

# Department of Energy

## FY 2019 Congressional Budget Request



# Environmental Management



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## Environmental Management





**Volume 5**  
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**FUNDING BY APPROPRIATION**

Department of Energy Budget by Appropriation Energy and Water Development, and Related Agencies	(\$K)				
	FY 2017 Enacted	FY 2018 Annualized CR*	FY 2019 Request	FY 2019 Request vs FY 2017 Enacted	
				\$	%
<b>Energy Programs</b>					
Energy Efficiency and Renewable Energy	2,034,582	2,040,249	695,610	-1,338,972	-65.8%
Electricity Delivery and Energy Reliability	229,585	228,026	0	-229,585	-100.0%
Electricity Delivery	0	0	61,309	+61,309	N/A
Cybersecurity, Energy Security, and Emergency Response	0	0	95,800	+95,800	N/A
Nuclear Energy	1,015,821	1,008,922	757,090	-258,731	-25.5%
<b>Fossil Energy Programs</b>					
Fossil Energy Research and Development	421,154	425,093	502,070	+80,916	+19.2%
Naval Petroleum and Oil Shale Reserves	12,005	14,848	10,000	-2,005	-16.7%
Strategic Petroleum Reserve	222,605	221,485	175,105	-47,500	-21.3%
Northeast Home Heating Oil Reserve	6,497	6,456	10,000	+3,503	+53.9%
<b>Total, Fossil Energy Programs</b>	<b>662,261</b>	<b>667,882</b>	<b>697,175</b>	<b>+34,914</b>	<b>+5.3%</b>
Uranium Enrichment Decontamination and Decommissioning (D&D) Fund	767,929	763,106	752,749	-15,180	-2.0%
Energy Information Administration	122,000	121,171	115,035	-6,965	-5.7%
Non-Defense Environmental Cleanup	246,762	245,324	218,400	-28,362	-11.5%
Science	5,390,972	5,354,362	5,390,972	0	N/A
Advanced Research Projects Agency - Energy	305,245	303,172	0	-305,245	-100.0%
Nuclear Waste Disposal (30M in DNWF 050)	0	0	90,000	+90,000	N/A
Departmental Administration	120,692	120,009	139,534	+18,842	+15.6%
Inspector General	44,424	44,122	51,330	+6,906	+15.5%
Title 17 - Innovative Technology Loan Guarantee Program	139	16,749	7,000	+6,861	+4,936.0%
Advanced Technology Vehicles Manufacturing Loan Program	3,883	4,966	1,000	-2,883	-74.2%
Tribal Energy Loan Guarantee Program	9,000	8,939	-8,500	-17,500	-194.4%
<b>Total, Energy Programs</b>	<b>10,953,295</b>	<b>10,926,999</b>	<b>9,064,504</b>	<b>-1,888,791</b>	<b>-17.2%</b>
<b>Atomic Energy Defense Activities</b>					
<b>National Nuclear Security Administration</b>					
Federal Salaries and Expenses	387,366	384,736	422,529	+35,163	+9.1%
Weapons Activities	9,240,739	9,241,675	11,017,078	+1,776,339	+19.2%
Defense Nuclear Nonproliferation	1,879,738	1,885,970	1,862,825	-16,913	-0.9%
Naval Reactors	1,419,792	1,410,455	1,788,618	+368,826	+26.0%
<b>Total, National Nuclear Security Administration</b>	<b>12,927,635</b>	<b>12,922,836</b>	<b>15,091,050</b>	<b>+2,163,415</b>	<b>+16.7%</b>
<b>Environmental and Other Defense Activities</b>					
Defense Environmental Cleanup	5,404,217	5,368,298	5,630,217	+226,000	+4.2%
Other Defense Activities	781,703	778,676	853,300	+71,597	+9.2%
Defense Nuclear Waste Disposal (90M in 270 Energy)	0	0	30,000	+30,000	N/A
<b>Total, Environmental and Other Defense Activities</b>	<b>6,185,920</b>	<b>6,146,974</b>	<b>6,513,517</b>	<b>+327,597</b>	<b>+5.3%</b>
<b>Total, Atomic Energy Defense Activities</b>	<b>19,113,555</b>	<b>19,069,810</b>	<b>21,604,567</b>	<b>+2,491,012</b>	<b>+13.0%</b>
<b>Power Marketing Administrations</b>					
Southeastern Power Administration	0	0	0	0	N/A
Southwestern Power Administration	11,057	10,982	10,400	-657	-5.9%
Western Area Power Administration	94,742	94,099	89,372	-5,370	-5.7%
Falcon and Amistad Operating and Maintenance Fund	232	230	228	-4	-1.7%
Colorado River Basins	-23,000	-22,844	-23,000	0	N/A
<b>Total, Power Marketing Administrations</b>	<b>83,031</b>	<b>82,467</b>	<b>77,000</b>	<b>-6,031</b>	<b>-7.3%</b>
<b>Federal Energy Regulatory Commission (FERC)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>N/A</b>
<b>Subtotal, Energy and Water Development, and Related Agencies</b>	<b>30,149,881</b>	<b>30,079,276</b>	<b>30,746,071</b>	<b>+596,190</b>	<b>+2.0%</b>
Uranium Enrichment D&D Fund Discretionary Payments	-563,000	-559,177	0	+563,000	+100.0%
Defense EM Funded Uranium Enrichment D&D Fund Contribution	563,000	559,177	0	-563,000	-100.0%
Excess Fees and Recoveries, FERC	-16,645	-9,000	-16,000	+645	+3.9%
Title XVII Loan Guarantee Program Section 1703 Negative Credit Subsidy Receipt	-37,000	-37,000	-44,000	-7,000	-18.9%
Sale of Northeast Gas Reserve	0	0	-77,000	-77,000	N/A
Defense Programs Rescission of Balances (Undistributed)	-43	-43	0	+43	+100.0%
Title 17 Loan Guarantee Program Rescission	-9,000	-8,939	0	+9,000	+100.0%
<b>Total, Funding by Appropriation</b>	<b>30,087,193</b>	<b>30,024,294</b>	<b>30,609,071</b>	<b>+521,878</b>	<b>+1.7%</b>

\*Note.—A full-year 2018 appropriation for this account was not enacted at the time the budget was prepared; therefore, the budget assumes this account is operating under the Continuing Appropriations Act, 2018 (Division D of P.L. 115–56, as amended). The amounts included for 2018 reflect the annualized level provided by the continuing resolution.





# **Environmental Management**

# **Environmental Management**

**Environmental Management  
Proposed Appropriations Language  
Defense Environmental Cleanup**

*For Department of Energy expenses, including the purchase, construction, and acquisition of plant and capital equipment and other expenses necessary for atomic energy defense environmental cleanup activities in carrying out the purposes of the Department of Energy Organization Act (42 U.S.C. 7101 et seq.), including the acquisition or condemnation of any real property or any facility or for plant or facility acquisition, construction, or expansion, \$5,630,217,000, to remain available until expended: Provided, That of such amount, \$300,000,000 shall be available until September 30, 2020, for program direction. Provided further, That of such amount \$150,000,000 shall be available for the deactivation and decommissioning of high-risk excess facilities that are not in the current project inventory of the Environmental Management program.*

Note.—A full-year 2018 appropriation for this account was not enacted at the time the budget was prepared; therefore, the budget assumes this account is operating under the Continuing Appropriations Act, 2018 (Division D of P.L. 115–56, as amended). The amounts included for 2018 reflect the annualized level provided by the continuing resolution.

**Non-Defense Environmental Cleanup**

For Department of Energy expenses, including the purchase, construction, and acquisition of plant and capital equipment and other expenses necessary for non- defense environmental cleanup activities in carrying out the purposes of the Department of Energy Organization Act (42 U.S.C. 7101 et seq.), including the acquisition or condemnation of any real property or any facility or for plant or facility acquisition, construction, or expansion, \$218,400,000, to remain available until expended. *Note.—A full-year 2018 appropriation for this account was not enacted at the time the budget was prepared; therefore, the budget assumes this account is operating under the Continuing Appropriations Act, 2018 (Division D of P.L. 115–56, as amended). The amounts included for 2018 reflect the annualized level provided by the continuing resolution.*

**Uranium Enrichment Decontamination and Decommissioning Fund**

For Department of Energy expenses necessary in carrying out uranium enrichment facility decontamination and decommissioning, remedial actions, and other activities of title II of the Atomic Energy Act of 1954, and title X, subtitle A, of the Energy Policy Act of 1992, \$752,749,000, to be derived from the Uranium Enrichment Decontamination and Decommissioning Fund, to remain available until expended, of which \$30,000,000 shall be available in accordance with title X, subtitle A, of the Energy Policy Act of 1992. *Note.—A full-year 2018 appropriation for this account was not enacted at the time the budget was prepared; therefore, the budget assumes this account is operating under the Continuing Appropriations Act, 2018 (Division D of P.L. 115–56, as amended). The amounts included for 2018 reflect the annualized level provided by the continuing resolution.*

**URANIUM SUPPLY AND ENRICHMENT ACTIVITIES**

The unappropriated receipts currently in the Uranium Supply and Enrichment Activities account shall be transferred to and merged with the Uranium Enrichment Decontamination and Decommissioning Fund and shall be available only to the extent provided in advance in appropriations Acts.

**UNITED STATES ENRICHMENT CORPORATION FUND**

The unavailable collections currently in the United States Enrichment Corporation Fund shall be transferred to and merged with the Uranium Enrichment Decontamination and Decommissioning Fund and shall be available only to the extent provided in advance in appropriations Acts.

## **Public Law Authorizations**

- Public Law 95-91, "Department of Energy Organization Act (1977)"
- Public Law 102-579, "Waste Isolation Pilot Plant Land Withdrawal Act (1992)"
- H.R.776, "Energy Policy Act of 1992"
- Public Law 103-62, "Government Performance and Results Act of 1993"
- Public Law 111-352, "GPRM Modernization Act of 2010"
- Public Law 113-66, "National Defense Authorization Act for Fiscal Year 2014"

### Environmental Management (\$K)

	FY 2017 Enacted	FY 2018 Annualized CR*	FY 2019 Request
	6,418,908	6,376,728	6,601,366
Defense Environmental Cleanup	5,405,000	5,368,298	5,630,217
Defense Uranium Enrichment Decontamination and Decommissioning	563,000	559,177	0
Non-Defense Environmental Cleanup	247,000	245,324	218,400
Uranium Enrichment Decontamination and Decommissioning Fund	768,324	763,106	752,749
Subtotal, Environmental Management	6,983,324	6,935,905	6,601,366
Rescission of Prior Year Balances	-783	0	0
Rescission of Prior Year Balances	-238	0	0
D&D Fund Offset	-563,000	-559,177	0
Use of Prior Year (D&D Fund)	-324	0	0
Rescission of Prior Year Balances	-71	0	0
<b>Total, Environmental Management</b>	<b>6,418,908</b>	<b>6,376,728</b>	<b>6,601,366</b>

\*A full-year 2018 appropriation for this account was not enacted at the time the budget was prepared; therefore, the budget assumes this account is operating under the Continuing Appropriations Act, 2018 (Division D of P.L. 115-56, as amended). The amounts included for 2018 reflect the annualized level provided by the continuing resolution. (These amounts are shown only at the Congressional control level and above; below that level, a dash (—) is shown).

#### Overview

The Office of Environmental Management (EM) supports the challenges of the nation's Manhattan Project and Cold War legacy responsibilities. The Department will leverage past experience; apply best practices and lessons learned; identify, develop, and deploy practical technological solutions derived from scientific research; and look for innovative and sustainable practices that make cleanup safer, more efficient, and more cost-effective.

The EM program was established in 1989 and is responsible for the cleanup of millions of gallons of liquid radioactive waste, thousands of tons of spent (used) nuclear fuel and nuclear material, large volumes of transuranic and mixed/low-level waste, huge quantities of contaminated soil and water, and thousands of excess facilities. This environmental cleanup program resulted from six decades of nuclear weapons development and production and Government-sponsored nuclear energy research. It involves some of the most dangerous materials known to humankind. EM has completed cleanup activities at 91 sites in 30 states and in the Commonwealth of Puerto Rico; EM is responsible for the remaining cleanup at 16 sites in 11 states. EM's progress on completion of sites is tracked in the EM Corporate Performance metric for geographic sites completed.

EM continues to pursue its cleanup objectives safely within a framework of regulatory compliance commitments and best business practices. The rationale for cleanup prioritization is based on achieving the highest risk reduction benefit per radioactive content (activities focused on wastes that contain the highest concentrations of radionuclides and sites with the highest radionuclide contamination). Taking many variables into account, EM has generally prioritized its cleanup activities as follows:

- Activities to maintain a safe, secure, and compliant posture in the EM complex
- Radioactive tank waste stabilization, treatment, and disposal

- Spent (used) nuclear fuel storage, receipt, and disposition
- Nuclear material consolidation, stabilization, and disposition
- Transuranic and mixed/low-level waste disposition
- Soil and groundwater remediation
- Excess facilities deactivation and decommissioning

Most importantly, EM will continue to discharge its responsibilities by conducting cleanup within a "Safety First" culture that integrates environmental, safety, and health requirements and controls into all work activities. This ensures protection for the workers, public, and the environment.

EM continued to make progress in cleaning up the complex in FY 2017. Significantly, EM has resumed transuranic waste shipments and disposal operations at the Waste Isolation Pilot Plant in Carlsbad, New Mexico. While DOE completed the recovery effort with the resumption of waste emplacement, the Waste Isolation Pilot Plant will continue to be in an interim status until critical facility structures, systems, and components are repaired or replaced; and two line-item capital projects that will make up the new permanent mine ventilation system are completed. The budget increase operations to a rate of up to ten shipments a week.

Also in FY 2017, at the Savannah River Site, EM completed construction of Saltstone Disposal Unit 6 ahead of schedule. At Idaho, EM completed retrieval of approximately 65,000 cubic meters of TRU waste at the Advanced Mixed Waste Treatment Project. At Hanford, EM completed remediating the 618-10 vertical pipe units containing radioactive waste from Hanford's fuel fabrication and research area, one of the most hazardous waste sites in the DOE complex due to its deterioration and high contamination levels. At Portsmouth, EM deactivated the first floor unit of the X-326 Gaseous Diffusion Process Building at Portsmouth, a milestone in preparing the cell for demolition. At West Valley, EM completed the High-Level Waste Canister Relocation Project a year ahead of schedule, a necessary step to support demolition of the site's Main Plant Process Building; and began demolition of the site's former Vitrification Facility. At the Separations Process Research Unit (SPRU), workers completed the open-air demolition of Building G2, one of two remaining buildings at the site.

### **Reform Initiatives**

To further the Department's mission, the Secretary reorganized to improve alignment of EM, the Office of Science, and our national labs. By leveraging the expertise of the national lab complex and exploring potential project management and contract approaches, we will be better positioned to solve complex challenges, manage costs and ensure the highest level of safety at our sites.

### Improving Program Management and Risk Management

The Office of Environmental Management has launched an initiative to identify key decisions that need to be made to advance the cleanup in the most efficient and effective way possible. The focus is primarily on identifying decisions and opportunities that could be executed; however, many of these will require negotiations with regulators and engagement with Congress and other key stakeholders. The Office of Environmental Management recently completed a bottom-up review of its program to identify opportunities to improve mission operations, placing emphasis on the need for and timeliness of executive decisions. It is intended to advance EM's nuclear weapons legacy cleanup efforts through improved decision-making.

