>
<td>Removal of above- and below-grade structures</td>
</tr>
<tr>
<td>Laundry Room</td>
<td>Demolition Ready</td>
<td>Demolished to the slab</td>
<td>Removal of below-grade structures</td>
</tr>
<tr>
<td>01-14 Building</td>
<td>Demolished to the slab</td>
<td>Demolished to the slab</td>
<td>Removal of below-grade structures</td>
</tr>
</tbody>
</table>
WMA 2

Orthoimage of WMA 2

1. Low-Level Waste Treatment Facility 2 (LLW2)
2. Lagoon 2
3. Lagoon 3
4. Lagoon 4
5. Lagoon 5
6. Old interceptor
7. New interceptors
8. Vitrification Test Facility
9. Vehicle Repair Shop
10. Test and Storage Building
11. Maintenance Shop
12. O2 building
13. Lagoon 1 area

WMA 2 Status

<table>
<thead>
<tr>
<th>Facility</th>
<th>January 2014 Status</th>
<th>Planned for End of Phase 1 Facility Disposition</th>
<th>Planned for End of Phase 1 Decommissioning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-Level Waste Treatment Facility 2 &amp; Lagoons 2, 3, 4 &amp; 5</td>
<td>Operational</td>
<td>Operational</td>
<td>Removal</td>
</tr>
<tr>
<td>Old &amp; new interceptors</td>
<td>Operational</td>
<td>Operational</td>
<td>Removal</td>
</tr>
<tr>
<td>Vitrification Test Facility</td>
<td>Operational</td>
<td>Facility &amp; foundation removed; area restored</td>
<td>NA</td>
</tr>
<tr>
<td>Vehicle Repair Shop, Test &amp; Storage Building, Maintenance Shop</td>
<td>Demolished to slabs at grade</td>
<td>Facilities removed, foundations remain</td>
<td>Removal</td>
</tr>
<tr>
<td>O2 Building</td>
<td>Demolished to slab at grade</td>
<td>Foundation removed; area restored</td>
<td>NA</td>
</tr>
<tr>
<td>Lagoon 1</td>
<td>Inactive</td>
<td>Inactive</td>
<td>Removal</td>
</tr>
</tbody>
</table>
### WMA 3

1. Permanent Ventilation System building
2. Supernatant Treatment System support building
3. Equipment shelter and condensers
4. Con-Ed building
5. High-Level Waste (HLW) transfer trench
6. Two underground, 760,000 gallon carbon steel tanks: 8D-1 and 8D-2
7. Two underground, 14,300 gallon stainless steel tanks: 8D-3 and 8D-4

### WMA 3 Status

<table>
<thead>
<tr>
<th>Facility</th>
<th>January 2014 Status</th>
<th>Planned for End of Phase 1 Facility Disposition</th>
<th>Planned for End of Phase 1 Decommissioning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permanent Ventilation System</td>
<td>Operational</td>
<td>Operational</td>
<td>Operational</td>
</tr>
<tr>
<td>Supernatant Treatment System Support Building</td>
<td>Operational</td>
<td>Operational</td>
<td>Remains in place</td>
</tr>
<tr>
<td>Equipment Shelter (ES) &amp; Condensers</td>
<td>Condensers isolated; ES partially operational</td>
<td>Facilities removed; foundation remains</td>
<td>Removal of foundation</td>
</tr>
<tr>
<td>Con-Ed Building</td>
<td>In-active</td>
<td>Facility removed; underlying tanks remain</td>
<td>NA</td>
</tr>
<tr>
<td>High-Level Waste Transfer Trench</td>
<td>In-place</td>
<td>All lines &amp; trench isolated</td>
<td>Remove piping; trench remains</td>
</tr>
<tr>
<td>Tanks 8D-1 &amp; 8D-2</td>
<td>Isolated</td>
<td>Isolated</td>
<td>Remain in place</td>
</tr>
<tr>
<td>Tanks 8D-3 &amp; 8D-4</td>
<td>Isolated</td>
<td>Isolated</td>
<td>Remain in place</td>
</tr>
</tbody>
</table>
**WMA 3 Status of Tanks**

