

# EM Site-Specific Advisory Board Chairs Meeting

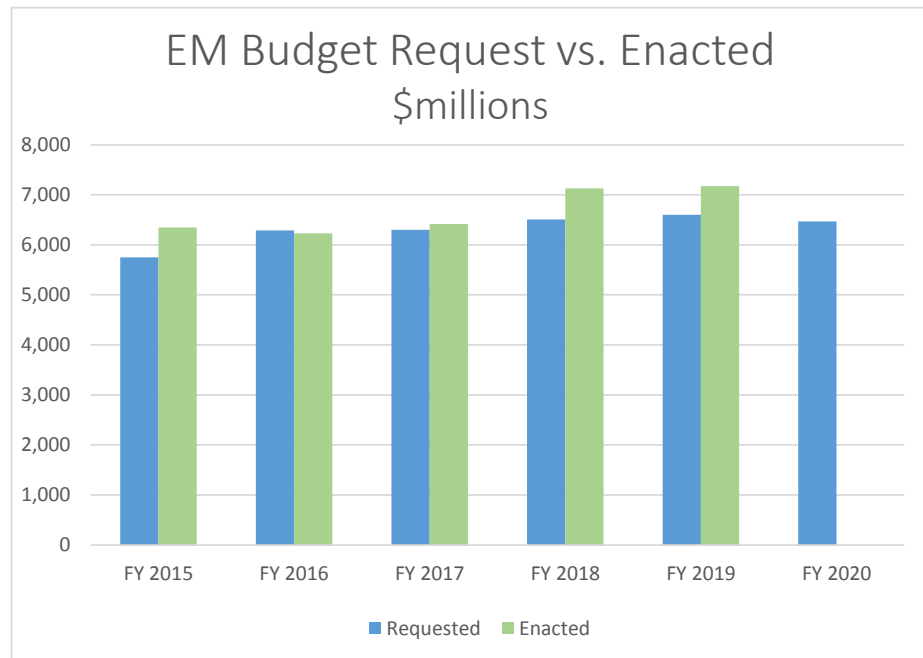
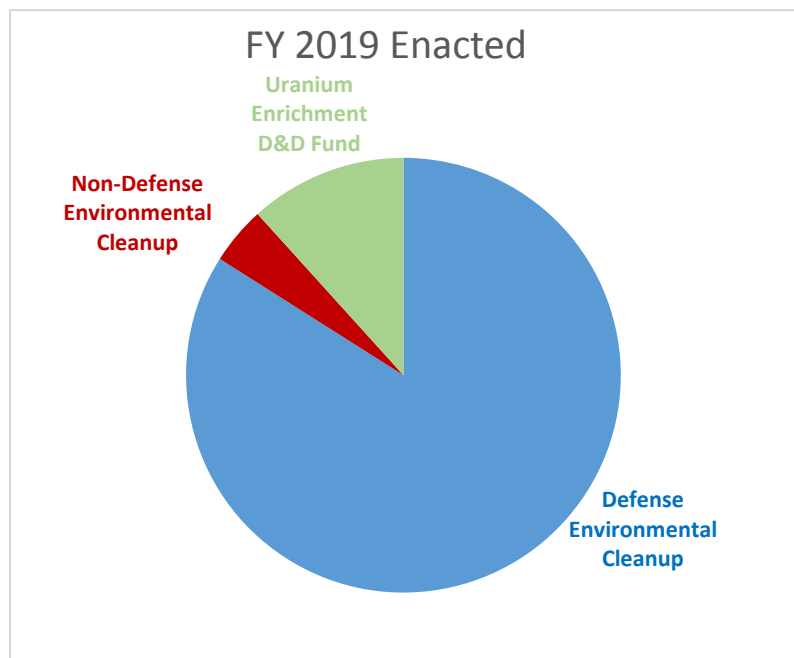
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Director, Office of Budget and Planning  
Environmental Management

May 2019

# Budget Trends

	FY 2018 Enacted	FY 2019 Cong Req.	FY 2019 HEWD	FY 2019 SEWD	FY 2019 Enacted	FY 2020 Cong Req.
<b>Appropriation Summary</b>						
Defense Environmental Cleanup	5,988	5,630	5,767	5,988	6,036	5,522
Non-Defense Environmental Cleanup	298	218	240	353	310	247
Uranium Enrichment D&D Fund	840	753	870	841	841	715
<b>Subtotal</b>	<b>7,126</b>	<b>6,601</b>	<b>6,877</b>	<b>7,182</b>	<b>7,187</b>	<b>6,485</b>
Offsets	0	0	-8	0	-12	-16
<b>Grand Total, EM</b>	<b>7,126</b>	<b>6,601</b>	<b>6,869</b>	<b>7,182</b>	<b>7,175</b>	<b>6,469</b>



