West Valley Demonstration Project

Project Overview

October 25, 2006

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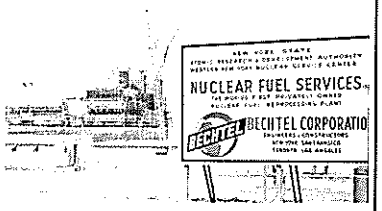
WVDP Background

1962	Nuclear Fuel Services reached an agreement with the Atomic Energy Commission and New York State to construct the first commercial nuclear fuel reprocessing plant in the United States
1966 - 1972	Spent nuclear fuel was reprocessed; majority supplied by federal government —600,000 gallons of liquid high-level waste resulted
1972 - 1976	The reprocessing plant was shut down for modifications; operations were never resumed

1962 - 1966 — Reprocessing Plant Constructed



1982—Reprocessing Plant

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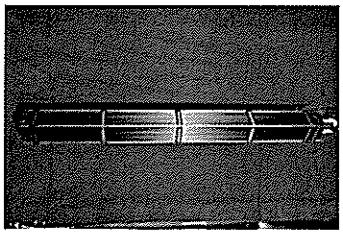
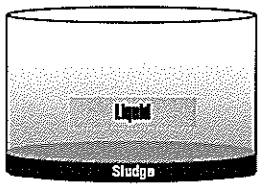
Reprocessing



Nuclear fuel assemblies typically 7 feet to 14 feet long

Chop and Dissolve in Acid



Liquid High-level Waste

Usable uranium and plutonium

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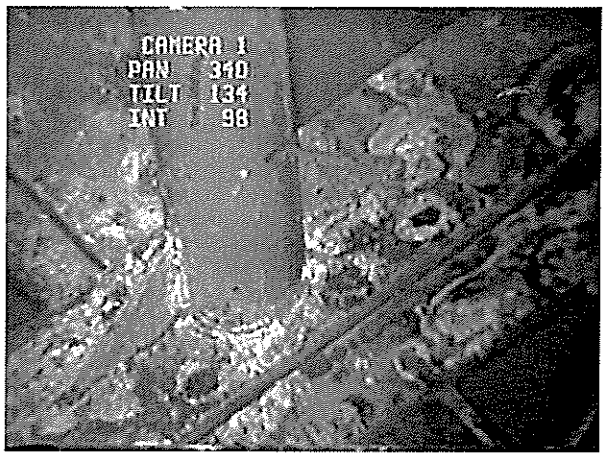
High-level Waste (HLW) Tank

HLW Tank Cross Section



Circular tank about 70' in diameter, 27' high

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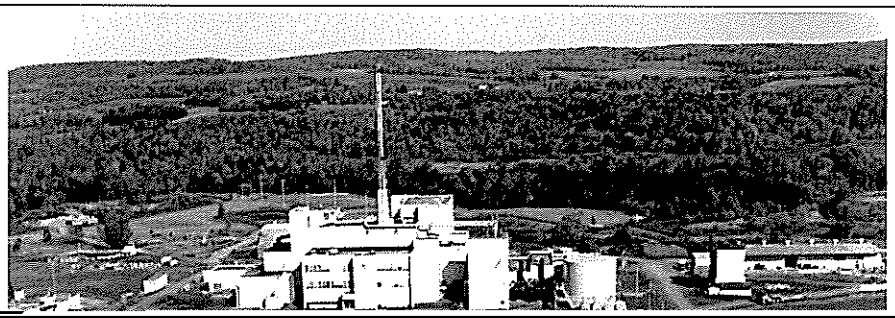
West Valley Demonstration Project

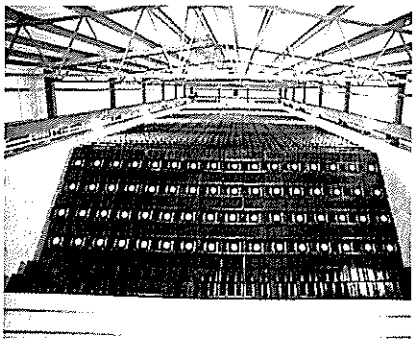


WVDP Background — The Act

- October 1, 1980
  - — Public Law 96-368 signed into law by President Carter in Niagara Falls, NY
  - — Act authorizes the U.S. Department of Energy to conduct a high-level radioactive waste management demonstration project at the Western New York Nuclear Service Center (the Center)