## Streamlining EM Headquarters Organization

In response to the Office of Management and Budget Memorandum for Reforming the Federal Government and Reducing the Federal Civilian Workforce, the EM Headquarters and its Field Sites examined activities that can be streamlined and evaluated organizational structures. In FY 2018, EM received authority for Voluntary Early Retirement Authority and Voluntary Separation Incentive Payments. These authorities support the Program Office both in EM Headquarters and throughout the complex in achieving a more optimal structure through a better realignment of skill mix and restructuring of positions to meet the mission requirements. In FY 2019, the EM program will continue to review its organizational structure to identify opportunities to streamline the management team. This effort is intended to refine the EM management structure by realigning senior managers and eliminating management layers.

### **Highlights and Major Changes in the FY 2019 Budget Request**

The FY 2019 request of \$6,601,366,000 in discretionary budget authority, a record high for the EM program in more than a decade, to fund activities to maintain a safe and secure posture in the EM complex, while maximizing cleanup activities. To that end, we will engage with our federal and state regulators regarding compliance requirements that may result in changes to the cleanup milestones in 2019.

In FY 2019, much progress will be made on the treatment of high-level radioactive waste in tanks across the complex---one of EM's largest environmental challenges. At the Savannah River Site, the FY 2019 request supports a significant increase in the production at the Defense Waste Processing Facility in the number of canisters (approximately 135-175) of vitrified waste derived and processed from tank waste and the ramp up of the Saltstone Disposal Facility 24/7 operations to support the Salt Waste Processing Facility. The FY 2019 request also supports the Salt Waste Processing Facility start-up as well as continuing Saltstone Disposal Unit #7 cell construction and completing design and initiating construction of Saltstone Disposal Units #8 and #9. At the Idaho Site, the FY 2019 funding request continues progress toward commissioning and starting up of the Integrated Waste Treatment Unit to treat stored sodium bearing waste. Also at Idaho, eight out of nine retrieval areas have been completed and the budget will continue exhumations at the ninth retrieval area.

The Department is also working aggressively to complete and operate the treatment facilities to safely immobilize and dispose of tank waste at Hanford. This budget supports continued safe operations of the tank farms, and continued construction, startup and commissioning of the Waste Treatment and Immobilization Plant's Low-Activity Waste Facility, Balance of Facilities, Effluent Management Facility and Analytical Laboratory. These facilities are integral to the Department's plan to begin treating Hanford low-activity tank waste by December 31, 2023, as required by the consent decree.

The Waste Isolation Pilot Plant resumed waste emplacement in the underground on January 4, 2017. Since opening the Waste Isolation Pilot Plant, EM has sent over 12,000 shipments of transuranic waste for permanent disposal, safely emplacing over 92,000 cubic meters (over 172,000 containers) of waste. The FY 2019 request supports disposal facility operations, regulatory and environmental compliance actions, continued progress on the line-item capital asset projects and significant investments in infrastructure that will focus on repairing and replacing the Waste Isolation Pilot Plant's degraded facility structures.

The FY 2019 budget supports the continued decontamination and decommissioning of the Portsmouth Gaseous Diffusion Plant, including the design and construction of an on-site waste disposal facility for disposition of waste from the future demolition of the Portsmouth Gaseous Diffusion Plant facilities. The FY 2019 budget also supports further stabilization of the Paducah Gaseous Diffusion Plant facilities; as well as continued operations of the Depleted Uranium Hexafluoride Conversion facilities at Portsmouth and Paducah. The support for the safe operation of the Depleted Uranium Hexafluoride

### **Environmental Management/**

### **Overview**

Conversion facilities at Portsmouth and Paducah actively contributes to FY 2019 targets for the EM Corporate Performance metric: depleted and other uranium packaged for disposition.

At Oak Ridge the budget request supports the ongoing cleanup effort at the East Tennessee Technology Park, investment in mercury characterization and remediation technologies, and continued preparations for Critical Decision-2/3 approval and continued planning for construction of the Outfall 200 Mercury Treatment Facility at the Y-12 National Security Complex.

At West Valley, EM will continue to focus on completing decommissioning of the Main Plant Process Building and beginning demolition; continuing removal of excess ancillary facilities; and beginning off-site Rail Line repair and maintenance in FY 2019.

FY 2019 activities will continue to focus on surface and groundwater management at the Los Alamos National Laboratory. Investigation and development of corrective measures for remediation of the hexavalent chromium plume continue in Mortandad and Sandia Canyon watersheds, and design of the selected remedies will begin in FY 2019.

In FY 2019, EM's share of the Working Capital Fund is estimated at \$37,523,000, which is split funded between Program Direction (through Headquarters Working Capital Fund Other Related Expenses line of account) and EM's environmental cleanup program activities. The decrease in EM's share of the total Working Capital Fund from FY 2017 to FY 2019 is \$285,000.

Working Capital Fund activities funded through Program Direction include inflation increases to many business lines, particularly to corporate business systems, building occupancy, and telecommunications. EM's FY 2019 Program Direction Working Capital Fund allocation is \$10,548,000.

EM's remaining FY 2019 Working Capital Fund request is \$26,976,000. EM will fund activities within the Working Capital Fund such as A-123/Internal Controls, Corporate Business Systems (STARS, iBudget, iPortal/IDW, Digital Media, Oak Ridge Financial Services Center, and STRIPES), CyberOne, Financial Statement Audits, Interagency Transfers, Mail and Transportation, Overseas Presence, Pension Studies, Project Management Career Development Program, Printing and Graphics, and Procurement Management. These activities will be assessed to EM cleanup activities.

The table below provides a complete breakout of the Working Capital Fund Business Lines and how the activities are funded between Program Direction and EM cleanup activities.



### FY 2019 Working Capital Fund Estimate

Program Direction	EM Cleanup	Total
A123	0	531
Building Occupancy	7,058	0
Copy Services	0	344
Corporate Business Systems	174	8,440
Corp Training Services	243	0
CyberOne	0	7,138
Financial Statement Audits	0	2,500
Health Services	137	0
Interagency Transfers	0	1,662
Mail & Transportation	0	205
Overseas Presence	326	0
Pension Studies	0	99
PMCDP	0	776
Print & graphics	0	171
Procurement Management	0	5,111
Supply	212	0
Telecom	2,398	0
<b>Total</b>	<b>10,548</b>	<b>26,976</b>

EM’s FY 2019 request also provides a significant focus on cybersecurity activities. Headquarters’ cybersecurity provides services such as Site Test and Evaluations, Information Security Continuous Monitoring, Incident Response, Penetration Testing, and enterprise license purchasing through the Mission Innovation Protection Program (MIPP). Cybersecurity activities, including the Working Capital Fund CyberOne business line, and MIPP, will be funded out of the EM Safeguards and Security account. For sites without a safeguards and security program, other site funding will be utilized. EM’s cybersecurity program will continue to:

- Implement and comply with the most current DOE cyber security requirements.
- Maintain site cyber security incident response capabilities.
- Upgrade and retire legacy information technology systems.
- Identity and secure high value assets.
- Remediate critical and high vulnerabilities that affect DOE information systems.
- Implement continuous diagnostic and mitigation implementation.
- Provide employee cyber security awareness and privilege user training.
- Implement and sustain multifactor authentication for all standard and privilege users that access DOE information systems.

The FY 2019 budget funds the following specific activities:

Idaho's FY 2019 request will support the requirements of the Idaho Settlement Agreement; including certification and disposition of contact-handled stored legacy transuranic waste processed at the Advanced Mixed Waste Treatment Project. Additionally, the request will support disposing of remote-handled low-level radioactive waste at the Radioactive Waste Management Complex and mixed low-level radioactive waste at appropriate off-site disposal facilities. The request will continue progress in retrieving targeted waste at the Subsurface Disposal Area under the Accelerated Retrieval Project and maintain soil and ground water remedies for the protection of the Snake River Plain aquifer. It will also continue progress toward treating liquid Sodium Bearing Waste, closure of the tank farm; management of spent nuclear fuel, including retrieval of fuel from wet storage to dry storage and planning for spent nuclear fuel disposition and continue the demonstration of retrieval of calcine waste.

The Office of River Protection's FY 2019 budget request represents planned efforts for continued progress toward important cleanup required by the Consent Decree and Tri-Party Agreement. The Office of River Protection budget request is designed to maintain safe operations for the tank farms; achieve progress in meeting regulatory commitments; enable the development and maintenance of infrastructure to enable waste treatment operations; and protect workers, the public and environment. The FY 2019 request includes funding for two line-item projects: 1) 01-D-416, the Waste Treatment and Immobilization Plant and 2) 15-D-409, the Low Activity Waste Pretreatment System. The mission of the Waste Treatment and Immobilization Plant project is to construct a treatment facility to blend waste from the tank farms into molten glass and pour it into stainless steel canisters suitable for long-term storage of high-level radioactive waste and disposal of low-level radioactive waste. The mission of the Low Activity Waste Pretreatment System is to remove cesium from tank waste to supply a low activity waste feed stream directly to the Waste Treatment and Immobilization Plant Low-Activity Waste Facility.

Savannah River Site's FY 2019 request represents continued progress toward cleanup required by the Federal Facility Agreement. The Savannah River Site budget request is designed to safely operate nuclear facilities including disposition of spent fuel through H-Canyon; optimize the Liquid Waste Program to meet the Dispute Resolution Agreement reached with the state regulators for processing salt solution; continue to empty and close underground storage tanks; receipt of high-level liquid waste from H-Canyon operations; continue construction of saltstone disposal units for containing and disposition of decontaminated salt solution in a grout form generated through liquid waste disposition; continue projects to replace the firewater supply in A-Area and replace the outdated Site Emergency Operations Center. The request also addresses clean-up of contaminated soils, groundwater, streams (and associated wetlands) and waste sites which are governed through enforceable regulatory milestones in accordance with the Resource Conservation and Recovery Act, Comprehensive Environmental Response, Compensation, and Liability Act, and permit commitments in accordance with the Resource Conservation and Recovery Act, as well as storage, treatment and disposal of transuranic waste, low-level radioactive waste, mixed low-level radioactive waste, hazardous waste, and sanitary waste.

The budget also includes approximately \$146,000,000 to support mission activities and cleanup technology performed or developed by the Savannah River National Laboratory to enhance cleanup progress at the Savannah River Site and across the EM complex. For example, in FY 2019, the laboratory will support tank waste technology development including means to separate the high-activity radionuclides in order to disposition the high-level radioactive waste along with various unit operations such as filtering, grinding, and retrieval, and sampling and analysis of nuclear materials. The laboratory will also support development of tank waste mixing and tank closure technologies, flow sheets and models to support the processing of radioactive waste, groundwater remediation and facility decontamination and decommissioning technology, and next-generation cleanup technologies. The laboratory continues to provide engineering that supports operations at the Savannah River Site.

In FY 2019, the budget request will support the deactivation and decommissioning of the Portsmouth Gaseous Diffusion Plant and the safe operation of the Depleted Uranium Hexafluoride Conversion Facility, by providing the site a total of \$415,458,000. Of that total, \$306,931,000 will support the deactivation and decommissioning of gaseous diffusion plant facilities and systems, disposal of waste, small equipment removal, utility optimizations, and hazardous material abatement. The request also includes \$41,168,000 for the continued construction of the On-Site Waste Disposal Facility to manage waste generated from the demolition of the Portsmouth Gaseous Diffusion Plant and associated facilities. In addition, the request includes \$50,611,000 in Non-Defense Environmental Cleanup to continue the safe operation of the Depleted Uranium Hexafluoride (DUF6) Conversion Facility that converts depleted uranium hexafluoride into a more stable depleted uranium oxide form suitable for reuse or disposition.

In FY 2019, the budget request will support environmental cleanup and stabilization of the Paducah Gaseous Diffusion Plant in Paducah, Kentucky. Within the overall funding request \$202,581,000 will support treatment of on-site and off-site groundwater plumes, remediation of contaminated soils and burial grounds, and decontamination and decommissioning of inactive or excess facilities, including the gaseous diffusion plant facilities that were returned to DOE in FY 2015. In addition \$49,964,000 in Non-Defense Environmental Cleanup is requested for the continued safe operation of the Depleted Uranium Hexafluoride (DUF6) Conversion Facility that converts depleted uranium hexafluoride into a more stable depleted uranium oxide form suitable for reuse or disposition.

Richland's FY 2019 budget request represents continued achievement of important cleanup progress required by the Tri-Party Agreement. In summary, the Richland budget request is designed to maintain safe operations; Hanford site-wide services; continue groundwater pump-and-treat operations; continue progress toward waste remediation; continue progress toward repackaging of Large/Small Container Contact-handled Transuranic Mixed or Remote-handled Transuranic Mixed Waste; continue waste site remediation in the River Corridor; and support critical infrastructure upgrade projects for site safety and project execution for both Richland and the Office of River Protection. Cleanup work is accomplished while maintaining safe and compliant waste management, decontamination and decommissioning, and groundwater capabilities in the Central Plateau.

The FY 2019 request includes Line Item 18-D-404, the Waste Encapsulation and Storage Facility Modifications and Capsule Storage. This project includes the activities required to achieve safe, compliant, and cost-effective interim dry storage of the 1,936 cesium and strontium capsules currently stored at the Waste Encapsulation and Storage Facility. The Waste Encapsulation and Storage Facility cannot provide a continued capability to manage the capsules for an extended period of time. This Line-Item construction supports the mission need by equipping the Waste Encapsulation and Storage Facility to remove the capsules. The Richland Operations Office also provides the Hanford site landlord services. The services include, but are not limited to, roads and transportation services; electrical and water services; facility maintenance; network and software engineering; and records management.

At Oak Ridge the budget request supports the ongoing cleanup effort at the East Tennessee Technology Park, investment in mercury characterization and remediation technologies, continued preparation of Building 2026 to support processing of the remaining Uranium-233 material at Oak Ridge National Laboratory, continued planning and initiation of design for a new On-Site Waste Disposal Facility, and continued planning and completion of early site preparation activities for the Outfall 200 Mercury Treatment Facility at the Y-12 National Security Complex.

The Waste Isolation Pilot Plant resumed waste emplacement in the underground on January 4, 2017. Since opening the Waste Isolation Pilot Plant, EM has sent over 12,000 shipments of transuranic waste for permanent disposal, safely emplacing over 92,000 cubic meters (over 172,000 containers) of waste. The FY 2019 request will continue regulatory and environmental compliance actions, waste emplacement, underground and above ground maintenance and ground control, advancement of permanent ventilation project, and the Central Characterization Project and transportation activities.

## **Environmental Management/**

### **Overview**

Waste characterization at DOE transuranic waste generator sites will be funded by their respective site and includes activities such as Visual Examination, Real Time Radiography, Non Destructive Assay, Dose to Curie Conversion, and Flammable Gas Analysis. Waste characterization certification of legacy transuranic waste at Savannah River Site, Oak Ridge National Laboratory, Lawrence Livermore National Laboratory, and Los Alamos National Laboratory will be funded by the Waste Isolation Pilot Plant, whereas the Idaho National Laboratory funds its own waste characterization certification. The FY 2019 request will also provide for transportation activities including maintenance of core shipping capabilities and operations for potential inter-site shipments, preservation of shipping corridors and required cask maintenance. In FY 2019, the transportation capability supports up to ten waste shipments per week to the Waste Isolation Pilot Plant.

EM's Technology Development and Deployment Program is focused on technologies to reduce the aggregate cleanup cost, complete cleanup sooner and perform work and operate facilities more effectively and in a manner that assures public, worker and environmental safety. New and novel technologies, as well as innovative solutions, are needed to address the significant challenges associated with the remaining nuclear cleanup work that will span the next five decades. The program encompasses the entire maturation lifecycle of technology, which includes transfer of technologies from other nuclear and non-nuclear industry sectors. The program addresses issues related to: (1) radioactive liquid and solid waste treatment, storage and disposal; (2) soil and groundwater remediation; (3) nuclear materials and spent fuel storage and disposition; (4) facility deactivation and decommissioning; and (5) public, worker, facility/asset, and environmental safety and security. The FY 2019 request of \$25,000,000 is for projects to tackle our greatest mission challenges and innovation opportunities, including: radioactive technetium, mercury and other problematic contaminants; the integration of robotics and remote systems for enhanced worker safety, productivity, and emergency preparedness; high-hazard and high-consequence work; and more efficient environmental and facility operations.