# FY18-20 Budget Requests

Site	FY 2018 Enacted	FY 2019 Cong Req.	FY 2019 HEWD	FY 2019 SEWD	FY 2019 Enacted	FY 2020 Cong. Req.
Brookhaven	2	2	2	25	20	0
Carlsbad	383	403	403	403	403	398
ETEC	9	8	15	8	11	18
Idaho	446	359	443	359	443	348
Los Alamos	220	192	198	230	220	195
Lawrence Livermore	101	2	2	52	27	130
Lawrence Berkeley	41	0	0	55	35	0
Moab	38	35	35	45	45	36
Nevada	60	60	60	60	60	61
Oak Ridge	640	409	501	646	646	429
Richland	947	747	952	937	954	718
River Protection	1,560	1,439	1,480	1,573	1,573	1,392
Paducah	273	270	291	275	274	277
Portsmouth	448	415	481	475	476	426
Savannah River	1,471	1,656	1,540	1,583	1,551	1,643
SPRU	5	15	15	15	15	15
Sandia	3	3	3	3	3	3
West Valley	78	64	78	78	78	78
Defense Closure Site Activities	5	5	5	5	5	5
Non-Defense Closure Site Activities	10	0	0	0	0	0
Program Direction	300	300	295	300	299	279
Mission Support Activities	15	13	13	13	13	13
Technology Development	35	25	32	29	25	0
Excess Facilities	0	150	0	0	0	0
Uranium Thorium Reimbursements	36	30	33	11	11	21
Offsets	0	0	-8	0	-12	-16
Total, EM	7,126	6,602	6,869	7,180	7,175	6,469

## Environmental Management's Fiscal Year 2020 budget supports substantial progress:

- Maintains a safe and secure posture at all sites, while continuing with cleanup activities
  - Ramps up efforts to address radioactive tank waste at Savannah River through start-up of Salt Waste Processing Facility
  - Supports ventilation system completion and critical infrastructure at Waste Isolation Pilot Plant to enable increased waste shipments and emplacement
  - Keeps focus on Direct Feed Low Activity Waste approach to initiate Hanford tank waste treatment by December 2023
  - Advances construction on Outfall 200 Mercury Treatment Facility at Oak Ridge

The mission of the Office of Environmental Management is to complete the safe cleanup of the environmental legacy brought about by five decades of nuclear weapons development and government-sponsored nuclear energy research



## Adopting Modern Completion-Centric Approach to Cleanup:

- Reflecting latest scientific knowledge about waste
- Incorporating lessons learned over three decades of cleanup and historic site completions
- Evaluating new cleanup technologies, treatment and disposal options
- Incorporating accurate and up-to-date schedule and cost data into decision making
- Analyzing opportunities, in collaboration with regulators and stakeholders, to complete cleanup safer and sooner

## Reinvigorating the Cleanup Mission

- Recognizing time equals money
- Addressing challenges early on and head on
- Driving projects to completion through shift to end-state contracting

## Maximizing Every Cleanup Dollar

- Lowering hotel costs and funneling those resources into actual cleanup
- Strengthening project management, oversight and accountability
- Prioritizing work based on real risks

*Richland, WA: Workers began filling PUREX No.2 waste storage tunnel with engineered grout*



*Oak Ridge, TN: Removal of two high-risk excess contaminated facilities in Y-12's Biology Complex.*



## EM continues making measurable and meaningful progress towards cleanup completion

- Complete closure of the 90-acre D-Area Ash Project
- First transfer of land back to the local Portsmouth community
- Safe demolition of the vitrification facility at West Valley
- Demolition of Toxic Substances Control Act incinerator and 100 foot stack at Oak Ridge's East Tennessee Technology Park
- Continue processing of Canadian material, Foreign Research Reactor fuel, and High Flux Isotope Reactor fuel at H-Canyon
- Work underway on the second Salt Waste Disposal Unit at Savannah River – key to accelerating the tank waste mission
- Broke ground on the new ventilation system at Waste Isolation Pilot Plant, a facility that is the lynchpin to transuranic waste final disposition
- Commenced movement of radioactive sludge out of K-West Basin at Hanford on schedule
- On schedule to complete turnover from construction of vast majority (>90%) of the Waste Treatment and Immobilization Plant's Low Activity Waste facility at Hanford this year

**EM will not only build on these recent successes in FY 2020 but is bringing a renewed sense of urgency to tackling cleanup challenges and driving down the third largest liability to the U.S. taxpayer.**

**EM is working collaboratively with cleanup partners toward a future that propels the mission forward and drives cleanup toward completion safer, sooner and at a responsible cost.**



