# West Valley Site Overview

**West Valley Citizen Task Force**
**May 28, 2008**

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## West Valley Reprocessing Facility


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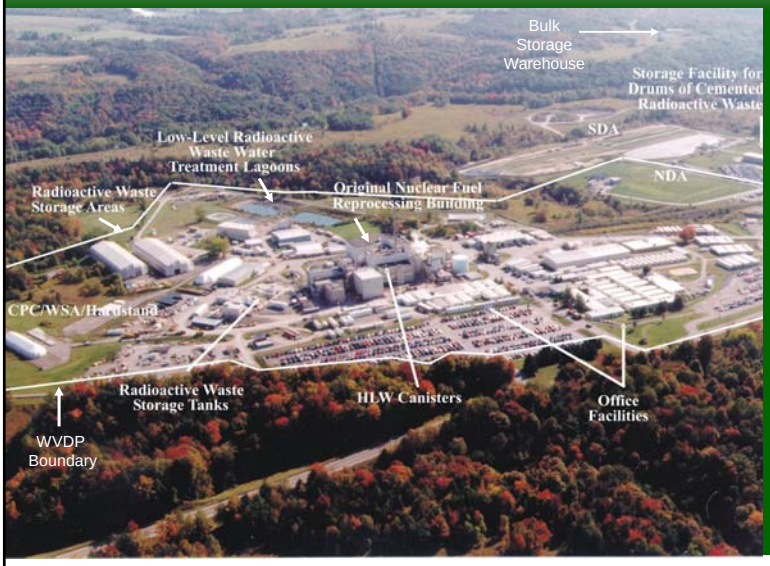
# West Valley Demonstration Project (WVDP)

| | |
|---|---|
| 1966-72 | Private company reprocessed used reactor fuel to recover usable uranium and plutonium; approximately 640,000 gallons of highly radioactive liquid waste (HLW) resulted |
| 1972-76 | Reprocessing was halted to modify the facility; operations never resumed |
| 1980 | Federal law 96-368 (West Valley Demonstration Project Act) was enacted directing the U.S. Department of Energy (DOE) to solidify the HLW (vitrify) and to decommission the facilities used |
| 1982 | DOE assumed control of approximately 200 acres of the 3,345-acre NYS-owned site to conduct the Project |



# WVDP Site (~1992)



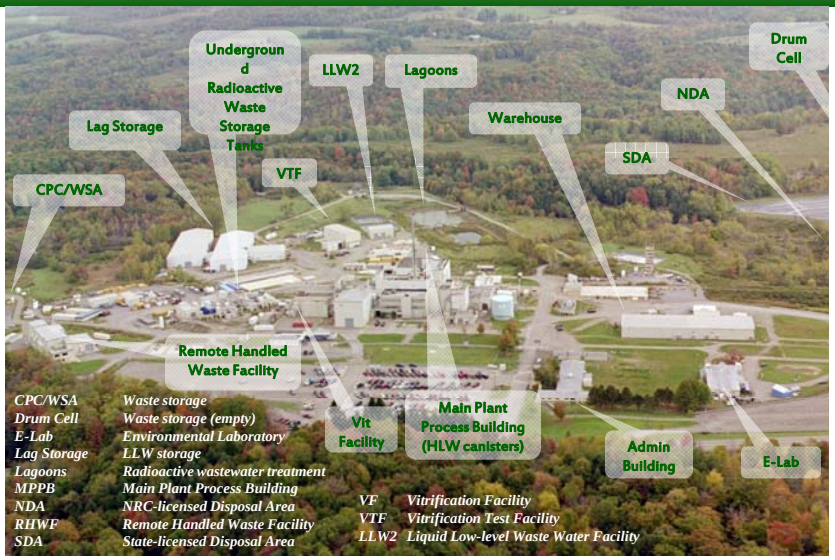

**Numerous facilities were constructed to support HLW solidification, general waste management, and overall site maintenance**

# Project Transition

- 1996: HLW processing (vitrification) into solid glass began, marking the end of HLW processing technology development and the beginning of operations-related activities
- Since the mid-1990s the Project has:
  - Shipped over one million cubic feet of low-level radioactive waste (LLW) for disposal including nearly 20,000 drums of cemented waste
  - Shipped the final 125 used reactor fuel assemblies stored at the site for offsite storage and drained the fuel storage pool
  - Removed
    - Piping, tanks and hardware from the Vitrification Facility after completing HLW processing
    - Nearly 200 office / storage trailers
    - Many other unneeded facilities



