



U.S. DEPARTMENT OF  
**ENERGY**

OFFICE OF  
**ENVIRONMENTAL  
MANAGEMENT**

# Idaho Cleanup Project Progress to Date Citizens Advisory Board

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*Deputy Manager*  
Idaho Cleanup Project

**April 27, 2016**

# Idaho Cleanup Project Scope

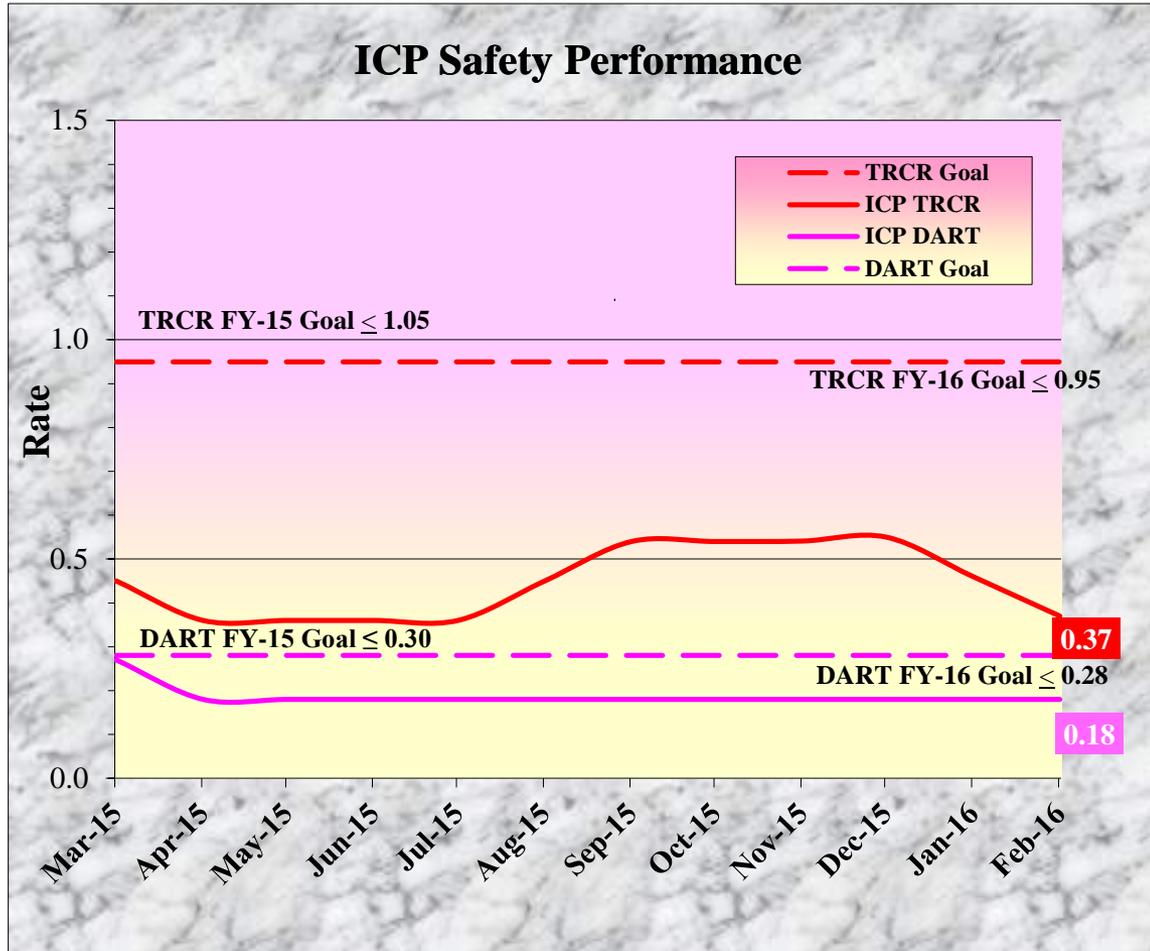
- Transuranic Waste Disposition
- Advanced Mixed Waste Treatment Project (AMWTP)
- Comprehensive Environmental Response Compensation Liability Act (CERCLA) Remediation
  - Waste Area Group (WAG) 1 – Test Area North (TAN)
  - Waste Area Group (WAG) 2 – Test Reactor Area (TRA) - **Complete**
  - Waste Area Group (WAG) 3 – Idaho Nuclear Technology and Engineering Center (INTEC)
  - Waste Area Group (WAG) 4 – Central Facilities Area (CFA) - **Complete**
  - Waste Area Group (WAG) 5 – Power Burst Facility (PBF)/Auxiliary Reactor Area (ARA) - **Complete**
  - Waste Area Group (WAG) 6 – Experimental Breeder Reactor No. I (EBR-I) - **Complete**
  - Waste Area Group (WAG) 7 – Radioactive Waste Management Complex (RWMC)
  - Waste Area Group (WAG) 9 – Argonne National Laboratory – West (ANL-W) - **Complete**
  - Waste Area Group (WAG) 10 – Site-wide Miscellaneous Sites/Snake River Plain Aquifer
- Idaho CERCLA Disposal Facility