Hanford



Idaho



Waste Isolation Pilot Plant

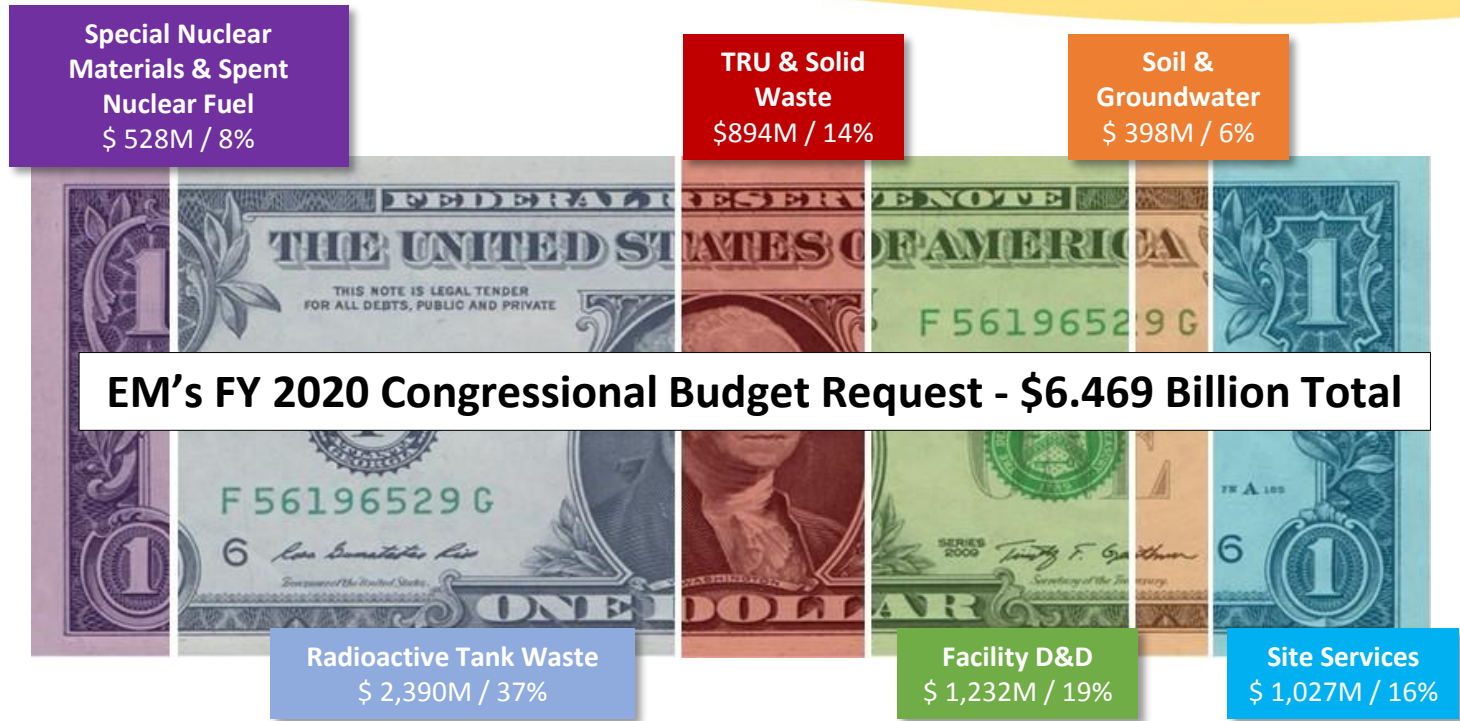


Savannah River



West Valley

# EM has Six Primary Mission Areas



EM Sites	✓	✓	✓	✓	✓	✓	FY 20 (\$M)
Savannah River	✓	✓	✓	✓	✓	✓	1,643
River Protection		✓				✓	1,392
Richland			✓	✓	✓	✓	718
Idaho	✓	✓	✓		✓	✓	348
Oak Ridge	✓		✓	✓		✓	429
Portsmouth	✓			✓		✓	426
Paducah	✓			✓		✓	277
Carlsbad			✓			✓	398
Los Alamos			✓		✓	✓	195
West Valley			✓	✓		✓	78
All Others			✓	✓	✓	✓	565



## South Carolina (\$1,643M)

### Savannah River Site

- Complete removal of material-at-risk from 235-F which addresses remaining activities per Defense Nuclear Safety Board Implementation Plan to reduce residual Plutonium 238
- Liquid Waste/Salt Waste Processing
  - Supports Salt Waste Processing Facility (SWPF) start of radioactive operations, necessary to meet State commitments and advance completion of Cleanup Mission
  - Enables waste removal preparation activities required to support SWPF planned operations rate greater than current rate for salt waste processing, allowing tank closure to proceed at a rapid pace
  - Continue construction of Saltstone Disposal Units 7 and initiate construction of Saltstone Disposal Units 8/9 and design of Saltstone Disposal Units 10-12 Project to support SWPF planned rates
- Funding to initiate the Savannah River National Laboratory's Advanced Manufacturing Collaborative facility (AMC)



Salt Waste Processing Facility



Saltstone Disposal Unit 6/7 at the Savannah River Site





## Washington (\$2,111)

### Office of River Protection (\$1,392M)

- Initiate cold commissioning of the Waste Treatment and Immobilization Plant to support Low Activity Waste Facility hot commissioning and production operations by December 31, 2023
- Design and construct tank farm facility upgrades (i.e. 222-S Laboratory, 242-A Evaporator and the Effluent Treatment Facility) for staging waste in 2021 for Waste Treatment Plant operations
- Incorporate lessons learned from Savannah River cesium processing to facilitate fabrication, testing and delivery of the Tank-Side Cesium Removal System to pretreat waste for the LAW facility
- Perform tank integrity activities to ensure adequate double shell tank space is available for DFLAW and AX retrievals
- Complete retrieval of single shell tank AX-102 in support of Consent Decree milestone in 2021
- Advance a production scale offsite disposition path for tank waste utilizing the regulatory pathways created by Test Bed Initiative
- Hanford Tank Closure End State Contract scheduled for award in Q4 2019 incentivizes risk based cleanup that reduces financial liability



