



U.S. DEPARTMENT OF
ENERGY

OFFICE OF
**ENVIRONMENTAL
MANAGEMENT**

Idaho Cleanup Project Progress to Date Citizens Advisory Board

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Idaho Cleanup Project

February 21, 2019

Idaho Cleanup Project Scope

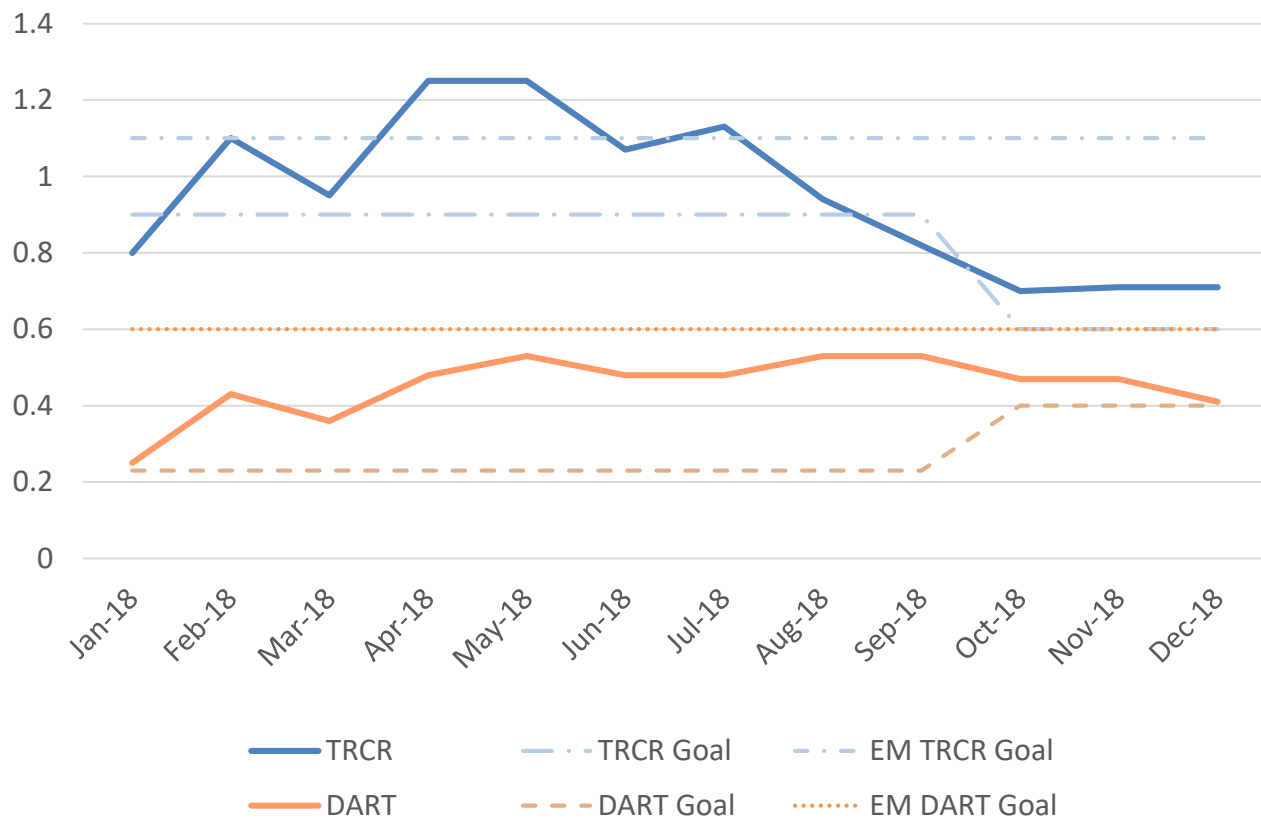
- Transuranic Waste Disposition
- Advanced Mixed Waste Treatment Project (AMWTP)
- Comprehensive Environmental Response Compensation Liability Act (CERCLA) Remediation
 - Waste Area Group (WAG) 1 – Test Area North (TAN)
 - Waste Area Group (WAG) 2 – Test Reactor Area (TRA) - **Complete**
 - Waste Area 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
- Calcine Disposition
- Spent Nuclear Fuel Management
- Decontamination and Decommissioning: Materials and Fuels Complex

