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# Transuranic Waste Strategies

## (Remote-Handled and Contact-Handled)

October 30, 2013

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# Idaho Treatment Group (ITG)

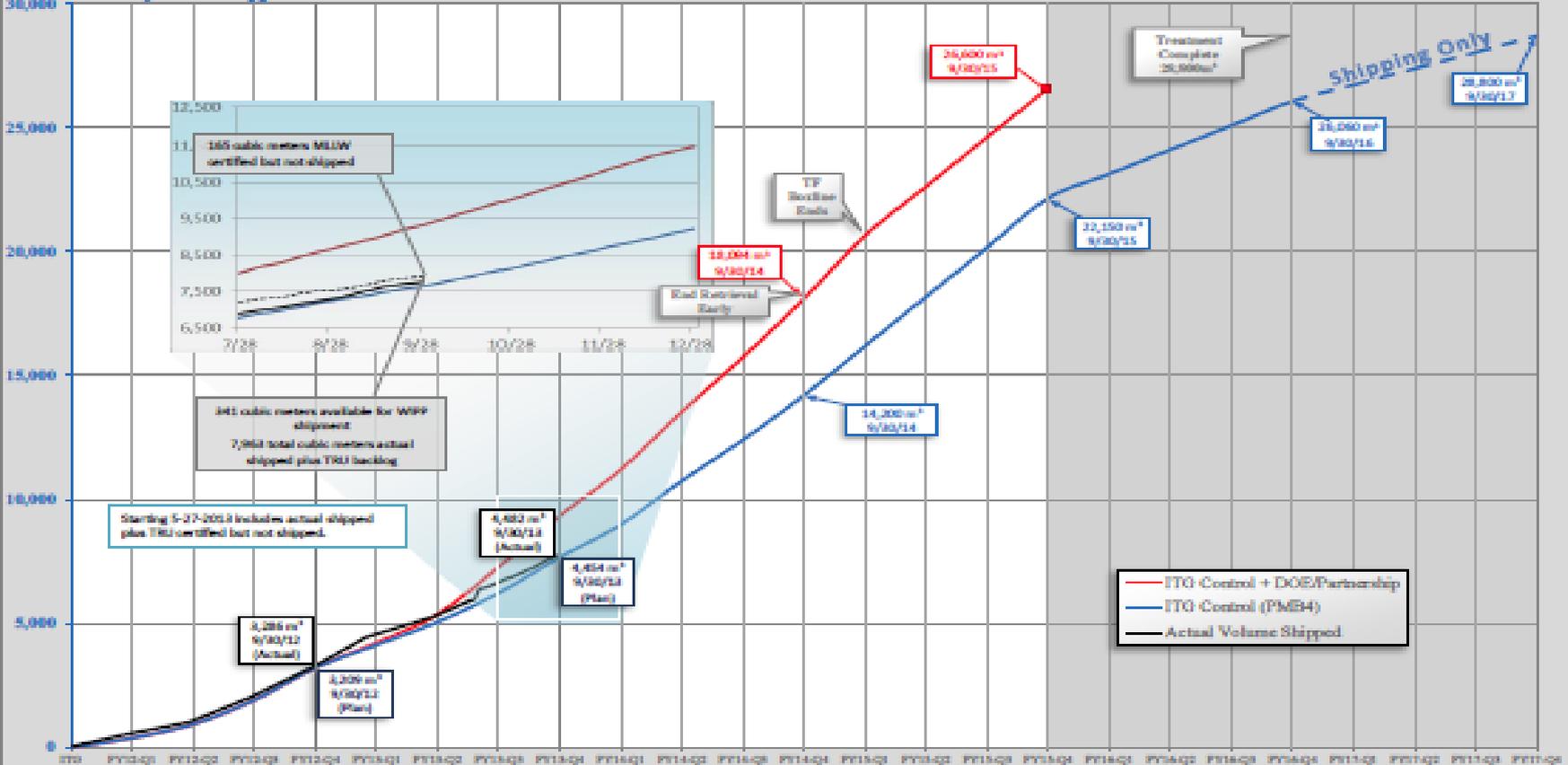
## Advanced Mixed Waste Treatment Project (AMWTP)



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# AMWTP Shipping Plan - Updated 9/30/2013