Tank Farms

### Richland (\$718M)

- Reduce risk and facility costs by supporting construction activities for future relocation of Cesium & Strontium capsules to dry storage by the TPA due date of August 2025
- Shrink the extent of radiological and chemical contamination in groundwater at Hanford through treatment of 2.2 billion gallons
- Complete 324 Building structural mods, removal of the hot cell floor, and readiness review activities for start of soil removal for remediation of the 300-296 waste site below the building
- Hanford Central Plateau Cleanup End State Contract scheduled for award in Q4 2019 incentivizes risk based cleanup that reduces financial liability



K West Reactor Basin



## Idaho (\$348M)

### Idaho

- Complete exhumations at Accelerated Retrieval Project area in support of meeting regulatory milestone to retrieve, process and dispose of targeted buried waste by 2023
- Initiate hot operations of Integrated Waste Treatment Unit, pending successful demonstrations of the phase 2 simulant run 3 and phase 3 performance run, to begin processing liquid sodium-bearing waste leading to closure of the final 3 liquid waste tanks
- Complete processing of legacy transuranic waste such that waste is packaged and ready for certification and shipment
- Idaho Cleanup Project End State Contract scheduled for award in Q2 2020 incentivizes risk based cleanup that reduces financial liability



Integrated Waste Treatment Unit



Accelerated Retrieval Project Enclosure 9

## Tennessee (\$429M)

### Oak Ridge

- Complete demolition of 90% of East Tennessee Technology Park facilities and continue environmental remediation work
- Complete processing contact-handled and remote-handled legacy transuranic debris waste inventory
- Complete construction of transuranic sludge processing test area
- Complete preparation of Building 2026 for processing remaining U-233 material at Oak Ridge National Laboratory
- Complete second of four years of construction of the Mercury Treatment Facility
- Complete preliminary design and early site preparation of On-Site Comprehensive Environmental Response, Compensation, and Liability Act Disposal Facility
- Oak Ridge Reservation Cleanup Contract End State Contract scheduled for award in Q3 2020 incentivizes risk based cleanup that reduces financial liability



Demolition of East Tennessee Technology Park facilities



Outfall 200 Mercury Treatment Facility Rendering



## Ohio (\$426M)

### Portsmouth

- Continue pre-demolition activities of first process building (X-326)
- Continue deactivation of second process building (X-333)
- Complete construction of On-Site Waste Disposal Facility (OSWDF) Cell Liner 1 (15-U-408), providing initial capacity for X-326 Process Building demolition debris
- Complete design and initiate construction of OSWDF Cell Liners 2, 3, and 6 and remaining infrastructure (20-U-401), providing capacity for the X-333 demolition debris
- Operate Depleted Uranium Hexafluoride (DUF6) conversion facility with expected cumulative converted total of 35,000 metric tons (~14% of inventory)
- Portsmouth D&D End State Contract scheduled for award in Q1 2021 incentivizes risk based cleanup that reduces financial liability



Process Building X-326 at Portsmouth



Future vision of central plant after D&D is complete



## Kentucky (\$277M)

### Paducah

- Initiate characterization activities in C-333 Process Building (2nd of four gaseous diffusion plant buildings) to determine amounts and locations of uranium deposits for removal
- Complete characterization in C-331 Process Building to facilitate uranium deposit removal and subsequent declaration of Criticality Incredible
- Complete demolition of C-400 Cleaning Building, 116,140 ft<sup>2</sup> building used to clean uranium enrichment process equipment and located over source of offsite groundwater plume
- Conduct uranium deposit removal in C-331 Process Building to achieve Criticality Incredible and reduce surveillance and maintenance costs
- Reduce Limited Area footprint from ~750 to ~615 acres to reduce project costs associated with Safeguards and Security requirements
- Operate Depleted Uranium Hexafluoride (DUF6) conversion facility with expected cumulative converted total of 59,000 metric tons (~11% of initial inventory)



C-400 Complex at Paducah

## New Mexico (\$596M)

### Carlsbad (\$398M)

- Support up to 10 shipments per shippable week
- Construction progress on Safety Significant Confinement Ventilation System (15-D-411) and on Utility Shaft (formerly Exhaust Shaft) (15-D-412)
- Complete two infrastructure recapitalizations (public address system and electrical substations)

### Los Alamos (\$195M)

- Commence operations in two (of three planned) TRU processing lines to treat waste for shipment to WIPP
- Reduce risk by completing ~50 shipments of TRU waste to WIPP
- Complete characterization of RDX (high explosives) plume beneath Cañon de Valle and continue activities to determine final remedy
- Prevent migration of Chromium plume offsite by implementing a hydraulic barrier
- Continue investigation and cleanup activities required to meet Consent Order milestones
- Continue groundwater and surface water sampling to remain compliant with the Consent Order and Individual Permit