- Tank & Vault Drying System (T&VDS) installed and operational in December 2010
  - Status of tank liquids
    - Tank 8D-1 – all liquid evaporated
    - Tank 8D-2 – all liquid evaporated
    - Tank 8D-3 – all liquid evaporated
    - Tank 8D-4 – 4,630 gallons of liquid/sludge remain
  - Status of vaults and containment pans
    - Tank 8D-1 vault liquid is below level indicator (<2 inches and may be dry)
    - Tank 8D-2 vault liquid is below level indicator (<2 inches and may be dry)
    - All liquid in containment pans of tanks 8D-1 and 8D-2 evaporated
    - Tank 8D-3/8D-4 vault liquid evaporated
  - At the end of Phase 1 decommissioning the T&VDS will be operational; tanks and their support structures will remain in place

**WMA 4**

*The Construction and Demolition Debris Landfill (CDDL)*

**Status**

- CDDL is inactive
- Monitoring and maintenance will continue through Phase 1 decommissioning
### WMA 5

![Orthoimage of WMA 5](image)

<table>
<thead>
<tr>
<th>Facility</th>
<th>January 2014 Status</th>
<th>Planned for End of Phase 1 Facility Disposition</th>
<th>Planned for End of Phase 1 Decommissioning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lag Storage Area 1</td>
<td>Demolished to slab</td>
<td>Foundation remains</td>
<td>Remove foundation</td>
</tr>
<tr>
<td>Lag Storage Area 2</td>
<td>Operational</td>
<td>Waste removed; hardstand remains</td>
<td>Remove hardstand</td>
</tr>
<tr>
<td>Lag Storage Areas 3 &amp; 4 and Shipping Depot</td>
<td>Operational</td>
<td>All waste removed; facilities remain</td>
<td>Remove facilities &amp; foundations</td>
</tr>
<tr>
<td>Chemical Process Cell Waste Storage Area</td>
<td>Operational</td>
<td>Demolish facility &amp; foundation</td>
<td>NA</td>
</tr>
<tr>
<td>Remote-Handled Waste Facility</td>
<td>Operational</td>
<td>Operational</td>
<td>Remove after remote-handled TRU waste has been shipped off-site</td>
</tr>
<tr>
<td>Lag Storage Building</td>
<td>Demolished to slab</td>
<td>Foundation remains</td>
<td>Remove foundation</td>
</tr>
<tr>
<td>Hazardous Waste Storage Lockers</td>
<td>Demolished</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>
1. Rail spur
2. Demineralizer sludge ponds (inactive)
3. Equalization basin
4. Equalization tank
5. Sewage Treatment Plant
6. Low-level waste rail packaging and staging area
7. Cooling tower
8. Two waste tank farm test towers
9. Old warehouse
10. Product Storage Area
11. HLW storage pad

**WMA 6 Status**

<table>
<thead>
<tr>
<th>Facility</th>
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<th>Planned for End of Phase 1 Facility Disposition</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Rail Spur</td>
<td>Operable</td>
<td>Operational</td>
<td>Operational</td>
</tr>
<tr>
<td>Demineralizer Sludge Ponds</td>
<td>Inactive</td>
<td>No further action</td>
<td>Area restored</td>
</tr>
<tr>
<td>Equalization Basin</td>
<td>Operational</td>
<td>Remove facility &amp; foundation</td>
<td>Area restored</td>
</tr>
<tr>
<td>Equalization Tank</td>
<td>Operational</td>
<td>Remove facility &amp; foundation</td>
<td>Area restored</td>
</tr>
<tr>
<td>Sewage Treatment Plant</td>
<td>Operational</td>
<td>Remove facility &amp; foundation</td>
<td>Area restored</td>
</tr>
<tr>
<td>Rail Packaging &amp; Staging Area</td>
<td>Operational</td>
<td>Operational</td>
<td>Removed</td>
</tr>
</tbody>
</table>
WMA 6 Status continued