Cubic Meters of Waste Shipped



	FY2012	FY2013	FY2014	FY2015	CUMULATIVE	FY2016	FY2017
\$1.9M Transition Anticipated Funding	\$112.0M	\$112.0M	\$112.0M	\$112.0M	\$448.0M		
Vol Shipped	3,286 m <sup>3</sup>	4,482 m <sup>3</sup>	6,537 m <sup>3</sup>	7,958 m <sup>3</sup>	22,150 m <sup>3</sup>	3,910 m <sup>3</sup>	2,640 m <sup>3</sup>
Annual Volume Plan	5,209 m <sup>3</sup>	4,434 m <sup>3</sup>	6,537 m <sup>3</sup>	7,958 m <sup>3</sup>	22,150 m <sup>3</sup>		
Cum Vol Shipped	3,286 m <sup>3</sup>	7,767 m <sup>3</sup>	14,200 m <sup>3</sup>	22,150 m <sup>3</sup>	22,150 m <sup>3</sup>		
Cum Volume Plan	5,209 m <sup>3</sup>	7,663 m <sup>3</sup>	14,200 m <sup>3</sup>	22,150 m <sup>3</sup>	22,150 m <sup>3</sup>		
Annual Volume Plan	3,209 m <sup>3</sup>	6,123 m <sup>3</sup>	8,762 m <sup>3</sup>	8,506 m <sup>3</sup>	26,690 m <sup>3</sup>		

AMWTP Lifecycle



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## Key RAI's Completed in FY2013

- *Many of the Recovery Action Items (RAI) have been Completed and removed from the Chart*
- *Key RAIs Completed in FY2013 Include:*
  - *Retrieval*
    - *Retrieval of Degraded Boxes/Drums (RAI 33)*
  - *Treatment Facility*
    - *Supercompaction of Prohibited Items (RAI 15)*
  - *Other Improvements*
    - *Elimination of Solid Sampling (RAI 26)*



## *Waste Retrieval*

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### *FY2013 Accomplishments:*

- *Began Retrieval of Degraded Boxes*
- *4,359 drums retrieved of 30,506*
- *145 boxes retrieved of 804*

Box Retrieval Forklift Carriage used to secure a degraded box of transuranic waste



### *FY2014 Focus:*

- *Retrieval of Severely Degraded Drums/Boxes*
- *Availability of “Cake Boxes”*
- *Resumption of Cargo Container Unloading*

Inner Contamination Enclosure in the center stack



## Waste Retrieval - Degraded Containers



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## *Characterization*

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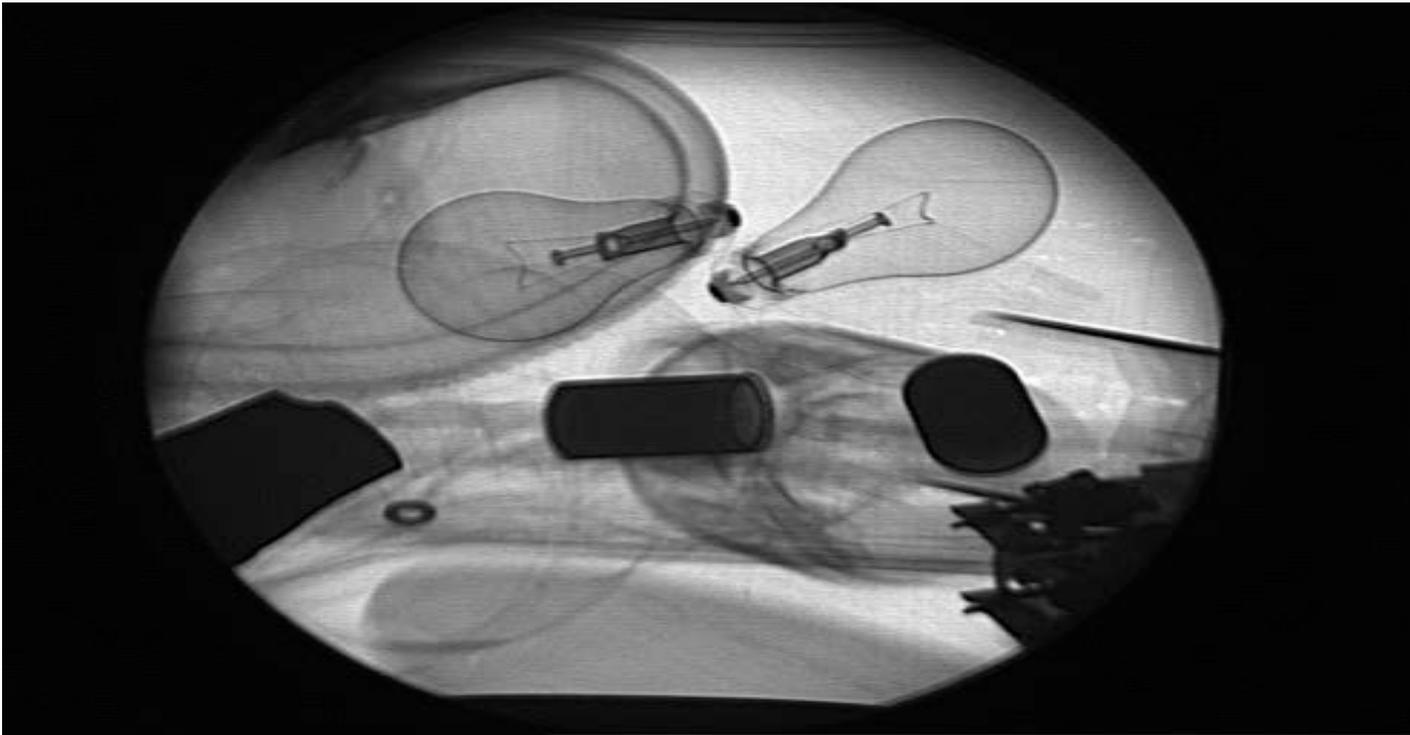
### *FY2013 Accomplishments:*