Safety Performance: October – December 2018

ICP Core Injury Rates



Company Injury Goals Changed

- DART Goal increased to 0.40;
- TRCR Goal decreased to 0.60

October 2018

- Two First Aid Cases, no Recordable Injury, and no Restricted cases
- No ORPS Reportable Occurrences

November 2018

- Two First Aid Cases, no Recordable Injuries, and no Restricted cases
- 1 ORPS Reportable Occurrence

December 2018

- One First Aid Case, One Recordable Injury, and no Restricted cases
- No ORPS Reportable Occurrences

CERCLA Remediation Project Objectives

- 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 4.96 acres as of Jan. 31, 2019)**
 - 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

CERCLA Remediation – WAGS 1, 3 and 10 (cont.).

- Ongoing Activities:
 - WAG 1
 - Continue actions to treat TCE groundwater contamination at TAN.
 - Remediation is on track to meet Remedial Action Objectives by 2095 as required by the ROD
 - In Situ Bioremediation and Rebound Test in the Source Zone
 - Pump and Treat in the Medial Zone
 - Monitored Natural Attenuation in the Distal Zone.
 - WAG 3 –
 - Continue perched water monitoring and recharge controls at INTEC.
 - WAG 10 –
 - Completed successful rehabilitation of one of three Westbay monitoring wells found to have PCE contamination in the tubing fluid. Rehabilitation of the remaining wells will continue in the spring.
 - Continue monitoring and institutional controls.
 - Continue New Site evaluation/remediation.



Filter-swab device containing granular activated carbon is used to remove PCE contamination in Westbay well tubing fluid.

Idaho CERCLA Disposal Facility (ICDF)

Key Activities/Actions:

- FY 2019 (Oct. 2018 through Dec. 2018)

- Received 4,173 gallons of liquid for disposal to the ICDF evaporation ponds.
- Received a total of 1,012.43 cubic meters for landfill disposal.

Ongoing Activities:

- Continue receipt and disposal of aqueous wastes in Evaporation Ponds.
- Dispose CERCLA/D&D solid waste
 - NRF D&D activities
 - MFC D&D activities
- Continue operation and maintenance of ICDF complex processes and facilities

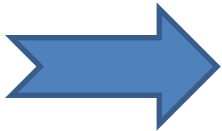


October 14, 2018 flyover photo

Dashboard Legend



Ahead of schedule, under budget, better than expected.



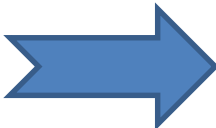
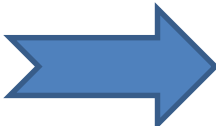
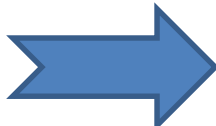


On schedule, on budget, performance as expected.



Behind schedule, over budget, performance less than expected.

Balance of CERCLA (WAGs 1, 3, & 10) Dashboard

Key Questions	Dashboard Indicator	Comments
Schedule Performance		Activities slightly ahead of schedule.
Cost Performance		Cost performance just slightly under budget.
Affect on agreements		Project continues to meet regulatory milestones.
Impact on safety and environment		No current safety issues; progressing towards meeting safety goals.
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: Part of FFA/CO 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 \$42.9M (covers all CERCLA scope).

CERCLA Remediation - WAG 7 Objectives

- 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: 1.68 acres out of 1.72 acres have been exhumed as of 1/31/19.
 - ARP IX: Buried waste exhumation will begin in early 2019 when ARP VIII exhumation is complete.
- 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 -- 1.68 of 1.72 acres have been exhumed as of Jan. 31, 2019. (97.8% complete)
- Since 1996, over 255,621 pounds of volatile organic compounds have been removed using vapor extraction as of Jan. 20, 2019.
- The draft 90% design for SDA cap was submitted for regulatory review December 6, 2018.

Ongoing Activities:

- Continue to exhume targeted buried waste in ARP VIII. ARP VIII completion expected during the first quarter of calendar year 2019.
- Continue organic vapor extraction.
- Continue regulatory review, comment resolution, and document revision for the SDA cap design.



