

# Environmental Management Advisory Board

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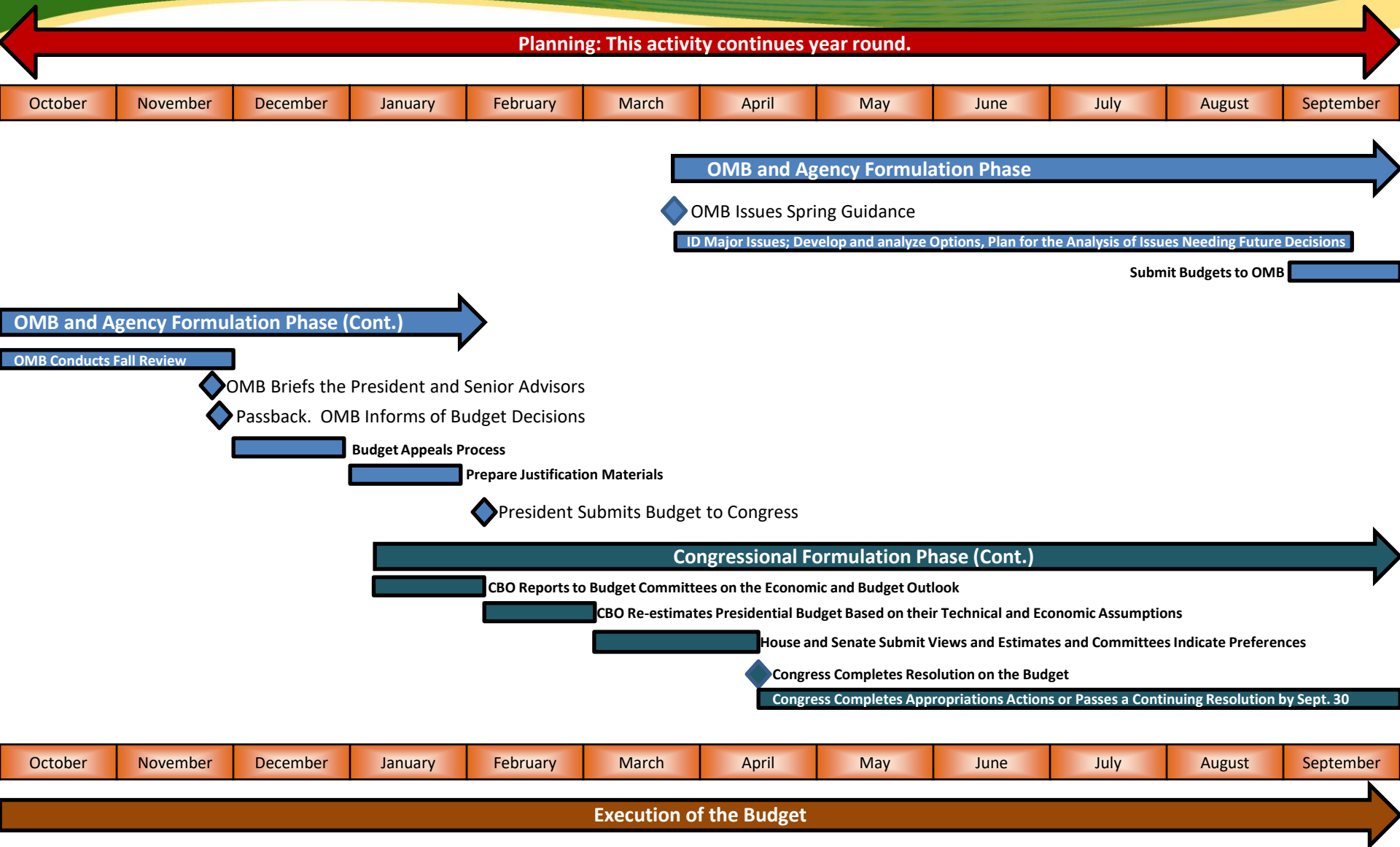
March 2021

# Agenda

- **FY 2021 Budget**
- **Environmental Liability**
- **What Lies Ahead**



# Budget and Planning Timeline



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

**Built on successes achieved in recent years, EM is entering into a new era across the cleanup complex, focused on achieving goals in addressing tank waste, demolishing contaminated buildings, remediating contaminated soil and groundwater, safely managing and disposing of waste, and ultimately closing out cleanup sites.**

- Made significant step forward with key portions of the Waste Treatment and Immobilization with completion of the Direct Feed Low-Activity Waste construction turnover to commissioning at River Protection
- Worldwide first cleanup of gaseous diffusion plant at East Tennessee Technology Park at Oak Ridge
- Savannah River Site is on the cusp of substantially accelerating the tank waste mission as a successful 11-year demonstration of two interim salt waste processing facilities draw-to-a-close, with the startup of the Salt Waste Processing Facility
- Start of construction on the Utility Shaft at the Waste Isolation Pilot Plant
- Safely completed the 15-year process of treating all the stored debris transuranic waste at the Advanced Mixed Waste Treatment Facility in preparation for offsite disposal at Idaho
- At Paducah, the Depleted Uranium Hexafluoride Conversion Project safely completed first oxide cylinder shipment for final disposition (six cylinders transported and modified gondola railcars to WCS in Texas)
- Completed deactivation of the below-grade rooms and cells in the Main Plant Process Building and of asbestos-containing material (ACM) from the Fuel Receiving and Storage Facility

**EM will not only build on these recent successes in FY 2021 but is bringing a renewed sense of urgency to tackling cleanup challenges and driving down the third largest liability to the U.S. taxpayer.**



Hanford



Oak Ridge



Savannah River



Carlsbad



Portsmouth

**EM's FY 2021 Budget reflects an effective allocation to continue making strong progress in the Department's cleanup mission.**

- Complete processing of 6 million gallons of tank waste at the Savannah River Site
- Focus on moving forward with tank waste treatment at Hanford --- Complete construction of the Tank-Side Cesium Removal system at Hanford
- Support startup and operation of Integrated Waste Treatment Unit at Idaho
- Complete Biology Complex demolition at Oak Ridge
- Support continued infrastructure improvements and begin mining of the West Access Drifts at the Waste Isolation Pilot Plant
- Complete disposition of remaining legacy EM-Los Alamos transuranic waste at Waste Control Specialists
- Begin demolition of last remaining major facility ---- the Main Plant Process Building --- at the West Valley Demonstration Project
- Remove a cumulative 12 million tons of former uranium mill tailings at Moab
- Brookhaven stack demolition and transfer
- Complete demolition of Building 175 to slab at Lawrence Livermore National Laboratory
- Complete demolition of Old Town Building 7 to slab at Lawrence Berkeley National Laboratory

*Hanford, WA: Last of 14 Direct Feed Low-Activity Waste Buildings shift to Full Startup Testing at Hanford*



*Savannah River, SC: Salt Waste Processing Facility (SWPF)*



# Six Primary Mission Areas

EM pursues its cleanup objectives safely within a framework of regulatory compliance commitments and best business practices. Taking many variables into account, EM's priorities are as follows:

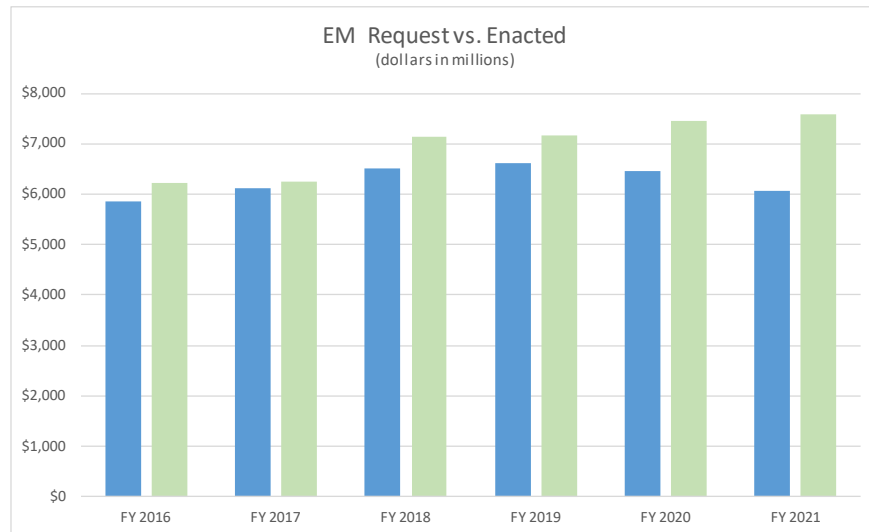
- Activities to maintain a safe, secure, and compliant posture
- Radioactive tank waste stabilization, treatment, and disposal
- Spent (used) nuclear fuel receipt and storage
- Nuclear material consolidation, stabilization, and disposition
- TRU and mixed low-level waste disposition
- Soil and groundwater remediation
- Excess facilities deactivation and decommissioning



## FY 2021 Enacted by Appropriation (dollars in thousands)

	FY 2019 Enacted	FY 2020 Enacted	FY 2021 Request	FY 2021 Enacted
<b>Appropriation Summary</b>				
Defense Environmental Cleanup	6,036,177	6,266,800	5,092,608	6,426,000
Defense Uranium Enrichment D&D	-	-	-	-
Non-Defense Environmental Cleanup	310,000	319,200	275,820	322,200
Uranium Enrichment D&D Fund	841,129	881,000	806,244	841,000
Subtotal	7,187,306	7,467,000	6,174,672	7,589,200
Offsets	(12,177)	(11,800)	(109,000)	(3,000)
Grand Total, EM	7,175,129	7,455,200	6,065,672	7,586,200

Note: The Uranium Enrichment D&D Fund balance will be insufficient to support future appropriations beyond FY 2021 with additional contributions.



