Problematic Waste Stream Disposition
Advanced Mixed Waste Treatment Project

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ITG Mission

Workers at AMWTP focus on the safe and compliant retrieval, characterization, treatment and shipment of 65,000 m^3 of legacy stored contact-handled transuranic waste and mixed low-level waste for permanent disposal at sites outside of Idaho and to support the receipt and processing of transuranic waste from other DOE sites for shipment to the Department's Waste Isolation Pilot Plant (WIPP).

A shipment of transuranic waste from Los Alamos National Laboratory arrives at DOE's Idaho site on Nov. 18, 2013. This was the first shipment made to AMWTP using the 10-160B shipping cask. AMWTP treated 25.6 cubic meters of waste that was compacted to 13.48 cubic meters. The Los Alamos waste was shipped out of Idaho on Nov. 18, 2014.

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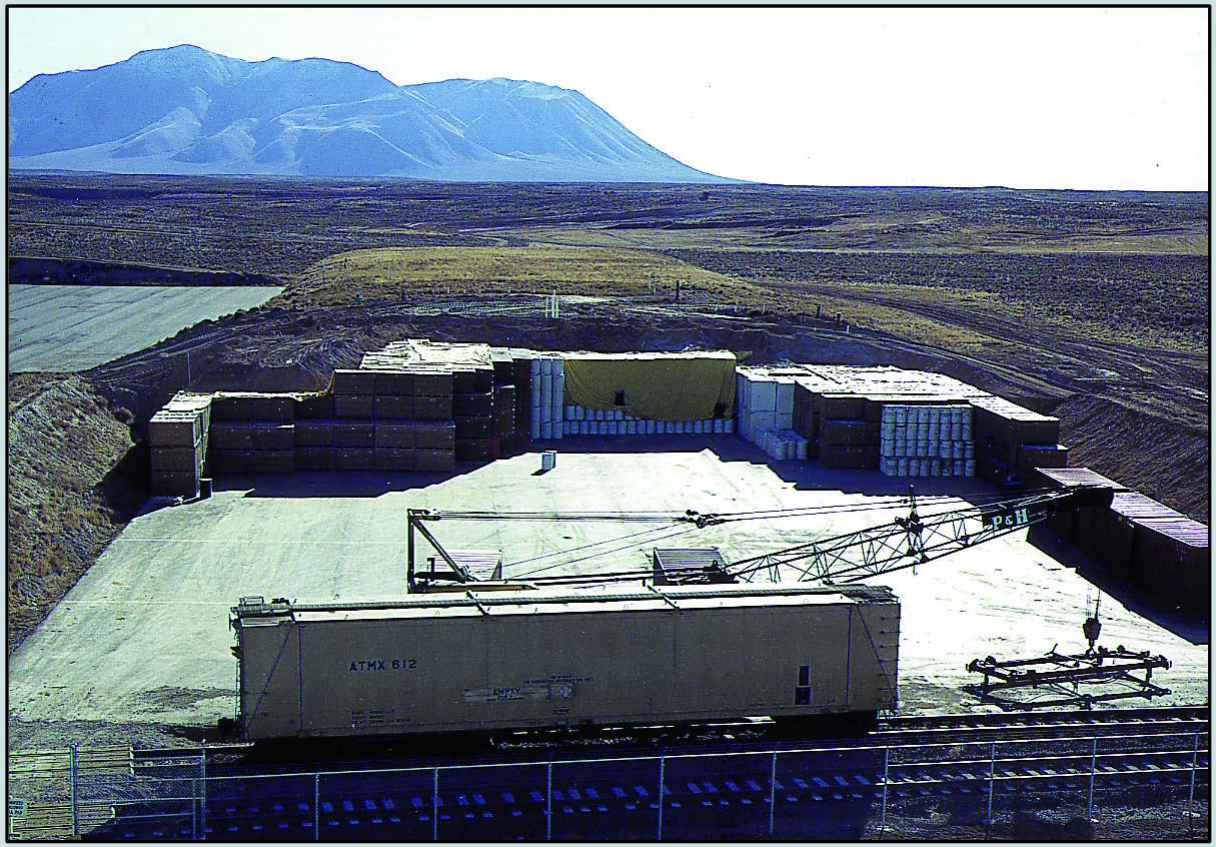
AMWTP Inventory



The start of above-ground transuranic waste storage in 1970s. Today, this site is covered by the Transuranic Storage Area-Retrieval Enclosure at AMWTP.