Pretreatment/Sludge Washing Operations

- Four-part Integrated Radwaste Treatment System
  - — Separated out salts and sulfates
  - — Blended in cement
  - — Placed drums of cemented waste in storage
- 1988-1990 - removal of salts from liquid portion of waste in underground waste tank (8D-2)
- 1991 - 1995 - sludge washing operations to remove salts and sulfates
- Total operations processed 1.7 million gallons of low-level salt solution into 19,877 drums of cemented LLW currently stored in the Drum Cell



71-gallon drums of cemented waste in storage at the WVDP.

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Curies – Radionuclide – Half Life 1,000 curies				
	Cobolt-60 (~5 yr.)	Cesium-137/ Strontium-90 (~30 yr.)	Americum-241 (~433 yr.)	Technicium-99 (~211,000 yr.)
Day 0	1,000	1,000	1,000	1,000
30 years	15	500	930	1,000
60 years	0.23	250	861	1,000

1 curie = 3.7×10^{10} disintegrations per minute

Note: Radionuclides don't all give off same type(s) of radiation

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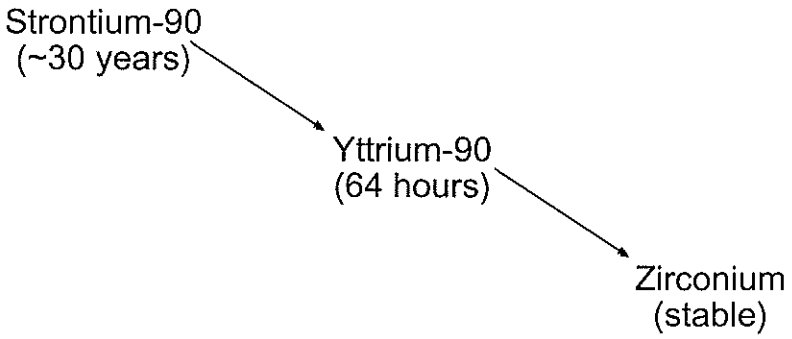
Radioactive Decay

Example



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High-Level Waste (HLW) Vitrification Began with Process Design

To solidify the radioactive material from approximately 600,000 gallons of high-level radioactive waste into a durable, high-quality glass, both a pretreatment system to remove

Vitrification Cell

High-level Waste Processing

- Vitrification program a significant technological and environmental success
  - —Liquid waste threat eliminated
  - —Vitrification system operated better than predicted
    - 78% availability the first year
    - No failures of major components

Vitrification Campaign Statistics

Pretreatment	Vitrification
• 1.7 million gallons processed	• More than 1.3 million pounds of waste glass produced
• 19,877 drums of cemented low-level waste produced	• More than 24 million curies processed
	• Approximately 35% waste loading in glass
	• Canister dose rates range from ~2000 - 7000 R/hr on contact

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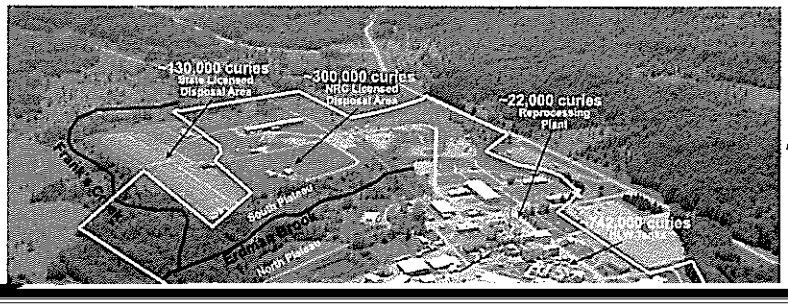
Major Site Facilities Today



Estimated Total Curies at the West Valley Demonstration Project October 25, 2006

2002 – 2006 Work Focused on Completing WVDP Act Mandates

- **Dispose of Project generated low-level waste** and Transuranic waste
- **Decontaminate and decommission** the tanks, **facilities, and any material and hardware used in connection with the Project**
- Transport HLW canisters to Federal Repository
  - working
  - on hold

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WVDP National Environmental Policy Act Background

