



West Valley Demonstration Project

West Valley
Environmental
Services

Waste Incidental to Reprocessing Draft Evaluation for WVDP Melter

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NWTRB Meeting in Buffalo, NY
April 27, 2011



Waste Incidental to Reprocessing Process

- ◆ **Criteria** in DOE Manual 435.1-1, Radioactive Waste Management:
 - Removed key radionuclides to the maximum extent that is technically and economically practical
 - Managed to meet safety requirements comparable to performance objectives of 10 CFR 61, Subpart C
 - Meets Class C concentration limits and will be managed as LLW

- ◆ **Process** consists of
 - **Technical Evaluation**
 - Documentation of technical analyses against three criteria
 - NRC consultation
 - State and public comment process
 - **Determination**
 - Determination occurs after consideration of results from evaluation



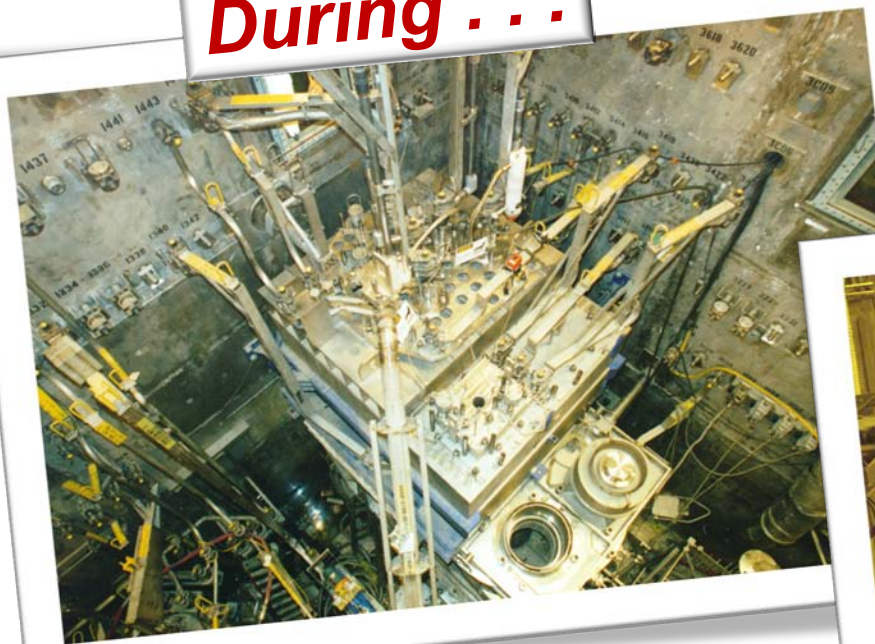
We are here



Vitrification Melter

WVES LLC

During . . .



Used to solidify 600,000 gallons of liquid radioactive waste into glass by vitrification process (1996–2002) per the WVDP Act

After . . .



Electrodes removed, melter removed from Vitrification Cell, packaged and placed on hardstand – ready for shipment



Vitrification Melter (cont)

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Unpackaged Melter

- ◆ 10' x 10' x 10'
- ◆ Inconel shell filled with refractory brick with stainless steel cooling jacket
- ◆ Flushed with chemicals and glass formers before shut down
 - Two evacuated canisters used to remove glass before shut down



Packaged Melter

- ◆ 14' x 13' x 13' carbon steel box (IP-2 container)
- ◆ ~159 tons packaged
- ◆ ~4,570 curies, primarily Cs-137
- ◆ Max contact dose rate calculated at 30 mR/hr on contact
- ◆ 6 mR/hr at 2 meters
- ◆ Stored on site with two other vitrification vessels





Packaged Melter Movement

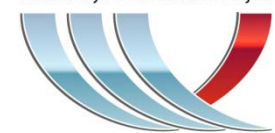
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Removing packaged melter from the Load-Out Facility in 2004 as part of Vitrification Facility dismantlement

Melter transported on a 12-axle trailer to south plateau for staging while awaiting shipment





Demonstrating Criterion 1

WVES LLC

- ◆ Criterion 1: Remove key radionuclides to maximum extent technically and economically practical (10 CFR 61.55, tables 1 and 2)

- Technically practical options

- Additional flushing
- Evacuated Canister System
- Dismantlement

Technically practical

- Economically practical options

- Additional flushing
- Dismantlement

Not economically practical

- Assessment demonstrated that further efforts to remove key radionuclides would have increased worker radiation dose without resulting benefits



Evacuated canister



Demonstrating Criterion 2

WVES LLC

- ◆ Criterion 2: Meet safety requirements comparable to 10 CFR 61, Subpart C, Performance Objectives for Land Disposal Facilities
 - Melter waste package will meet waste acceptance criteria for
 - Nevada National Security Site (NNSS)
 - Waste Control Specialists (WCS) Low-Level Waste Disposal Area in Texas



Waste Acceptance Criteria for these disposal facilities are comparable to performance objectives of 10 CFR 61, Subpart C



Demonstrating Criterion 3

WVES LLC

- ◆ Criterion 3: Meets LLW concentration limits and managed in accordance with DOE requirements
 - Radioactivity in Melter waste package will not exceed Class C concentration limits
 - Melter waste package will be in solid physical form and grouted for stability
 - Melter waste package will be managed and disposed at offsite low-level radioactive waste disposal facility in accordance with applicable requirements for low-level waste



WIR Process Timeline

WVES LLC

- ◆ Draft WIR Evaluation issued March 14, 2011, to facilitate consultation with NRC and State and public review and comment

2011

March 14

- Federal Register Notice
- 45-day review period begins

April 28

- 45-day review period ends

July 30

- Comment resolution complete

August 31

- Final DOE decision

- ◆ Copies available

- <http://apps.em.doe.gov/wvdp/>
- DOE Public Reading Room
1000 Independence Ave SW
Washington, DC 20585
- DOE Public Reading Room
Town of Concord Hulbert Library
18 Chapel St
Springville, NY 14141

- ◆ Comments submitted by April 28

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