- From 1952 to 1970 transuranically-contaminated solid wastes and low-level wastes were buried in a series of pits and trenches located within the Radioactive Waste Management Complex (RWMC) in the Subsurface Disposal Area (SDA)
- In 1970, burial of the transuranic-contaminated waste was discontinued and above-ground storage initiated at what is today AMWTP.

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AMWTP Experience

- Processing multiple types and sizes of containers; boxes, bins, drums
- Severely degraded containers

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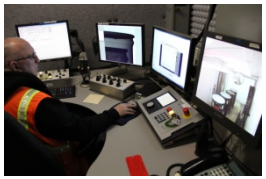
AMWTP Waste Treatment Process

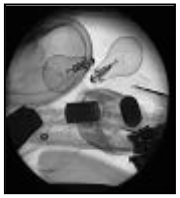
Offsite Waste

Onsite Storage/ Retrieval

AK Review



Characterization
- Assay
- Radiography
- Head gas sampling



Treatment
- Supercompaction
- Liquids treatment
- Sizing
- Macroencapsulation

Payload/ Shipping
- TRU waste
- MLLW waste

Disposal Options

WIPP

Commercial TSD

Federal Sites

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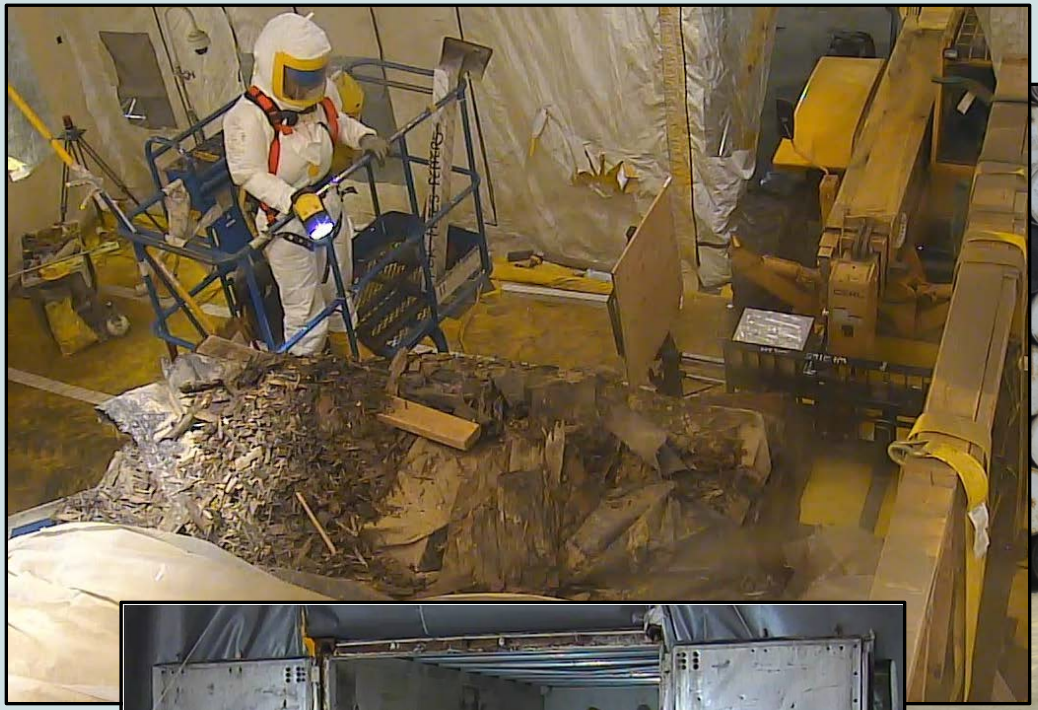
Waste Storage & Retrieval



Retrieval of waste drums, boxes, and cargo container waste retrieval in the Transuranic Storage Area – Retrieval Enclosure.