## FY 2021 Enacted by Site (dollars in thousands)

	FY 2019 Enacted	FY 2020 Enacted	FY 2021 Request	FY 2021 Enacted
Brookhaven	20,456	-	-	-
Carlsbad	403,487	403,599	390,066	420,066
ETEC	11,000	18,200	11,000	12,000
Idaho	443,200	446,300	270,954	444,500
Los Alamos	220,000	220,000	120,000	226,000
Lawrence Livermore	26,704	66,727	1,764	36,764
Lawrence Berkeley	35,000	31,000	-	30,100
Moab	45,000	45,000	47,653	47,833
Nevada	60,136	60,737	60,737	60,737
Oak Ridge	646,281	682,348	431,848	644,344
Richland	954,097	1,001,301	654,584	1,024,900
River Protection	1,573,000	1,616,000	1,257,681	1,645,000
Paducah	274,024	314,339	282,403	315,885
Portsmouth	475,806	493,427	491,306	508,864
Savannah River	1,551,014	1,629,924	1,702,870	1,702,870
SPRU	15,000	15,300	15,000	15,000
Sandia	2,600	2,652	4,860	4,860
West Valley	78,133	79,611	92,411	92,411
Defense Closure Site Activities	4,889	4,987	4,987	4,987
Program Direction	298,500	281,119	275,285	289,000
Mission Support Activities	12,979	14,179	12,979	15,079
Technology Development	25,000	25,000	25,000	30,000
Excess Facilities	-	10,000	-	10,000
Use of Mercury Receipts	-	-	-	3,000
Uranium Thorium Reimbursements	11,000	5,250	21,284	5,000
Subtotal, EM	7,187,306	7,467,000	6,174,672	7,589,200
Rescission (Def)	(4,600)	-	-	-
Rescission of Prior Year Balance	-	-	(109,000)	-
15-D-401 Containerized Sludge R	-	(11,800)	-	-
Use of Mercury Receipts	-	-	-	(3,000)
Use of Prior Year Balances (Def)	(7,577)	-	-	-
Total, EM	7,175,129	7,455,200	6,065,672	7,586,200

# FY 2021 Congressional Structure - \$7,586,200 net

(dollars in thousands)

	\$6,426,000 Defense Environmental Cleanup 41 Congressional Control Points	\$319,200 Non-Defense Environmental Cleanup (non-050) 5 Congressional Control Points	\$841,000 Uranium Enrichment Decontamination and Decommissioning (UE D&D) (non-050) 7 Congressional Control Points
1	Closure Sites Administration	1. Fast Flux Test Reactor Facility	1. Oak Ridge
2	Richland: River Corridor and Other Cleanup Operations	2. Gaseous Diffusion Plants	2. Nuclear Facility D&D, Paducah
3	Richland: Central Plateau Remediation	3. Small Sites	3. Nuclear Facility D&D, Portsmouth
4	Richland: Richland Community and Regulatory Support	4. West Valley Demonstration Project	4. 20-U-401 On-Site Waste Disposal Facility (Cell Line 2&3)
5	Richland: 18-D-404 WESF Modifications and Capsule Storage	5. Management and Storage of Elemental Mercury	5. 15-U-408 On-Site Waste Disposal Facility, Portsmouth
6	Office of River Protection: Waste Treatment and Immobilization Plant Commissioning		6. Pension and Community and Regulatory Support
7	Office of River Protection: Rad Liquid Tank Waste Stabilization and Disposition		7. Title X Uranium/Thorium Reimbursement Program
8	Office of River Protection: 18-D-16 Waste Treatment and Immobilization Plant -LBL/Direct Feed LAW		
9	Office of River Protection: 01-D-16 D High-Level Waste Facility		
10	Idaho National Laboratory: Idaho Cleanup and Waste Disposition		
11	Idaho National Laboratory: Idaho Community and Regulatory Support		
12	NNSA Sites: Lawrence Livermore National Laboratory		
13	NNSA Sites: LLNL Excess Facilities D&D		
14	NNSA Sites: Separations Process Research Unit		
15	NNSA Sites: Nevada		
16	NNSA Sites: Sandia National Laboratories		
17	NNSA Sites: Los Alamos National Laboratory		
18	Oak Ridge: OR Nuclear Facility D&D		
19	Oak Ridge: U233 Disposition Program		
20	Oak Ridge: OR Cleanup and Disposition		
21	Oak Ridge: 17-D-401 On-site Waste Disposal Facility		
22	Oak Ridge: 14-D-403 Outfall 200 Mercury Treatment Facility		
23	Oak Ridge: OR Community and Regulatory Support		
24	Oak Ridge: OR Technology Development and Deployment		
25	Savannah River Site: SR Site Risk Management Operations		
26	Savannah River Site: 18-D-402 Emergency Operations Center Replacement		
27	Savannah River Site: SR Community and Regulatory Support		
28	Savannah River Site: Radioactive Liquid Tank Waste Stabilization and Disposition		
29	Savannah River Site: 20-D-402 Advanced Manufacturing Collaborative Facility (AMC)		
30	Savannah River Site: 20-D-401 Saltstone Disposal Unit #10, 11, 12		
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: 17-D-402 Saltstone Disposal Unit #7		
34	Waste Isolation Pilot Plant: Waste Isolation Pilot Plant		
35	Waste Isolation Pilot Plant: 15-D-411 Safety Significant Confinement Ventilation System		
36	Waste Isolation Pilot Plant: 15-D-412 Exhaust Shaft		
37	Waste Isolation Pilot Plant: 21-D-401 Hoisting Capability Project		
38	Program Direction		
39	Program Support		
40	Safeguards and Security		
41	Technology Development		
Note: Sites with Safeguards and Security CCPs include Carlsbad, Oak Ridge, Paducah, Portsmouth, Richland, Savannah River, and West Valley.			

# Savannah River FY 2021 Enacted

## Savannah River (\$1,703M)

(dollars in thousands)

	FY 2019 Enacted	FY 2020 Enacted	FY 2021 Request	FY 2021 Enacted
<b>Defense Environmental Cleanup</b>				
<u>Savannah River Site</u>				
<i>Savannah River Risk Management Operations</i>				
SR-0011C - Nuclear Material	332,947	360,558	317,355	349,724
SR-0013 - Solid Waste	41,425	43,825	50,345	50,071
SR-0030 - Soil and Water	73,612	65,508	53,829	56,412
SR-0041 - Risk Red Deact & Surv and Maint	28,390	26,324	23,264	27,264
SR-0042 - Infrastructure and Land Mgt	13,086	10,151	10,329	16,529
	<b>489,460</b>	<b>506,366</b>	<b>455,122</b>	<b>500,000</b>
<i>Construction:</i>				
18-D-402 Emergency Operations Center Replacement, SR	1,259	6,792	0	6,500
19-D-701 SR Security System Replacement	10,000	4,525	0	1,000
20-D-402 Advanced Manufacturing Collaborative Facility (AMC)	0	25,000	25,000	25,000
	<b>11,259</b>	<b>36,317</b>	<b>25,000</b>	<b>32,500</b>
<b>Total, Savannah River Risk Management Operations</b>	<b>500,719</b>	<b>542,683</b>	<b>480,122</b>	<b>532,500</b>
<i>Savannah River Community and Regulatory Support</i>				
SR-0100 - Comm. & Reg.	11,249	11,249	4,989	11,549

### Savannah River Risk Management Operations

- Nuclear Material Stabilization and Disposition Program will operate H Canyon to process six batches of fuel/material and continue layup activities of HB-Line in FY 2021. In FY 2021, the Department will maintain safe and secure storage of special nuclear material and continue activities in K-area to down blend and package plutonium for disposal at the Waste Isolation Pilot Plant in Carlsbad, New Mexico.
- Soil and Water Remediation & Facility Deactivation and Decommissioning Program will continue to remediate Savannah River Site contaminated soils, groundwater, streams (and associated wetlands), and waste sites.
- All general area maintenance, as well as emergency preparedness, firewater, utilities, lighting, building and grounds maintenance. The safety envelope includes surveillance and maintenance activities for the F-Area Complex.
- General Site functions including general site infrastructure projects, land management activities to sustain natural resources and maintenance of Site's roads, bridges, and dams.

### Construction

- Emergency Operations Center and SR Security System Replacement will continue design activities.
- The Advanced Manufacturing Collaborative project will start design activities for a modern research and development facility accessible by commercial industry and academia located on the University of South Carolina Aiken campus.

### Savannah River Community and Regulatory Support

- Supports the Citizens Advisory Board, the States of South Carolina and Georgia for emergency management activities, South Carolina Department of Natural Resources for maintaining the Crackerneck Wildlife Management Area and Ecological Preserve, South Carolina Department of Health and Environmental Control and the Environmental Protection Agency oversight, and Payment In Lieu of Taxes.

# Savannah River FY 2021 Enacted (cont'd)

## Savannah River (\$1,703M)

(dollars in thousands)

	FY 2019 Enacted	FY 2020 Enacted	FY 2021 Request	FY 2021 Enacted
<i>Radioactive Liquid Tank Waste Stabilization and Disposition</i>				
SR-0014C - Tank Waste	696,869	820,106	970,332	910,832
<i>Construction:</i>				
05-D-405 - Salt Waste Proc. Fac.	130,000	21,200	0	0
17-D-402 - Saltstone Disposal Unit #7	41,243	40,034	10,716	10,716
18-D-402 Saltstone disposal unit 8 9	7,577	20,000	65,500	65,500
20-D-401 Saltstone Disposal Unit 10 11 12	0	500	0	562
	<b>178,820</b>	<b>81,734</b>	<b>76,216</b>	<b>76,778</b>
<b>Total, Radioactive Liquid Tank Waste Stabilization and Disposition</b>	<b>875,689</b>	<b>901,840</b>	<b>1,046,548</b>	<b>987,610</b>
<b>Subtotal, Savannah River</b>	<b>1,387,657</b>	<b>1,455,772</b>	<b>1,531,659</b>	<b>1,531,659</b>
<i>Safeguards and Security</i>				
SR-0020 - S&S	163,357	174,152	171,211	171,211
<b>Total, Savannah River</b>	<b>1,551,014</b>	<b>1,629,924</b>	<b>1,702,870</b>	<b>1,702,870</b>

### Radioactive Liquid Tank Waste Stabilization and Disposition

- Liquid Waste Operations supports a rotating training shift and support attrition in Tank Farms and Defense Waste Processing Facility and hiring of critical personnel to support greater salt waste preparation and processing operations.
- Preparation of tanks for waste removal and sludge feed and preparation to support Defense Waste Processing Facility.
- The Salt Waste Processing Facility Hot Operations is forecast to begin in January 2021.
- Salt Waste Processing Facility processing rates will be a factor of 9 greater than the rate experienced with the operation of the Actinide Removal Process and Modular Caustic Side Solvent Extraction Unit after 4-year ramp up.
- At full operating capacity with no contingencies, it is estimated that it will take 12 years for Salt Waste Processing Facility and Tank Closure Cesium Removal(s) to process the 110Mgal of salt waste.
- Impacts of Enacted vs Request
  - Significantly limits production rates starting in FY22 in the new \$2.4B Salt Waste Processing Facility (SWPF) through at least FY2024
    - 4.5 Mgal in FY21
    - 4.5 Mgal in FY22 instead of 7.2 Mgal
    - 6 Mgal in FY23 instead of 9Mgal
    - 7.2 Mgal in FY24 instead of 9Mgal
  - Extends SRS Liquid Waste Lifecycle 1 year resulting in more than \$1B in Lifecycle costs
  - Fails to meet 2016 Dispute Resolution Agreement (DRA) with SCDHEC: Salt processing volumes subject to fines and penalties

### Safeguards & Security\*

- Supports required security force and resources necessary to guard and safely maintain Special Nuclear Material in accordance with DOE policy.