1982	Environmental Impact Statement (EIS) and Record of Decision for HLW processing
1986	Environmental Assessment for on-site low-level waste disposal — litigated — evaluation deferred to closure EIS
1988 –	National effort to develop regional LLW sites
1992	(Intent was to dispose of all LLW on site; dispose of transuranic and HLW off site
1996	Draft EIS for WVDP completion and long-term site management released for public review; for LLW considered on-site storage and disposal, and off-site disposal
1997	WVDP began disposition of LLW off site
2001	Rescoped EIS — new EIS for off-site shipment of WVDP wastes for disposal — focused completion/closure EIS on facilities posing greatest long-term environmental risk; disposal areas, reprocessing plant, underground tanks

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WVDP National Environmental Policy Act Background

2003 Notice of Intent to prepare Decommissioning and/or Long-Term Stewardship at the WVDP and Western New York Nuclear Service Center

Notice of Availability of the WVDP Draft Waste Management EIS

2004 Notice of Availability of the WVDP Final Waste Management EIS

2005 Record of Decision following WVDP Final Waste Management EIS

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Work Accomplished Between 2002 - 2006

- Completed construction and operated Remote-Handled Waste Facility
- Shipped remaining used nuclear fuel to DOE's Idaho facility for storage
- Shipped over 800,000 cubic feet of low-level waste for disposal
- Remotely dismantled, and removed and packaged vitrification processing equipment
- Drained and shut down the used fuel storage pool
- Removed and packaged contaminated hardware from highly radioactive chambers in the reprocessing planT
- Removed and demolished unneeded, excess facilities
- Dispositioned equipment in open storage areas (hardstands)

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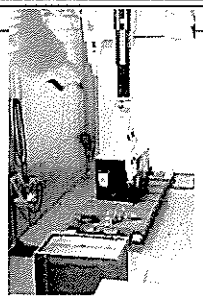
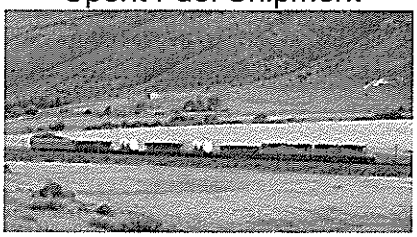
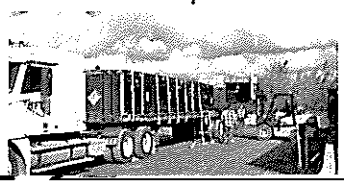


Remote-Handled Waste Facility

Spent Fuel Shipment

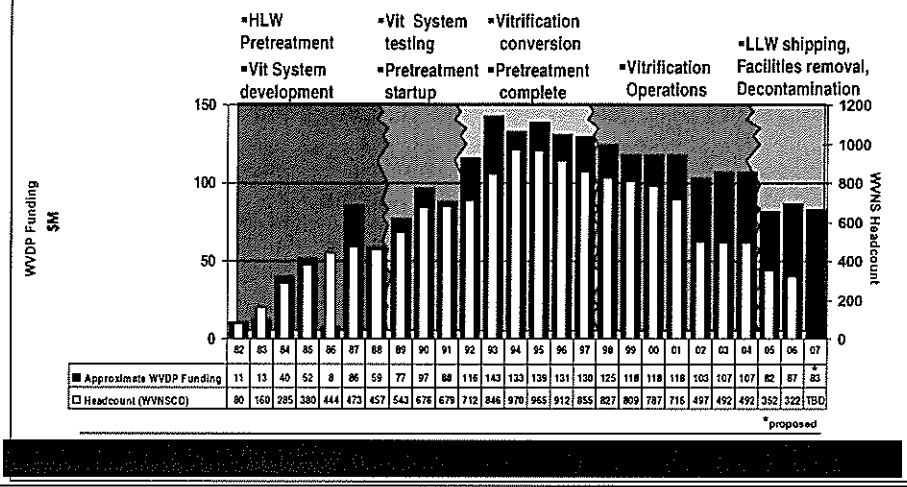


LLW Shipment



Vitrification Facility Decontamination

Funding and Headcount



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WVDP 2007 - 2010

- DOE issued Request for Proposals for new primary contractor to begin January 1, 2007
- A WVDP Interim End State to be achieved by 2010
  - —Description in DOE WVDP Site Utilization Management Plan August 2005

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Interim End State Completion - 2010