### Sandia (\$3M)

- Install up to 8 groundwater characterization wells at Burn Site and install 2 additional injection wells for groundwater treatability study at Technical Area-5



Transuranic waste shipments arrive at the Waste Isolation Pilot Plant in Carlsbad, New Mexico



Chromium project extraction wells at Los Alamos, New Mexico



## New York (\$93M)

### West Valley (\$78M)

- Conduct enhanced deactivation work to simplify future Main Plant Processing Building demolition, reducing the risk associated with open air demolition.
- Demolish 5 excess industrial facilities
- Manage and maintain site infrastructure
- West Valley End State Contract scheduled for award in Q1 2020 incentivizes risk based cleanup that reduces financial liability



Main Plant Process Building at West Valley

### Separations Process Research Unit (SPRU) (\$15M)

- Initiate procurement actions to transport and treat 24 containers of Separations Process Research Unit transuranic waste

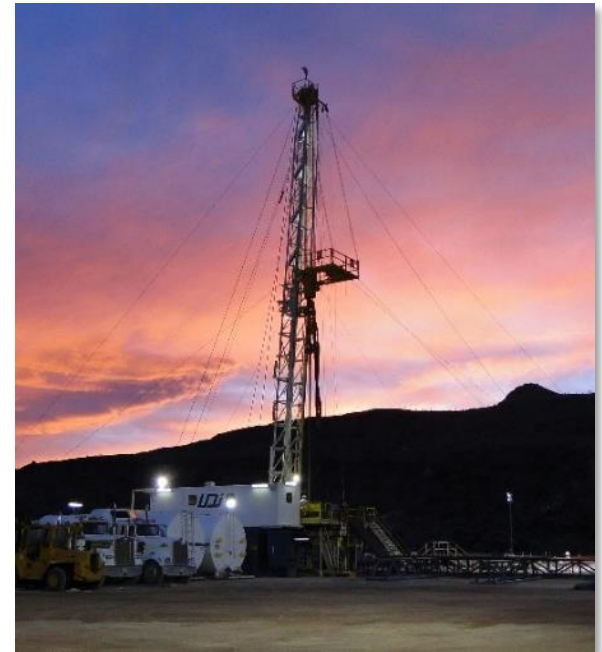


Storage of SPRU Waste

## Nevada (\$61M)

### Nevada National Security Site

- Complete closure of Corrective Action Unit (CAU) 97 Yucca Flat/Climax Mine
- Complete 3% for a total of 66% towards the closure of CAUs 101/102 Central and Western Pahute Mesa
- Initiate and complete 18% towards the installation of 4 post-closure monitoring network wells for CAUs 97 Yucca Flat/Climax Mine and 99 Rainier Mesa/Shoshone Mountain
- Conduct annual post-closure monitoring and maintenance of 197 closed-in-place contaminated soil and industrial-type sites
- Conduct annual post-closure sampling, monitoring and maintenance at 16 well locations associated with 76 closed-in-place contaminated groundwater sites
- Operate DOE owned waste disposal facility with the capability to receive between 1.2 to 1.5 million cubic feet of low-level and mixed low-level waste in support of cleanup activities across the DOE complex
- Maintain Nevada's Agreements in Principal and grants and provide funds for the Low-Level waste fee agreement
- Nevada Environmental Program Multiple Award Small Business End State Contract scheduled for award in Q2 2020 incentivizes risk based cleanup that reduces financial liability



Groundwater Well Drilling





## Utah (\$36M)

### Moab

- Excavation, transportation and disposal operations supporting 2 trains/week resulting in removal of 450,000 tons of tailings, 7.5% of the 6 million tons of tailings remaining
- Operate interim remedial action for contaminated groundwater including extracting 4 million gallons and diverting/injecting 6.5 million gallons of freshwater to protect the Colorado River from contamination
- Maintain/replace aging equipment to provide a safe working environment



Locomotive transports sealed containers of tailings from Moab to a disposal site



## California (\$148M)

### Energy Technology Engineering Center (\$18M)

- Complete the required groundwater corrective measures implementation
- Complete the groundwater Interim Measures for areas that exceed 1000 ppb for trichloroethylene (TCE)
- Complete demolition of the last 2 (of 18) remaining radiological buildings

### Lawrence Livermore National Laboratory (\$130M)

- Complete decommissioning and demolition of B280
- Commence characterization of subsequent High Risk excess facilities based on Livermore Field Office priorities
- Supports the development of remedial solutions for contamination at Building 812, Building 850, and Building 865



Energy Technology Engineering Center



Lawrence Livermore National Laboratory

# Background

## ➤ What drives the budget requirements?

- The Budget and Accounting Act requires the President to submit a budget
- Agencies have internal process that ultimately lead to the President formally transmitting budget proposals to Congress
- The Congress considers the recommendations and uses the information included in the budget as it drafts and passes laws that affect spending
- Neither branch of Government can unilaterally decide how budgets are distributed/executed, it is through the budget process the Government decides how much money to spend, what to spend it on, and how to raise the money it has decided to spend

## ➤ All Government agencies are required to follow the governing steps laid out in the Office of Management and Budget (OMB) Circular No. A-11 “Preparation, Submission, and Execution of the Budget”