\*Safeguards and Security funding managed as a single complex-wide congressional control. However funding is displayed for site completeness.

### Construction

- The program to build Saltstone Disposal Units on schedule to dispose of the decontaminated salt solution produced by the Salt Waste Processing Facility and Tank Closure Cesium Removal units.
- A new design is being utilized for the Saltstone Disposal Units #6 through #12. This new design is a 375-foot diameter 43-foot tall cylindrical shape tank, which is 10 times larger than the previous five Saltstone Disposal Units and will hold 30,000,000 gallons of grouted decontaminated salt solution.
  - It takes approximately 4 years to construct a Saltstone Disposal Unit and 16 to 18 months to fill it. The program will require one Saltstone Disposal Unit about every 16 months to support Salt Waste Processing Facility and Tank Closure Cesium Removal at full capacity.
  - Currently SDU7/8/9 are in different stages of project completion. Adhering to the projected amount and timeline of funding is critical to ensure availability of completed Saltstone Disposal Units for efficient processing of waste and the construction schedule of the Saltstone Disposal Units.

# River Protection FY 2021 Enacted

## River Protection (\$1,645M)

(dollars in thousands)

	FY 2019 Enacted	FY 2020 Enacted	FY 2021 Request	FY 2021 Enacted
<b>Defense Environmental Cleanup</b>				
<u>Office of River Protection</u>				
Tank Farm Activities				
ORP-0014 - Tank Waste	771,947	775,000	597,757	784,000
Construction				
15-D-409 - Low Activity Waste Pretreatment System, ORP	56,053	0	0	0
<b>Total, Tank Farm Activities</b>	<b>828,000</b>	<b>775,000</b>	<b>597,757</b>	<b>784,000</b>
<u>Waste Treatment and Immobilization</u>				
ORP-0060 - WTP				
Construction:				
18-D-16 Waste treatment and immobilization plant LBL/Direct feed LAW	655,000	776,000	609,924	786,000
01-D-416 D, High Level Waste Facility	60,000	25,000	0	25,000
01-D-16E - Pretreatment Facility	15,000	15,000	0	0
<b>Total, WTP Construction</b>	<b>730,000</b>	<b>816,000</b>	<b>609,924</b>	<b>811,000</b>
ORP-0070 - WTP Commissioning	15,000	15,000	50,000	50,000
<u>ORP Low-Level Waste Offsite Disposal</u>				
ORP-0014A - LLW Offsite Disposal	0	10,000	0	0
<b>Total, WTP</b>	<b>745,000</b>	<b>841,000</b>	<b>659,924</b>	<b>861,000</b>
<b>Total, Office of River Protection</b>	<b>1,573,000</b>	<b>1,616,000</b>	<b>1,257,681</b>	<b>1,645,000</b>

### Tank Farm Activities

- Effluent Treatment Facility:
  - Process 4 million gallons of liquid waste from site waste sources
  - Upgrade to support Direct Feed Low-Activity Waste
- 222-S Laboratory operations and upgrades to support tank farms and Direct Feed Low-Activity Waste.
- Tank Farm Integrity Program to prolong the lifespan of aging tanks.
- Maintenance of Effluent Treatment Facility, Liquid Effluent Retention Facility and 222-S Lab to support Tank Farms operations and Direct Feed Low-Activity Waste.
- AP Farm upgrades and supporting infrastructure construction.
- Retrieves solid waste from Single Shell Tanks in AX Farm.
- 242-A Evaporator repairs and infrastructure improvements needed to support tank retrievals and future DFLAW operations.

### Low Activity Waste Pretreatment Construction

- Complete construction and initiate readiness activities in support of Tank-Side Cesium Removal (TSCR) operations.

### ORP Low-Level Waste Offsite Disposal

- No planned activities.

### Waste Treatment and Immobilization

- Low-Activity Waste Facility – Continue startup and commissioning activities.
- Balance of Facilities/Direct Feed Low-Activity Waste/Effluent Management Facility – Complete construction and continue startup and commissioning activities.
- Analytical Laboratory – Complete construction and continue startup and commissioning activities.
- High-Level Waste Facility - continue design.
- Pretreatment Facility - preservation activities.
- Continue fabrication and assembly of two spare melters and procure other long lead spares for the Low-Activity Waste facility.

# Richland FY 2021 Enacted

## Richland (\$1,025M)

(dollars in thousands)

	FY 2019 Enacted	FY 2020 Enacted	FY 2021 Request	FY 2021 Enacted
<b>Defense Environmental Cleanup</b>				
<u>Hanford Site</u>				
<i>Central Plateau Remediation</i>				
RL-0011 - PFP	46,200	0	0	17,359
RL-0012 - SNF	13,900	0	0	0
RL-0013C - Solid Waste	159,900	176,855	138,900	182,340
RL-0030 - Soil & Water	132,158	138,995	56,100	116,966
RL-0201 - Hanford Site Wide Services	308,200	338,950	303,335	353,335
<b>Subtotal, Central Plateau Remediation</b>	<b>660,358</b>	<b>654,800</b>	<b>498,335</b>	<b>670,000</b>
<i>River Corridor and Other Cleanup Operations</i>				
RL-0040 - D&D Rem. Of Hanford	74,192	102,427	24,949	101,044
RL-0041 - D&D River Corridor	119,500	133,675	30,000	131,435
<b>Subtotal, River Corridor and Other Cleanup Ops</b>	<b>193,692</b>	<b>236,102</b>	<b>54,949</b>	<b>232,479</b>
<i>Richland Community and Regulatory Support</i>				
RL-0100 - Comm. & Reg.	10,121	10,121	2,500	8,621
<i>Construction:</i>				
18-D-404 WESF Modifications and capsule storage	1,000	11,000	0	15,000
<b>Subtotal, Richland</b>	<b>865,171</b>	<b>912,023</b>	<b>555,784</b>	<b>926,100</b>
<u>Safeguards and Security</u>				
RL-0020 - S&S	86,686	86,778	96,300	96,300
<b>Subtotal, Defense Environmental Cleanup</b>	<b>951,857</b>	<b>998,801</b>	<b>652,084</b>	<b>1,022,400</b>
<b>Non-Defense Environmental Cleanup</b>				
<u>Fast Flux Test Reactor Facility D&amp;D</u>				
RL-0042 - FFTF	2,240	2,500	2,500	2,500
<b>Total, Richland</b>	<b>954,097</b>	<b>1,001,301</b>	<b>654,584</b>	<b>1,024,900</b>

### Central Plateau Remediation

- Support operations necessary for minimum safe and compliant operations of waste storage facilities.
- Will treat 2 billion gallons of groundwater on the Central Plateau and along the Columbia River.
- Support minimum safe operations and essential site services.
- Complete disposition of Plutonium Finishing Plant debris.
- Repackage transuranic waste at Permafix.

### Construction

- Design and start of modifications of the Waste Encapsulation and Storage Facility needed to relocate cesium and strontium capsules to dry storage.

### River Corridor and Other Cleanup Operations

- Maintain safe and compliant conditions for surplus structures and inactive waste sites.
- Continue Risk Mitigation activities for aging structures.
- Support remediation of the highly contaminated 300-296 waste site under the 324 building
- Support characterization and dewatering activities for the K West Basin.
- Perform site infrastructure improvements to roads, electrical, water, sewer and roofing systems.

### Richland Community and Regulatory Support

- Support Washington and Oregon States' emergency preparedness, environmental oversight, Hanford Advisory Board, and Payment in Lieu of Taxes.

### Safeguards & Security\*

- Provide services within the Safeguards and Security programs for the Hanford Site.

### Fast Flux Test Reactor Facility D&D

- Support long-term safe and compliant surveillance and maintenance for Fast Flux Test Facility.

\*Safeguards and Security funding managed as a single complex-wide congressional control. However funding is displayed for site completeness.