# Idaho Cleanup Project Scope (cont.)

- Sodium Bearing Waste Treatment
- INTEC Liquid Waste Treatment Facility (Tank Farm Closure)
- Calcine Disposition
- Spent Nuclear Fuel Management
- Decontamination and Decommissioning: Materials and Fuels Complex

# Safety Performance – November-December 2015

(Information and Data through February 29, 2016)



#### January 2016

Three First Aid Cases and No Recordable Injuries

No ORPS Reportable Occurrences

#### February 2016

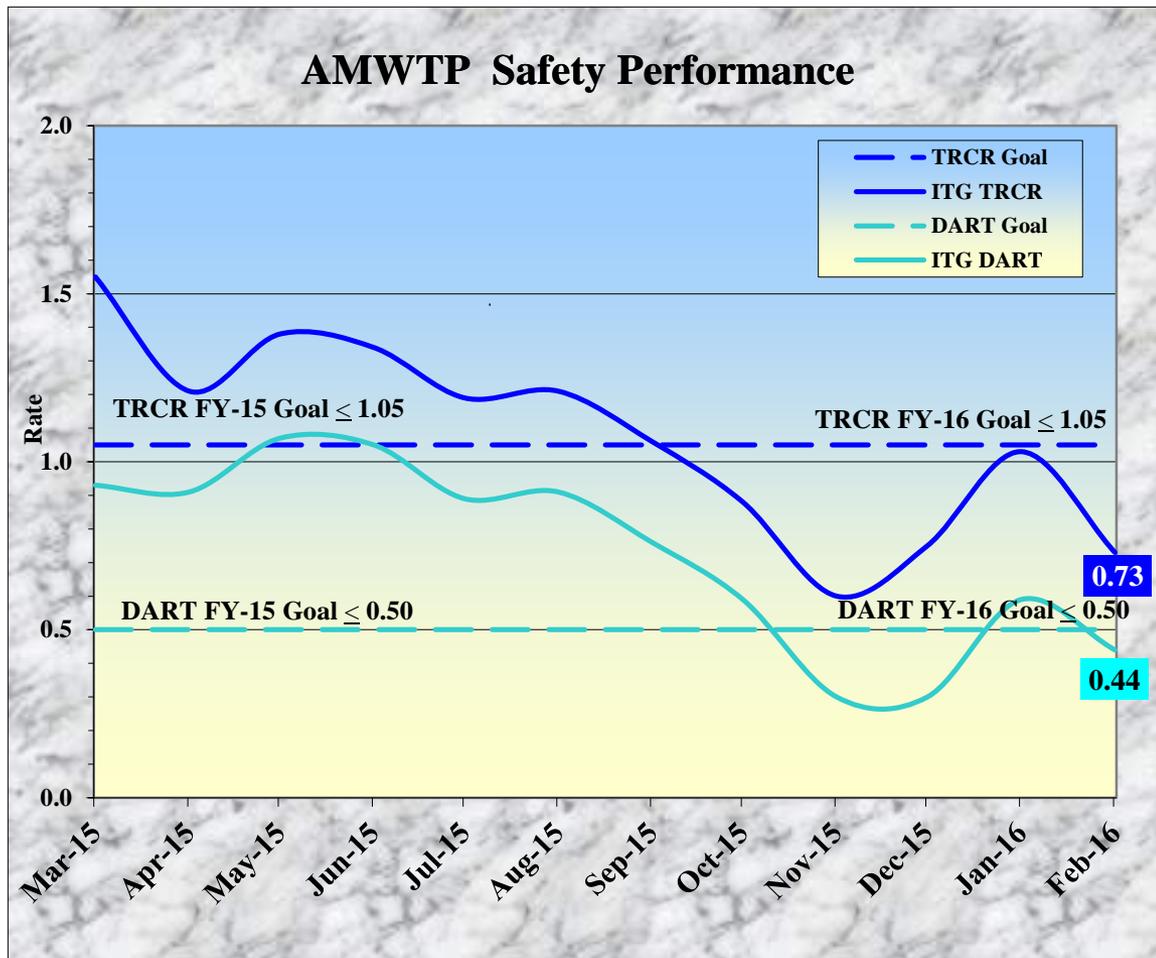
One First Aid Case and No Recordable Injuries

#### One ORPS Reportable Occurrence:

- Wooden box containing clean HEPA filters dropped during hoisting and transport

# Safety Performance – January-February 2016

(Information and Data through February 29, 2016)



## January 2016

### One First Aid Case and Two Recordable Injuries

- An operator twisted to their left to pick up an object and felt a “pop” in their left hip.
- An operator turned to take a step and slipped on black ice and fell to ground. Left hip strain.