#### **Excess Facilities**

The FY 2019 request includes \$150,000,000 to position EM to support a targeted effort to fund deactivation and decommissioning activities for selected excess high-risk contaminated facilities at the Y-12 Security Complex and the Lawrence Livermore National Laboratory that are not in the current project inventory of the Environmental Management program.

**Environmental Management Funding by Congressional Control (\$K)**

	<b>FY 2017 Enacted</b>	<b>FY 2018 Annualized CR*</b>	<b>FY 2019 Request</b>	<b>FY 2019 Request vs FY 2017 Enacted</b>
<b>Defense Environmental Cleanup</b>				
<b>Closure Sites</b>				
Closure Sites Administration	9,389	9,325	4,889	-4,500
<b>Hanford Site</b>				
Central Plateau Remediation	659,818	655,337	562,473	-97,345
Richland Community and Regulatory Support	24,701	24,533	5,121	-19,580
River Corridor and Other Cleanup Operations	143,755	142,779	89,577	-54,178
Construction				
15-D-401: Containerized Sludge (KBC Sludge Removal Annex Construction), RL (RL-0012)	11,486	11,408	0	-11,486
18-D-404: Modification of Waste Encapsulation and Storage Facility, Richland, WA (PBS RL-0013C)	0	0	1,000	+1,000
<b>Total, Construction</b>	<b>11,486</b>	<b>11,408</b>	<b>1,000</b>	<b>-10,486</b>
<b>Total, Hanford Site</b>	<b>839,760</b>	<b>834,057</b>	<b>658,171</b>	<b>-181,589</b>
<b>Idaho National Laboratory</b>				
Idaho Cleanup and Waste Disposition	379,088	376,513	346,026	-33,062
Idaho Community and Regulatory Support	3,000	2,980	3,200	+200
<b>Total, Idaho National Laboratory</b>	<b>382,088</b>	<b>379,493</b>	<b>349,226</b>	<b>-32,862</b>
<b>NNSA Sites</b>				
Lawrence Livermore National Laboratory	1,396	1,387	1,704	+308
Los Alamos National Laboratory	194,000	192,683	191,629	-2,371
Nevada	62,176	61,754	60,136	-2,040
Sandia National Laboratories	4,130	4,102	2,600	-1,530
Separations Processing Research Unit	3,685	3,660	15,000	+11,315
<b>Total, NNSA Sites</b>	<b>265,387</b>	<b>263,586</b>	<b>271,069</b>	<b>+5,682</b>

FY 2017 Enacted	FY 2018 Annualized CR*	FY 2019 Request	FY 2019 Request vs FY 2017 Enacted
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**Oak Ridge**

OR Cleanup and Disposition	68,457	67,992	67,000	-1,457
OR Nuclear Facility D&D	131,851	130,956	90,221	-41,630
OR Reservation Community and Regulatory Support	5,500	5,463	4,711	-789
OR Technology Development and Deployment	3,000	2,980	3,000	0
U233 Disposition Program Construction	43,311	43,017	45,000	+1,689
14-D-403: Outfall 200 Mercury Treatment Facility, OR (OR-0041)	5,100	5,065	11,274	+6,174
17-D-401: On-Site Disposal Facility	6,000	5,959	5,000	-1,000
<b>Total, Construction</b>	<b>11,100</b>	<b>11,024</b>	<b>16,274</b>	<b>+5,174</b>
<b>Total, Oak Ridge</b>	<b>263,219</b>	<b>261,432</b>	<b>226,206</b>	<b>-37,013</b>

**Office of River Protection**

Tank Farm Activities	733,965	728,981	677,460	-56,505
Waste Treatment and Immobilization Plant Construction	3,000	2,980	15,000	+12,000
01-D-16E: Pretreatment Facility, RL	97,000	96,341	15,000	-82,000
01-D-16-A-D: Waste Treatment and Immobilization Plant - Sub- Projects A-D, RL	593,000	588,973	675,000	+82,000
15-D-409: Low Activity Waste Pretreatment System, Hanford (ORP- 0014)	73,000	72,504	56,053	-16,947
<b>Total, Construction</b>	<b>763,000</b>	<b>757,818</b>	<b>746,053</b>	<b>-16,947</b>
<b>Total, Office of River Protection</b>	<b>1,499,965</b>	<b>1,489,779</b>	<b>1,438,513</b>	<b>-61,452</b>

**Savannah River Site**

Environmental Cleanup	0	0	166,105	+166,105
Nuclear Material Management	0	0	351,331	+351,331
Radioactive Liquid Tank Waste Stabilization and Disposition	600,123	596,048	805,686	+205,563
Savannah River Risk Management Operations	448,980	445,931	0	-448,980
SR Community and Regulatory Support	11,249	11,173	4,749	-6,500

FY 2017 Enacted	FY 2018 Annualized CR*	FY 2019 Request	FY 2019 Request vs FY 2017 Enacted
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	FY 2017 Enacted	FY 2018 Annualized CR*	FY 2019 Request	FY 2019 Request vs FY 2017 Enacted
<b>Construction</b>				
15-D-402: Saltstone Disposal Unit #6, SR (SR-0014C)	7,577	7,526	0	-7,577
05-D-405: Salt Waste Processing Facility, SR	160,000	158,913	65,000	-95,000
18-D-401: Saltstone Disposal Unit #8/9, SR (SR-0014C)	0	0	37,450	+37,450
17-D-402: Saltstone Disposal Unit #7, SR (SR-0014C)	5,500	5,463	41,243	+35,743
18-D-402: Emergency Operations Center	0	0	1,259	+1,259
<b>Total, Construction</b>	<b>173,077</b>	<b>171,902</b>	<b>144,952</b>	<b>-28,125</b>
<b>Total, Savannah River Site</b>	<b>1,233,429</b>	<b>1,225,054</b>	<b>1,472,823</b>	<b>+239,394</b>
<b>Program Support</b>				
Mission Support	14,979	14,878	12,979	-2,000
<b>Program Direction</b>	<b>290,050</b>	<b>288,080</b>	<b>300,000</b>	<b>+9,950</b>
<b>Safeguards and Security</b>	<b>262,189</b>	<b>260,409</b>	<b>324,434</b>	<b>+62,245</b>
<b>Technology Development and Deployment</b>				
Mission Support	25,025	24,855	25,000	-25
<b>CB-0101 Economic Assistance to the State of NM</b>	<b>26,800</b>	<b>26,618</b>	<b>0</b>	<b>-26,800</b>
<b>Excess Facilities</b>	<b>0</b>	<b>0</b>	<b>150,000</b>	<b>+150,000</b>
<b>Waste Isolation Pilot Plant</b>				
Waste Isolation Pilot Plant Construction	260,188	258,421	311,695	+51,507
15-D-411: Safety Significant Confinement Ventilation System, WIPP	2,532	2,515	84,212	+81,680
15-D-412: Utility Shaft	30,000	29,796	1,000	-29,000
<b>Total, Construction</b>	<b>32,532</b>	<b>32,311</b>	<b>85,212</b>	<b>+52,680</b>
<b>Total, Waste Isolation Pilot Plant</b>	<b>292,720</b>	<b>290,732</b>	<b>396,907</b>	<b>+104,187</b>
<b>Total, Defense Environmental Cleanup</b>	<b>5,405,000</b>	<b>5,368,298</b>	<b>5,630,217</b>	<b>+225,217</b>

	FY 2017 Enacted	FY 2018 Annualized CR*	FY 2019 Request	FY 2019 Request vs FY 2017 Enacted
<b>Defense Uranium Enrichment Decontamination and Decommissioning Contribution to the Uranium Enrichment D&amp;D Fund</b>	<b>563,000</b>	<b>559,177</b>	<b>0</b>	<b>-563,000</b>
<b>Non-Defense Environmental Cleanup</b>				
<b>Fast Flux Test Reactor Facility D&amp;D Gaseous Diffusion Plants</b>	<b>2,240</b>	<b>2,225</b>	<b>2,240</b>	<b>0</b>
Paducah Gaseous Diffusion Plant	50,345	50,003	49,964	-381
Portsmouth Gaseous Diffusion Plant	50,959	50,613	50,611	-348
<b>Total, Gaseous Diffusion Plants</b>	<b>101,304</b>	<b>100,616</b>	<b>100,575</b>	<b>-729</b>
<b>Small Sites</b>				
Brookhaven National Laboratory	0	0	2,000	+2,000
Energy Technology Engineering Center	10,459	10,388	8,038	-2,421
Idaho National Laboratory	8,000	7,946	10,000	+2,000
Lawrence Berkeley National Laboratory	9,200	9,138	0	-9,200
Moab	37,884	37,627	34,993	-2,891
Oak Ridge	6,000	5,959	0	-6,000
Southwest Experimental Fast Oxide Reactor (SEFOR)	5,500	5,463	0	-5,500
<b>Total, Small Sites</b>	<b>77,043</b>	<b>76,521</b>	<b>55,031</b>	<b>-22,012</b>
<b>West Valley Demonstration Project</b>	<b>66,413</b>	<b>65,962</b>	<b>60,554</b>	<b>-5,859</b>
<b>Total, Non-Defense Environmental Cleanup</b>	<b>247,000</b>	<b>245,324</b>	<b>218,400</b>	<b>-28,600</b>
<b>Uranium Enrichment Decontamination and Decommissioning Fund</b>				
<b>Oak Ridge</b>	<b>194,673</b>	<b>193,351</b>	<b>151,039</b>	<b>-43,634</b>
<b>Paducah</b>				
Paducah Gaseous Diffusion Plant	205,530	204,134	202,581	-2,949



	FY 2017 Enacted	FY 2018 Annualized CR*	FY 2019 Request	FY 2019 Request vs FY 2017 Enacted
<b>Portsmouth</b>				
Portsmouth Gaseous Diffusion Plant	274,000	272,139	306,931	+32,931
Construction				
15-U-408: On-Site Waste Disposal Facility, Portsmouth (PO-0040)	41,168	40,888	41,168	0
<b>Total, Portsmouth</b>	<b>315,168</b>	<b>313,027</b>	<b>348,099</b>	<b>+32,931</b>
<b>Pension and Community and Regulatory Support</b>				
Oak Ridge	18,772	18,645	17,258	-1,514
Paducah Gaseous Diffusion Plant	2,386	2,370	2,102	-284
Portsmouth Gaseous Diffusion Plant	1,795	1,783	1,670	-125
<b>Total, Pension and Community and Regulatory Support</b>	<b>22,953</b>	<b>22,798</b>	<b>21,030</b>	<b>-1,923</b>
<b>U/Th Reimbursements</b>				
Mission Support	30,000	29,796	30,000	0
<b>Total, Uranium Enrichment Decontamination and Decommissioning Fund</b>	<b>768,324</b>	<b>763,106</b>	<b>752,749</b>	<b>-15,575</b>
<b>Total, Environmental Management</b>	<b>6,983,324</b>	<b>6,935,905</b>	<b>6,601,366</b>	<b>-381,958</b>
Rescission of Prior Year Balances	-783	0	0	+783
Rescission of Prior Year Balances	-238	0	0	+238
D&D Fund Offset	-563,000	-559,177	0	+563,000
Use of Prior Year (D&D Fund)	-324	0	0	+324
Rescission of Prior Year Balances	-71	0	0	+71
<b>Total, Environmental Management</b>	<b>6,418,908</b>	<b>6,376,728</b>	<b>6,601,366</b>	<b>+182,458</b>
<b>Full Time Equivalents</b>	<b>1,359</b>	<b>1,400</b>	<b>1,400</b>	<b>+41</b>

\*A full-year 2018 appropriation for this account was not enacted at the time the budget was prepared; therefore, the budget assumes this account is operating under the Continuing Appropriations Act, 2018 (Division D of P.L. 115-56, as amended). The amounts included for 2018 reflect the annualized level provided by the continuing resolution. (These amounts are shown only at the Congressional control level and above; below that level, a dash (—) is shown).

SBIR/STTR:

- FY 2017 Transferred to the Office of Science: SBIR: \$897; STTR: \$127
- FY 2019 Request: SBIR \$896; STTR \$127

**Environmental Management  
Funding by Budget Chapters (\$K)**

	<b>FY 2017 Enacted</b>	<b>FY 2018 Annualized CR*</b>	<b>FY 2019 Request</b>	<b>FY 2019 Request vs FY 2017 Enacted</b>
Carlsbad	324,720	322,515	403,487	+78,767
Idaho	390,088	387,439	359,226	-30,862
Oak Ridge	498,164	494,782	408,526	-89,638
Paducah	272,310	270,461	270,224	-2,086
Portsmouth	381,971	379,377	415,458	+33,487
Richland	916,176	909,954	747,097	-169,079
River Protection	1,499,965	1,489,779	1,438,513	-61,452
Savannah River	1,369,429	1,360,130	1,656,180	+286,751
Lawrence Livermore National Laboratory	1,396	1,387	1,704	+308
Los Alamos National Laboratory	194,000	192,683	191,629	-2,371
Nevada	62,176	61,754	60,136	-2,040
Sandia Site Office	4,130	4,102	2,600	-1,530
Separations Process Research Unit	3,685	3,660	15,000	+11,315
West Valley Demonstration Project	69,628	69,155	63,687	-5,941
Brookhaven National Laboratory	0	0	2,000	+2,000
Energy Technology Engineering Center	10,459	10,388	8,038	-2,421
Moab	37,884	37,627	34,993	-2,891
Other Sites				
Closure Sites Administration	9,389	9,325	4,889	-4,500
Southwest Experimental Fast Oxide Reactor (SEFOR)	5,500	5,463	0	-5,500
Lawrence Berkeley National Laboratory	9,200	9,138	0	-9,200
<b>Subtotal, Other Sites</b>	<b>24,089</b>	<b>23,926</b>	<b>4,889</b>	<b>-19,200</b>
Program Direction	290,050	288,080	300,000	+9,950
D&D Fund Deposit	563,000	559,177	0	-563,000
Mission Support	70,004	69,529	67,979	-2,025
Excess Facilities	0	0	150,000	+150,000

	<b>FY 2017 Enacted</b>	<b>FY 2018 Annualized CR*</b>	<b>FY 2019 Request</b>	<b>FY 2019 Request vs FY 2017 Enacted</b>
<b>Subtotal, Environmental Management</b>	<b>6,983,324</b>	<b>6,935,905</b>	<b>6,601,366</b>	<b>-381,958</b>
Rescission of Prior Year Balances	-783	0	0	+783
Rescission of Prior Year Balances	-238	0	0	+238
D&D Fund Offset	-563,000	-559,177	0	+563,000
Use of Prior Year (D&D Fund)	-324	0	0	+324
Rescission of Prior Year Balances	-71	0	0	+71
<b>Total, Environmental Management</b>	<b>6,418,908</b>	<b>6,376,728</b>	<b>6,601,366</b>	<b>+182,458</b>

\*A full-year 2018 appropriation for this account was not enacted at the time the budget was prepared; therefore, the budget assumes this account is operating under the Continuing Appropriations Act, 2018 (Division D of P.L. 115-56, as amended). The amounts included for 2018 reflect the annualized level provided by the continuing resolution. (These amounts are shown only at the Congressional control level and above; below that level, a dash (—) is shown).

**Environmental Management  
Capital Summary (\$K)**

Pursuant to Section 3121 of the Ike Skelton National Defense Authorization Act for FY 2011 (P.L. 111-383), notification is being provided for general plant projects with a total estimated cost of more than \$5 million planned for execution in FY 2019.