- *Certification of Third RTR Machine*
- *1,688 ITG Characterizations*
- *293 CCP Characterizations*

### *FY2014 Focus:*

- *Maintain of Equipment to Meet Process Needs*

The real-time radiography (x-ray) of a drum



## Treatment Facility - Boxlines

### *FY2013 Accomplishments:*

- *Treatment of Prohibited Items in Box Lines*
- *Processed 680 Boxes*
- *Processed 810 Drums from SDOPs*

Boxline Sorting Tray with BROKK Manipulator



### *FY2014 Focus:*

- *Recover from North Boxline Fire*
- *Process Large Items in Waste*
- *Process Difficult Waste*

BROKK Cutting Tool



## Treatment Facility - Supercompactor

### *FY2103 Accomplishments:*

- *Direct Compaction of Prohibited Items*
- *Processed 2,942 m<sup>3</sup> into 3,767 Product Drums*
- *Compacted 2,291 Direct Feed Drums*

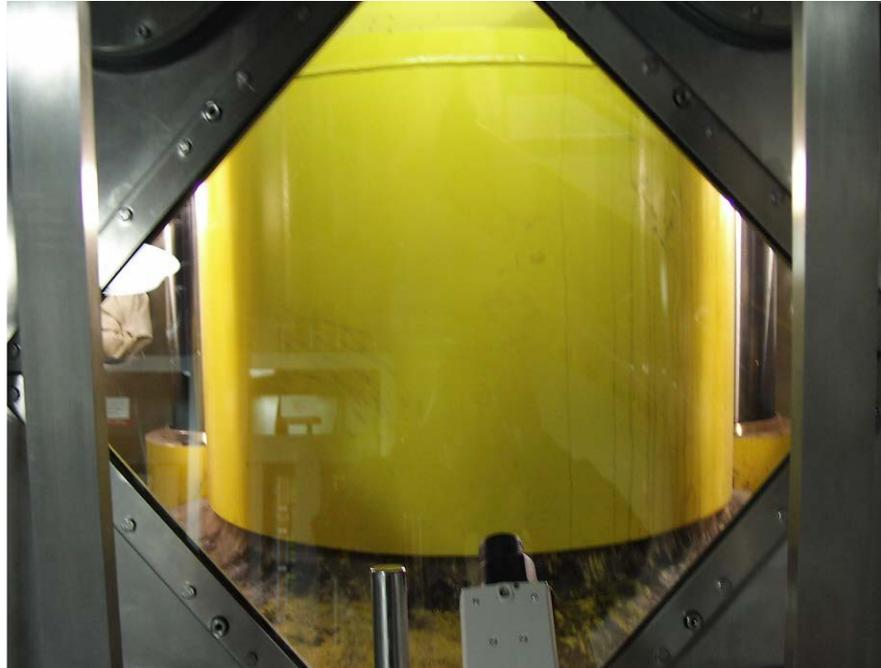
### *FY2014 Focus:*

- *Unoverpacking of Waste for Direct Feed*

Supercompactor Ram



Supercompactor Mold



## *Payload Assembly*

### *FY2013 Accomplishments:*

- *Direct shipment of overpacked containers*

### *FY2014 Focus:*

- *Begin use of TRUPACT III Containers in Idaho*

Macroencapsulated MLLW ready for shipment



Workers load a TRUPACT II container



## *Shipping*

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### *FY 2013 Accomplishments:*