# WVDP Site (2007)



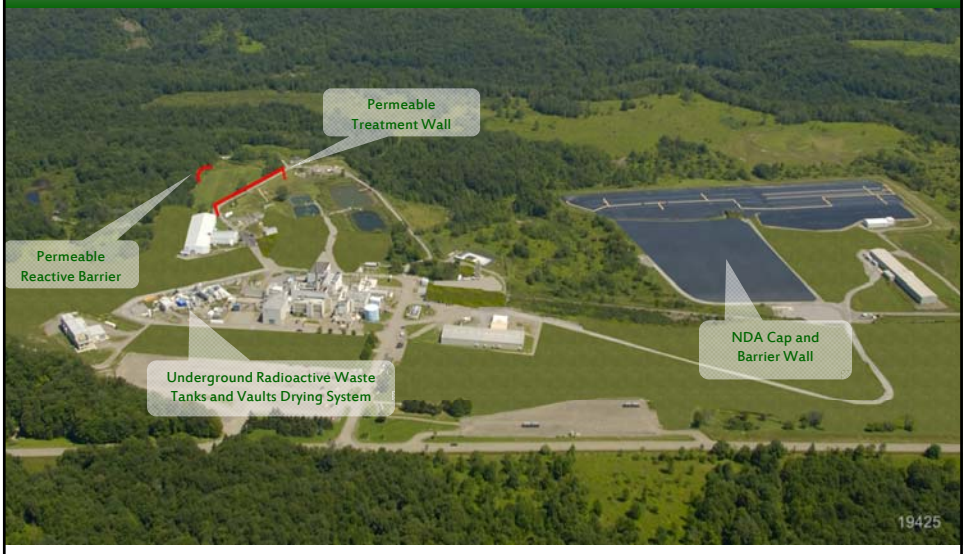
## *Near-term Goal (2008-2011)*

- By the end of FY 2011, (September 30, 2011)…
  - Decontaminated and deactivated Main Plant Process Building, Remote Handled Waste Facility and Vitrification Facility
  - Shipped for off-site for disposal remaining low-level radioactive waste that can be shipped
  - Removed unneeded facilities
  - Upgrades in place for containment and management of…
    - NRC-licensed Disposal Area
      - Synthetic cover and in-ground barrier
    - Underground Radioactive Waste Tanks and Vaults
      - Drying system in operation
    - North Plateau groundwater contamination
      - Mitigation barrier in place at leading edge

**Interim End State**



## *Interim End State (2011)*



## *Proposed Work to Follow Interim End State*

Phased Decommissioning

- Phase I (2011 – 2018)
  - Relocate HLW canisters to onsite shipping-ready storage
  - Remove Main Plant Process Building, including below-grade sections and source area of North Plateau groundwater contamination
  - Remove radioactive low-level waste water treatment facility including lagoon system
  - Remove all facilities not needed to maintain Waste Tank Farm, North Plateau groundwater contamination, NRC-licensed Disposal Area, and general site monitoring and maintenance



## Phased Decommissioning

***Primary Facilities/Areas to be Removed During Phase 1***

# Main Plant Process Building (MPPB)

- Built in 1960s to reprocess used nuclear reactor fuel
- Multi-story building; 130' wide by 270' long and 79' above-ground
- More than 40 separate chambers/areas in MPPB
- Walls, floors, and ceilings have 1 – 6' thick reinforced concrete designed to provide radiation shielding
- Portions of the MPPB extend up to ~45' below-grade

*Largest chamber currently contains 275 10' x 2' steel canisters filled with HLW solidified in glass*