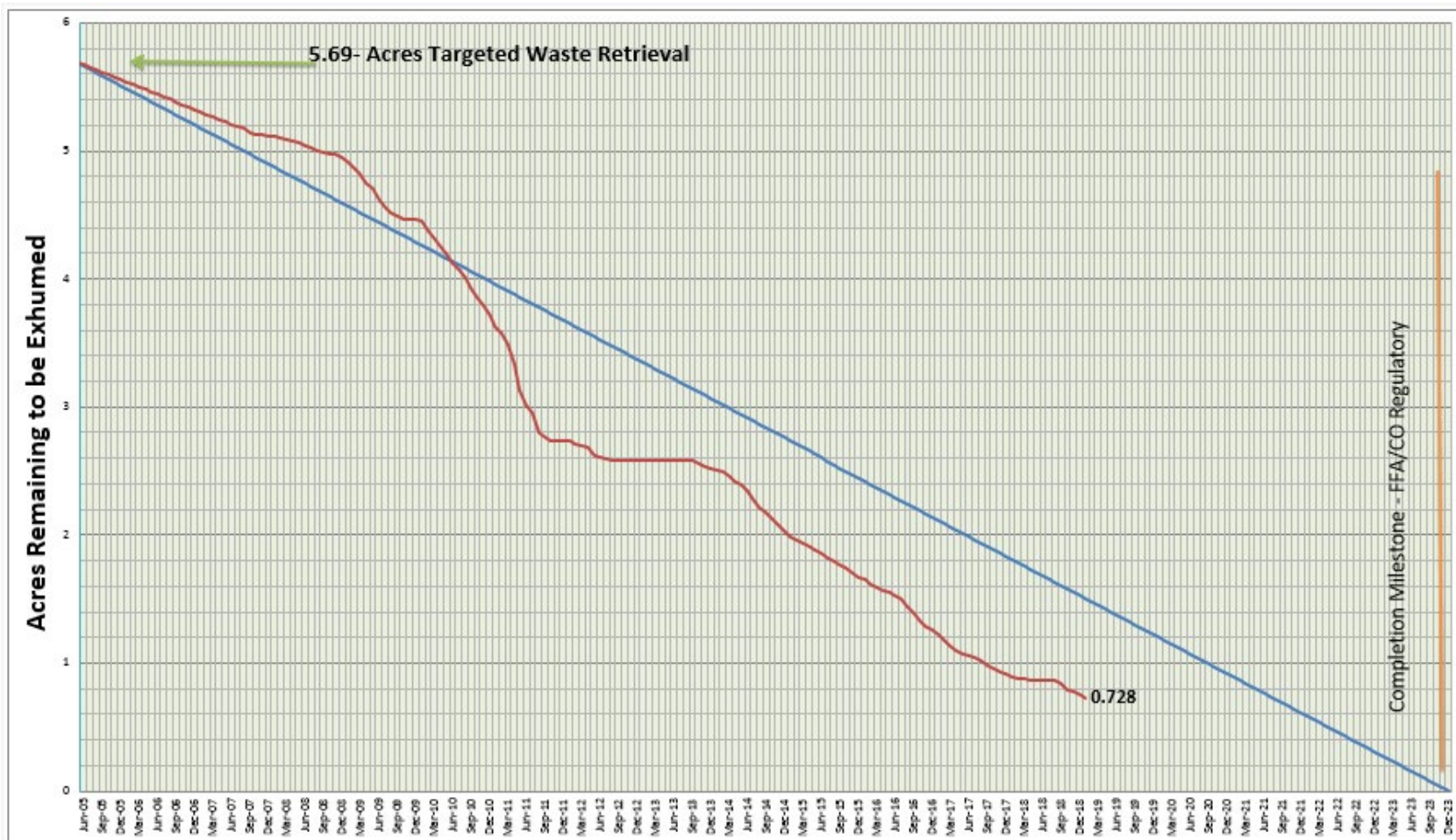
Buried waste exhumation in ARP VIII






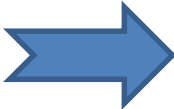

ARP VIII Footprint Exhumation Status as of Jan. 31, 2019

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	
A																													12	40	69	94	A
B																					9	37	65	94	122	151	180	208	225	225	225	210	B
C																	28	148	176	205	224	225	225	225	225	225	225	225	225	225	225	197	C
D																	36	225	225	225	225	225	225	225	225	225	225	225	225	225	225	184	D
E								3	15	27	38	50	62	74	85	97	121	225	225	225	225	225	225	225	225	225	225	225	225	225	225	171	E
F	85	157	169	181	193	204	216	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	158	F
G	112	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	145	G
H	113	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	132	H
I	104	225	225	225	225	225	225	221	211	201	191	180	170	160	150	140	130	120	110	100	90	80	69	59	71	225	225	225	225	225	225	119	I
J	28	56	46	36	26	16	6																	10	59	225	225	225	225	225	225	106	J
K			2	15	24											40	112	128	144	160	175	190	205	220	225	225	225	225	225	225	225	93	K
L			124	225	222	60	33	49	64	79	95	110	126	141	184	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	80	L
M			138	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	67	M