### One ORPS Reportable Occurrence

- Incorrect wiring results in breaker trip

## February 2016

### No First Aid Cases and No Recordable Injuries

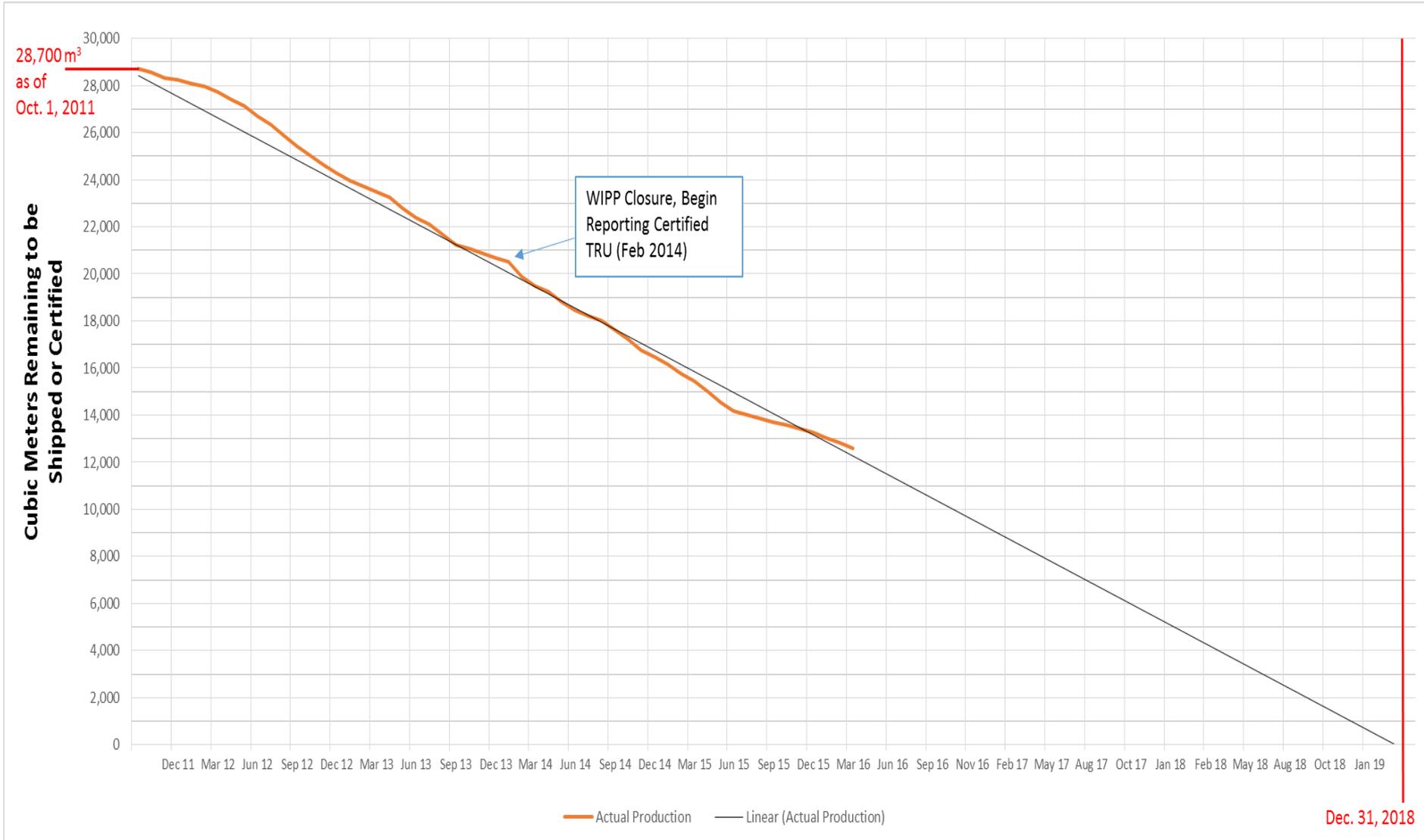
### Two ORPS Reportable Occurrences

- Failure to follow Lockout/Tagout process during glovebox window replacement
- Propane heater fire results in building evacuation

# Context: Off-site Waste Disposition

- What is the Waste: TRU and MLLW, principally from Rocky Flats and Argonne National Laboratory, stored in retrievable configurations at the Transuranic Storage Area and at the Radioactive Scrap and Waste Facility after 1970.
- Potential Risks: Waste contains alpha particles which are easily shielded, but pose an ingestion/inhalation risk. Waste in aging containers poses potential risk to environment.
- Settlement Agreement: Requires removal of estimated 65,000 cubic meters of stored waste by December 31, 2018.
- How treated/disposed: Packaged to meet waste acceptance criteria for WIPP or MLLW disposal facilities.
- Current Budget: (Annually)
  - AMWTP ~ \$120M
  - ARP Support to AMWTP ~ \$20M
  - RH-TRU ~ \$30M
  - ICP MLLW ~ \$20M
  - Total ~ \$180M

# Idaho Settlement Agreement Work-off Status



# Waste Programs Overview

- Idaho TRU Certified Backlog:
  - 19,510 Containers
  - 782 CH-TRU shipments
  - 90 RH-TRU shipments
- MLLW Key Activities/Actions:
  - CWI stood up a debris waste macro-encapsulation process for shipping to offsite disposal site.
  - As of 3/27/2016, ITG has shipped 188 m<sup>3</sup> of legacy salts for treatment and disposal at Energy Solutions in Clive, Utah.
- MLLW Upcoming Activities:
  - Continue shipment of legacy salts
  - Continue shipment of legacy debris