- Provides an overview of the budget process
- Indicates what/when agencies can communicate externally

## ➤ **Defense Environmental Cleanup**

- Often referred to as 050 funds
- Funds legacy cleanup activities associated with Defense funded legacy waste
- Subject to Defense fund caps

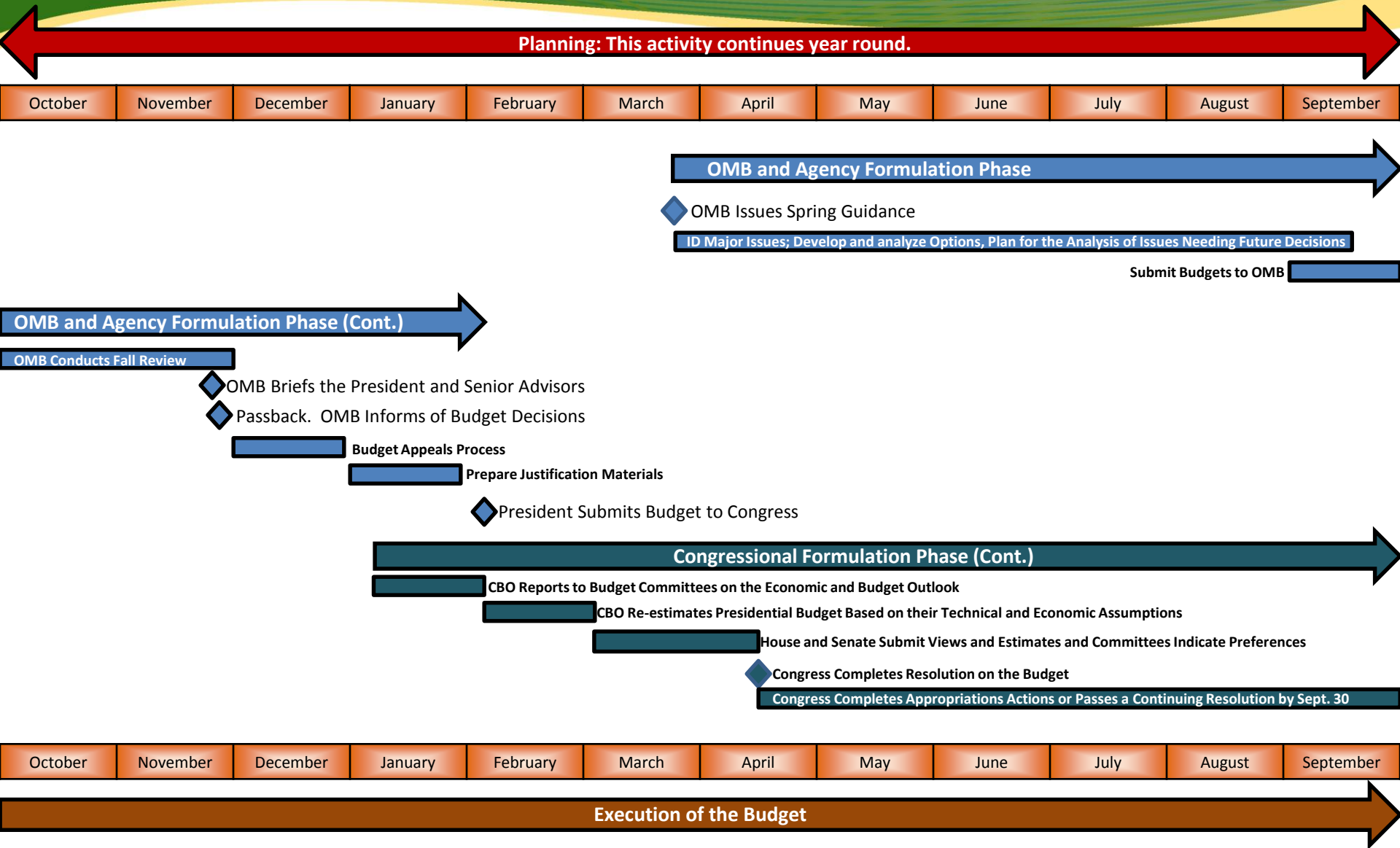
## ➤ **Non-Defense Environmental Cleanup**

- Often referred to as non-050 funds
- Funds legacy cleanup activities associated with non-defense funded legacy waste
- Subject to non-defense fund caps