<b>Total</b>	<b>Prior Years</b>	<b>FY 2017 Enacted</b>	<b>FY 2019 Request</b>	<b>FY 2019 Request vs FY 2017 Enacted</b>
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**Capital Operating Expenses Summary (including (Major Items of Equipment (MIE))**

Capital Equipment > \$500K (including MIE)					
Plant Projects (GPP and IGPP) (<\$10M)	94,866	4,600	19,487	67,571	+48,084
<b>Total, Capital Operating Expenses</b>	<b>94,866</b>	<b>4,600</b>	<b>19,487</b>	<b>67,571</b>	<b>+48,084</b>

<b>Capital Equipment &gt; \$500K (including MIE)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
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<b>Total, Capital Equipment (including MIE)</b>	<b>94,866</b>	<b>4,600</b>	<b>19,487</b>	<b>67,571</b>	<b>+48,084</b>
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**Plant Projects (GPP and IGPP) (Total Estimated Cost (TEC) <\$10M)**

**Carlsbad**

IT Refurbishment/Revitalization	4,427	0	4,427	0	-4,427
Electrical Distribution Single Point of Failure/ Revitalization	3,250	0	3,250	0	-3,250
Plant Air Recapitalization	637	0	637	0	-637
Electrical Substation Replacement	1,200	0	0	1,200	+1,200
Lightning Array Design Upgrade and New Construction	1,000	0	0	1,000	+1,000
Design of Safety Significant Fire Suppression System (Waste Handling Building 411)	500	0	0	500	+500
Safety Significant Fire Suppression System (Waste Handling Building 411 Fire System)	4,000	0	0	4,000	+4,000

	<b>Total</b>	<b>Prior Years</b>	<b>FY 2017 Enacted</b>	<b>FY 2019 Request</b>	<b>FY 2019 Request vs FY 2017 Enacted</b>
Fire Water Loop Phase 3 (Spurs to facilities)	4,479	0	0	4,479	+4,479
Fire Water Loop Phase 4 (Alarms)	3,102	0	0	3,102	+3,102
Salt Hoist Repairs	9,700	0	0	9,700	+9,700
Salt Shaft Loading Pocket Salt Removal and Steel Replacement	2,036	0	0	2,036	+2,036
Continuous Miner	3,600	0	0	3,600	+3,600
<b>Total, Carlsbad</b>	<b>37,931</b>	<b>0</b>	<b>8,314</b>	<b>29,617</b>	<b>+21,303</b>
 <b><u>Oak Ridge</u></b>					
Viewing Tower/Equipment Building	850	1,729	850	0	-850
History Center	1,500	1,495	1,500	0	-1,500
Interpretational Displays	400	1,376	400	0	-400
Building 2026 U-233 Processing	5,128	0	1,285	0	-1,285
Building 2026 Security Project	2,000	0	0	2,000	+2,000
<b>Total, Oak Ridge</b>	<b>9,878</b>	<b>4,600</b>	<b>4,035</b>	<b>2,000</b>	<b>-2,035</b>
 <b><u>Richland</u></b>					
Cesium and Strontium Capsule Project <sup>a</sup>	386	0	0	386	+386
L-781, 181D Vertical Turbine Pumps, Header, Instrumentation, Commission	663	0	0	663	+663
L-826, 181B Vertical Turbine Pumps, Header, Instrumentation, Commission	628	0	0	628	+628
L-849, Replace 200E 1.1M Gallon PW Tank <sup>a</sup>	0	0	0	0	0
L-850, Replace 200W 1.1M Gallon PW Tank <sup>a</sup>	5,150	0	0	5,150	+5,150
L-853, 200E Sewer Flow Equalization (DFLAW High Priority) <sup>a</sup>	0	0	0	0	0
L-854, 200E Sewer Consolidations (DFLAW High Priority) <sup>a</sup>	0	0	0	0	0
L-888, 400 Area Fire Station <sup>a</sup>	1,469	0	0	1,469	+1,469
L-894, Raw Water Cross Connection Isolation 200E/W <sup>a</sup>	0	0	0	0	0

	<b>Total</b>	<b>Prior Years</b>	<b>FY 2017 Enacted</b>	<b>FY 2019 Request</b>	<b>FY 2019 Request vs FY 2017 Enacted</b>
L-895, Fire Protection Infrastructure for Plateau Raw Water <sup>a</sup>	0	0	0	0	0
L-897, 200 Area Water Treatment Plant <sup>a</sup>	6,294	0	0	6,294	+6,294
L-898, Area Mission Critical Distribution Feeders Replacement	582	0	0	582	+582
<b>Total, Richland</b>	<b>15,172</b>	<b>0</b>	<b>0</b>	<b>15,172</b>	<b>+15,172</b>

<sup>a</sup>These capital investments represent expenditures that may be accelerated to FY 2018 based on emerging or identified risks.

### River Protection

222-SL, 222SA Facility Replacement	3,337	0	0	3,337	+3,337
Install Exhausters in SY Farm	0	0	0	0	0
Design and Construct 222-S Archive Storage Facility	5,406	0	2,100	3,306	+1,206
Design and Construct 222-S Ancillary Equipment Addition	5,847	0	1,073	4,774	+3,701
Interim Barrier Installation (SX North)	5,400	0	0	5,400	+5,400
<b>Total, River Protection</b>	<b>19,990</b>	<b>0</b>	<b>3,173</b>	<b>16,817</b>	<b>+13,644</b>

### Savannah River

SRNL IGPPs <sup>a</sup>	7,930	0	3,965	0	-3,965
Relocate Glass Apparatus Fabrication Laboratory to C-Wing, 735-A	975	0	0	975	+975
Renovate Laboratory C-159/163, 773-A	1,250	0	0	1,250	+1,250
Renovate Laboratory C-130, 773-A	950	0	0	950	+950
Upgrade SRNL Limited Area Public Address System	365	0	0	365	+365
Renovate Laboratory C-155 Hood and Gloveboxes, 773-A	425	0	0	425	+425
<b>Total, Savannah River</b>	<b>11,895</b>	<b>0</b>	<b>3,965</b>	<b>3,965</b>	<b>0</b>

<sup>a</sup>Projects and allocation of the \$3,965,000 request are preliminary. Final FY 2019 projects will reflect emerging or identified risks.

<b>Total, Plant Projects (GPP and IGPP) (Total Estimated (TEC) &lt;\$10M)</b>	<b>94,866</b>	<b>4,600</b>	<b>19,487</b>	<b>67,571</b>	<b>+48,084</b>
<b>Total, Capital Summary</b>	<b>94,866</b>	<b>4,600</b>	<b>19,487</b>	<b>67,571</b>	<b>+48,084</b>

**Environmental Management  
Construction Summary (\$K)**

Total	Prior Years	FY 2017 Enacted	FY 2019 Request	FY 2019 Request vs FY 2017 Enacted
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**01-D-416, Waste Treatment and Immobilization Plant, Hanford WA**

*01-D-16A-D WTP Subprojects A-D*

Total Estimate Cost (TEC)	TBD	6,969,563	593,000	675,000	+82,000
Other Project Costs (OPC)	0	0	0	0	0

*01-D-16E Pretreatment Facility*

Total Estimate Cost (TEC)	TBD	3,585,050	97,000	15,000	-82,000
Other Project Costs (OPC)	0	0	0	0	0

<b>Total Estimate Cost (TEC)</b>	<b>TBD</b>	<b>10,554,613</b>	<b>690,000</b>	<b>690,000</b>	<b>0</b>
<b>Other Project Costs (OPC)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

<b>Total Project Cost (TPC) 01-D-416</b>	<b>TBD</b>	<b>10,554,613</b>	<b>690,000</b>	<b>690,000</b>	<b>0</b>
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**05-D-405, Salt Waste Processing Facility, Aiken, SC**

Total Estimate Cost (TEC)	1,611,117	1,598,117	13,000	0	-13,000
Other Project Costs (OPC)	710,883	189,988	147,000	65,000	-82,000

<b>Total Project Cost (TPC) 05-D-405</b>	<b>2,322,000</b>	<b>1,788,105</b>	<b>160,000</b>	<b>65,000</b>	<b>-95,000</b>
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**14-D-403, Outfall 200 Mercury Treatment Facility, OR (OR-0041)**

Total Estimate Cost (TEC)	TBD	23,408	3,869	11,274	+7,405
Other Project Costs (OPC)	TBD	11,894	1,231	0	-1,231

<b>Total Project Cost (TPC) 15-D-403</b>	<b>TBD</b>	<b>35,302</b>	<b>5,100</b>	<b>11,274</b>	<b>+6,174</b>
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Total	Prior Years	FY 2017 Enacted	FY 2019 Request	FY 2019 Request vs FY 2017 Enacted
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**15-U-408, On Site Waste Disposal Facility (PO-0040)**

Total Estimate Cost (TEC)	TBD	26,249	39,196	39,668	+472
Other Project Costs (OPC)	TBD	2,705	1,972	1,500	-472
<b>Total Project Cost (TPC) 15-U-408</b>	<b>TBD</b>	<b>28,954</b>	<b>41,168</b>	<b>41,168</b>	<b>0</b>

**15-D-409, Low Activity Waste Pretreatment System (Hanford) (ORP-0014)**

Total Estimate Cost (TEC)	TBD	98,000	73,000	56,053	-16,947
Other Project Costs (OPC)	TBD	10,057	200	0	-200
<b>Total Project Cost (TPC) 15-D-409</b>	<b>TBD</b>	<b>108,057</b>	<b>73,200</b>	<b>56,053</b>	<b>-17,147</b>

**15-D-411, Safety Significant Confinement Ventilation System (WIPP) (CB-0080)**

Total Estimate Cost (TEC)	TBD	35,218	2,532	84,212	+81,680
Other Project Costs (OPC)	TBD	5,000	2,000	5,000	+3,000
<b>Total Project Cost (TPC) 15-D-411</b>	<b>TBD</b>	<b>40,218</b>	<b>4,532</b>	<b>89,212</b>	<b>+84,680</b>

**15-D-412, Utility Shaft, formerly Exhaust Shaft (WIPP) (CB-0080)**

Total Estimate Cost (TEC)	TBD	11,500	30,000	1,000	-29,000
Other Project Costs (OPC)	TBD	2,000	1,500	638	-862
<b>Total Project Cost (TPC) 15-D-412</b>	<b>TBD</b>	<b>13,500</b>	<b>31,500</b>	<b>1,638</b>	<b>-29,862</b>



Total	Prior Years	FY 2017 Enacted	FY 2019 Request	FY 2019 Request vs FY 2017 Enacted
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**On Site Disposal Facility (OR-0041)**

Total Estimate Cost (TEC)	TBD	0	0	0	0
Other Project Costs (OPC)	TBD	8,214	0	0	0
<b>Subtotal, On Site Disposal Facility (OR-0041)</b>	<b>TBD</b>	<b>8,214</b>	<b>0</b>	<b>0</b>	<b>0</b>

**17-D-401, On Site Disposal Facility (OR-0041)**

Total Estimate Cost (TEC)	TBD	0	6,000	4,690	-1,310
Other Project Costs (OPC)	TBD	7,050	5,000	310	-4,690
<b>17-D-401, Environmental Management Disposal Facility (OR-0041)</b>	<b>TBD</b>	<b>7,050</b>	<b>11,000</b>	<b>5,000</b>	<b>-6,000</b>
<b>Total Project Cost (TPC) 17-D-401</b>	<b>TBD</b>	<b>15,264</b>	<b>11,000</b>	<b>5,000</b>	<b>-6,000</b>

**17-D-402, Saltstone Disposal Unit #7, SR (SR-0014C)**

Total Estimate Cost (TEC)	TBD	0	5,500	41,243	+35,743
Other Project Costs (OPC)	TBD	1,201	1,618	2,782	-1,164
<b>Total Project Cost (TPC) 17-D-401</b>	<b>TBD</b>	<b>1,201</b>	<b>7,118</b>	<b>44,025</b>	<b>+34,579</b>

**18-D-401, Saltstone Disposal Unit #8 and #9, SR (SR-0014C)**

Total Estimate Cost (TEC)	TBD	0	0	37,450	+37,450
Other Project Costs (OPC)	TBD	0	0	7,000	+7,000
<b>Total Project Cost (TPC) 18-D-401</b>	<b>TBD</b>	<b>0</b>	<b>0</b>	<b>44,450</b>	<b>+44,450</b>

**18-D-402, Emergency Operations Center Replacement, SR (SR-0042)**

Total Estimate Cost (TEC)	TBD	0	0	1,259	+1,259
Other Project Costs (OPC)	TBD	0	0	3,500	+3,500
<b>Total Project Cost (TPC) 18-D-402</b>	<b>TBD</b>	<b>500</b>	<b>1,000</b>	<b>4,759</b>	<b>+4,759</b>

Total	Prior Years	FY 2017 Enacted	FY 2019 Request	FY 2019 Request vs FY 2017 Enacted
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**18-D-404, Modifications of Waste Encapsulation and Storage Facility (RL-0013C)**

Total Estimate Cost (TEC)	TBD	0	0	1,000	+1,000
Other Project Costs (OPC)	TBD	0	0	0	0
<b>Total Project Cost (TPC) 18-D-404</b>	<b>TBD</b>	<b>0</b>	<b>0</b>	<b>1,000</b>	<b>+1,000</b>

**Total All Construction Projects**

Total Estimate Cost (TEC)	TBD	12,347,605	864,097	967,849	+103,752
Other Project Costs (OPC)	TBD	238,109	160,521	85,730	-74,791
<b>Total Project Cost (TPC) All Construction Projects</b>	<b>TBD</b>	<b>12,585,714</b>	<b>1,024,618</b>	<b>1,053,579</b>	<b>+28,961</b>

**Environmental Management  
Appropriation/Fund Type/Site (\$K)**

	<b>FY 2017 Enacted</b>	<b>FY 2018 Annualized CR*</b>	<b>FY 2019 Request</b>	<b>FY 2019 Request vs FY 2017 Enacted</b>
<b>Defense Environmental Cleanup</b>				
<b>Operating</b>				
<b>Carlsbad</b>				
CB-0101	26,800	26,618	0	-26,800
CB-0020	5,200	5,165	6,580	+1,380
CB-0090	19,868	19,733	25,500	+5,632
CB-0081	19,534	19,401	19,500	-34
CB-0080	220,786	219,287	220,000	-786
CB-0083	0	0	46,695	+46,695
<b>Subtotal, Carlsbad</b>	<b>292,188</b>	<b>290,204</b>	<b>318,275</b>	<b>+26,087</b>
<b>Excess Facilities</b>				
EM-EF-0040	0	0	150,000	+150,000
<b>Idaho</b>				
ID-0100	3,000	2,980	3,200	+200
ID-0013	205,502	204,106	148,387	-57,115
ID-0014B	100,286	99,605	137,739	+37,453
ID-0030B	55,300	54,924	42,900	-12,400
ID-0012B-D	18,000	17,878	17,000	-1,000
<b>Subtotal, Idaho</b>	<b>382,088</b>	<b>379,493</b>	<b>349,226</b>	<b>-32,862</b>
<b>Lawrence Livermore National Laboratory</b>				
VL-LLNL-0031	1,147	1,140	1,175	+28
VL-FOO-0013B-D	249	247	529	+280
<b>Subtotal, Lawrence Livermore National Laboratory</b>	<b>1,396</b>	<b>1,387</b>	<b>1,704</b>	<b>+308</b>
<b>Los Alamos National Laboratory</b>				
VL-FAO-0101	3,394	3,371	3,394	0
VL-LANL-0030	93,366	92,732	122,050	+28,684
VL-LANL-0013	97,240	96,580	66,185	-31,055
<b>Subtotal, Los Alamos National Laboratory</b>	<b>194,000</b>	<b>192,683</b>	<b>191,629</b>	<b>-2,371</b>