- *4,187 m<sup>3</sup> of Legacy Waste Shipped*
  - *299 TRU waste shipments*
  - *100 MLLW shipments*
- *308 m<sup>3</sup> of Legacy Waste in Backlog*
  - *Requires Additional Resources from WIPP to Ship*



WIPP Tractor with 2 TRUPACT-IIs and 1 HalfPACT



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# **Idaho Cleanup Project (CWI)**

**Remote Handled Transuranic Waste**

**MLLW/LLW Disposal**

**AMWTP Sludges (ARP-V)**

**Accelerated Retrieval Project**



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## RH-TRU Program

### *FY2013 Accomplishments:*

- *Transfer of Sources to LANL OSRP instead of Disposal*
- *66 shipments*
  - *159 Product Drums*
- *112 characterization*
- *37 Suspect RH Containers Transferred from AMWTP*

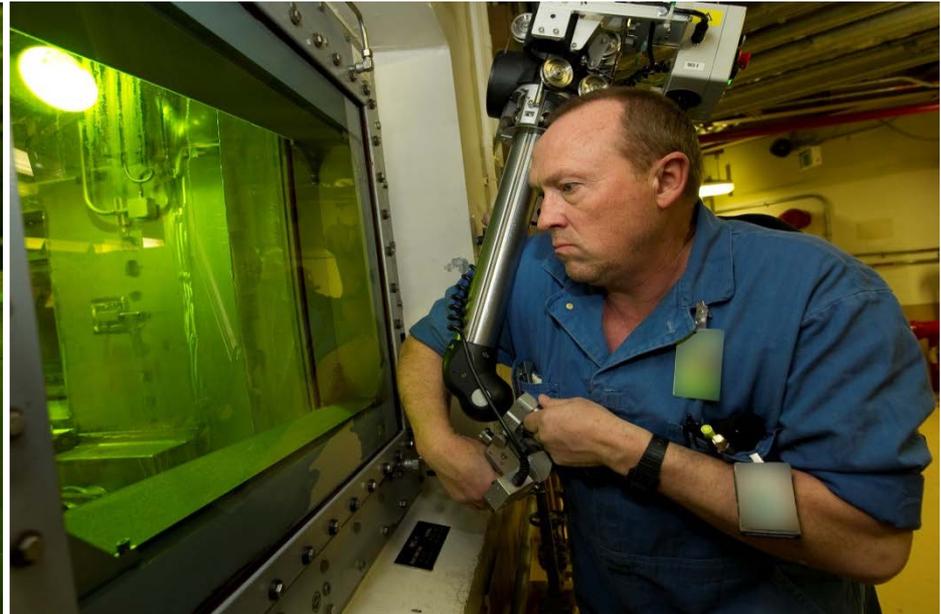
Remote Waste Repackaging in Hot Cell



### *FY2014 Challenges:*

- *Startup of Sodium Distillation*
- *Completion of Waste Stream Approvals*
- *Processing of Challenging Waste*
- *Shipping to Support WIPP Needs*