<table>
<thead>
<tr>
<th>Facility</th>
<th>January 2014 Status</th>
<th>Planned for End of Phase 1 Facility Disposition</th>
<th>Planned for End of Phase 1 Decommissioning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooling Tower</td>
<td>Demolished</td>
<td>Remove foundation</td>
<td>Area restored</td>
</tr>
<tr>
<td>Waste Tank Farm Test Towers</td>
<td>Demolished</td>
<td>Remove foundation</td>
<td>Area restored</td>
</tr>
<tr>
<td>Old Warehouse</td>
<td>Demolished</td>
<td>Area graded</td>
<td>Area restored</td>
</tr>
<tr>
<td>Product Storage Area</td>
<td>Demolished</td>
<td>Area graded</td>
<td>Area restored</td>
</tr>
<tr>
<td>HLW Storage Pad</td>
<td>Pad construction complete</td>
<td>HLW canisters stored in casks on the pad</td>
<td>HLW canisters stored in casks on the pad</td>
</tr>
</tbody>
</table>

WMA 7

Orthoimage of WMA 7

NRC-Licensed Disposal Area Status

- A geomembrane cap and barrier wall were installed in 2008 to prevent water infiltration
- Liquid Pretreatment System is operable
- The NDA will remain in place during Phase 1 decommissioning
WMA 8

State-Licensed Disposal Area

Status

- The geomembrane cap and barrier wall prevent water infiltration into the disposal area
- The leachate treatment facility was clean-closed and no longer stores mixed waste
- The SDA will remain in place during Phase 1 decommissioning

WMA 9

1. Drum Cell
2. Subcontractor Maintenance Area
3. NDA Trench Container Area Pad
### WMA 9 Status

<table>
<thead>
<tr>
<th>Facility</th>
<th>January 2014 Status</th>
<th>Planned for End of Phase 1 Facility Disposition</th>
<th>Planned for End of Phase 1 Decommissioning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drum Cell</td>
<td>Operational; all waste has been removed</td>
<td>Facility &amp; foundation removed; area restored</td>
<td>No further action</td>
</tr>
<tr>
<td>Subcontractor</td>
<td>Operational</td>
<td>Operational</td>
<td>Removed</td>
</tr>
<tr>
<td>Maintenance Area</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NDA Trench Container</td>
<td>Operational</td>
<td>Operational</td>
<td>Removed</td>
</tr>
<tr>
<td>Area Pad</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### WMA 10

1. Gatehouse
2. Administration Building
3. Warehouse
4. Meteorological Tower
5. Environmental Laboratory
## WMA 10 Status

<table>
<thead>
<tr>
<th>Facility</th>
<th>January 2014 Status</th>
<th>Planned for End of Phase 1 Facility Disposition</th>
<th>Planned for End of Phase 1 Decommissioning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gatehouse</td>
<td>Operational</td>
<td>Operational</td>
<td>Remains operational</td>
</tr>
<tr>
<td>Administration Building</td>
<td>Operational</td>
<td>Facility &amp; foundation removed; area restored</td>
<td>No further action</td>
</tr>
<tr>
<td>Warehouse</td>
<td>Operational</td>
<td>Facility &amp; foundation remain</td>
<td>Facility &amp; foundation removed</td>
</tr>
<tr>
<td>Meteorological Tower</td>
<td>Operational</td>
<td>Operational</td>
<td>Remains operational</td>
</tr>
<tr>
<td>Environmental Laboratory</td>
<td>Demolished</td>
<td>Foundation removed; area restored</td>
<td>No further action</td>
</tr>
</tbody>
</table>

## End of Phase 1 Decommissioning

At the end of Phase 1 decommissioning (Phase 1 facility disposition plus Phase 1 soil remediation) six facilities/areas will remain:

- Tank farm with the tank and vault drying system
- HLW storage casks
- NDA with cap and barrier wall
- SDA with cap and barrier wall
- Non-source area of groundwater plume
- Construction and Demolition Debris Landfill
Phase 2 Decommissioning

- The Phase 2 decision includes WVDP and WNYNSC facilities:
  - Waste Tank Farm
  - HLW Storage Casks
  - NRC-Licensed Disposal Area
  - State-Licensed Disposal Area
  - Construction and Demolition Debris Landfill
  - Contaminated media
    - Non-source area of the plume
    - Cesium prong
    - Streams