	<b>FY 2017 Enacted</b>	<b>FY 2018 Annualized CR*</b>	<b>FY 2019 Request</b>	<b>FY 2019 Request vs FY 2017 Enacted</b>
<b>Mission Support</b>				
HQ-MS-0100	6,979	6,932	6,979	0
HQ-TD-0100	25,025	24,855	25,000	-25
EM-HBCU-0100	8,000	7,946	6,000	-2,000
<b>Subtotal, Mission Support</b>	<b>40,004</b>	<b>39,733</b>	<b>37,979</b>	<b>-2,025</b>
<b>Nevada</b>				
VL-NV-0100	5,049	5,015	4,740	-309
VL-NV-0030	42,187	41,900	32,998	-9,189
VL-NV-0080	14,940	14,839	22,398	+7,458
<b>Subtotal, Nevada</b>	<b>62,176</b>	<b>61,754</b>	<b>60,136</b>	<b>-2,040</b>
<b>Oak Ridge</b>				
OR-0100	5,500	5,463	4,711	-789
OR-TD-0100	3,000	2,980	3,000	0
OR-0013B	68,457	67,992	67,000	-1,457
OR-0041	61,751	61,332	30,214	-31,537
OR-0042	70,100	69,624	60,007	-10,093
OR-0020	15,500	15,395	14,023	-1,477
OR-0011D	43,311	43,017	45,000	+1,689
<b>Subtotal, Oak Ridge</b>	<b>267,619</b>	<b>265,803</b>	<b>223,955</b>	<b>-43,664</b>
<b>Other Sites</b>				
CBC-0100-FN	1,000	993	1,100	+100
CBC-0100-RF	8,389	8,332	2,000	-6,389
CBC-0100-EM	0	0	1,789	+1,789
<b>Subtotal, Other Sites</b>	<b>9,389</b>	<b>9,325</b>	<b>4,889</b>	<b>-4,500</b>
<b>Paducah</b>				
PA-0020	14,049	13,954	15,577	+1,528
<b>Portsmouth</b>				
PO-0020	14,049	13,954	15,078	+1,029

	<b>FY 2017 Enacted</b>	<b>FY 2018 Annualized CR*</b>	<b>FY 2019 Request</b>	<b>FY 2019 Request vs FY 2017 Enacted</b>
<b>Program Direction</b>				
HQ-PD-0100	275,789	273,819	289,452	+13,663
HQ-PDWCF-0100	14,261	14,261	10,548	-3,713
<b>Subtotal, Program Direction</b>	<b>290,050</b>	<b>288,080</b>	<b>300,000</b>	<b>+9,950</b>
<b>Richland</b>				
RL-0100	24,701	24,533	5,121	-19,580
RL-0013C	91,820	91,196	151,000	+59,180
RL-0030	127,476	126,610	131,000	+3,524
RL-0011	143,404	142,430	0	-143,404
RL-0041	112,355	111,592	65,817	-46,538
RL-0040	31,400	31,187	23,760	-7,640
RL-0012	24,645	24,478	8,000	-16,645
RL-0020	74,176	73,672	86,686	+12,510
RL-0201	272,473	270,623	272,473	0
<b>Subtotal, Richland</b>	<b>902,450</b>	<b>896,321</b>	<b>743,857</b>	<b>-158,593</b>
<b>River Protection</b>				
ORP-0014	733,965	728,981	677,460	-56,505
ORP-0070	3,000	2,980	15,000	+12,000
<b>Subtotal, River Protection</b>	<b>736,965</b>	<b>731,961</b>	<b>692,460</b>	<b>-44,505</b>
<b>Sandia Site Office</b>				
VL-SN-0030	4,130	4,102	2,600	-1,530
<b>Savannah River</b>				
SR-0100	11,249	11,173	4,749	-6,500
SR-0013	59,085	58,684	42,145	-16,940
SR-0011C	278,444	276,553	351,331	+72,887
SR-0014C	600,123	596,048	805,686	+205,563
SR-0012	41,407	41,126	0	-41,407
SR-0030	70,044	69,568	83,110	+13,066
SR-0020	136,000	135,076	183,357	+47,357
SR-0041	0	0	25,815	+25,815
SR-0042	0	0	15,035	+15,035
<b>Subtotal, Savannah River</b>	<b>1,196,352</b>	<b>1,188,228</b>	<b>1,511,228</b>	<b>+314,876</b>

	<b>FY 2017 Enacted</b>	<b>FY 2018 Annualized CR*</b>	<b>FY 2019 Request</b>	<b>FY 2019 Request vs FY 2017 Enacted</b>
<b>Separations Process Research Unit</b>				
VL-SPRU-0040	3,685	3,660	15,000	+11,315
<b>West Valley Demonstration Project</b>				
OH-WV-0020	3,215	3,193	3,133	-82
<b>Subtotal, Operating</b>	<b>4,413,805</b>	<b>4,383,835</b>	<b>4,636,726</b>	<b>+222,921</b>
<b>Line Item Construction</b>				
<b>Carlsbad</b>				
CB-0080	32,532	32,311	85,212	+52,680
<b>Oak Ridge</b>				
OR-0041	11,100	11,024	16,274	+5,174
<b>Richland</b>				
RL-0013C	0	0	1,000	+1,000
RL-0012	11,486	11,408	0	-11,486
<b>Subtotal, Richland</b>	<b>11,486</b>	<b>11,408</b>	<b>1,000</b>	<b>-10,486</b>
<b>River Protection</b>				
ORP-0014	73,000	72,504	56,053	-16,947
ORP-0060	690,000	685,314	690,000	0
<b>Subtotal, River Protection</b>	<b>763,000</b>	<b>757,818</b>	<b>746,053</b>	<b>-16,947</b>
<b>Savannah River</b>				
SR-0014C	173,077	171,902	143,693	-29,384
SR-0042	0	0	1,259	+1,259
<b>Subtotal, Savannah River</b>	<b>173,077</b>	<b>171,902</b>	<b>144,952</b>	<b>-28,125</b>
<b>Subtotal, Line Item Construction</b>	<b>991,195</b>	<b>984,463</b>	<b>993,491</b>	<b>+2,296</b>
<b>Subtotal, Environmental Management</b>	<b>5,405,000</b>	<b>5,368,298</b>	<b>5,630,217</b>	<b>+225,217</b>

FY 2017 Enacted	FY 2018 Annualized CR*	FY 2019 Request	FY 2019 Request vs FY 2017 Enacted
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**Non-Defense Environmental Cleanup  
Operating**

**Brookhaven National Laboratory  
BRNL-0041**

0                      0                      2,000                      +2,000

**Energy Technology Engineering Center  
CBC-ETEC-0040**

10,459                      10,388                      8,038                      -2,421

**Idaho  
ID-0012B-N**

8,000                      7,946                      10,000                      +2,000

**Moab  
CBC-MOAB-0031**

37,884                      37,627                      34,993                      -2,891

**Oak Ridge  
OR-0104**

6,000                      5,959                      0                      -6,000

**Other Sites  
SEFOR  
CBC-LBNL-0040**

5,500                      5,463                      0                      -5,500  
9,200                      9,138                      0                      -9,200

**Subtotal, Other Sites**

**14,700                      14,601                      0                      -14,700**

**Paducah**

PA-0011  
PA-0011X

1,369                      1,360                      1,369                      0  
48,976                      48,643                      48,595                      -381

**Subtotal, Paducah**

**50,345                      50,003                      49,964                      -381**

**Portsmouth  
PO-0011X**

50,959                      50,613                      50,611                      -348

**Richland  
RL-0042**

2,240                      2,225                      2,240                      0

	<b>FY 2017 Enacted</b>	<b>FY 2018 Annualized CR*</b>	<b>FY 2019 Request</b>	<b>FY 2019 Request vs FY 2017 Enacted</b>
<b>West Valley Demonstration Project</b>				
OH-WV-0040	58,475	58,078	36,574	-21,901
OH-WV-0013	7,938	7,884	23,980	+16,042
<b>Subtotal, West Valley Demonstration Project</b>	<b>66,413</b>	<b>65,962</b>	<b>60,554</b>	<b>-5,859</b>
<b>Subtotal, Operating</b>	<b>247,000</b>	<b>245,324</b>	<b>218,400</b>	<b>-28,600</b>
<b>Uranium Enrichment Decontamination and Decommissioning Fund</b>				
<b>Operating</b>				
<b>Mission Support</b>				
HQ-UR-0100	30,000	29,796	30,000	0
<b>Oak Ridge</b>				
OR-0102	18,772	18,645	17,258	-1,514
OR-0040	194,673	193,351	151,039	-43,634
<b>Subtotal, Oak Ridge</b>	<b>213,445</b>	<b>211,996</b>	<b>168,297</b>	<b>-45,148</b>
<b>Paducah</b>				
PA-0103	1,725	1,713	2,102	+377
PA-0102	661	657	0	-661
PA-0040	205,530	204,134	202,581	-2,949
<b>Subtotal, Paducah</b>	<b>207,916</b>	<b>206,504</b>	<b>204,683</b>	<b>-3,233</b>
<b>Portsmouth</b>				
PO-0104	1,020	1,013	1,020	0
PO-0040	274,000	272,139	306,931	+32,931
PO-0103	775	770	650	-125
<b>Subtotal, Portsmouth</b>	<b>275,795</b>	<b>273,922</b>	<b>308,601</b>	<b>+32,806</b>
<b>Subtotal, Operating</b>	<b>727,156</b>	<b>722,218</b>	<b>711,581</b>	<b>-15,575</b>
<b>Line Item Construction</b>				
<b>Portsmouth</b>				
PO-0040	41,168	40,888	41,168	0
<b>Subtotal, Environmental Management</b>	<b>768,324</b>	<b>763,106</b>	<b>752,749</b>	<b>-15,575</b>



FY 2017 Enacted	FY 2018 Annualized CR*	FY 2019 Request	FY 2019 Request vs FY 2017 Enacted
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**Defense Uranium Enrichment Decontamination and Decommissioning  
Operating**

<b>D&amp;D Fund Deposit</b>				
HQ-DD-0100	563,000	559,177	0	-563,000
<b>Subtotal, Environmental Cleanup</b>	<b>6,983,324</b>	<b>6,935,905</b>	<b>6,601,366</b>	<b>-381,958</b>
Rescission of Prior Year Balances	-783	0	0	+783
Rescission of Prior Year Balances	-238	0	0	+238
D&D Fund Offset	-563,000	-559,177	0	+563,000
Use of Prior Year (D&D Fund)	-324	0	0	+324
Rescission of Prior Year Balances	-71	0	0	+71
<b>Total, Environmental Cleanup</b>	<b>6,418,908</b>	<b>6,376,728</b>	<b>6,601,366</b>	<b>+182,458</b>

\*A full-year 2018 appropriation for this account was not enacted at the time the budget was prepared; therefore, the budget assumes this account is operating under the Continuing Appropriations Act, 2018 (Division D of P.L. 115-56, as amended). The amounts included for 2018 reflect the annualized level provided by the continuing resolution. (These amounts are shown only at the Congressional control level and above; below that level, a dash (—) is shown).

Summary (\$K)

	FY 2017 Enacted	FY 2018 Annualized CR*	FY 2019 Request	FY 2019 Request vs FY 2017 Enacted
<b>Defense Environmental Cleanup</b>				
Operating	4,413,805	4,383,835	4,636,726	+222,921
Line Item Construction	991,195	984,463	993,491	+2,296
<b>Subtotal, Defense Environmental Cleanup</b>	<b>5,405,000</b>	<b>5,368,298</b>	<b>5,630,217</b>	<b>+225,217</b>
<b>Defense EM Funded UE D&amp;D Fund Contribution</b>				
Operating	0	0	0	0
Line Item Construction	0	0	0	0
<b>Non-Defense Environmental Cleanup</b>				
Operating	247,000	245,324	218,400	-28,600
Line Item Construction	0	0	0	0
<b>Subtotal, Non-Defense Environmental Cleanup</b>	<b>247,000</b>	<b>245,324</b>	<b>218,400</b>	<b>-28,600</b>
<b>Uranium Enrichment Decontamination and Decommissioning Fund</b>				
Operating	727,156	722,218	711,581	-15,575
Line Item Construction	41,168	40,888	41,168	0
<b>Subtotal, Uranium Enrichment Decontamination and Decommissioning Fund</b>	<b>768,324</b>	<b>763,106</b>	<b>752,749</b>	<b>-15,575</b>
<b>Decontamination and Decommissioning Fund Contribution</b>				
Operating	0	0	0	0
Line Item Construction	0	0	0	0
<b>Defense Uranium Enrichment Decontamination and Decommissioning</b>				
Operating	563,000	559,177	0	-563,000
Line Item Construction	0	0	0	0
<b>Subtotal, Defense Uranium Enrichment Decontamination and Decommissioning</b>	<b>563,000</b>	<b>559,177</b>	<b>0</b>	<b>-563,000</b>
<b>Subtotal, Environmental Cleanup</b>	<b>6,983,324</b>	<b>6,935,905</b>	<b>6,601,366</b>	<b>-381,958</b>
Offsets	-564,416	-559,177	0	+564,416
<b>Total, Environmental Cleanup</b>	<b>6,418,908</b>	<b>6,376,728</b>	<b>6,601,366</b>	<b>+182,458</b>

Summary (cont'd)

	FY 2017 Enacted	FY 2018 Annualized CR*	FY 2019 Request	FY 2019 Request vs FY 2017 Enacted
Total Operating	5,950,961	5,910,554	5,566,707	-384,254
Total Line Item Construction	1,032,363	1,025,351	1,034,659	+2,296
<b>Subtotal, Environmental Management</b>	<b>6,983,324</b>	<b>6,935,905</b>	<b>6,601,366</b>	<b>-381,958</b>
Offsets	-564,416	-559,177	0	+564,416
<b>Total, Environmental Management</b>	<b>6,418,908</b>	<b>6,376,728</b>	<b>6,601,366</b>	<b>+182,458</b>

\*A full-year 2018 appropriation for this account was not enacted at the time the budget was prepared; therefore, the budget assumes this account is operating under the Continuing Appropriations Act, 2018 (Division D of P.L. 115-56, as amended). The amounts included for 2018 reflect the annualized level provided by the continuing resolution. (These amounts are shown only at the Congressional control level and above; below that level, a dash (—) is shown).

### Environmental Management Federal Staffing

	FY 2017 Enacted	FY 2018 Annualized CR*	FY 2019 Request	FY 2019 Request vs FY 2017 Enacted
Carlsbad	62	69	69	+7
Idaho	42	43	43	+1
Oak Ridge	73	76	76	+3
Portsmouth/Paducah Project Office	55	60	60	+5
Richland	225	233	233	+8
River Protection	167	170	170	+3
Savannah River	260	265	265	+5
Small Sites	27	27	27	0
Nevada Site Office	14	16	16	+2
Los Alamos Site Office	22	29	29	+7
<b>Subtotal, Field, Full-Time Equivalents</b>	<b>947</b>	<b>988</b>	<b>988</b>	<b>+41</b>
Headquarters Operations	284	275	275	-9
Consolidated Business Center	128	137	137	+9
<b>Total, Field, Full-Time Equivalents</b>	<b>1,359</b>	<b>1,400</b>	<b>1,400</b>	<b>+41</b>

\*A full-year 2018 appropriation for this account was not enacted at the time the budget was prepared; therefore, the budget assumes this account is operating under the Continuing Appropriations Act, 2018 (Division D of P.L. 115-56, as amended). The amounts included for 2018 reflect the annualized level provided by the continuing resolution. (These amounts are shown only at the Congressional control level and above; below that level, a dash (—) is shown).