## ➤ **Uranium Enrichment Decontamination and Decommissioning (UE D&D)**

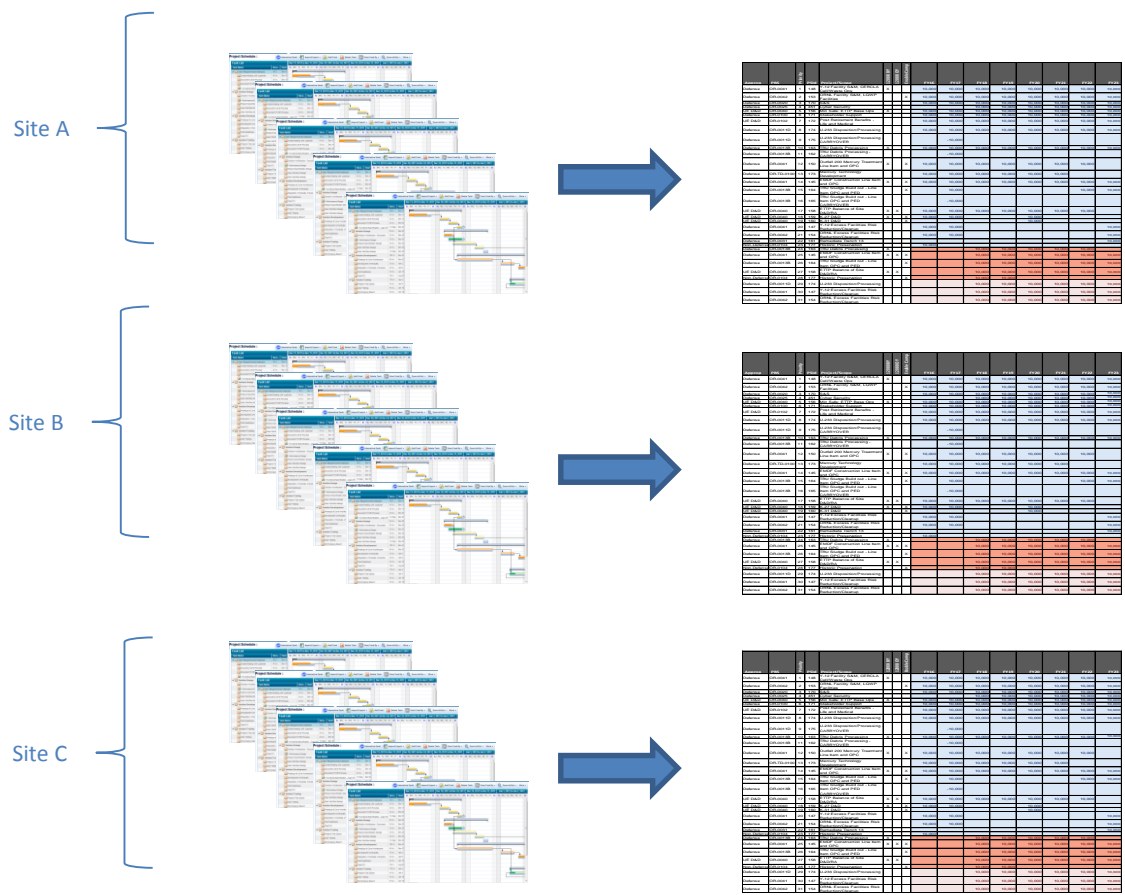
- Often referred to as non-050 funds
- Funds legacy cleanup activities under statutory requirements from the Energy Policy Act of 1992 for the sole purpose of uranium enrichment facility decontamination
- Subject to non-defense fund caps

# Budget and Planning Timeline




\*During OMB’s Agency Formulation Phase, Budget Allocations are Embargoed and **NOT** Releasable Outside of the Administration

## Site Prioritization



## Program Prioritization

Department of Energy  
FY 2018 Congressional  
Budget Request



Environmental Management

- FY 2019 Enacted is \$574M above our Request level and \$49M above our FY 2018 Enacted level which will allow continued progress in FY 2019

**Oak Ridge (+\$238M)** – Accelerate D&D of ETTP, accelerate preparations of Bldg 2026 for processing remaining U233 inventory, accelerate progress on design and construction of TRU sludge test facilities, complete early site preparation five months early and accelerate ramp up for construction of Mercury Treatment Facility, accelerate preliminary design activities of the OSWDF, stabilize and reduce risks on high risk excess facilities at ORNL and Y12, perform life extension activities on critical ORNL waste treatment facilities, initiate cleanup of highest risk excess facilities at ORNL, and accelerate completion of commitments to preserve historical significance of K-25 gaseous diffusion plant.

**Richland (+\$207M)** – Resumes D&D of PFP to complete slab-on-grade, complete PUREX Tunnel #2 stabilization grouting, complete cleanout of 324 hot cells, equipment installation in B hot cell, initiate structural modifications and cutting of B hot cell floor, initiate planning for 100-K West Basin characterization and dewatering, initiate construction of 4 of 13 critical infrastructure upgrades for DFLAW, and resume support to repackaging of TRU waste

**River Protection (+\$134M)** – Supports HLW design, accelerate tank farm activities in support of DFLAW, initiate 242-A slurry line replacement, initiate AX-101 and 103 single shell tank equipment removal and procurements, and initiate DFLAW enabling design and procurements

**Idaho (+\$84M)** – Complete IWTU canister and cell decontamination upgrade to support radiological operations, complete AMWTP mission to treat CH-TRU, initiate planning for RCRA closure of the treatment facility, and perform D&D of priority INL excess facilities.

**Portsmouth (+60M)** – Achieve base program work scope, funding provided to compensate for loss of uranium barter which was discontinued for the entire fiscal year.