Operating Manipulators in CPP-659



# *RH-TRU Sodium Distillation*

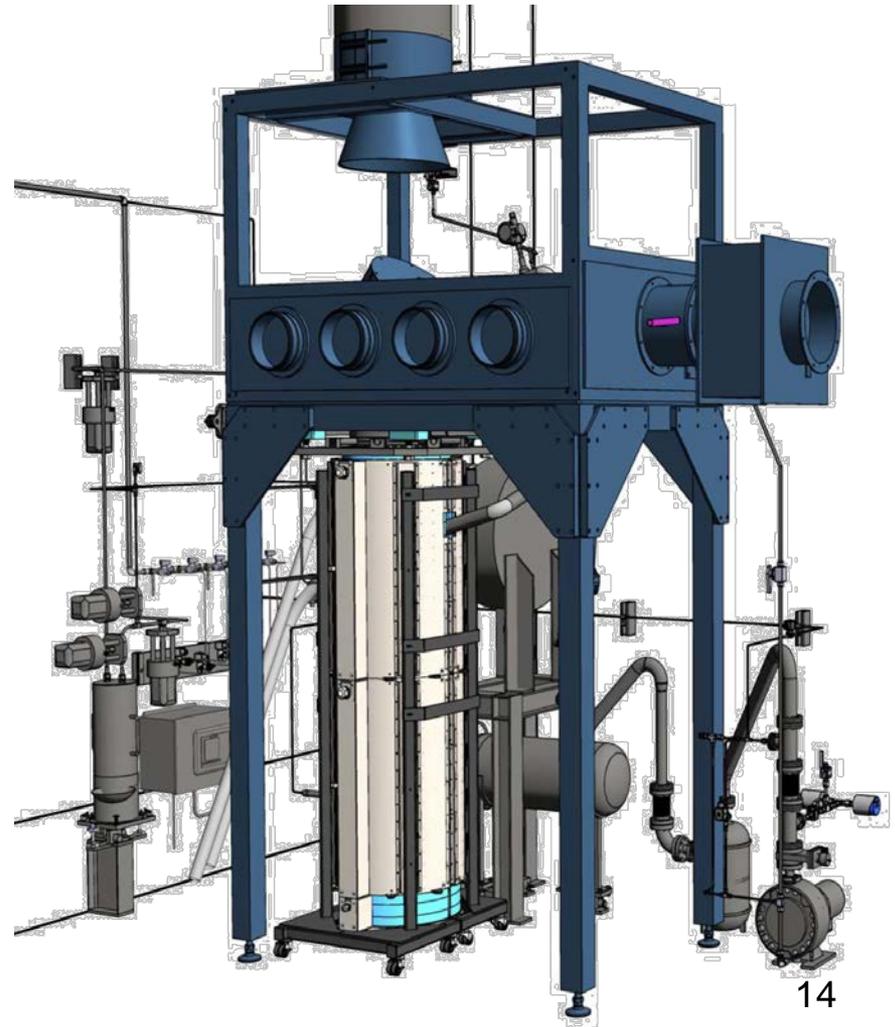
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## *FY2013 Accomplishments:*

- *Received approval of RCRA permit mod and PTC*
- *Completed demonstration test for WIPP and DEQ*
- *Completed vendor testing and system modifications to improve performance*

## *FY2014 Focus:*

- *Complete cleaning, disassembly, and shipping to INTEC*
- *Assemble and Test the System*
- *Complete the Startup Process*



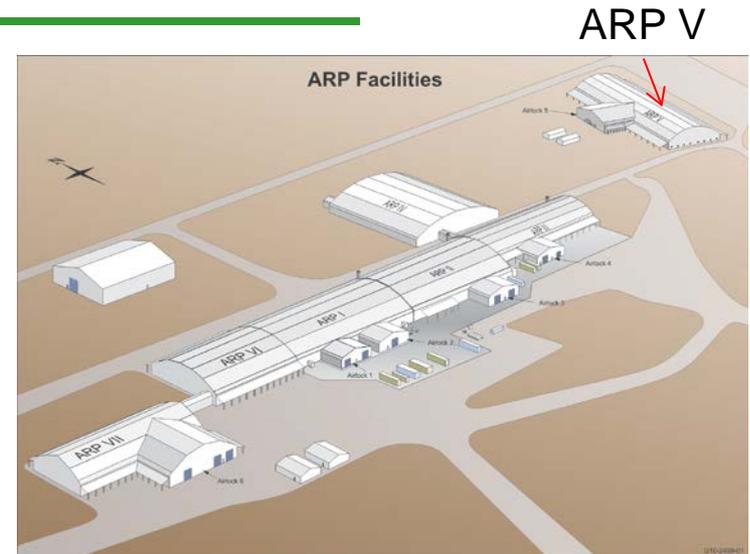
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## Sludge Repackaging Project (ARP V)

- Exhumation in ARP V was Completed in August, 2011
- ARP V was originally constructed to retrieve, repackage, and dispose the targeted radioactive waste received from the Rocky Flats plant and buried in pit 9 from 1967 to 1969.
- Converted ARP V from a CERCLA Facility to allow the Treatment of Sludge Waste from AMWTP
- The current scope is to treat 6,000 drums of the RCRA organic sludge. The project is expected to take 18 months to complete through June 2014.