## Carlsbad (\$420M)

(dollars in thousands)

	FY 2019 Enacted	FY 2020 Enacted	FY 2021 Request	FY 2021 Enacted
<b>Defense Environmental Cleanup</b>				
<u>Waste Isolation Pilot Plant</u>				
CB-0080 - Operate Facility	220,000	229,953	251,208	262,802
CB-0083 - Critical Infrastructure Repair/Replacement	46,695	17,500	22,000	12,000
CB-0081 - Characterization	19,500	20,400	22,890	21,850
CB-0090 - Transportation	25,500	26,500	27,162	16,608
<b>Total, Waste Isolation Pilot Plant</b>	<b>311,695</b>	<b>294,353</b>	<b>323,260</b>	<b>313,260</b>
<u>CB-0101 Economic Assistance to the State of NM</u>				
CB-0101 - State of New Mexico	0	0	0	0
Construction:				
15-D-411 - Safety Significant Conf. Vent. System, WIPP	84,212	58,054	0	35,000
15-D-412 - Utility Shaft, WIPP	1,000	44,500	50,000	55,000
21-D-401 Hoisting Capability Project	0	0	10,000	10,000
<b>Total, Construction</b>	<b>85,212</b>	<b>102,554</b>	<b>60,000</b>	<b>100,000</b>
<b>Subtotal, Defense Environmental Cleanup</b>	<b>396,907</b>	<b>396,907</b>	<b>383,260</b>	<b>413,260</b>
<u>Safeguards and Security</u>				
CB-0020 - S&S	6,580	6,692	6,806	6,806
<b>Total, Idaho</b>	<b>403,487</b>	<b>403,599</b>	<b>390,066</b>	<b>420,066</b>

### Waste Isolation Pilot Plant

- Initiate design work for pre-decisional additional hoisting capability and provide upgrades to existing hoist capabilities.
- Complete Panel 8 mining.
- Perform activities for continued waste emplacement operations including sustainment of safety management program improvements, active mining, mine integrity, and infrastructure improvements.
- Provide funding for site environmental compliance, Resource Conservation and Recovery Act permit compliance, quality assurance, and payments to regulatory agencies.
- Conduct Central Characterization Project certifications for transuranic waste disposition and transportation at the Savannah River Site, Oak Ridge National Laboratory, Lawrence Livermore National Laboratory, Argonne National Laboratory, and Los Alamos National Laboratory.
- Repair, replace, or modernize the Waste Isolation Pilot Plant's degraded facility structures, systems, and components.
- Provide transportation activities from multiple locations required for sustained operations at a rate of up to ten shipments per week.
- Maintains package certification and associated required maintenance for packages used: TRUPACT II's, Half PACTS, TRUPACT III's, and Remote-Handled-72B's.
- Procure battery-electric equipment to replace underground diesel equipment for air quality improvement
- Submit certification applications to the NRC, a Planned Change notice will be submitted to the EPA and permit modification request for 4 new shielded container designs for RH waste transport and disposal submitted to NMED.

### Economic Assistance to the State of NM

- Issue a plan to study highway improvements for future WIPP shipments in NM and fund some improvements beginning in FY21.

### Construction

#### 15-D-411 (0080):

- This project will design and construct a new ventilation system for the Waste Isolation Pilot Plant underground repository.

#### 15-D-412 (0080):

- This project will sink a new 2,150-foot vertical shaft and two new horizontal drifts to the Waste Isolation Pilot Plant repository underground to support a new underground ventilation system.

#### 21-D-401 (0080):

- This project will provide safe, efficient, and reliable hoisting for mined salt, equipment, personnel, and provide backup capability for waste hoist operations (excluding waste transport).

### Safeguards & Security\*

- Provide security coverage at the Waste Isolation Plant and also address cybersecurity vulnerabilities by upgrading systems and adding key cyber security personnel to monitor and resolve new vulnerabilities as they are identified.

\*Safeguards and Security funding managed as a single complex-wide congressional control. However, funding is displayed for site completeness.

## Idaho (\$445M)

(dollars in thousands)

	FY 2019 Enacted	FY 2020 Enacted	FY 2021 Request	FY 2021 Enacted
<b>Defense Environmental Cleanup</b>				
<u>Idaho National Laboratory</u>				
<i>Idaho Cleanup and Waste Disposition</i>				
ID-0012B-D - SNF - 2012	16,974	26,404	26,800	29,393
ID-0013 - Solid Waste	215,387	179,025	74,854	181,186
ID-0014B - Tank Waste	162,739	185,886	123,200	181,500
ID-0030B - Soil and Water	24,900	38,685	32,700	37,921
<b>Total, Idaho Cleanup and Waste Disposition</b>	<b>420,000</b>	<b>430,000</b>	<b>257,554</b>	<b>430,000</b>
<i>ID Excess Facilities D&amp;D</i>				
ID-0040-EF: Idaho Excess Facilities D&D	10,000	0	0	0
<i>Idaho Community and Regulatory Support</i>				
ID-0100 - Comm. & Reg.	3,200	3,500	2,400	3,500
<b>Subtotal, Defense Environmental Cleanup</b>	<b>433,200</b>	<b>433,500</b>	<b>259,954</b>	<b>433,500</b>
<b>Non-Defense Environmental Cleanup</b>				
ID-0012B-N - SNF	10,000	12,800	11,000	11,000
<b>Total, Idaho</b>	<b>443,200</b>	<b>446,300</b>	<b>270,954</b>	<b>444,500</b>

### Idaho Cleanup and Waste Disposition

- Complete the current outage (Outage J) and begin the Integrated Waste Treatment Unit (IWTU) confirmatory run in preparation for hot operations to process sodium-bearing tank waste.
- Continue wet-to-dry spent nuclear fuel transfers in accordance with the Idaho Settlement Agreement.
- Continue Peach Bottom spent nuclear fuel transfer activities to mitigate the risk of water intrusion into storage vaults.
- Support spent fuel repackaging demonstration in collaboration with the Office of Nuclear Energy; initiate efforts to establish an interim spent fuel storage pad project.
- Certify and ship transuranic waste to the Waste Isolation Pilot Plant.
- Treat and dispose mixed low-level radioactive waste and low-level radioactive waste offsite.
- Continue closure activities at the Advanced Mixed Waste Treatment Plant (AMWTP).
- Complete 90% of the exhumation footprint at Accelerated Retrieval Project (ARP) IX retrieval area.
- Continue ARP closure and ancillary D&D activities in preparation for the Subsurface Disposal Area (SDA) cap.
- Implement the Record of Decision for several Waste Area Groups (includes monitoring air, water, soils, and biota surveillance).
- Perform siting and design studies for an additional disposal cell at the Idaho CERCLA Disposal Facility (ICDF) to support increased D&D activities.

### Idaho Community and Regulatory Support

- Conduct site-wide environmental compliance and oversight.
- Provide grant to the State of Idaho Department of Environmental Quality and provide for Citizens Advisory Board requirements.

### Small Sites

- Provide for Nuclear Regulatory Commission license and licensing-related activities.
- Provide spent fuel storage support at the Ft. St. Vrain and Three Mile Island spent fuel facilities.

## Los Alamos (\$226M)

(dollars in thousands)

	FY 2019 Enacted	FY 2020 Enacted	FY 2021 Request	FY 2021 Enacted
<b>Defense Environmental Cleanup</b>				
<u>NNSA Sites</u>				
Los Alamos National Lab				
VL-FAO-0101 - AIP	3,394	3,394	3,394	3,394
VL-LANL-0013 - Solid Waste	84,556	84,556	41,579	101,579
VL-LANL-0030 - Soil and Water	132,050	132,050	75,027	121,027
<b>Total, LANL</b>	<b>220,000</b>	<b>220,000</b>	<b>120,000</b>	<b>226,000</b>

### Los Alamos National Lab

- Complete the 13 agreed upon Annual Consent Order milestones.
- Continue to operate chromium plume interim measures (pump-and-treat system). Continue chromium plume characterization activities through modeling and hydrology studies, and installation of additional wells. (NMED is requiring 3 additional wells over next two years at ~ \$6M per well).
- Continue investigation and characterization activities at TA-21. Discoveries in FY20 indicated higher hold-up in both Building 257 and the Industrial Waste Lines, requiring additional characterization and replanning of the effort.
- Continue groundwater monitoring and reporting requirements required to remain compliant with the Hazardous Waste Permit and Individual Permit.
- Continue activities associated with implementation of final remedy for the RDX (high explosives) plume in Cañon de Valle.
- Maintain safe storage of above grade transuranic waste inventory.
- Continue management and disposition of transuranic, mixed low-level and low-level radioactive waste.
- Continue activities to certify legacy transuranic waste for shipments to the Waste Isolation Pilot Plant.
- Fund and serve as co-lead for Natural Resource Damage Assessment activities in coordination with the LANL Trustee Council.
- Continue the Los Alamos Pueblo Program to support Pueblo environmental monitoring programs.

## Oak Ridge (\$644M)

(dollars in thousands)

	FY 2019 Enacted	FY 2020 Enacted	FY 2021 Request	FY 2021 Enacted
<b>Defense Environmental Cleanup</b>				
<b>Oak Ridge</b>				
<i>U233 Disposition Program</i>				
OR-0011D - U233 Disposition Program	52,300	55,000	45,000	55,000
<i>OR Cleanup Disposition</i>				
OR-0013B - Solid Waste	74,000	101,100	58,000	112,471
<i>OR Nuclear Facility D&amp;D</i>				
OR-0041 - D&D - Y-12	35,000	60,000	32,574	135,732
OR-0042 - D&D - ORNL	154,000	153,000	76,503	118,400
<b>Subtotal, OR Nuclear Facility D&amp;D</b>	<b>189,000</b>	<b>213,000</b>	<b>109,077</b>	<b>254,132</b>
<i>OR Technology Development and Deployment</i>				
OR-TD-0100 - OR Tech Dev.	3,000	5,000	3,000	5,000
<i>OR Reservation Community and Regulatory Support</i>				
OR-0100 - Comm. & Reg.	5,700	5,900	4,930	5,900
<i>Construction:</i>				
14-D-403 - Outfall 200 Mercury Treatment	76,000	70,000	20,500	20,500
17-D-401 - Onsite Disposal Facility	10,000	0	22,380	22,380
<b>Subtotal, Construction</b>	<b>86,000</b>	<b>70,000</b>	<b>42,880</b>	<b>42,880</b>
<i>Safeguards and Security</i>				
OR-0020 - S&S	14,023	9,000	9,260	9,260
<b>Total, Oak Ridge Defense</b>	<b>424,023</b>	<b>459,000</b>	<b>272,147</b>	<b>484,643</b>

### U233 Disposition Program

- Continue glove box processing of oxides to extract thorium for medical applications.
- Complete build out of Building 2026 and begin hot cell processing to downblend remaining U-233 material.

### OR Cleanup Disposition

- Operate the Transuranic Waste Processing Center to process transuranic debris waste and ship processed waste to the Waste Isolation Pilot Plant.
- Continue testing of sludge processing facility critical technologies.