N			153	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	55	N
O			167	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	42	O
P			5	20	37	53	69	85	102	118	134	151	167	183	199	216	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	29	P
Q																	7	17	27	40	55	70	84	99	114	129	143	158	175	192	211	16	Q
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	
			Remaining -SQ FT																														
			Exhumed -SQ FT																														

Waste Exhumation Overall Status (Acres) as of Jan. 31, 2019



WAG 7 Dashboard

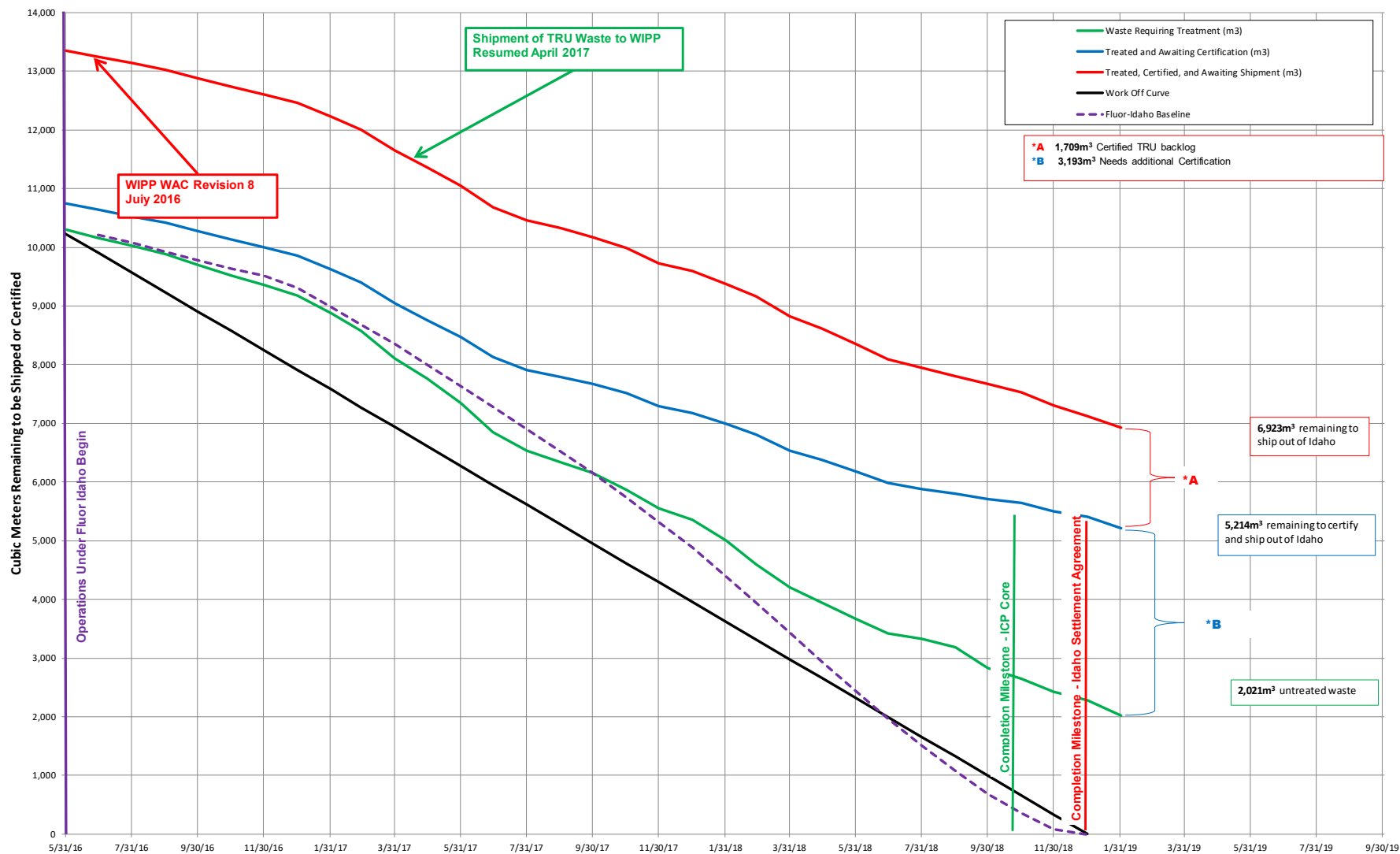
Key Questions	Dashboard Indicator	Comments
Schedule Performance		As of Jan. 31, 2019, 4.96 acres (87.2%) of the required total of 5.69 acres have been exhumed. Project is behind contract baseline schedule, but remains about two years ahead of regulatory requirements.
Cost Performance		Cost performance over budget due to shifting resources to higher priority ISA work in ARP IX and precautionary step-back due to ARP V event.
Affect on agreements		Project remains ahead of pace to meet regulatory milestones.
Impact on safety and environment		No current safety issues; progressing towards meeting safety goals.
Impact on cleanup DOE-wide		Crews performing waste exhumation, sludge/debris in ARP VII and VIII.