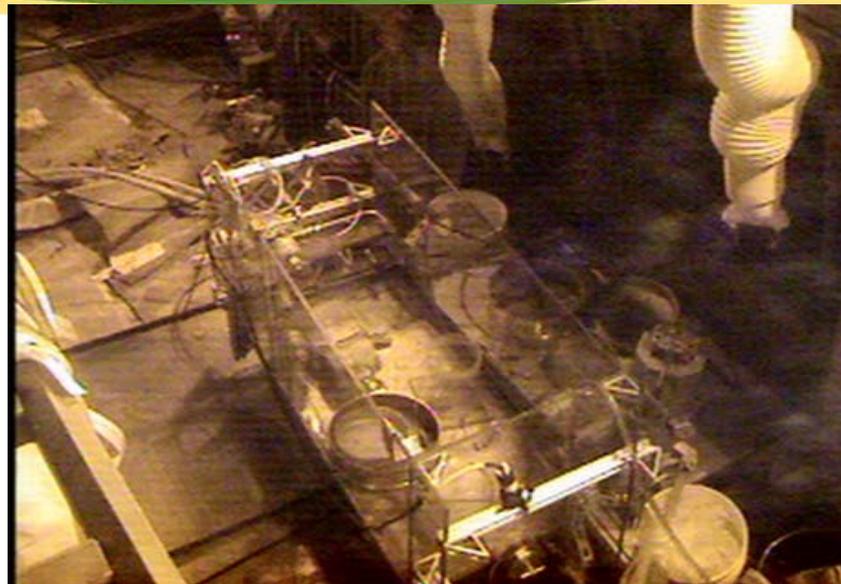
	Certified Containers	Shipments
<b>CH-TRU Waste</b>		
Product Drums	3,413*	228
Direct Ship	1,777*	95
SWB's	8	2
SRP Drums	10,052	335
Buried Waste	4,260	122
<b>CH-TRU Total</b>	<b>19,510</b>	<b>782</b>
<b>RH-TRU Waste</b>		
Drums	161	90

\* Includes containers in pre-subcertified status that require Flammable Gas Analysis prior to certification.

# Remote-Handled Transuranic Waste Disposition

## Key Activities/Actions:

- Completed initial treatment of all ISA RH-TRU
- Remote-handled transuranic waste shipments are on hold until WIPP re-opens.
- Activity Status
  - Continue processing waste stream approvals for ISA waste.
  - Continue preparations for Navy waste stream.
- Remaining EM RH-TRU waste to meet Idaho Settlement Agreement:
  - Approximately 25 cubic meters.
  - 6 waste streams submitted and pending approval.
  - Waste stream approval needed prior to certification.



Above: Argon Repackaging Station  
Below: Thermal Image During Sodium Treatment



# Advanced Mixed Waste Treatment Project



Above: New Brokk 400 Factory Acceptance Testing

Below: Obsolete VFD Removed from Ventilation System



## Key Activities/Actions:

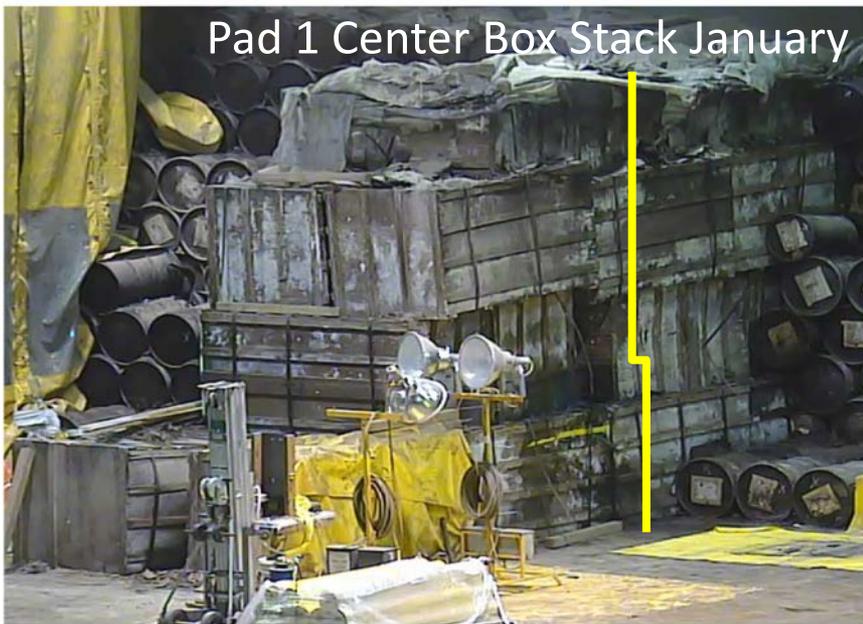
- Contact-handled transuranic waste shipments are on hold until WIPP resumes operations.
- 782 Shipments of CH TRU have been certified for shipment to WIPP\*.
- Shipment of 348 m<sup>3</sup> of LLW/MLLW off-site in support of ISA milestone as of March 27, 2016.
- *Includes containers that require Flammable Gas Analysis for DOT Transport prior to certification.*

## Upcoming Activities:

- Complete CCP transition to AMWTP for visual exam and assay 3<sup>rd</sup> Quarter 2016.
- Continue Infrastructure Improvements through the 3<sup>rd</sup> and 4<sup>th</sup> Quarters of 2016.
- Continue work on chemical compatibility requirements with WIPP.