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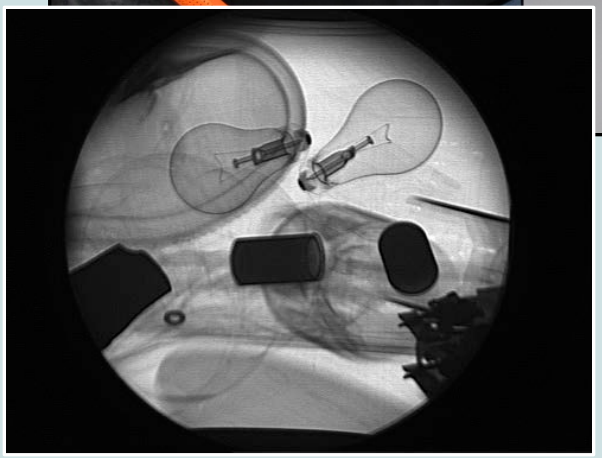
Characterization Capabilities

Radiography

- Validates the contents of drums and boxes by looking “inside”

Radioassay

- Measures the radiation activity of contents in drums or boxes



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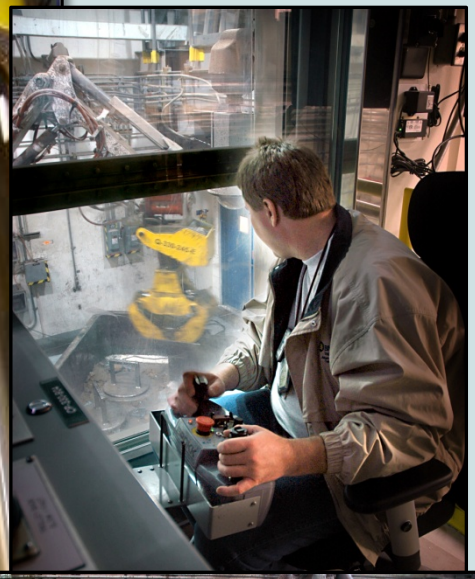
Treatment Capabilities



55-gallon drum post Supercompactor = a puck

Soils, solidified, and debris waste:

- Prohibited item removal
- Liquid absorption
- Repackaging
- Venting

For debris:

- Supercompaction
- Macroencapsulation

Top: Operator sorting waste in Treatment Facility boxline.

Bottom: BROKK robotic arm inside boxline.

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Shipping

AMWTP Sends Waste To:

- WIPP for all transuranic waste
- Nevada National Security Site for higher intensity Low-Level Waste and Mixed Low-Level waste
- Clive, UT Bulk Waste Facility for lower activity Low-Level/Mixed Low-Level waste

AMWTP certified transuranic waste arriving at WIPP

Crews loading a Mixed Low-Level Waste shipment destined for Clive, UT

A Mixed Low-Level Waste shipment for the Nevada National Security Site

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AMWTP Program Update

- Accelerating LLW/MLLW shipments out of Idaho due to WIPP shutdown
- Certifying and storing TRU waste for future shipment to WIPP

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AMWTP Program Update

- To date AMWTP has shipped over 54,000m3 of transuranic and LLW/MLLW to approved government and commercial disposal facilities.

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MLLW HDPE Macro Pack Treatment

- On-site LDR treatment (macroencapsulation) program started operations August 1, 2012
- HDPE liner (macro-pack) loaded with certified product drum
- To date we have treated over 2,600 product drums with no rejects
- Will continue to use for higher activity waste that cannot be treated in the Macro Bag

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High Modulus Polymeric Packaging System (Macro Bag)

- Switching to High Modulus Polymeric Packaging System (HMPPS) (Macro Bag) in January 2015
- First shipment of HMPPS tentatively scheduled for mid-January 2015
- Three Macro Bag designs approved for use
  - 4-pack product drum bag
  - BR-90 box bag
  - Shredder box bag

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High Modulus Polymeric Packaging System (Macro Bag)

High Modulus Polymeric Packaging System meets:

- Title 49 CFR, DOT IP-2 packaging requirements
- NNSSWAC requirement 3.2 *Waste Package Criteria*
- HMPPS meets the macroencapsulation treatment technology (40 CFR 268.45)