Context: Stored Waste Disposition

- What is the Waste: Transuranic (TRU) and Mixed Low Level Waste (M/LLW), principally from Rocky Flats, Argonne National Laboratory, Mound, and other smaller generators stored in retrievable configurations at the Transuranic Storage Area (TSA) and at the Radioactive Scrap and Waste Facility (RSWF).
- Potential Risks: Waste contains long lived transuranic isotopes which pose a risk to the workers and the environment. Retrieval of the waste and shipment for disposal in a deep geologic repository (i.e. the Waste Isolation Pilot Plant or WIPP) ensures that humans and the environment are protected from the waste for the thousands of years that it remains harmful.
- Settlement Agreement: Requires removal of estimated 65,000 cubic meters of stored transuranic waste from the State of Idaho by December 31, 2018. (Milestone missed due to WIPP unavailability).
- How treated/disposed: Repackaged, treated to remove prohibited conditions, characterized and certified to meet waste acceptance criteria for WIPP or M/LLW disposal facilities as appropriate.

Stored Waste Disposition

- Current Budget: (\$185.5 Million Annually)
 - Advanced Mixed Waste Treatment Project (AMWTP) - Contact-handled transuranic waste characterization, treatment, certification, and shipping
 - Accelerated Retrieval Project (ARP) support to AMWTP - Processing sludge waste, large items, roaster oxide conditioning
 - Mixed Low-Level Waste (M/LLW) - Processing mixed low-level waste for offsite disposal
 - Remote Handled-Transuranic (RH-TRU) - Processing remote-handled transuranic waste
 - Radioactive Waste Management Complex (RWMC) Infrastructure








CH-TRU Shipping Status



- Idaho is shipping 6-8 shipments of CH-TRU per week to WIPP.
- Idaho continues to ship 4 shipments per week of M/LLW to other disposal sites.

TRU Waste Program Dashboard

Key Questions	Dashboard Indicator	Comments
Schedule Performance		Milestone to ship all TRU waste out of Idaho was missed. Contract milestone to treat all waste by 12/31/18 was missed.
Cost Performance		Cost performance over budget.
Affect on agreements		Project missed milestone to ship all waste out of Idaho.
Impact on safety and environment		No ongoing safety issues; progressing toward meeting safety goals.
Impact on cleanup DOE-wide		No impacts to the DOE complex.