### OR Nuclear Facility D&D

- Operate waste disposal (EMWMF and landfills) and treatment (LGWO) facilities at ORNL and Y-12.
- Continue activities to extend life of aging LGWO systems and to enhance S&M of MSRE
- Maintain ETPP workforce transitioned to ORNL and Y12 to cleanup high priority excess contaminated facilities. Demolition of Biology Complex at Y-12 will be completed providing land for NNSA Lithium project.

### OR Technology Development and Deployment

- Continue planned mercury technology development activities. Focus areas include understanding soil and groundwater source control, water chemistry and sediment manipulation.

### OR Reservation Community and Regulatory Support

- State of Tennessee grants for conducting annual oversight.

### Construction

#### 14-D-403:

- Continue construction of the Outfall Mercury Treatment Facility.

#### 17-D-401:

- Continue final design activities for the On-Site Waste Disposal Facility.

### Safeguards & Security\*

- Provide safeguard and security services for EM operations.

\*Safeguards and Security funding managed as a single complex-wide congressional control. However funding is displayed for site completeness.

# Oak Ridge FY 2021 Enacted (cont'd)

## Oak Ridge (\$644M)

(dollars in thousands)

	FY 2019 Enacted	FY 2020 Enacted	FY 2021 Request	FY 2021 Enacted
<b>Non-Defense Environmental Cleanup</b>				
<b>Oak Ridge</b>				
OR-0104 - Comm and Reg	10000	10,000	0	0
<b>Uranium Enrichment Decontamination and Decommissioning Fund</b>				
<i>Pension and Community and Regulatory Support</i>				
OR-0102 - Liab. & Admin.	17,258	17,655	15,000	25,000
<i>Oak Ridge</i>				
OR-0040 - D&D - ETPP	195,000	195,693	144,701	134,701
<b>Uranium Enrichment Decontamination and Decommissioning Fund Total</b>	<b>212,258</b>	<b>213,348</b>	<b>159,701</b>	<b>159,701</b>
<b>Total Oak Ridge</b>	<b>646,281</b>	<b>682,348</b>	<b>431,848</b>	<b>644,344</b>

### Small Sites

- Continue meeting ETPP historic preservation commitments using prior year funds

### Pension and Community and Regulatory Support

- Fund contractor post-retirement life, medical and pensions liabilities

### Oak Ridge

- Continue remediation of slabs and soils and other activities required to close ETPP and transfer long term stewardship to legacy management.

## Portsmouth (\$509M)

(dollars in thousands)

	FY 2019 Enacted	FY 2020 Enacted	FY 2021 Request	FY 2021 Enacted
<b>Defense Environmental Cleanup</b>				
<i>Safeguards and Security</i>				
PO-0020 - S&S	15,078	16,490	16,690	16,690
<b>Non-Defense Environmental Cleanup</b>				
PO-0011X - DUF6	50,959	56,629	57,974	57,974
<b>Uranium Enrichment Decontamination and Decommissioning Fund</b>				
<i>Pension and Community and Regulatory Support</i>				
PO-0103 - Liab. & Admin.	650	0	500	500
PO-0104 - Comm. & Reg.	1,020	2,013	1,149	3,368
<b>Pension and Community and Regulatory Support Total</b>	<b>1,670</b>	<b>2,013</b>	<b>1,649</b>	<b>3,868</b>
<i>Portsmouth</i>				
PO-0040 - D&D	366,931	367,193	351,854	367,193
<i>Construction</i>				
15-U-408 - On Site Waste Disposal Facility	41,168	41,102	46,639	46,639
20-U-401 - On Site Waste Disposal Facility (Cell Line 2&3)	0	10,000	16,500	16,500
<b>Construction Total</b>	<b>41,168</b>	<b>51,102</b>	<b>63,139</b>	<b>63,139</b>
<b>Portsmouth Total</b>	<b>475,806</b>	<b>493,427</b>	<b>491,306</b>	<b>508,864</b>

### Safeguards & Security\*

- Provide safeguards and security services and support the development of risk assessment reduction of security footprint at the site.

### Gaseous Diffusion Plants

- Start-up DUF6 conversion facility once COVID-19 conditions support Phase 3 entry.
- Package converted depleted uranium oxide for beneficial reuse/disposal.
- Continue plant safety and reliability projects, including demonstration of bulk hydrogen system installation upon plant restart, installation of permanent platforms in oxide powder handling area, and replacement of PVC piping within stainless steel for Potassium Hydroxide system throughout facility.
- Conduct cylinder surveillance and maintenance to keep material in a safe, stable condition.

### Pension and Community and Regulatory Support

- Continue to provide defense against legal claims and make pension payments.
- Support Ohio EPA oversight, Ohio University grant, and designated Site-Specific Advisory Board.

### Portsmouth D&D

- Continue utility operations, waste operations, landfill operations, pump and treat operations, safeguards & security, environmental monitoring, and surveillance and maintenance.
- Start-up Water Treatment Systems for Process Building demolition and soil excavation.
- Initiate demolition of first Process Building (X-326).
- Initiate first waste placement from X-326 demolition.
- Continue deactivation of second Process Building (X-333).
- Initiate soil excavation (X-740) activities for generation of On-Site Waste Disposal Facility (OSWDF) engineered fill.

### Construction

#### 15-U-408: OSWDF Capital Asset Project

- Complete preparations for first waste placement in Cell 1 from X-326 demolition.
- Complete influent line installation, Modular Leachate Treatment System (MLTS) construction, and start-up of MLTS equipment.
- Continue construction of Cells 4 & 5.

#### 20-U-401: OSWDF Capital Asset Project

- Complete Fog Road By-Pass.
- Complete construction of OSWDF Impacted Material Transfer Area Haul Road.
- Complete Phase 2 Electrical upgrades.

\*Safeguards and Security funding managed as a single complex-wide congressional control. However, funding is displayed for site completeness.

## Paducah (\$316M)

(dollars in thousands)

	FY2019 Enacted	FY 2020 Enacted	FY 2021 Request	FY 2021 Enacted
<b>Defense Environmental Cleanup</b>				
<i>Safeguards and Security</i>				
PA-0020 - S&S	15,577	15,789	16,206	16,206
<b>Non-Defense Environmental Cleanup</b>				
<i>Gaseous Diffusion Plants</i>				
PO-0011X - DUF6	48,976	55,593	56,802	56,802
PA-0011 - NM S&D	1,369	863	778	778
<b>Total, Gaseous Diffusion Plants</b>	<b>50,345</b>	<b>56,456</b>	<b>57,580</b>	<b>57,580</b>
-				
<b>Uranium Enrichment Decontamination and Decommissioning Fund</b>				
<i>Pension and Community and Regulatory Support</i>				
PA-0103 - Comm. & Reg.	2,102	2,094	2,099	2,099
-				
<i>Paducah</i>				
PA-0040 - D&D	206,000	240,000	206,518	240,000
-				
<b>Total, Paducah</b>	<b>274,024</b>	<b>314,339</b>	<b>282,403</b>	<b>315,885</b>

### Safeguards & Security\*

- Provide safeguards and security services and initiate construction of Protective Force facility within the modular security complex.

### Gaseous Diffusion Plants

- Maintain integrity of polychlorinated biphenyl containment of trough systems in cascade buildings, including cleanup, sampling, and decontamination of spills and leaks.
- Start-up DUF6 conversion facility once COVID-19 conditions support Phase 3 entry.
- Package converted depleted uranium oxide for beneficial reuse/disposal.
- Complete Phase 2 of Oxide Shipment Pilot Study (up to 12 cylinders transported on ABC railcar to WCS in Texas).
- Continue safety and reliability modifications, including upgrade of oxide powder handling system heating and ventilation system; installation of engineered ventilation for changing cylinder valves; and replacement of hydrogen fluoride condensers.
- Conduct cylinder surveillance and maintenance to keep material in a safe, stable condition.

### Pension and Community and Regulatory Support

- Continue to ensure requirements are met regarding the Federal Facility Agreement and Agreement-In-Principle grants.
- Continue support to Citizens Advisory Board.

### Paducah D&D

- Continue utility operations, pump-and-treat operations, waste and landfill operations, infrastructure support, environmental monitoring and reporting, surveillance and maintenance of facilities.
- Continue characterization and hazardous material removal activities in the C-333 Process Building.
- Complete deactivation of C-400 Cleaning Building.
- Complete construction of the Large Item Neutron Assay System.
- Complete design and start construction of Material Sizing Area.
- Continue Remedial Investigation Feasibility Study fieldwork activities for the C-400 Complex Operable Unit.
- Continue utilities and space optimizations to reduce power and water utilization.
- Continue dismantlement of electrical switchyards.
- Complete disposition of 12 ISOs of R-114 refrigerant (Freon).

\*Safeguards and Security funding managed as a single complex-wide congressional control. However, funding is displayed for site completeness.

## West Valley (\$92M)

(dollars in thousands)

	FY 2019 Enacted	FY 2020 Enacted	FY 2021 Request	FY 2021 Enacted
<b>Defense Environmental Cleanup</b>				
<u>West Valley</u>				
OH-WV-0020 - S&S	3,133	4,196	4,298	4,298
<b>Subtotal, DEC</b>	<b>3,133</b>	<b>4,196</b>	<b>4,298</b>	<b>4,298</b>
<b>Non-Defense Environmental Cleanup</b>				
OH-WV-0013 - Solid Waste	17,980	3,110	9,110	9,110
OH-WV-0040 - D&D	57,020	72,105	79,003	79,003
<b>Community and Regulatory Support</b>				
- OH-WV-0100 - WV Site Services	0	200	0	0
<b>Subtotal, NDEC</b>	<b>75,415</b>	<b>75,415</b>	<b>88,113</b>	<b>88,113</b>
<b>Total, West Valley</b>	<b>78,528</b>	<b>79,611</b>	<b>92,411</b>	<b>92,411</b>

### Safeguards & Security\*

- Provide physical security with an on-site guard force to ensure The Department's information resources are identified and protected and oversee the security program.