# Advanced Mixed Waste Treatment Project

Pad 1 Center Box Stack January 2016



## Key Activities Retrieval and Cargo Operations:

- Retrieved 645 m3 as of March 27.
- Emptied 44 of 104 cargo containers.
- Continued retrieving waste from Pad 1 Cell 1, the final cell with waste containers.

## Upcoming Activities:

- Continue Phase II of transferring soil sacks and empty cargo containers to ICDF.
- Empty an additional 12 cargo containers by May 31, 2016.

Pad 1 Center Box Stack March 2016

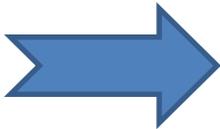


Yellow line shows progress of boxes removed from the stack as shown in lower picture – 7 boxes were retrieved.

# Dashboard Legend



Ahead of schedule, under budget, better than expected.

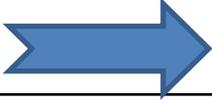


On schedule, on budget, performance as expected.



Behind schedule, over budget, performance less than expected.

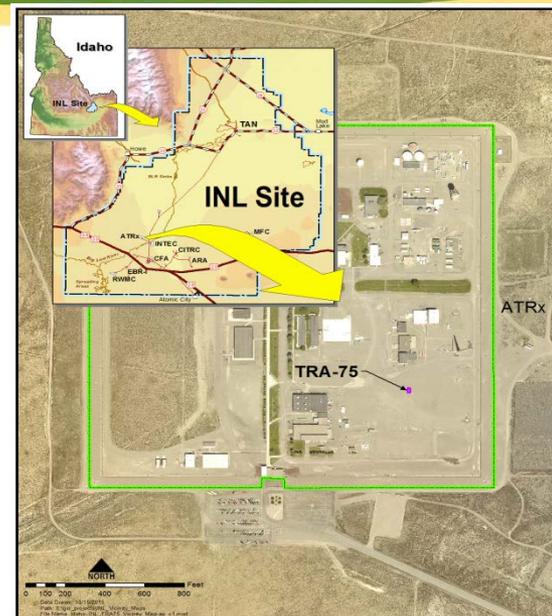
# Dashboard Summary – Solid Waste Disposal

Key Questions	Dashboard Indicator	Comments
Percent of project completed	81% 	Approximately 81% of the 65,000 cubic meter inventory is retrieved.
Percent of budget expended	94% 	Under budget for the work performed through the end of February.
Impact on employment/economic development		Work is ongoing at AMWTP and INTEC.
Affect on agreements		Closure of WIPP has precluded shipment of 2,000 cubic meter rolling average.
Impact on safety and environment		Waste disposition operations were performed safely and compliantly during the reporting period.
Impact on cleanup DOE-wide		No impact on complex wide cleanup.

- WAG 1: Test Area North (TAN)
  - TAN Groundwater Remediation
- WAG 3: Idaho Nuclear Technology and Engineering Center (INTEC)
  - Complete the work associated with the OU 3-14 Record of Decision
  - Operate the Idaho CERCLA Disposal Facility (ICDF) to compliantly disposition CERCLA waste
- WAG 7: Radioactive Waste Management Complex (RWMC)
  - **Exhume 5.69 acres of buried waste (Completed 4.1 acres as of March 31, 2016)**
  - Complete the work associated with the OU 7-13/14 Record of Decision
- WAG 10: Site Wide
  - Maintain site wide institutional controls, and operations and maintenance program
  - Maintain groundwater monitoring program
  - Maintain the New Site Identification Process for future CERCLA sites
  - Remediate Munitions and Explosives of Concern (MEC) sites. Final Remedial Action Report approved by the Agencies August, 2014. Complete

# CERCLA Remediation – WAGs 1, 3, and 10

- Key Activities/Actions:
  - WAG 1 – Continue ISB injections into new injection/monitoring well at Test Area North.
  - WAG 10 –Preparing the CERCLA 5-Year Review Explanation of Significant Differences (ESD).
  - Prepare to remediate New Site TRA-75.
- Ongoing Activities:
  - WAG 1 - Continue In situ-Bioremediation rebound test.
  - WAG 3 - Continue perched water monitoring and groundwater recharge controls at INTEC.
  - WAG 10 - Continue monitoring and institutional controls.
  - WAG 10 - Continue New Site evaluation/remediation.



Top: Location of TRA-75; Middle: Air intake building that housed SIW prior to D&D of building; Bottom: After removal of air intake building - SIW remain below ground.