**Corporate Performance Measures – EM Totals**

	<b>Cumulative FY 2017 Actual</b>	<b>Cumulative FY 2018 Target</b>	<b>Cumulative FY 2019 Target</b>	<b>Life-cycle Estimate</b>
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Geographic Sites Eliminated (number of sites)	91	91	91	107
Plutonium Metal or Oxide packaged for long-term storage (Number of Containers)	5,089	5,089	5,089	5,089
Enriched Uranium packaged for disposition (Number of Containers)	8,016	8,016	8,016	8,603
Plutonium or Uranium Residues packaged for disposition (Kilograms of Bulk)	107,828	107,828	107,828	107,828
Depleted and Other Uranium packaged for disposition (Metric Tons)	88,306	113,306	140,126	837,616
Liquid Waste in Inventory eliminated (Thousands of Gallons)	7,414	7,867	8,811	102,045
Liquid Waste Tanks closed (Number of Tanks)	15	15	15	239
High-Level Waste packaged for final disposition (Number of Containers)	4,426	4,476	4,611	24,856
Spent Nuclear Fuel packaged for final disposition (Metric Tons of Heavy Metal)	2,131	2,132	2,133	2,452
Transuranic Waste Dispositioned (Cubic meters) - CH	103,700	107,088	126,802	143,141
Transuranic Waste Dispositioned (Cubic meters) - RH	368	368	1,305	6,885
Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	1,343,369	1,356,517	1,369,695	1,591,780
Material Access Areas eliminated (Number of Material Access Areas)	30	30	30	35
Nuclear Facility Completions (Number of Facilities)	152	157	165	487
Radioactive Facility Completions (Number of Facilities)	571	579	591	955
Industrial Facility Completions (Number of Facilities)	2,157	2,184	2,217	4,202
Remediation Complete (Number of Release Sites)	8,258	8,339	8,427	11,713

<sup>a</sup>Corporate Performance Measures – EM Totals

Cumulative FY 2017 Actual	Cumulative FY 2018 Target	Cumulative FY 2019 Target	Life-cycle Estimate
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<u>All Other Sites</u>				
California Site Support (Non-Defense)				
Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	272	272	272	272
Remediation Complete (Number of Release Sites)	3	3	3	3
Ames Laboratory				
Geographic Sites Eliminated (number of sites)	1	1	1	1
Argonne National Laboratory-East				
Geographic Sites Eliminated (number of sites)	1	1	1	1
Radioactive Facility Completions (Number of Facilities)	80	80	80	80
Remediation Complete (Number of Release Sites)	443	443	443	443
Transuranic Waste Dispositioned (Cubic meters) - CH	22	22	22	22
Transuranic Waste Dispositioned (Cubic meters) - RH	21	21	21	21
Brookhaven National Laboratory				
Geographic Sites Eliminated (number of sites)	0	0	0	1
Nuclear Facility Completions (Number of Facilities)	1	1	1	1
Radioactive Facility Completions (Number of Facilities)	13	13	13	13
Remediation Complete (Number of Release Sites)	77	77	77	77
Chicago Operations Office				
Geographic Sites Eliminated (number of sites)	3	3	3	3
Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	537	537	537	537
Remediation Complete (Number of Release Sites)	30	30	30	30

<sup>a</sup>Performance measures are currently being updated.

Cumulative FY 2017 Actual	Cumulative FY 2018 Target	Cumulative FY 2019 Target	Life-cycle Estimate
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Energy Technology Engineering Center				
Geographic Sites Eliminated (number of sites)	0	0	0	1
Industrial Facility Completions (Number of Facilities)	29	29	31	32
Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	1,895	1,895	1,895	1,895
Radioactive Facility Completions (Number of Facilities)	5	5	6	7
Remediation Complete (Number of Release Sites)	4	4	4	5
Fermi National Accelerator Laboratory				
Geographic Sites Eliminated (number of sites)	1	1	1	1
General Atomics				
Geographic Sites Eliminated (number of sites)	1	1	1	1
Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	1,716	1,716	1,716	1,716
Remediation Complete (Number of Release Sites)	2	2	2	2
Spent Nuclear Fuel packaged for final disposition (Metric Tons of Heavy Metal)	1	1	1	1
General Electric				
Geographic Sites Eliminated (number of sites)	1	1	1	1
Geothermal Test Facility				
Geographic Sites Eliminated (number of sites)	1	1	1	1
Grand Junction				
Geographic Sites Eliminated (number of sites)	2	2	2	2
Inhalation Toxicology Laboratory				
Geographic Sites Eliminated (number of sites)	1	1	1	1

Cumulative FY 2017 Actual	Cumulative FY 2018 Target	Cumulative FY 2019 Target	Life-cycle Estimate
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Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	359	359	359	359
Remediation Complete (Number of Release Sites)	9	9	9	9
Laboratory for Energy-Related Health Research				
Geographic Sites Eliminated (number of sites)	1	1	1	1
Industrial Facility Completions (Number of Facilities)	2	2	2	2
Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	944	944	944	944
Remediation Complete (Number of Release Sites)	16	16	16	16
Lawrence Berkeley National Laboratory				
Geographic Sites Eliminated (number of sites)	1	1	1	1
Remediation Complete (Number of Release Sites)	194	194	194	194
Moab				
Geographic Sites Eliminated (number of sites)	0	0	0	1
Offsites				
Geographic Sites Eliminated (number of sites)	2	2	2	2
Princeton Plasma Physics Laboratory				
Geographic Sites Eliminated (number of sites)	1	1	1	1
Stanford Linear Accelerator Center				
Geographic Sites Eliminated (number of sites)	1	1	1	1
Remediation Complete (Number of Release Sites)	57	57	57	57
<u>Oak Ridge</u>				
Oak Ridge				
Geographic Sites Eliminated (number of sites)	2	2	2	2



Cumulative FY 2017 Actual	Cumulative FY 2018 Target	Cumulative FY 2019 Target	Life-cycle Estimate
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Industrial Facility Completions (Number of Facilities)	426	436	460	715
Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	200,701	200,967	201,225	201,456
Nuclear Facility Completions (Number of Facilities)	11	11	11	26
Radioactive Facility Completions (Number of Facilities)	58	61	68	120
Remediation Complete (Number of Release Sites)	471	471	487	693
Transuranic Waste Dispositioned (Cubic meters) - CH	1,083	1,130	1,177	1,579
Transuranic Waste Dispositioned (Cubic meters) - RH	182	182	182	671
FUSRAP				
Geographic Sites Eliminated (number of sites)	25	25	25	25
Oak Ridge Reservation				
Geographic Sites Eliminated (number of sites)	0	0	0	1
Weldon Spring Site				
Geographic Sites Eliminated (number of sites)	1	1	1	1
<u>Headquarters</u>				
Headquarters				
Geographic Sites Eliminated (number of sites)	24	24	24	24
<u>NNSA Sites</u>				
Nevada Offsites				
Geographic Sites Eliminated (number of sites)	1	1	1	1
Nevada National Security Site				
Geographic Sites Eliminated (number of sites)	0	0	0	1
Industrial Facility Completions (Number of Facilities)	1	1	1	1
Radioactive Facility Completions (Number of Facilities)	10	10	10	11

Cumulative FY 2017 Actual	Cumulative FY 2018 Target	Cumulative FY 2019 Target	Life-cycle Estimate
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Remediation Complete (Number of Release Sites)	1,244	1,244	1,311	2,113
Transuranic Waste Dispositioned (Cubic meters) - CH	1,246	1,246	1,246	1,246
Kansas City Plant				
Geographic Sites Eliminated (number of sites)	1	1	1	1
Remediation Complete (Number of Release Sites)	43	43	43	43
Lawrence Livermore National Laboratory				
Geographic Sites Eliminated (number of sites)	1	1	1	2
Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	5,312	5,312	5,312	5,312
Remediation Complete (Number of Release Sites)	194	195	195	196
Transuranic Waste Dispositioned (Cubic meters) - CH	125	125	125	125
Los Alamos National Laboratory				
Geographic Sites Eliminated (number of sites)	0	0	0	1
New Mexico Site Support				
Geographic Sites Eliminated (number of sites)	5	5	5	5
Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	1,319	1,319	1,319	1,319
Remediation Complete (Number of Release Sites)	155	155	155	155
NNSA Service Center				
Geographic Sites Eliminated (number of sites)	1	1	1	2
Nuclear Facility Completions (Number of Facilities)	0	1	1	1
Remediation Complete (Number of Release Sites)	6	7	7	7
Pantex Plant				
Geographic Sites Eliminated (number of sites)	1	1	1	1
Industrial Facility Completions (Number of Facilities)	4	4	4	4
Remediation Complete (Number of Release Sites)	237	237	237	237

Cumulative FY 2017 Actual	Cumulative FY 2018 Target	Cumulative FY 2019 Target	Life-cycle Estimate
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Sandia National Laboratory				
Geographic Sites Eliminated (number of sites)	1	1	1	2
Radioactive Facility Completions (Number of Facilities)	1	1	1	1
Remediation Complete (Number of Release Sites)	265	265	265	265
<u>Idaho</u>				
Pinellas Plant - Idaho				
Geographic Sites Eliminated (number of sites)	1	1	1	1
Monticello Remedial Action Project - Idaho				
Geographic Sites Eliminated (number of sites)	1	1	1	1
Argonne National Laboratory - West				
Geographic Sites Eliminated (number of sites)	1	1	1	1
Remediation Complete (Number of Release Sites)	37	37	37	37
Idaho National Laboratory				
Geographic Sites Eliminated (number of sites)	0	0	0	1
Enriched Uranium packaged for disposition (Number of Containers)	1,586	1,586	1,586	1,586
High-Level Waste packaged for final disposition (Number of Containers)	0	0	0	6,660
Industrial Facility Completions (Number of Facilities)	177	182	182	307
Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	86,699	87,419	87,419	87,419
Liquid Waste in Inventory eliminated (Thousands of Gallons)	0	0	0	900
Liquid Waste Tanks closed (Number of Tanks)	7	7	7	11
Material Access Areas eliminated (Number of Material Access Areas)	1	1	1	1
Nuclear Facility Completions (Number of Facilities)	55	55	55	92
Radioactive Facility Completions (Number of Facilities)	67	67	67	85

Cumulative FY 2017 Actual	Cumulative FY 2018 Target	Cumulative FY 2019 Target	Life-cycle Estimate
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Remediation Complete (Number of Release Sites)	288	288	288	288
Spent Nuclear Fuel packaged for final disposition (Metric Tons of Heavy Metal)	0	0	0	285
Transuranic Waste Dispositioned (Cubic meters) - CH	62,105	65,445	66,055	72,052
Transuranic Waste Dispositioned (Cubic meters) - RH	122	122	122	225
Idaho Operations Office				
Remediation Complete (Number of Release Sites)	233	233	233	233
Maxey Flats				
Geographic Sites Eliminated (number of sites)	1	1	1	1
<u>Closure Sites</u>				
Ashtabula				
Geographic Sites Eliminated (number of sites)	1	1	1	1
Industrial Facility Completions (Number of Facilities)	7	7	7	7
Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	3,707	3,707	3,707	3,707
Radioactive Facility Completions (Number of Facilities)	28	28	28	28
Remediation Complete (Number of Release Sites)	3	3	3	3
Columbus				
Geographic Sites Eliminated (number of sites)	2	2	2	2
Nuclear Facility Completions (Number of Facilities)	1	1	1	1
Radioactive Facility Completions (Number of Facilities)	14	14	14	14
Remediation Complete (Number of Release Sites)	2	2	2	2
Fernald				
Geographic Sites Eliminated (number of sites)	1	1	1	1
Industrial Facility Completions (Number of Facilities)	1	1	1	1
Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	7,085	7,085	7,085	7,085

Cumulative FY 2017 Actual	Cumulative FY 2018 Target	Cumulative FY 2019 Target	Life-cycle Estimate
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Radioactive Facility Completions (Number of Facilities)	29	29	29	29
Remediation Complete (Number of Release Sites)	6	6	6	6
<b>Miamisburg</b>				
Geographic Sites Eliminated (number of sites)	1	1	1	1
Depleted and Other Uranium packaged for disposition (Metric Tons)	0	0	0	0
Industrial Facility Completions (Number of Facilities)	116	116	116	116
Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	3,947	3,947	3,947	3,947
Nuclear Facility Completions (Number of Facilities)	8	8	8	8
Radioactive Facility Completions (Number of Facilities)	11	11	11	11
Remediation Complete (Number of Release Sites)	178	178	178	178
<b>Rocky Flats Environmental Technology Site</b>				
Geographic Sites Eliminated (number of sites)	1	1	1	1
Industrial Facility Completions (Number of Facilities)	317	317	317	317
Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	602,188	602,188	602,188	602,188
Material Access Areas eliminated (Number of Material Access Areas)	7	7	7	7
Nuclear Facility Completions (Number of Facilities)	6	6	6	6
Plutonium Metal or Oxide packaged for long-term storage (Number of Containers)	1,895	1,895	1,895	1,895
Plutonium or Uranium Residues packaged for disposition (Kilograms of Bulk)	103,901	103,901	103,901	103,901
Radioactive Facility Completions (Number of Facilities)	54	54	54	54
Remediation Complete (Number of Release Sites)	360	360	360	360
Transuranic Waste Dispositioned (Cubic meters) - CH	15,036	15,036	15,036	15,036
<b>West Valley Demonstration Project</b>				
West Valley Demonstration Project				
Geographic Sites Eliminated (number of sites)	0	0	0	1
High-Level Waste packaged for final disposition (Number of Containers)	275	275	275	275

	Cumulative FY 2017 Actual	Cumulative FY 2018 Target	Cumulative FY 2019 Target	Life-cycle Estimate
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Industrial Facility Completions (Number of Facilities)	17	18	25	43
Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	33,034	34,017	35,320	35,320
Liquid Waste in Inventory eliminated (Thousands of Gallons)	814	814	814	814
Nuclear Facility Completions (Number of Facilities)	3	4	12	24
Radioactive Facility Completions (Number of Facilities)	6	6	10	24
Transuranic Waste Dispositioned (Cubic meters) - CH	0	0	0	596
Transuranic Waste Dispositioned (Cubic meters) - RH	0	0	0	1,125
<u>Portsmouth</u>				
Portsmouth Gaseous Diffusion Plant				
Geographic Sites Eliminated (number of sites)	0	0	0	1
Depleted and Other Uranium packaged for disposition (Metric Tons)	23,126	33,840	45,412	248,216
Industrial Facility Completions (Number of Facilities)	42	42	42	257
Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	78,298	78,308	78,318	78,344
Nuclear Facility Completions (Number of Facilities)	0	0	0	12
Radioactive Facility Completions (Number of Facilities)	8	8	8	11
Remediation Complete (Number of Release Sites)	150	150	150	150
<u>Paducah</u>				
Paducah Gaseous Diffusion Plant				
Geographic Sites Eliminated (number of sites)	0	0	0	1
Depleted and Other Uranium packaged for disposition (Metric Tons)	38,899	53,185	68,433	563,119
Enriched Uranium packaged for disposition (Number of Containers)	0	0	0	182
Industrial Facility Completions (Number of Facilities)	29	29	29	30
Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	23,000	23,000	23,000	23,000
Nuclear Facility Completions (Number of Facilities)	5	5	5	5
Radioactive Facility Completions (Number of Facilities)	9	9	9	11
Remediation Complete (Number of Release Sites)	132	132	134	232