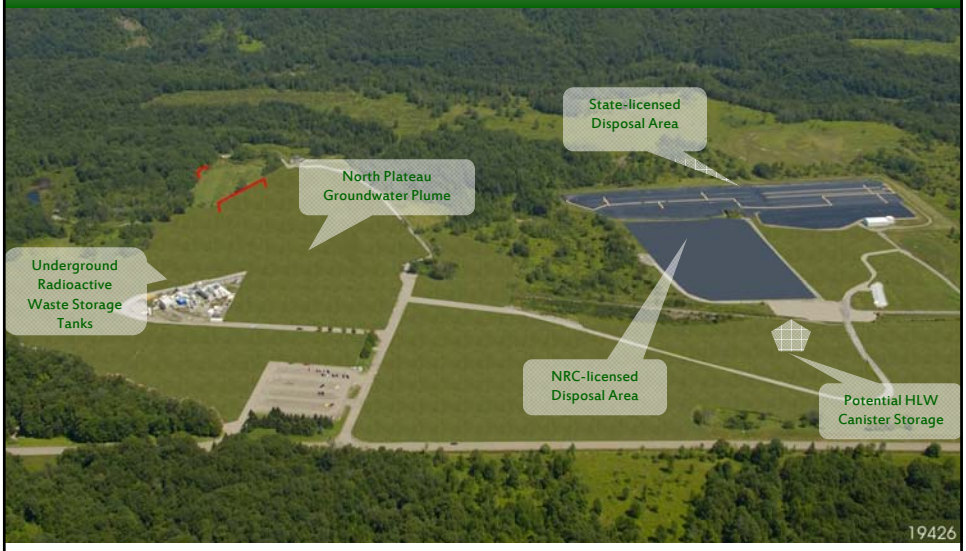
# LLW Treatment Facility Area

*LLW Treatment System includes treatment building, underground tanks and lagoons*

Components:

- 40' x 60' metal building on concrete slab housing ion exchange equipment
- Three below-grade concrete tanks
- Four lagoons (holding ponds)
  - A fifth lagoon was removed from service in 1984 (filled and capped)

## *After Phase 1 Actions*

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## Phased Decommissioning

***Primary Facilities/Areas to be Dispositioned After Phase 1***

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# *Underground Radioactive Waste Tank Area*

Area Components

- Two 70’ diameter, 27’ tall carbon steel tanks in separate concrete vaults, approximately 6-8’ below grade
- Two 12’ diameter, 16’ tall stainless steel tanks in a single vault, approximately 6-8’ below grade
- Over 98% of the 25 million curies formerly stored in the radioactive waste storage tanks have been removed

*Aerial view of the underground radioactive waste tank area*



# *Nuclear Regulatory Commission-licensed Disposal Area (NDA)*

*NRC-licensed Disposal Area*

NDA Features

- Approximately 7 acres
- Contains approximately 320,00 cubic feet of radioactive waste buried 10-70 feet below the surface
  - 1966 – 1981: NFS disposed of 163,000 $ft^3$ (~297,000 curies in 2000)
  - 1982-1986: WVDP disposed 200,000 $ft^3$ (1,207 curies)
  - No disposals since 1986

# North Plateau (NP) Area of Groundwater/Soil Contamination

NP Contaminated Area*

- Approximately 656’ wide by 1640’ long
- Depth ranges between 20’ and 30’
- Estimated to contain approximately 50 curies of Strontium-90

*NP Contamination Area*

*Current dimensions. Length would be less and remaining curie content would decrease over time and with removal of MPPB



# State-Licensed Disposal Area (SDA)

**Facts:**

- 15-acre area adjacent to WVDP
- Commercial radioactive waste disposal facility
- Disposal operations from 1963-1975
- 14 trenches (~ 450’-650 ‘ x 20’deep)
- ~ 2.4 million $ft^3$ of waste disposed
- Variety of generators and waste types
- 130,000 curies (estimated as of 2000)
- 10’ thick clay cap placed over trenches

- Two trenches overflowed in 1975 (operations ceased)
- NYSERDA responsible for management since 1983
- 8,000 gal. leachate pumped from Trench 14 in 1991
- Subsurface barrier wall installed along Trench 14
- Geomembrane cover installed on trenches 1992-95
- Water infiltration into trenches stopped by controls

## Water Management at SDA

Disposal of waste

Subsurface barrier wall installation

Trench 14 leachate pump line

Geomembrane cover installation

## State-Licensed Disposal Area Management

**Environmental Monitoring**

- Leachate/groundwater elevations
- Groundwater/surface water sampling
- Stormwater sampling
- Radiation monitoring
- Ground surface elevation monitoring

**Operations and Maintenance**

- Focused erosion controls
- Waste management
- Facility inspections/walkovers/maintenance

**Regulatory Compliance**

- Prevention of radioactive releases to environment
- Control of radioactive materials
- Hazardous waste management
- Occupational health and safety
- Work planning and documentation
- Employee Right-to-Know
- Emergency response

STATE OF NEW YORK DEPARTMENT OF HEALTH

Workforce New York

# Recommended Preferred Alternative - SDA

**Continue the in-place management of the SDA for up to 30 years including:**

- Regulatory compliance and oversight
- Active monitoring, inspections, maintenance and improvements
- Routine evaluations of performance and environmental conditions
- Technical support and participation of the academic and scientific communities to conduct studies of natural processes, exhumation feasibility and erosion modeling
- Public participation and input
- A comprehensive evaluation and decision on the future SDA management approach (like the current EIS) within 30 years