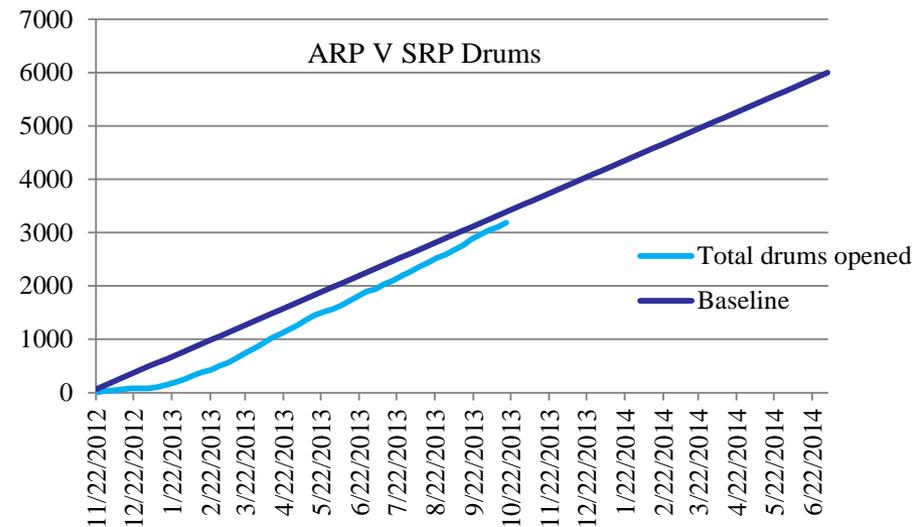
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Visual examination of AMWTP sludge prior to packaging

# Sludge Repackaging Project (ARP V)

- Progress to-Date (as of 10/16/2013)
  - 3,166 drums have been treated
  - 2,672 drums have been certified for WIPP disposal.
  - 1,238 drums have been shipped to WIPP
- The facility and equipment saved the taxpayer more than \$20 million to treat this RCRA waste compared to constructing a new facility at AMWTP.
- Work is ongoing to determine the best approach for processing the more-challenging inorganic sludge waste.



## *Buried Waste Exhumation (ARP III)*

- Exhumation began in ARP III on September 23, 2013.
- As of 10/18/2013, - 3 of the 10 remaining grids to be exhumed in ARP III had been completed and the fourth started.
- CWI is incentivized to complete ARP III by 12/31/2013.
- The CWI contract requires .51 acres to be exhumed by 9/30/2015.
  - ARP III            0.05 acres
  - ARP VII           0.12 acres
  - ARP VIII         0.34 acres
  - Total                0.51 acres
- The Contractor Readiness Assessment to begin exhumation in ARP VIII was completed the week of October 14, 2013.



Exhumation in ARP III



ARP VIII



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## *Pre-9/23/2013 Status of Accelerated Retrieval Project (ARP)*

ARP	Area (acres)	Acres Complete	Acres Remaining	Status
ARPI	0.5	0.5	0	Exhumation complete, Enclosure demolished
ARP II	0.34	0.34	0	Exhumation complete, Enclosure in standby (awaiting retrieval from ARP III waste transfer vestibule)
ARP III	0.43	0.38	.05	Exhumation restored to retrieve 0.05 acres
ARP IV	0.79	0.79	0	Exhumation complete, Enclosure awaiting demolition
ARP V	0.55	0.55	0	Exhumation complete, Enclosure reused for repackaging sludge waste
ARP VI	0.4	0.4	0	Exhumation complete, Enclosure demolished
ARP VII	0.27	0.15	.12	Enclosure in standby awaiting retrieval of remaining 0.12 acres after ARP III is complete
ARP VIII	1.72	0	1.72	Enclosure construction complete March 2013 (CRA complete and Enclosure is ready to startup)
ARP IX	0.69	0	.69	Enclosure design and construction in the future
Total	5.69	3.11	2.58	



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## *Transuranic Waste Dashboard Summary*

<b>Key Questions</b>	<b>Dashboard Indicator</b>	<b>Comments</b>
Impact on budget for activity/cleanup		Projects on schedule and on budget for FY-13
Impact on employment/economic development		Staffing remains constant
Affect on agreements		Milestones have been met in accordance with the ISA & STP and are on-track to meet the ISA milestone
Impact on safety and environment		Boxline activities are on hold
Impact on cleanup DOE-wide		Clean-up accomplishments reflect positively on DOE complex



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# Back up slides



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# *TRUPACT III*

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## Definition of ISA Transuranic Waste

- **ISA TRU Waste Is:** Material Stored in Idaho as TRU Waste in October 1995 Including:
  - All Material at AMTWP
  - Material from Other INL Locations Stored as TRU Waste in 1995
  - Material that was Historically Managed as TRU Waste
- **ISA TRU Waste Is Not:** Material Stored in Idaho as Something Other than TRU Waste in October 1995 Including:
  - Accountable Material, Spent Nuclear Fuel, or High Level Waste
  - Low Level Waste (Including Mixed)



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