# Congressional Support for the EM Program (continued)

- FY 2019 Enacted is \$574M above our Request level and \$49M above our FY 2018 Enacted level which will allow continued progress in FY 2019

**LANL (+\$28M)** – Accelerate TRU waste processing and shipments, Add Hazard Category II TRU waste processing capability and upgrade processing, execute additional chromium monitoring well installation and infrastructure modifications to control migration of the plume, and complete TA-21 site wide cleanup and relocate waste program support staff.

**Lawrence Livermore (+\$25M)** – Remove ancillary facilities to create a lay-down area for B280 D&D.

**West Valley (+\$14M)** – Begin enhanced deactivation work to simplify future Main Plant Processing Building demolition reducing the risk associated with open air demolition, and begin deactivation of the fuel receiving and storage area.

**Moab (+\$10M)** – Support 4 trains/week for annual rate of 900,000 tons of tailings showing accelerated progress.

**Paducah (+\$4M)** – Support NEPA activities for future oxide shipments, and a reduction in S&M costs: removal of inefficient and costly trailers and the office space is being reconfigured to accommodate relocated personnel.

**ETEC (+\$3M)** – Additional FY 2019 investment expedites building demolition and move towards site closure, and issue records of decision for soils, groundwater and buildings.

**Brookhaven (+\$2M)** – Complete demolition of HFBR stack, final site grading and final status survey, and development of documentation to closeout U.S. EPA CERCLA Record of Decision.

**Total Reductions (-\$276M)** – Savannah River (-\$105M), Program Direction (-\$1.5M), Excess Facilities (-\$150M), and Uranium Thorium (-\$19M)

# FY 2019 Enacted Structure - \$7,175,129 net

(dollars in thousands)

	\$6,024,000 Defense Environmental Cleanup (050)	\$310,000 Non-Defense Environmental Cleanup (non-050)	\$841,129 Uranium Enrichment Decontamination and Decommissioning (UE D&D) (non-050)
1	Closure Sites Administration	1. Fast Flux Test Reactor Facility	1. Oak Ridge
2	Richland: Central Plateau Remediation	2. Gaseous Diffusion Plants	2. Paducah Nuclear Facility D&D
3	Richland: River Corridor and Other Cleanup Operations	3. Small Sites	3. Portsmouth Nuclear Facility D&D
4	Richland: Richland Community and Regulatory Support	4. West Valley Demonstration Project	4. Portsmouth: 15-U-408 On-Site Waste Disposal Facility
5	Richland: 18-D-404 WESF Modifications and Capsule Storage		5. Pension and Community and Regulatory Support
6	Office of River Protection: Waste Treatment and Immobilization Plant Commissioning		6. Title X Uranium/Thorium Reimbursement Program
7	Office of River Protection: Rad Liquid Tank Waste Stabilization and Disposition		
8	Office of River Protection: 15-D-409 Low Activity Waste Pretreatment System		
9	Office of River Protection: 18-D-16 Waste Treatment and Immobilization Plant -LBL/Direct Feed LAW		
10	Office of River Protection: 01-D-16 D High-Level Waste Facility		
11	Office of River Protection: 01-D-16E Pretreatment Facility		
12	Idaho National Laboratory: Idaho Cleanup and Waste Disposition		
13	Idaho National Laboratory: Idaho Community and Regulatory Support		
14	Idaho National Laboratory: ID Excess Facilities D&D		
15	NNSA Sites: Lawrence Livermore National Laboratory		
16	NNSA Sites: LLNL Excess Facilities D&D		
17	NNSA Sites: Separations Process Research Unit		
18	NNSA Sites: Nevada		
19	NNSA Sites: Sandia National Laboratories		
20	NNSA Sites: Los Alamos National Laboratory		
21	Oak Ridge: OR Nuclear Facility D&D		
22	Oak Ridge: U233 Disposition Program		
23	Oak Ridge: OR Cleanup and Disposition		
24	Oak Ridge: 17-D-401 On-site Waste Disposal Facility		
25	Oak Ridge: 14-D-403 Outfall 200 Mercury Treatment Facility		
26	Oak Ridge: OR Reservation Community and Regulatory Support		
27	Oak Ridge: OR Technology Development and Deployment		
28	Savannah River Site: Savannah River Site Risk Management Operations		
29	Savannah River Site: SR Community and Regulatory Support		
30	Savannah River Site: Radioactive Liquid Tank Waste Stabilization and Disposition		
31	Savannah River Site: 19-D-701 SR Security System Replacement		
32	Savannah River Site: 18-D-402 Saltstone Disposal Unit #8/9		
33	Savannah River Site: 18-D-402 Emergency Operations Center Replacement		
34	Savannah River Site: 17-D-402 Saltstone Disposal Unit #7		
35	Savannah River Site: 05-D-405 Salt Waste Processing Facility		
36	Waste Isolation Pilot Plant: Waste Isolation Pilot Plant		
37	Waste Isolation Pilot Plant: 15-D-411 Safety Significant Confinement Ventilation System		
38	Waste Isolation Pilot Plant: 15-D-412 Exhaust Shaft		
39	Program Direction		
40	Program Support		
41	Safeguards and Security		
42	Technology Development		