### West Valley

- Store legacy transuranic waste and newly generated transuranic waste.
- Ship and dispose of all other newly generated waste.
- Maintain Site Services.
- Begin demolition of the above grade portion of the Main Plant Process Building.
- Continue removal of excess ancillary facilities and Balance of Site Facilities.
- Maintain the underground storage tanks, the Nuclear Regulatory Commission-Licensed Disposal Area, and the Permeable Treatment Wall.
- Manage and maintain site infrastructure.
- Conduct environmental monitoring.
- Accelerate Main Plant Processing Building demolition to be completed by FY 2023 (possibly FY 2022). The overall acceleration to complete West Valley Demonstration Project would be 4 years (FY 2039 to FY 2035).

### Community and Regulatory Support

- Community and regulatory support to the Town of Ashford Community to provide funds to support the community. Funds will be used to complete projects in the community that have been directly impacted as a result of the West Valley Demonstration Project.
- Anticipated work will be completed in FY 2025 and no additional funding will be required.

\*Safeguards and Security funding managed as a single complex-wide congressional control. However, funding is displayed for site completeness.

## ETEC (\$12M)

(dollars in thousands)

	FY 2019 Enacted	FY 2020 Enacted	FY 2021 Request	FY 2021 Enacted
<b>Non-Defense Environmental Cleanup</b>				
ETEC				
CBC-ETEC-0040 - D&D	11,000	18,200	11,000	12,000

### Small Sites

#### ETEC:

- Perform ongoing program support and operational services.
- Complete decontamination and decommissioning of remaining structures and continue planning groundwater remediation in support of a Record of Decision on Groundwater.
- Complete the draft Corrective Measures Implementation based on Department of Toxic Substances Control approval to support its final recommendations regarding groundwater

## Moab (\$48M)

(dollars in thousands)

	FY 2019 Enacted	FY 2020 Enacted	FY 2021 Request	FY 2021 Enacted
<b>Non-Defense Environmental Cleanup</b>				
Moab				
CBC-MOAB-0031 - Soil and Water	45,000	45,000	47,653	47,833

### Moab:

- Conduct Moab and Crescent Junction sites operation and maintenance.
- Operate interim remedial action for contaminated groundwater including extracting 4 million gallons and diverting/injecting 6.5 million gallons of freshwater.
- Excavate tailings and transport (4 trains/week) from mill site to the disposal cell (over 950,000 tons).
- Perform operations and maintenance of the materials handling system and infrastructure.
- Place tailings into the disposal cell.
- Continue equipment maintenance/replacement.
- Place a portion of the interim cover.
- Excavate a portion of the disposal cell.

## Nevada (\$61M)

(dollars in thousands)

	FY 2019 Enacted	FY 2020 Enacted	FY 2021 Request	FY 2021 Enacted
<b>Defense Environmental Cleanup</b>				
<u>NNSA Sites</u>				
VL-NV-0030 - Soil and Water	32,998	35,134	34,859	34,859
VL-NV-0080 - Waste Disposal Fac.	22,398	20,862	20,813	20,813
VL-NV-0100 - Comm. & Reg.	4,740	4,741	5,065	5,065
<b>Total, Nevada</b>	<b>60,136</b>	<b>60,737</b>	<b>60,737</b>	<b>60,737</b>

### Nevada

#### **PBS: VL-NV-0030 Soil and Water Remediation-Nevada**

Groundwater Remediation:

Corrective Action Units 101/102 Pahute Mesa:

- Complete Source Term Models.
- Continue annual groundwater data collection and sampling.
- Continue Flow and Transport Model development and Initiate External Peer Review Panel Selection.

Corrective Action Unit 97 Yucca Flat/Climax Mine:

- Receive State of Nevada Closure Approval

Industrial Sites:

Corrective Action Unit 114 Engine Maintenance Assembly & Disassembly Facility

- Continue pre-closure facility surveillance and maintenance.
- Receive State of Nevada approval of SAFER Plan Rev #1.
- Initiate Pre Demo "Decommissioning and Decontamination" Activities

Corrective Action Unit 572 Test Cell C Ancillary Buildings and Structures

- Receive State of Nevada approval of SAFER Plan.
- Initiate Pre Demo "Decommissioning and Decontamination" Activities

Post-Closure Long-term Monitoring:

- Continue post-closure monitoring of soils and industrial-type NNSS sites
- Continue post-closure sampling and monitoring for closed groundwater sites.

#### **PBS: VL-NV-0080 Operate Low-Level Waste Disposal Facility - Nevada**

- Continue developing and maintaining plans, permits, safety basis, and technical and regulatory support for activities such as the NNSS RCRA Part B Permit and DOE Order 435.1, Radioactive Waste Management.
- Continue audits and waste certification reviews in support of generator programs to ensure compliance with the NNSS Waste Acceptance Criteria (WAC).
- Support cleanup activities across the DOE complex by providing disposal capacity and services for approximately 1.2M cubic feet of low-level radioactive, mixed low-level radioactive waste, and classified waste.
- Continue closure activities at CAU 577 Area 5 Chromium Contaminated Waste Disposal Cells.

#### **PBS: VL-NV-0100 Nevada Community and Regulatory Support**

- Provide support for State of Nevada regulatory oversight of EM NV Program work at the NNSS.
- Provide support for the State of Nevada grant to perform programmatic oversight and to carry out environmental and natural resources planning as it pertains to the Site.
- Continue outreach and stakeholder programs such as NSSAB and Low-level waste stakeholder forum

# Lawrence Livermore, Sandia & SPRU

## FY 2021 Enacted

### Lawrence Livermore (\$37M)

(dollars in thousands)

	FY 2019 Enacted	FY 2020 Enacted	FY 2021 Request	FY 2021 Enacted
<b>Defense Environmental Cleanup</b>				
<u>NNSA Sites</u>				
Lawrence Livermore Nat Lab				
VL-LLNL-0031 - Soil and Water	1,175	1,312	1,339	1,339
VL-FOO-0013B-D - Solid Waste	529	415	425	425
	1,704	1,727	1,764	1,764
LLNL Excess Facilities D&D				
	25,000	65,000	0	35,000
CBC-LLNL-0040: LLNL Excess Facilities D&D				
<b>Total, LLNL</b>	<b>26,704</b>	<b>66,727</b>	<b>1,764</b>	<b>36,764</b>

#### NNSA Sites

##### Lawrence Livermore National Lab:

- Finalize the Remedial Investigation/Feasibility Study for metals and radionuclides in soil at Building 865.
- Provide grants to the State of California to support Comprehensive Environmental Response, Compensation, and Liability Act oversight.

##### LLNL Excess Facilities D&D:

- Complete demolition of Building 175.
- Complete characterization and commence demolition of Building 251.
- Commence reactor demolition in Building 280.

### Sandia (\$5M)

(dollars in thousands)

	FY 2019 Enacted	FY 2020 Enacted	FY 2021 Request	FY 2021 Enacted
<b>Defense Environmental Cleanup</b>				
<u>NNSA Sites</u>				
Sandia				
VL-SN-0030 - Soil and Water	2,600	2,652	4,860	4,860

#### Sandia

- Install additional groundwater wells and continue characterization at Burn Site Groundwater Area.
- Burn Site Groundwater updated Conceptual Model Report and a Corrective Measures Evaluation Report will be prepared and submitted to move towards formal regulatory closure.
- Continue field work implementation of the Interim Measure/Treatability Study at Technical Area-V Groundwater Area.
- Submit the Corrective Measures Implementation Plan to New Mexico Environment Department for review for Tijeras Arroyo Groundwater Area.

### SPRU (\$15M)

(dollars in thousands)

	FY 2019 Enacted	FY 2020 Enacted	FY 2021 Request	FY 2021 Enacted
<b>Defense Environmental Cleanup</b>				
<u>NNSA Sites</u>				
SPRU				
VL-SPRU-0040 - D&D	15,000	15,300	15,000	15,000

#### SPRU

- Surveillance and maintenance activities to support transuranic waste storage.
- Support commercial treatment of a portion of the transuranic waste.
- Complete clean-up of F-yard.
- Support development of final RCRA permit for storage of transuranic waste
- SPRU D&D project was completed and the land areas transferred back to the Office of Naval Reactors.

# Closure Sites FY 2021 Enacted

## Closure Sites (\$37M)

(dollars in thousands)

	FY 2019 Enacted	FY 2020 Enacted	FY 2021 Request	FY 2021 Enacted
<b>Defense Environmental Cleanup</b>				
<u>Closure Sites</u>				
CBC-0100-FN - Closure Admin FN	1,100	1,100	1,100	1,100
CBC-0100-RF- Closure Admin RF	2,000	1,900	1,800	1,800
CBC-0100-EM- Litigation Support	1,789	1,987	2,087	2,087
<b>Subtotal, DEC</b>	<b>4,889</b>	<b>4,987</b>	<b>4,987</b>	<b>4,987</b>
<b>Non-Defense Environmental Cleanup</b>				
Lawrence Berkeley National Laboratory				
CBC-LBNL-0040 - D&D	35,000	31,000	0	30,100
	35,000	31,000	0	30,100
Excess Office of Science Facilities				
CBC-0040-EF - Science Excess Facilities	0	10,000	0	10,000
<b>Subtotal, NDEC</b>	<b>45,987</b>	<b>45,987</b>	<b>4,987</b>	<b>36,987</b>

### Closure Sites

- Provide ongoing litigation support to sites supported by the EM Consolidated Business Center.
- Fund the Fernald Workers II class action lawsuit and contract closeout at the Fernald closure site.
- Support Rocky Flats Closure Project's legal requirements, records vault lease and records management costs, and pay/reimburse workers' compensation claims and support contract closeout.

### Lawrence Berkeley National Laboratory

- Continue deactivation and demolition activities at Old Town buildings 7 and 7C as well as continue cleanup of the Bayview Parcel 1 area.

### Excess Office of Science Facilities

- The results of the FY 2020 Science Facility survey will be analyzed in order prepare long-term budget profiles.