## Key Activities/Actions:

- 2Q FY2015 - Received 979 gallons of liquid for disposal to evaporation ponds (FY 2016 total receipt = 7,723 gallons)
- 2Q FY2016 - Received a total of 444 m<sup>3</sup> of solid waste for landfill disposal (FY2016 total receipt = 514 m<sup>3</sup>)
  - MFC D&D debris – 9 cargo containers with waste
  - AMWTP – 7 cargo containers and 16 soil sacks

## Upcoming Activities:

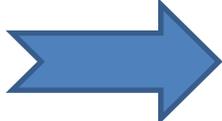
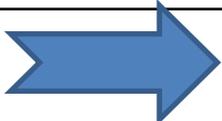
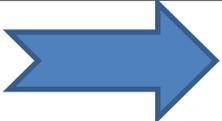
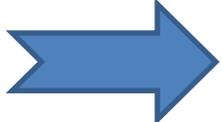
- Continue receipt and disposal of aqueous wastes in Evaporation Ponds.
- Dispose of solid waste from environmental restoration actions, including Phase II of AMWTP cargo containers and soil sacks and MFC D&D debris.
- Continue operation and maintenance of ICDF complex processes and facilities.



Operations - preventive maintenance on leachate pump



Grouting void spaces in and around cargo containers

Key Questions	Dashboard Indicator	Comments
Percent of project completed	78% 	As of Feb. 29, 2016 project on schedule.
Percent of budget expended	75% 	Project is under budget.
Impact on employment/economic development		Project will continue at a similar level of effort for several years.
Affect on agreements		Project continues to meet regulatory milestones.
Impact on safety and environment		No ongoing safety issues; Safety goals are being met.
Impact on cleanup DOE-wide		No impact on DOE-wide cleanup.

## Context: Buried Waste Exhumation

- What is the Waste: TRU waste, principally from Rocky Flats, buried in pits and trenches at the Subsurface Disposal Area at RWMC prior to 1970.
- Potential Risks: Potential contamination of the Snake River Plain Aquifer to above drinking water standards (volatile organic compounds primary contaminants of concern).
- Settlement Agreement: N/A; Part of CERCLA remediation of the buried waste under OU 7-13/14 ROD.
- How treated/disposed: Packaged to meet acceptance criteria for disposal at WIPP.
- Current Budget: Current Fiscal Year Budget for buried waste exhumation is \$21.6M.

- Complete remediation work in accordance with the Record of Decision (ROD) for OU 7-13/14
- Conduct Targeted Waste Retrieval at the Accelerated Retrieval Projects (ARP) and disposition waste:
  - ARP I, II, III, IV, V, VI and VII - **completed**
  - ARP VIII: .82 acres out of 1.72 acres have been exhumed as of 3/31/16.
  - ARP IX: Design and foundation construction -- **completed**
  - ARP I & VI D&D - **completed**
- Complete in situ grouting of 21 locations - **completed**
- Subsurface solvent vapor extraction (OCVZ)
- Environmental monitoring and institutional controls

## Key Activities/Actions:

- Continued ARP VIII waste exhumation. 0.82 acres have been exhumed as of March 31, 2016.
- ARP IX design and foundation construction complete. Building components in storage at RWMC. Building construction contract was awarded to North Wind Services March 2016.
- Since 1996, 243,812 pounds of TVOC removed using vapor extraction as of March 31, 2016.

## Non-CERCLA Activities:

- Continued ARP V repackaging AMWTP sludge waste. 1,632 drums and 60 boxes have been repackaged as of 3/31/16 (since March 2, 2015).
- Started up AMWTP debris repackaging process in ARP VII. 6 boxes have been processed and repackaged as of 3/31/2016.

## Ongoing Activities:

- Continue to exhume targeted buried waste in ARP VIII.
- Continue AMWTP sludge repackaging in ARP V.
- Continue AMWTP debris repackaging in ARP VII
- Complete ARP IX facility construction.
- Continue organic vapor extraction.