Context: Spent Nuclear Fuel

Material: *Spent Nuclear Fuel* (SNF) is nuclear 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, SNF is managed as a material of interest and value until it might be declared a waste prior to final disposition. Therefore, SNF is not considered waste.

Hazard to the Public or the Environment: Low. While SNF typically is highly radioactive, it is safely, securely, and appropriately stored, managed and protected. The high radiation levels require shielding (e.g., cask, water, concrete).

How Treated: SNF is managed through safe, secure, and 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.

Budget: Combined DOE and NRC-licensed fuels: \$29 million.

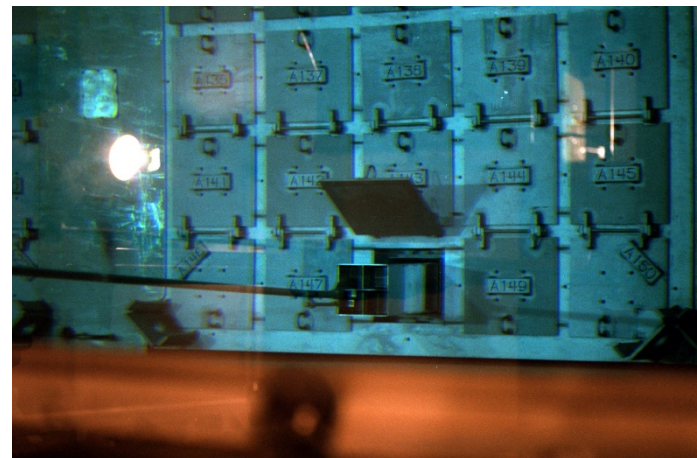
Spent Nuclear Fuel Disposition Project

Key Activities/Actions:

- Three of nine EBR-II SNF transfers planned this year from CPP-666 to MFC/FCF are complete. Transfers will resume in June.
- Both planned NR SNF transfers from CPP-666 to NRF are complete. This 12 year project (planning and execution) is complete.
- Eight of 26 planned ATR SNF transfers from CPP-666 to CPP-603 are complete.
- CPP-749 Degradation:
 - Phase 1 mitigation activities have been initiated.
 - DOE direction for Phase 2 activities to be issued pending cost estimate review and approval.
- License renewal application for the Three Mile Island-2 Independent Spent Fuel Storage Installation (ISFSI) has been submitted to the NRC. Technical queries have been responded to and DOE is preparing clarification in round two of the review.

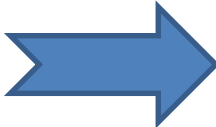
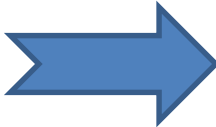
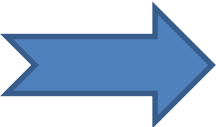
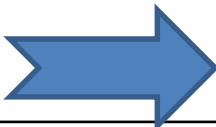
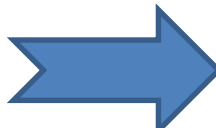


Large Cell Cask – NR SNF in transit from CPP-666 to NRF.








CPP-666 – Extraction of an ATR bucket.

Dashboard Summary – Spent Nuclear Fuel Disposition Project

Key Questions	Dashboard Indicator	Comments
Percent of project completed		For the reporting period (Dec), the SNF project is 31 months into a sixty month project. The project is on schedule.
Percent of budget expended		For the reporting period (Dec), the SNF project has expended ~38% of its planned budget. The project is under cost.
Affect on agreements		The SNF project is meeting its planned scope commensurate with existing agreements.
Impact on safety and environment		No current safety issues; progressing towards meeting safety goals.
Impact on cleanup DOE-wide		The SNF project is meeting its goals.

ICP Dashboard Summary

Key Questions	Dashboard Indicator	Comments
Amount of project completed		Reflects IWTU, TRU waste delays.
Amount of budget expended		IWTU, TRU waste issues causing life cycle costs to rise.
Affect on agreements		IWTU delay, WIPP closure impacting milestones.
Impact on safety and environment		Improving Fluor operational and safety performance.
Impact on cleanup DOE-wide		No outstanding impacts.