# Mission Support Activities FY 2021 Enacted

## Mission Support Activities (\$50M)

(dollars in thousands)

	FY 2019 Enacted	FY 2020 Enacted	FY 2021 Request	FY 2021 Enacted
<b>Defense Environmental Cleanup</b>				
<u>Program Support</u>				
HQ-MS-0100 - Program Support	6,979	6,979	6,979	6,979
EM-HBCU-0100 - Minority Serving IPP	6,000	6,000	6,000	6,000
	12,979	12,979	12,979	12,979
<u>Technology Development and Deployment</u>				
HQ-TD-0100 - HQ TDD	25,000	25,000	25,000	30,000
<b>Non-Defense Environmental Cleanup</b>				
<u>Mercury Storage Receipts</u>				
HQ-MSF	0	0	0	0
<u>Management and Storage of Elemental Mercury</u>				
HQ-MSF-0100	0	1,200	0	2,100
<b>UEDD Fund</b>				
<u>Title X uranium/thorium reimbursement program</u>				
HQ-UR-0100 - Uranium Thorium	11,000	5,250	21,284	5,000
-				
<b>Total, Mission Support</b>	<b>48,979</b>	<b>44,429</b>	<b>59,263</b>	<b>50,079</b>

### Program Support

- Provide management and direction for various crosscutting EM and DOE programs and initiatives, establishment and implementation of national and departmental policies, various intergovernmental activities, and analyses and integration activities across the DOE complex.
- Support the Minority Serving Institution Partnership Program to attract, develop, and retain the technical workforce at national laboratories and production plants.

### Technology Development and Deployment

- Facilitate the use of innovative solutions and state-of-the-art technology to reduce costs, accelerate schedules, and mitigate vulnerabilities. The infusion of new technology and innovative solutions are necessary to fill science and technology-rooted mission gaps and to improve or optimize baseline technologies.

### Management and Storage of Elemental Mercury

- Supports long-term management and storage of elemental mercury generated within the United States. EM will utilize the revolving account to offset costs associated with Management and Storage of Elemental Mercury.

### Title X Uranium/Thorium Reimbursement Program

- Implement statutorily required program to reimburse eligible uranium and thorium licensees for a portion of remediation costs attributable to nuclear material sold to the federal government during the Cold War Era.
- Provide payment to licensees of approved but unpaid claims from FY 2020 and prior.

# Program Direction FY 2021 Enacted

## Program Direction (\$289M)

(dollars in thousands)

	FY 2019 Enacted	FY 2020 Enacted	FY 2021 Request	FY 2021 Enacted
<b>Defense Environmental Cleanup</b>				
<u>Program Direction</u>				
HQ-PD-0100 - Program Direction	287,952	270,571	263,418	277,133
HQ-PDWCF-0100 - WCF Program Direction	10,548	10,548	11,867	11,867
<b>Total, Program Direction</b>	<b>298,500</b>	<b>281,119</b>	<b>275,285</b>	<b>289,000</b>

### Program Direction

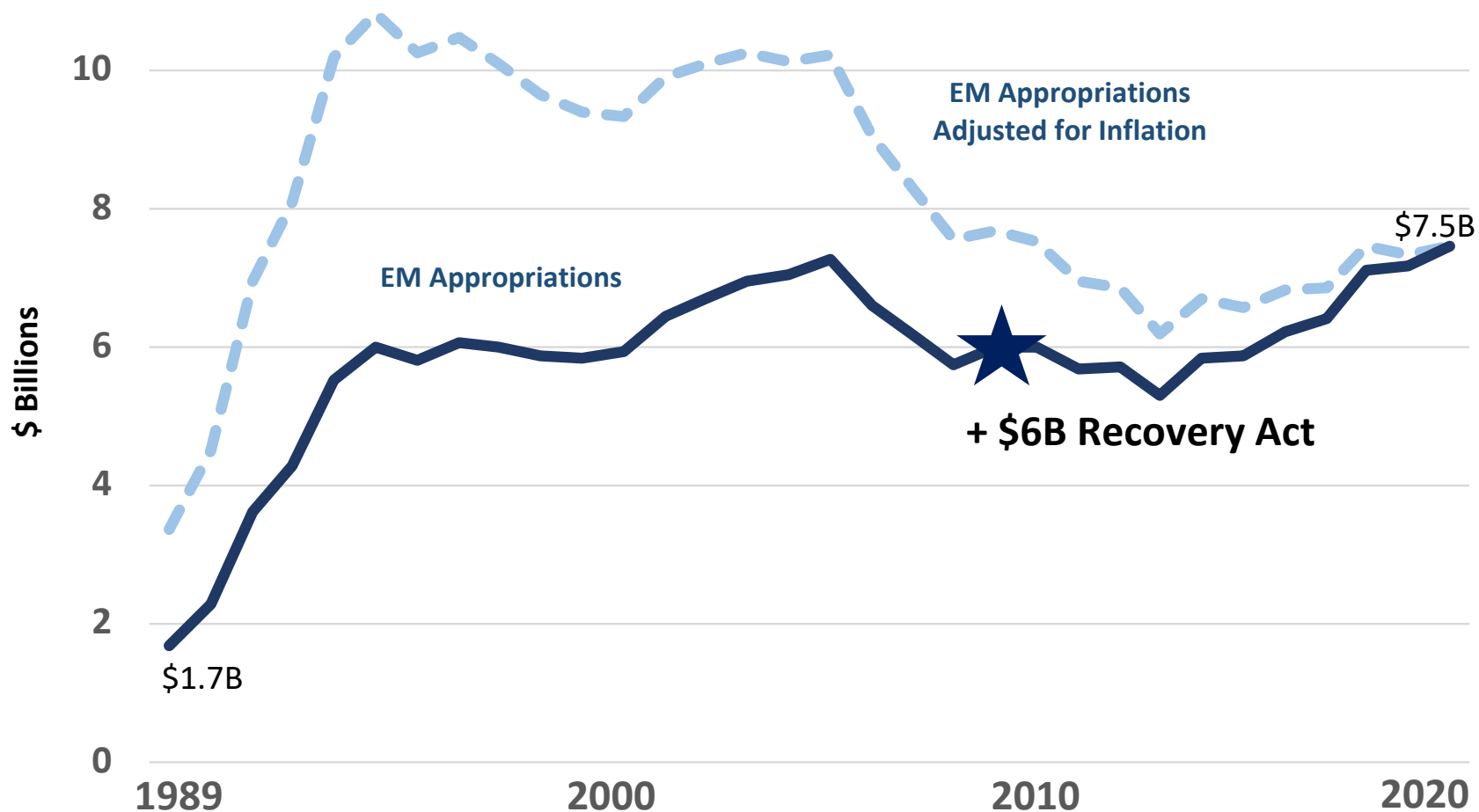
- Supports Federal workforce at a 1,275 FTE level (both Headquarters and field) to include salary and benefits, travel, and other related expenses, as well as provides contractor support to maintain EM mission progress.
  - Salaries & Benefits: \$222,525
  - Travel: \$ 5,378
  - Support Services: \$ 27,582
  - Other Services: \$ 21,648
    - Field Rent & Communication/Utilities, Training, Supplies, and IT Equipment
- Working Capital Fund \$ 11,867
  - Funds EM's share of services within the Working Capital Fund such as building occupancy, corporate business systems (only flexible spending account, payroll, and subsidy for Energy employees' transit), corporate training services, health services, overseas presence, supply, and telecommunications.

## ➤ FY 2022 Outlook

### FY 2022 President's Budget Request

- March: OMB Passback to DOE on topline funding level with identification of Administration priorities
- Late March: White House releases a budget “blueprint” showing the topline for agencies and major initiatives
- Early April: We expect a more detailed Passback from OMB similar to the 20+ page document typically received
- April/May: DOE prepares detailed justification materials
- May/June: A full budget request would be sent to Congress followed by Congressional Hearings
- July/August: Committee markups

# EM's 30 Year History of Appropriations (\$Billions)



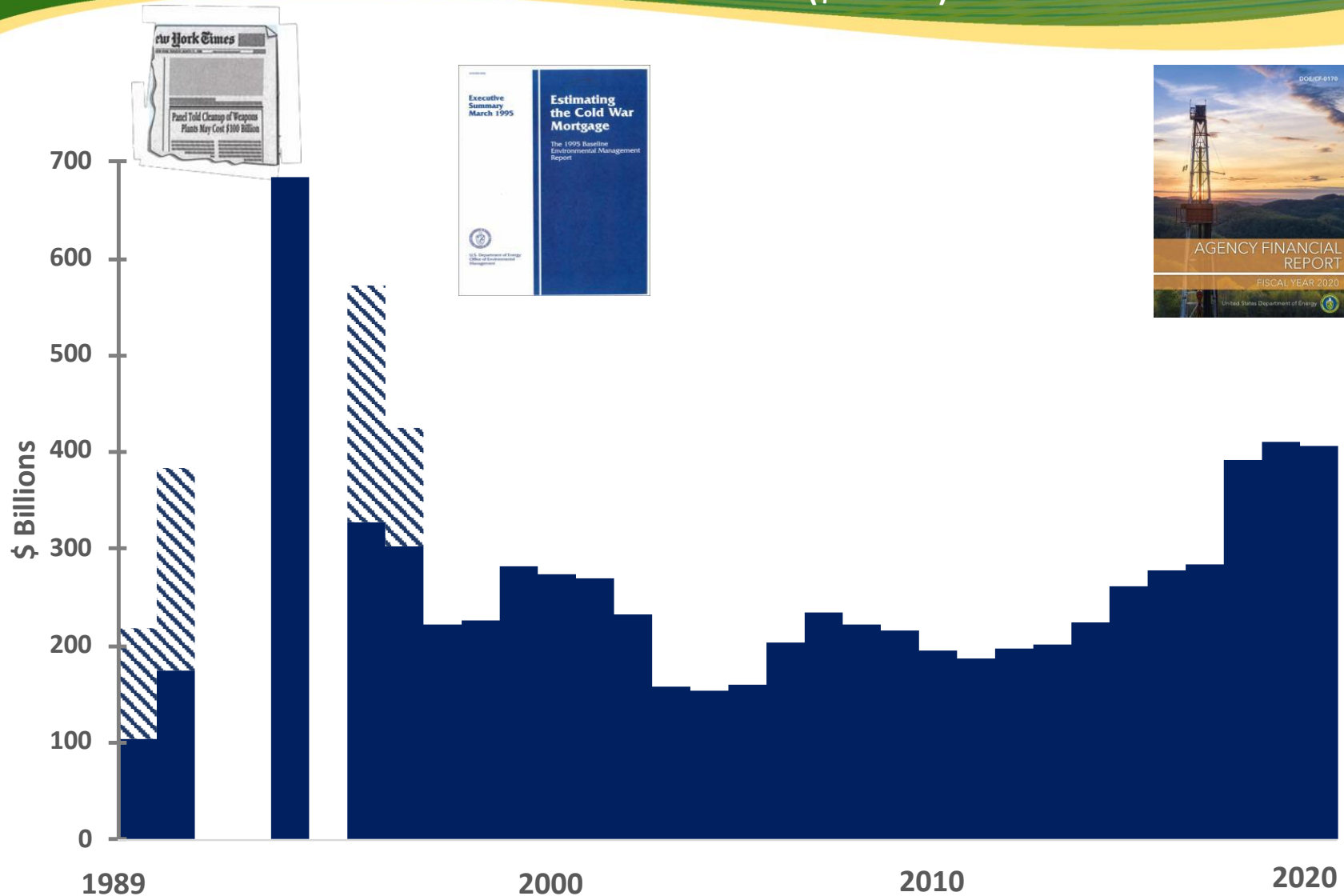
In 2009, the *American Recovery and Reinvestment Act of 2009* resulted in a one-time additional appropriations of \$6B (\$7.7B in 2020 dollars) not shown on the graph.