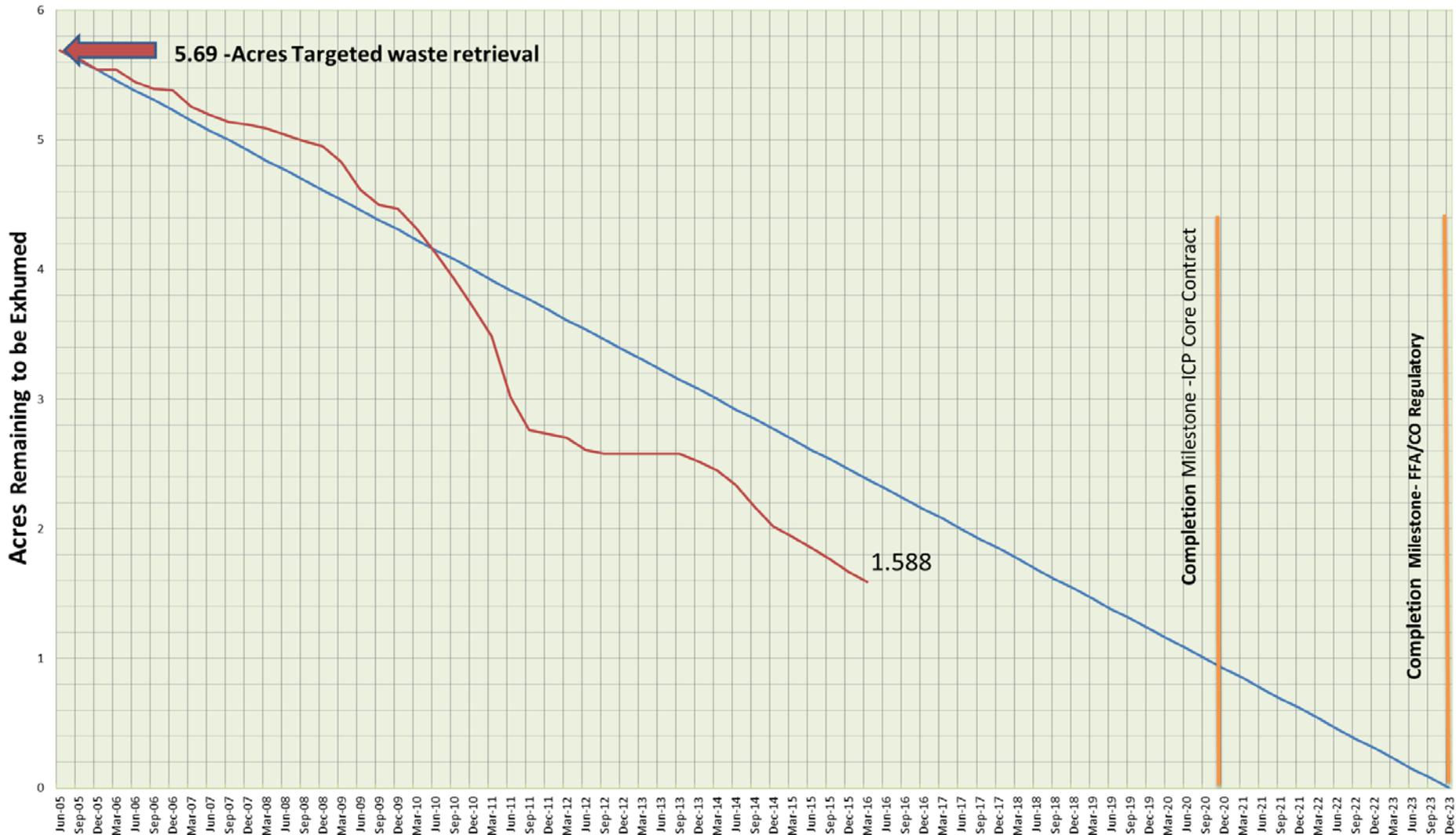


ARP VII – Debris Boxes Process

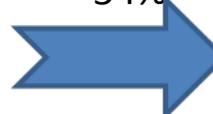


Debris Boxes - Large Items

# Buried Waste Exhumation Work-off Chart



# WAG 7 Dashboard

Key Questions	Dashboard Indicator	Comments
Percent of project completed	54% 	As of March, 2016, the project is on schedule.
Percent of budget expended	54% 	Project is within the budget.
Impact on employment/economic development		Project is expected to continue with same level of employment for several years.
Affect on agreements		Project is ahead of pace to meet regulatory milestones.
Impact on safety and environment		No ongoing safety-related issues; safety goals being met.
Impact on cleanup DOE-wide		ARP crew performing both buried waste exhumation in ARP VIII and sludge/debris repackaging in ARP V/VII

# CERCLA Progress

Waste Area Group (WAG)	Milestone Title	Milestone type	Milestone Date	FY2016
WAG 3 (INTEC)	Interim INTEC Tank Farm Cover Phase <ul style="list-style-type: none"> <li>Phase A (western 2/3)</li> <li>Phase B (eastern 1/3)</li> </ul>	<ul style="list-style-type: none"> <li>FFA/CO Regulatory</li> <li>FFA/CO Regulatory</li> </ul>	<ul style="list-style-type: none"> <li>Submit RA Report by March 30, 2017 (on track)</li> <li>Submit RA Report by Nov. 30 of first field season after tank farm closure (on track)</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> <li>N/A</li> </ul>
WAG 3 (INTEC)	Final Tank Farm Evapo-transpiration cover	FFA/CO Regulatory	After INTEC Closure	N/A

# CERCLA Progress (continued)

Waste Area Group (WAG)	Milestone Title	Milestone type	Milestone Date	FY2016
WAG 7 (RWMC)	Exhume .35 acres of targeted buried waste	DOE Fiscal Year Work Plan goal	9/30/16	FY 2016 goal
WAG 7 (RWMC)	Complete ARP IX construction	Contract commitment	2017	N/A – Evaluating acceleration
WAG 7 (RWMC)	Complete 90% Design for final Subsurface Disposal Area (SDA)	FFA/CO Regulatory	9/30/2020	N/A
WAG 7 (RWMC)	Complete Buried waste exhumation (5.69 acres)	FFA/CO Regulatory	12/31/2023	N/A
WAG 7 (RWMC)	Completed SDA final Cover construction	FFA/CO Regulatory	12/31/2028	N/A