## EM's FY 2020 Environmental Liability by Site

	FY19		FY20		
Site	2019 \$B Constant	2020 \$B Constant	2020 \$B Constant	Delta	%
Hanford	258.5	264.8	260.1	(4.65)	-2%
SRS	64.7	66.5	64.4	(2.02)	-3%
Paducah	22.1	22.7	22.6	(0.04)	0%
Headquarters <sup>a</sup>	13.8	14.1	13.1	(1.00)	-8%
Portsmouth	10.2	10.5	10.5	0.06	1%
Idaho	9.7	9.8	10.2	0.36	4%
Oak Ridge	8.8	9.0	8.7	(0.28)	-3%
CBFO (WIPP)	8.7	9.0	9.9	0.93	9%
Los Alamos	3.2	3.2	3.9	0.63	16%
West Valley	0.9	0.9	1.0	0.13	13%
NNSS	0.7	0.7	0.6	(0.11)	-18%
Moab	0.5	0.5	0.4	(0.09)	-21%
ETEC	0.26	0.27	0.26	(0.01)	-3%
NNSA	0.15	0.15	0.18	0.03	16%
CBC/SPRU	0.10	0.10	0.13	0.02	18%
Brookhaven	0.02	0.02	0.02	(0.00)	-15%
<b>Total</b>	<b>402.3</b>	<b>412.1</b>	<b>406.1</b>	<b>(6.04)</b>	<b>-1%</b>

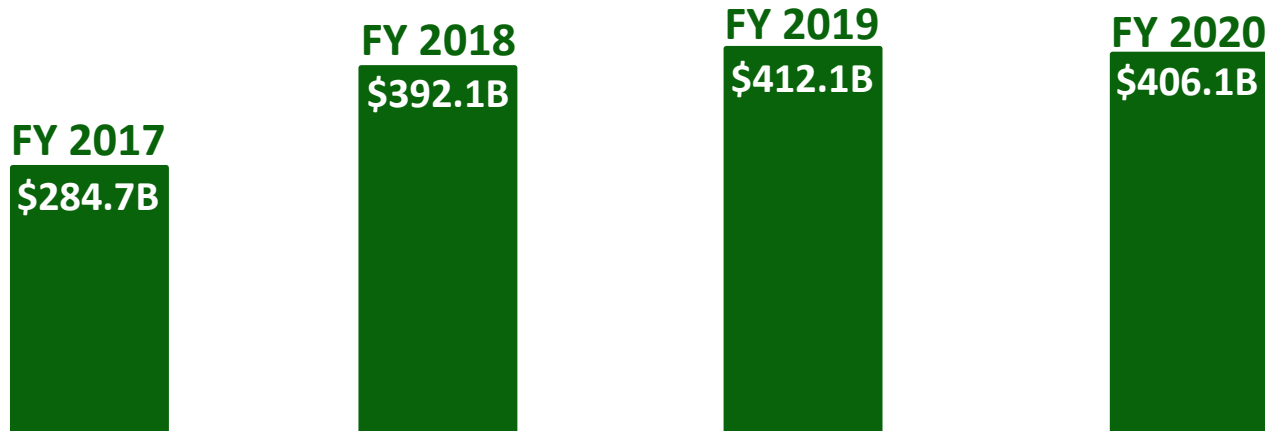
<sup>a</sup> Headquarters costs include Program Direction, Mission Support, and Technology Development

# EM's 30 Year History of Environmental Liability (\$Billions)



Early estimates did not include characterization, site infrastructure and site landlord costs that would eventually be added to EM scope. They also did not include some sites that would eventually be added to EM's scope.

## EM's Environmental Liability by Year



*Estimates shown in constant FY 2020 dollars*

## Key Changes from the Prior Year

### FY 2017

**Hanford** - Assumed funding levels not being met between FY17 and 2023

**Paducah** - Refinements to the Paducah baseline

### FY 2018

**Hanford** - Updated estimates developed:

- US Army Corps of Engineers Parametric Evaluations of the Waste Treatment and Immobilization Plant
- Draft Tank Farm Mission Lifecycle Baseline Out-Year Planning Estimate Range, based on schedules and durations of System Plan 8
- Richland Operations Office Lifecycle Baseline updated
- Risk analysis to estimate the range of potential costs

### FY 2019

**Hanford** - Increase in Revision 1 of the ORP Tank Farms Project Outyear Planning Estimate Range (OPER) and refinement of ORP and RL estimates

**Savannah River Site** - New Liquid Waste System Plan 21 and updated risk management plan

**WIPP** - Updated cost estimates associated with operations, the capital projects, and on-going maintenance and repairs

### FY 2020

**Hanford** – Decrease in Total Project Cost for Tank Site Cesium Removal (TSCR)

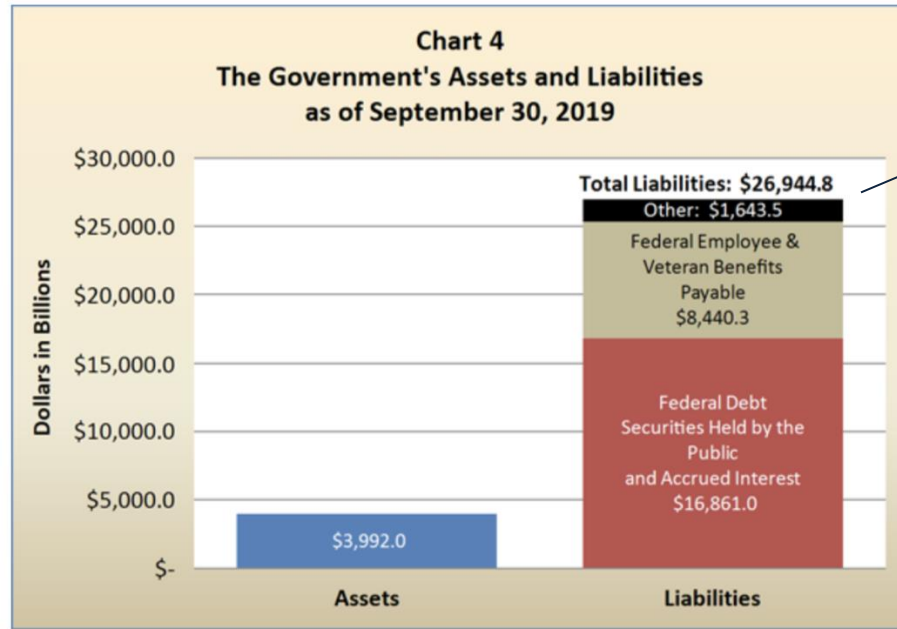
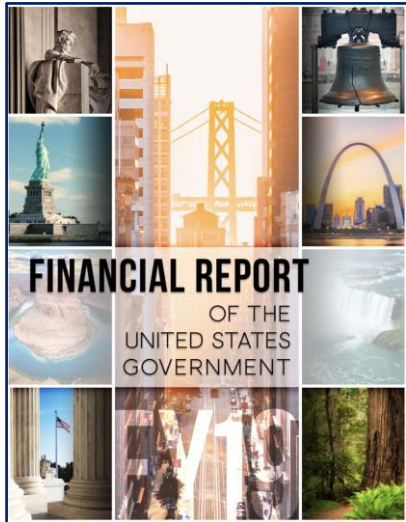
**EM-LA** – Increase in TRU and remediation costs for Building 257 and TA-21; Request for Equitable Adjustments; and characterization and potential remediation costs for DP Road. Based on draft baseline

**SRS**– Significant reduction in pensions based on the latest actuarial report

**West Valley** – Increase due to a 11-month pause to reassess the demolition approach after the PFP incident; the establishment of a deliberate pace of demolition; the addition of source reduction activities inside the Product Purification Cell ahead of demolition activities; and an extension of the contract for 39 months to accommodate the delays

# How is the Department's Liability Reported in the U.S. Government's Financial Statements?

## 2019 Agency Financial Report



*Environmental Liabilities Reported as "Other" in Chart 4*

*DOE's Environmental Liabilities Reported separately in Note 13*

### Note 13. Environmental and Disposal Liabilities

#### Environmental and Disposal Liabilities as of September 30, 2019, and 2018

(In billions of dollars)	2019	2018
Department of Energy .....	505.3	494.0
Department of Defense .....	76.1	70.4
All other entities .....	14.0	12.9
Total environmental and disposal liabilities .....	595.4	577.3

# Questions