Milestone Title	Milestone type	Milestone Date	FY2016
Repackage up to 1,380 drums and 40 boxes sludge waste, 12 boxes debris waste and 10 drums roaster oxides	DOE Fiscal Year Work Plan goal	9/30/16	170 drums and 36 boxes have been processed and repackaged so far during FY2016

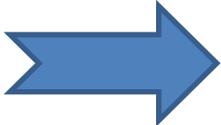
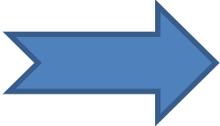
## Completed Activities/Actions:

- Completed demolition of MFC-766 (Sodium Boiler Building).

## Ongoing Activities

- Demolition preparations for MFC-767 (EBR-II reactor plant building), including removal of the overhead crane. Completion planned by end of FY 16.
- Polar crane demolition, by explosion.
- Install and test hydro-lance system.

# Dashboard Summary – MFC D&D

Key Questions	Dashboard Indicator	Comments
Percent of project completed	100% 	Project completed. MFC-767 demolition ahead of schedule.
Percent of budget expended	85% 	Completed fiscal year under budget.
Impact on employment/economic development		Due to efficiencies within ICP, D&D work at MFC will continue throughout the fiscal year for D&D deactivation work at MFC-767.
Affect on agreements		Project is meeting its regulatory commitments. Project completed RCRA closure of MFC 766.
Impact on safety and environment		D&D operations were performed safely and compliantly during the reporting period.
Impact on cleanup DOE-wide		No impact on complex wide cleanup.

**Type of Waste:** The term “spent nuclear fuel” means fuel that has been withdrawn from a nuclear reactor following irradiation, the constituent elements of which have not been separated by reprocessing. (Nuclear Waste Policy Act, 1982) Within DOE, spent nuclear fuel (SNF) is managed as a material of interest and value until it might be declared a waste prior to final disposition.

**Hazard to Public, Environment:** Low. While SNF typically is highly radioactive, it is appropriately stored, managed and protected. The high radiation levels require some sort of shielding: cask, water, concrete, etc.

**How Treated:** SNF is managed through safe, secure, compliant storage, which includes surveillance and maintenance of storage facilities. It will be repackaged prior to transfer to a final repository.

How Disposed: DOE intends to dispose of SNF in a geologic repository.

Current Year Budget: FY16 PBS 12:

- Defense-funded SNF program: \$15.25 million
- Non-defense funded SNF program (NRC-licensed facilities): \$5.9 million

Total program: \$21.15 million

## Key Activities/Actions:

- Completed 3 of 6 planned EBR-II SNF transfers out of INTEC to MFC.\*
- Received 1 of 3 ATR receipts into INTEC within the CPP-666 basin.\*

## Upcoming Activities:

- Continue ATR and EBR-II SNF fuel transfers.
- Continue to prepare Three Mile Island's NRC license renewal application.

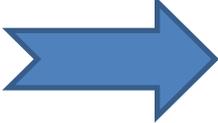
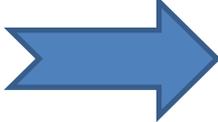
- \* Within the remaining CWI contract period.

Metric	FY 16 Baseline*
Ship Advanced Test Reactor fuel	3 ATR
Ship EBR-II	6 EBR II

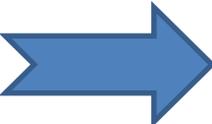
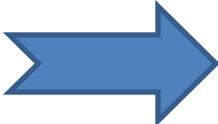
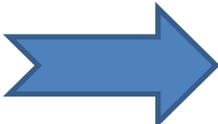
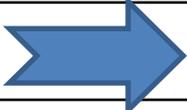


Spent Resin Cask Shipment

# Dashboard Summary – Spent Nuclear Fuel Disposition Project

Key Questions	Dashboard Indicator	Comments
Percent of project completed	45% 	As of 03/31/16, the project is slightly behind schedule. Schedule delays are associated with <i>work for others</i> projects and attributed to client-owned issues.
Percent of budget expended	50 % 	As of 03/31/16, the project is within cost.
Impact on employment/economic development		The project anticipates completion within cost, which supports stable employment and economic development.
Affect on agreements		Project is on pace to meet planned scope.
Impact on safety and environment		INTEC projects routinely report among the lowest recordable incidents and contribute to the overall positive performance towards ICP safety goals.
Impact on cleanup DOE-wide		The project addresses the required scope and is meeting its goals.

# ICP Dashboard Summary

Key Questions	Dashboard Indicator	Comments
Amount of project completed		With exception of IWTU, on, or ahead of schedule.
Amount of budget expended		IWTU delays are causing costs to rise, but overall ICP budget is within target.
Impact on employment/economic development		ICP and ITG employment levels are basically stable.
Affect on agreements		IWTU delay, WIPP closure impacting milestones.
Impact on safety and environment		Project is exceeding the safety goals established.
Impact on cleanup DOE-wide		No outstanding impacts.