Cumulative FY 2017 Actual	Cumulative FY 2018 Target	Cumulative FY 2019 Target	Life-cycle Estimate
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<u>Carlsbad</u>				
Waste Isolation Pilot Plant				
Geographic Sites Eliminated (number of sites)	0	0	0	1
<u>Richland</u>				
Hanford Site				
Geographic Sites Eliminated (number of sites)	0	0	0	1
Depleted and Other Uranium packaged for disposition (Metric Tons)	3,100	3,100	3,100	3,100
Enriched Uranium packaged for disposition (Number of Containers)	2,958	2,958	2,958	2,958
Industrial Facility Completions (Number of Facilities)	723	734	734	1,366
Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	52,336	52,336	52,336	52,336
Material Access Areas eliminated (Number of Material Access Areas)	20	20	20	24
Nuclear Facility Completions (Number of Facilities)	50	53	53	89
Plutonium Metal or Oxide packaged for long-term storage (Number of Containers)	2,275	2,275	2,275	2,275
Plutonium or Uranium Residues packaged for disposition (Kilograms of Bulk)	3,437	3,437	3,437	3,437
Radioactive Facility Completions (Number of Facilities)	138	143	143	269
Remediation Complete (Number of Release Sites)	1,341	1,353	1,354	2,199
Spent Nuclear Fuel packaged for final disposition (Metric Tons of Heavy Metal)	2,124	2,124	2,124	2,124
Transuranic Waste Dispositioned (Cubic meters) - CH	5,763	5,763	24,580	24,580
Transuranic Waste Dispositioned (Cubic meters) - RH	0	0	858	858
<u>Savannah River</u>				
Savannah River Site				
Depleted and Other Uranium packaged for disposition (Metric Tons)	23,181	23,181	23,181	23,181
Enriched Uranium packaged for disposition (Number of Containers)	3,472	3,472	3,472	3,877
High-Level Waste packaged for final disposition	4,151	4,201	4,336	8,254

	Cumulative FY 2017 Actual	Cumulative FY 2018 Target	Cumulative FY 2019 Target	Life-cycle Estimate
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(Number of Containers)				
Industrial Facility Completions (Number of Facilities)	260	260	260	870
Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	170,153	176,953	183,753	263,484
Liquid Waste in Inventory eliminated (Thousands of Gallons)	6,600	7,053	7,997	44,331
Liquid Waste Tanks closed (Number of Tanks)	8	8	8	51
Material Access Areas eliminated (Number of Material Access Areas)	2	2	2	3
Nuclear Facility Completions (Number of Facilities)	11	11	11	203
Plutonium Metal or Oxide packaged for long-term storage (Number of Containers)	919	919	919	919
Plutonium or Uranium Residues packaged for disposition (Kilograms of Bulk)	490	490	490	490
Radioactive Facility Completions (Number of Facilities)	21	21	21	54
Remediation Complete (Number of Release Sites)	408	408	410	515
Spent Nuclear Fuel packaged for final disposition (Metric Tons of Heavy Metal)	6	7	9	42
Transuranic Waste Dispositioned (Cubic meters) - CH	11,189	11,189	11,429	15,639
Transuranic Waste Dispositioned (Cubic meters) - RH	26	26	105	105
<u>Los Alamos National Laboratory</u>				
Los Alamos National Laboratory				
Industrial Facility Completions (Number of Facilities)	6	6	6	6
Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	12,250	12,250	12,250	13,971
Nuclear Facility Completions (Number of Facilities)	1	1	1	1
Radioactive Facility Completions (Number of Facilities)	19	19	19	19
Remediation Complete (Number of Release Sites)	1,665	1,732	1,732	2,687
Transuranic Waste Dispositioned (Cubic meters) - CH	7,131	7,131	7,131	10,711
Transuranic Waste Dispositioned (Cubic meters) - RH	16	16	16	16
<u>River Protection</u>				
River Protection				
High-Level Waste packaged for final disposition (Number of Containers)	0	0	0	9,667
Industrial Facility Completions (Number of Facilities)	0	0	0	128



Cumulative FY 2017 Actual	Cumulative FY 2018 Target	Cumulative FY 2019 Target	Life-cycle Estimate
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Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	57,618	61,987	66,793	205,784
Liquid Waste in Inventory eliminated (Thousands of Gallons)	0	0	0	56,000
Liquid Waste Tanks closed (Number of Tanks)	0	0	0	177
Nuclear Facility Completions (Number of Facilities)	0	0	0	18
Radioactive Facility Completions (Number of Facilities)	0	0	0	114
Remediation Complete (Number of Release Sites)	5	5	5	278
Transuranic Waste Dispositioned (Cubic meters) - CH	0	0	0	1,555
Transuranic Waste Dispositioned (Cubic meters) - RH	0	0	0	3,864

**Corporate Performance Measure Quantities by Project Baseline Summary<sup>abc</sup>**

Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2017	Targeted Completion Through 2018	Targeted Completion Through 2019	Balance Remaining	Life-Cycle Estimate
<b>All Other Sites</b>							
Argonne National Laboratory-East	CH-ANLE-0040.NEW	Transuranic Waste Dispositioned (Cubic meters) - CH	22	22	22	0	22
		Transuranic Waste Dispositioned (Cubic meters) - RH	21	21	21	0	21
		Radioactive Facility Completions (Number of Facilities)	2	2	2	0	2
Brookhaven National Laboratory	BRNL-0041.NEW	Radioactive Facility Completions (Number of Facilities)	1	1	1	0	1
		Radioactive Facility Completions (Number of Facilities)	3	3	3	0	3
Brookhaven National Laboratory	BRNL-0030	Remediation Complete (Number of Release Sites)	75	75	75	0	75

<sup>a</sup>Life-cycle estimates for release sites, facilities, and high-level waste canisters include pre-1997 actuals. Quantities for all other measures except low-level and mixed low-level waste disposal begin in 1997. Low-level and mixed low-level waste disposal begins in 1998.

<sup>b</sup>This chart provides a consistent set of performance measures for the EM program by PBS. The project-level justification provides a description of significant activities for each project including performance measures and project-specific budget milestones, as applicable.

<sup>c</sup>Annual results and targets, as well as life-cycle numbers, are under configuration control. In enforcing the Deputy Secretary's added emphasis on project management principles, EM's Configuration Control Board maintains strict configuration control of these numbers to ensure performance and accountability is firmly established and reported.

Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2017	Targeted Completion Through 2018	Targeted Completion Through 2019	Balance Remaining	Life-Cycle Estimate
Brookhaven National Laboratory	BRNL-0040	Nuclear Facility Completions (Number of Facilities)	1	1	1	0	1
		Radioactive Facility Completions (Number of Facilities)	7	7	7	0	7
		Remediation Complete (Number of Release Sites)	1	1	1	0	1
Brookhaven National Laboratory	BRNL-0041	Radioactive Facility Completions (Number of Facilities)	2	2	2	0	2
		Remediation Complete (Number of Release Sites)	1	1	1	0	1
California Site Support (Non-Defense)	CBC-CA-0013B-N	Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	83	83	83	0	83
		Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	1,075	1,075	1,075	0	1,075
Energy Technology Engineering Center	CBC-ETEC-0040	Radioactive Facility Completions (Number of Facilities)	4	4	5	+1	6
		Industrial Facility Completions (Number of Facilities)	24	24	26	+1	27
		Remediation Complete (Number of Release Sites)	4	4	4	+1	5
Inhalation Toxicology Laboratory	CBC-ITL-0030						

Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2017	Targeted Completion Through 2018	Targeted Completion Through 2019	Balance Remaining	Life-Cycle Estimate
		Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	359	359	359	0	359
Lawrence Berkeley National Laboratory	CBC-LBNL-0030	Remediation Complete (Number of Release Sites)	9	9	9	0	9
Stanford Linear Accelerator Center	CBC-SLAC-0030	Remediation Complete (Number of Release Sites)	181	181	181	0	181
Argonne National Laboratory-East	CH-ANLE-0030	Remediation Complete (Number of Release Sites)	56	56	56	0	56
Argonne National Laboratory-East	CH-ANLE-0040	Remediation Complete (Number of Release Sites)	443	443	443	0	443
Chicago Operations Office	CH-OPS-0900	Radioactive Facility Completions (Number of Facilities)	78	78	78	0	78
		Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	537	537	537	0	537
Laboratory for Energy-Related Health Research	LEHR-0040	Remediation Complete (Number of Release Sites)	30	30	30	0	30
		Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed	944	944	944	0	944

Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2017	Targeted Completion Through 2018	Targeted Completion Through 2019	Balance Remaining	Life-Cycle Estimate
		(Cubic meters)					
		Industrial Facility Completions (Number of Facilities)	1	1	1	0	1
		Remediation Complete (Number of Release Sites)	16	16	16	0	16
Energy Technology Engineering Center	VL-ETEC-0040						
		Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	820	820	820	0	820
		Radioactive Facility Completions (Number of Facilities)	1	1	1	0	1
		Industrial Facility Completions (Number of Facilities)	5	5	5	0	5
California Site Support (Non-Defense)	VL-FOO-0900-N						
		Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	189	189	189	0	189
		Remediation Complete (Number of Release Sites)	3	3	3	0	3
General Atomics	VL-GA-0012						
		Spent Nuclear Fuel packaged for final disposition (Metric Tons of Heavy Metal)	1	1	1	0	1
		Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	1,716	1,716	1,716	0	1,716
		Remediation Complete (Number of Release Sites)	2	2	2	0	2
Lawrence Berkeley National Laboratory	VL-LBNL-0030						

Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2017	Targeted Completion Through 2018	Targeted Completion Through 2019	Balance Remaining	Life-Cycle Estimate
Laboratory for Energy-Related Health Research	VL-LEHR-0040	Remediation Complete (Number of Release Sites)	13	13	13	0	13
Stanford Linear Accelerator Center	VL-SLAC-0030	Industrial Facility Completions (Number of Facilities)	1	1	1	0	1
		Remediation Complete (Number of Release Sites)	1	1	1	0	1
<b><u>Closure Sites</u></b>							
Ashtabula	OH-AB-0030	Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	3,707	3,707	3,707	0	3,707
		Radioactive Facility Completions (Number of Facilities)	28	28	28	0	28
		Industrial Facility Completions (Number of Facilities)	7	7	7	0	7
Columbus	OH-CL-0040	Remediation Complete (Number of Release Sites)	3	3	3	0	3
		Nuclear Facility Completions (Number of Facilities)	1	1	1	0	1
		Radioactive Facility Completions (Number of Facilities)	14	14	14	0	14
Fernald	OH-FN-0013	Remediation Complete (Number of Release Sites)	2	2	2	0	2

Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2017	Targeted Completion Through 2018	Targeted Completion Through 2019	Balance Remaining	Life-Cycle Estimate
		Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	7,085	7,085	7,085	0	7,085
Fernald	OH-FN-0030	Remediation Complete (Number of Release Sites)	4	4	4	0	4
Fernald	OH-FN-0050	Remediation Complete (Number of Release Sites)	2	2	2	0	2
		Radioactive Facility Completions (Number of Facilities)	29	29	29	0	29
Miamisburg	OH-MB-0013	Industrial Facility Completions (Number of Facilities)	1	1	1	0	1
		Depleted and Other Uranium packaged for disposition (Metric Tons)	0	0	0	0	0
Miamisburg	OH-MB-0030	Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	3,947	3,947	3,947	0	3,947
		Depleted and Other Uranium packaged for disposition (Metric Tons)	0	0	0	0	0
Miamisburg	OH-MB-0040	Remediation Complete (Number of Release Sites)	178	178	178	0	178
		Nuclear Facility Completions (Number of Facilities)	8	8	8	0	8

Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2017	Targeted Completion Through 2018	Targeted Completion Through 2019	Balance Remaining	Life-Cycle Estimate
		Radioactive Facility Completions (Number of Facilities)	11	11	11	0	11
		Industrial Facility Completions (Number of Facilities)	116	116	116	0	116
Rocky Flats Environmental Technology Site	RF-0011						
		Plutonium Metal or Oxide packaged for long-term storage (Number of Containers)	1,895	1,895	1,895	0	1,895
		Plutonium or Uranium Residues packaged for disposition (Kilograms of Bulk)	103,901	103,901	103,901	0	103,901
Rocky Flats Environmental Technology Site	RF-0013						
		Transuranic Waste Dispositioned (Cubic meters) - CH	15,036	15,036	15,036	0	15,036
		Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	602,188	602,188	602,188	0	602,188
Rocky Flats Environmental Technology Site	RF-0030						
		Remediation Complete (Number of Release Sites)	360	360	360	0	360
Rocky Flats Environmental Technology Site	RF-0040						
		Material Access Areas eliminated (Number of Material Access Areas)	6	6	6	0	6
		Nuclear Facility Completions (Number of Facilities)	6	6	6	0	6



Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2017	Targeted Completion Through 2018	Targeted Completion Through 2019	Balance Remaining	Life-Cycle Estimate
Rocky Flats Environmental Technology Site	RF-0041	Radioactive Facility Completions (Number of Facilities)	22	22	22	0	22
		Industrial Facility Completions (Number of Facilities)	141	141	141	0	141
		Material Access Areas eliminated (Number of Material Access Areas)	1	1	1	0	1
		Radioactive Facility Completions (Number of Facilities)	32	32	32	0	32
		Industrial Facility Completions (Number of Facilities)	176	176	176	0	176
		<b>Idaho</b>					
Idaho National Laboratory	ID-0012B	Spent Nuclear Fuel packaged for final disposition (Metric Tons of Heavy Metal)	0	0	0	+285	285
Idaho National Laboratory	ID-0013B	Transuranic Waste Dispositioned (Cubic meters) - CH	56,605	59,945	60,555	+5,997	66,552
		Transuranic Waste Dispositioned (Cubic meters) - RH	119	119	119	+102	222
		Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	86,699	87,419	87,419	0	87,419
		Nuclear Facility Completions (Number of Facilities)	0	0	0	+12	12
		Radioactive Facility Completions (Number of Facilities)	0	0	0	+1	1

Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2017	Targeted Completion Through 2018	Targeted Completion Through 2019	Balance Remaining	Life-Cycle Estimate
Idaho National Laboratory	ID-0013B.NEW	Industrial Facility Completions (Number of Facilities)	0	0	0	+38	38
Idaho National Laboratory	ID-0040B.NEW	Transuranic Waste Dispositioned (Cubic meters) - RH	3	3	3	0	3
Argonne National Laboratory - West	CH-ANLW-0030	Nuclear Facility Completions (Number of Facilities)	11	11	11	0	11
		Radioactive Facility Completions (Number of Facilities)	7	7	7	0	7
		Industrial Facility Completions (Number of Facilities)	1	1	1	0	1
Idaho National Laboratory	HQ-SNF-0012X	Remediation Complete (Number of Release Sites)	37	37	37	0	37
Idaho National Laboratory	ID-0011	Enriched Uranium packaged for disposition (Number of Containers)	1,586	1,586	1,586	0	1,586
Idaho National Laboratory	ID-0014B	Material Access Areas eliminated (Number of Material Access Areas)	1	1	1	0	1
		Liquid Waste in Inventory eliminated (Thousands of Gallons)	0	0	0	+900	900
		Liquid Waste Tanks closed (Number of Tanks)	7	7	7	+4	11

Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2017	Targeted Completion Through 2018	Targeted Completion Through 2019	Balance Remaining	Life-Cycle Estimate
		High-Level Waste packaged for final disposition (Number of Containers)	0	0	0	+6,660	6,660
		Nuclear Facility Completions (Number of Facilities)	0	0	0	+17	17
		Radioactive Facility Completions (Number of Facilities)	1	1	1	+15	16
		Industrial Facility Completions (Number of Facilities)	0	5	5	+46	51
Idaho National Laboratory	ID-0030B						
		Transuranic Waste Dispositioned (Cubic meters) - CH	5,501	5,501	5,501	0	5,501
		Nuclear Facility Completions (Number of Facilities)	0	0	0	+8	8
		Radioactive Facility Completions (Number of Facilities)	0	0	0	+2	2
		Industrial Facility Completions (Number of Facilities)	0	0	0	+41	41
		Remediation Complete (Number of Release Sites)	288	288	288	0	288
Idaho National Laboratory	ID-0040B						
		Nuclear Facility Completions (Number of Facilities)	44	44	44	0	44
		Radioactive Facility Completions (Number of Facilities)	24	24	24	0	24
		Industrial Facility Completions (Number of Facilities)	33	33	33	0	33
Idaho National Laboratory	ID-0050B						
		Radioactive Facility Completions (Number of Facilities)	35	35	35	0	35

Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2017	Targeted Completion Through 2018	Targeted Completion Through 2019	Balance Remaining	Life-Cycle Estimate
Idaho Operations Office	ID-0900	Industrial Facility Completions (Number of Facilities)	143	143	143	0	143
		Remediation Complete (Number of Release Sites)	233	233	233	0	233
<b>Los Alamos National Laboratory</b>							
Los Alamos National Laboratory	VL-LANL-0013	Transuranic Waste Dispositioned (Cubic meters) - CH	7,131	7,131	7,131	+3,579	10,711
		Transuranic Waste Dispositioned (Cubic meters) - RH	16	16	16	0	16
Los Alamos National Laboratory	VL-LANL-0030	Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	6,824	6,824	6,824	+1,721	8,545
		Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	5,426	5,426	5,426	0	5,426
Los Alamos National Laboratory	VL-LANL-0040-D	Remediation Complete (Number of Release Sites)	1,665	1,732	1,732	+955	2,687
		Nuclear Facility Completions (Number of Facilities)	1	1	1	0	1
		Radioactive Facility Completions (Number of Facilities)	15	15	15	0	15
		Industrial Facility Completions (Number of Facilities)	5	5	5	0	5

Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2017	Targeted Completion Through 2018	Targeted Completion Through 2019	Balance Remaining	Life-Cycle Estimate
Los Alamos National Laboratory	VL-LANL-0040-N	Radioactive Facility Completions (Number of Facilities)	4	4	4	0	4
		Industrial Facility Completions (Number of Facilities)	1	1	1	0	1
<b><u>NNSA Sites</u></b>							
Lawrence Livermore National Laboratory	HQ-SW-0013Y	Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	2,546	2,546	2,546	0	2,546
Nevada National Security Site	NV-0030	Remediation Complete (Number of Release Sites)	53	53	53	0	53
New Mexico Site Support	VL-FAO-0900	Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	1,319	1,319	1,319	0	1,319
		Remediation Complete (Number of Release Sites)	155	155	155	0	155
Kansas City Plant	VL-KCP-0030	Remediation Complete (Number of Release Sites)	43	43	43	0	43
Lawrence Livermore National Laboratory	VL-LLNL-0013	Transuranic Waste Dispositioned (Cubic meters) - CH	125	125	125	0	125

Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2017	Targeted Completion Through 2018	Targeted Completion Through 2019	Balance Remaining	Life-Cycle Estimate
Lawrence Livermore National Laboratory	VL-LLNL-0030	Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	2,766	2,766	2,766	0	2,766
Lawrence Livermore National Laboratory	VL-LLNL-0031	Remediation Complete (Number of Release Sites)	120	120	120	0	120
Nevada National Security Site	VL-NV-0013	Remediation Complete (Number of Release Sites)	74	75	75	+1	76
Nevada National Security Site	VL-NV-0030	Transuranic Waste Dispositioned (Cubic meters) - CH	1,246	1,246	1,246	0	1,246
		Radioactive Facility Completions (Number of Facilities)	10	10	10	+1	11
		Industrial Facility Completions (Number of Facilities)	1	1	1	0	1
Pantex Plant	VL-PX-0030	Remediation Complete (Number of Release Sites)	1,191	1,191	1,258	+802	2,060
Pantex Plant	VL-PX-0040	Remediation Complete (Number of Release Sites)	237	237	237	0	237
Sandia National Laboratory	VL-SN-0030	Industrial Facility Completions (Number of Facilities)	4	4	4	0	4

Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2017	Targeted Completion Through 2018	Targeted Completion Through 2019	Balance Remaining	Life-Cycle Estimate
		Radioactive Facility Completions (Number of Facilities)	1	1	1	0	1
NNSA Service Center	VL-SPRU-0040	Remediation Complete (Number of Release Sites)	265	265	265	0	265
		Nuclear Facility Completions (Number of Facilities)	0	1	1	0	1
NNSA Service Center	VL-SV-0100	Remediation Complete (Number of Release Sites)	5	6	6	0	6
		Remediation Complete (Number of Release Sites)	1	1	1	0	1
<b><u>Oak Ridge</u></b>							
Oak Ridge	OR-0041.NEW						
		Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	44,277	44,277	44,277	0	44,277
		Nuclear Facility Completions (Number of Facilities)	1	1	1	0	1
Oak Ridge	OR-0042.NEW	Industrial Facility Completions (Number of Facilities)	4	4	4	0	4
		Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	511	511	511	0	511
		Radioactive Facility Completions (Number of Facilities)	19	19	19	0	19

Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2017	Targeted Completion Through 2018	Targeted Completion Through 2019	Balance Remaining	Life-Cycle Estimate
Oak Ridge	HQ-SW-0013X-OR	Industrial Facility Completions (Number of Facilities)	12	12	12	0	12
Oak Ridge	HQ-SW-0013Y	Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	7,157	7,157	7,157	0	7,157
Oak Ridge	OR-0011D	Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	16,252	16,252	16,252	0	16,252
Oak Ridge	OR-0011Y	Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	227	241	268	0	268
Oak Ridge	OR-0013A	Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters) Nuclear Facility Completions (Number of Facilities)	93 4	93 4	93 4	0 0	93 4
Oak Ridge	OR-0013B	Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	48,584	48,584	48,584	0	48,584
		Transuranic Waste Dispositioned (Cubic meters) - CH	1,083	1,130	1,177	+402	1,579



Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2017	Targeted Completion Through 2018	Targeted Completion Through 2019	Balance Remaining	Life-Cycle Estimate
		Transuranic Waste Dispositioned (Cubic meters) - RH	182	182	182	+489	671
Oak Ridge	OR-0030	Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	18,150	18,150	18,150	0	18,150
		Nuclear Facility Completions (Number of Facilities)	2	2	2	0	2
		Radioactive Facility Completions (Number of Facilities)	15	15	15	0	15
		Industrial Facility Completions (Number of Facilities)	2	2	2	0	2
Oak Ridge	OR-0031	Remediation Complete (Number of Release Sites)	106	106	106	0	106
Oak Ridge	OR-0040	Remediation Complete (Number of Release Sites)	7	7	7	+1	8
		Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	5,178	5,178	5,178	0	5,178
		Nuclear Facility Completions (Number of Facilities)	4	4	4	0	4
		Radioactive Facility Completions (Number of Facilities)	10	13	20	+19	39
		Industrial Facility Completions (Number of Facilities)	388	398	422	+137	559
		Remediation Complete (Number of Release Sites)	144	144	160	+17	177

Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2017	Targeted Completion Through 2018	Targeted Completion Through 2019	Balance Remaining	Life-Cycle Estimate
Oak Ridge	OR-0041	Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	22,054	22,054	22,054	0	22,054
		Radioactive Facility Completions (Number of Facilities)	0	0	0	+4	4
		Industrial Facility Completions (Number of Facilities)	2	2	2	+7	9
		Remediation Complete (Number of Release Sites)	30	30	30	+96	126
Oak Ridge	OR-0042	Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	5,240	5,492	5,723	+231	5,954
		Nuclear Facility Completions (Number of Facilities)	0	0	0	+15	15
		Radioactive Facility Completions (Number of Facilities)	14	14	14	+29	43
		Industrial Facility Completions (Number of Facilities)	8	8	8	+111	119
		Remediation Complete (Number of Release Sites)	87	87	87	+92	179
Oak Ridge	OR-0043	Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	32,979	32,979	32,979	0	32,979
		Industrial Facility Completions (Number of Facilities)	7	7	7	0	7
Oak Ridge	OR-0900-D						

Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2017	Targeted Completion Through 2018	Targeted Completion Through 2019	Balance Remaining	Life-Cycle Estimate
Oak Ridge	OR-0900-N	Remediation Complete (Number of Release Sites)	74	74	74	0	74
		Industrial Facility Completions (Number of Facilities)	3	3	3	0	3
		Remediation Complete (Number of Release Sites)	23	23	23	0	23
<b><u>Paducah</u></b>							
Paducah Gaseous Diffusion Plant	PA-0011	Enriched Uranium packaged for disposition (Number of Containers)	0	0	0	+182	182
		Radioactive Facility Completions (Number of Facilities)	1	1	1	0	1
Paducah Gaseous Diffusion Plant	PA-0011X	Depleted and Other Uranium packaged for disposition (Metric Tons)	38,899	53,185	68,433	+494,686	563,119
Paducah Gaseous Diffusion Plant	PA-0013	Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	22,529	22,529	22,529	0	22,529
Paducah Gaseous Diffusion Plant	PA-0040	Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	471	471	471	0	471
		Nuclear Facility Completions (Number of Facilities)	5	5	5	0	5

Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2017	Targeted Completion Through 2018	Targeted Completion Through 2019	Balance Remaining	Life-Cycle Estimate
		Radioactive Facility Completions (Number of Facilities)	8	8	8	+2	10
		Industrial Facility Completions (Number of Facilities)	29	29	29	+1	30
		Remediation Complete (Number of Release Sites)	131	131	133	+98	231
Paducah Gaseous Diffusion Plant	PA-0900	Remediation Complete (Number of Release Sites)	1	1	1	0	1
<b><u>Portsmouth</u></b>							
Portsmouth Gaseous Diffusion Plant	PO-0011X	Depleted and Other Uranium packaged for disposition (Metric Tons)	23,126	33,840	45,412	+202,804	248,216
Portsmouth Gaseous Diffusion Plant	PO-0013	Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	36,702	36,702	36,702	0	36,702
Portsmouth Gaseous Diffusion Plant	PO-0040	Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	41,596	41,606	41,616	+26	41,642
		Nuclear Facility Completions (Number of Facilities)	0	0	0	+12	12
		Radioactive Facility Completions (Number of Facilities)	8	8	8	+3	11
		Industrial Facility Completions (Number of Facilities)	42	42	42	+215	257

Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2017	Targeted Completion Through 2018	Targeted Completion Through 2019	Balance Remaining	Life-Cycle Estimate
Portsmouth Gaseous Diffusion Plant	PO-0900	Remediation Complete (Number of Release Sites)	20	20	20	0	20
		Remediation Complete (Number of Release Sites)	130	130	130	0	130
<b><u>Richland</u></b>							
Hanford Site	RL-0011	Plutonium Metal or Oxide packaged for long-term storage (Number of Containers)	2,275	2,275	2,275	0	2,275
		Plutonium or Uranium Residues packaged for disposition (Kilograms of Bulk)	3,437	3,437	3,437	0	3,437
		Material Access Areas eliminated (Number of Material Access Areas)	20	20	20	0	20
		Nuclear Facility Completions (Number of Facilities)	36	39	39	0	39
		Radioactive Facility Completions (Number of Facilities)	9	14	14	0	14
		Industrial Facility Completions (Number of Facilities)	25	36	36	0	36
		Hanford Site	RL-0012	Spent Nuclear Fuel packaged for final disposition (Metric Tons of Heavy Metal)	2,117	2,117	2,117
Hanford Site	RL-0013	Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	1,317	1,317	1,317	0	1,317

Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2017	Targeted Completion Through 2018	Targeted Completion Through 2019	Balance Remaining	Life-Cycle Estimate
Hanford Site	RL-0013C	Transuranic Waste Dispositioned (Cubic meters) - CH	5,763	5,763	24,580	0	24,580
		Transuranic Waste Dispositioned (Cubic meters) - RH	0	0	858	0	858
		Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	51,019	51,019	51,019	0	51,019
		Material Access Areas eliminated (Number of Material Access Areas)	0	0	0	+4	4
Hanford Site	RL-0030	Radioactive Facility Completions (Number of Facilities)	0	0	0	+3	3
		Industrial Facility Completions (Number of Facilities)	5	5	5	+30	35
Hanford Site	RL-0040	Nuclear Facility Completions (Number of Facilities)	6	6	6	+29	35
		Radioactive Facility Completions (Number of Facilities)	25	25	25	+106	131
		Industrial Facility Completions (Number of Facilities)	302	302	302	+544	846
		Remediation Complete (Number of Release Sites)	81	81	81	+776	857
Hanford Site	RL-0041	Enriched Uranium packaged for disposition (Number of Containers)	2,958	2,958	2,958	0	2,958
		Depleted and Other Uranium packaged for disposition (Metric Tons)	3,100	3,100	3,100	0	3,100

Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2017	Targeted Completion Through 2018	Targeted Completion Through 2019	Balance Remaining	Life-Cycle Estimate
		Nuclear Facility Completions (Number of Facilities)	8	8	8	+3	11
		Radioactive Facility Completions (Number of Facilities)	104	104	104	+9	113
		Industrial Facility Completions (Number of Facilities)	391	391	391	+26	417
		Remediation Complete (Number of Release Sites)	1,260	1,272	1,273	+69	1,342
Hanford Site	RL-0042						
		Spent Nuclear Fuel packaged for final disposition (Metric Tons of Heavy Metal)	7	7	7	0	7
		Nuclear Facility Completions (Number of Facilities)	0	0	0	+4	4
		Radioactive Facility Completions (Number of Facilities)	0	0	0	+8	8
		Industrial Facility Completions (Number of Facilities)	0	0	0	+32	32
<b><u>River Protection</u></b>							
River Protection	ORP-0014						
		Liquid Waste in Inventory eliminated (Thousands of Gallons)	0	0	0	+56,000	56,000
		Liquid Waste Tanks closed (Number of Tanks)	0	0	0	+177	177
		High-Level Waste packaged for final disposition (Number of Containers)	0	0	0	+9,667	9,667
		Transuranic Waste Dispositioned (Cubic meters) - CH	0	0	0	+1,555	1,555
		Transuranic Waste Dispositioned (Cubic meters) - RH	0	0	0	+3,864	3,864

Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2017	Targeted Completion Through 2018	Targeted Completion Through 2019	Balance Remaining	Life-Cycle Estimate
		Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	57,618	61,987	66,793	+138,991	205,784
		Nuclear Facility Completions (Number of Facilities)	0	0	0	+18	18
		Radioactive Facility Completions (Number of Facilities)	0	0	0	+114	114
		Industrial Facility Completions (Number of Facilities)	0	0	0	+128	128
		Remediation Complete (Number of Release Sites)	5	5	5	+273	278
River Protection	ORP-0060						
<b><u>West Valley Demonstration Project</u></b>							
West Valley Demonstration Project	OH-WV-0013						
		Liquid Waste in Inventory eliminated (Thousands of Gallons)	814	814	814	0	814
		High-Level Waste packaged for final disposition (Number of Containers)	275	275	275	0	275
		Transuranic Waste Dispositioned (Cubic meters) - CH	0	0	0	+596	596
		Transuranic Waste Dispositioned (Cubic meters) - RH	0	0	0	+1,125	1,125
		Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	33,034	34,017	35,320	0	35,320
West Valley Demonstration Project	OH-WV-0040						
		Nuclear Facility Completions (Number of Facilities)	3	4	12	+12	24



Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2017	Targeted Completion Through 2018	Targeted Completion Through 2019	Balance Remaining	Life-Cycle Estimate
		Radioactive Facility Completions (Number of Facilities)	6	6	10	+14	24
		Industrial Facility Completions (Number of Facilities)	17	18	25	+18	43
<b><u>Savannah River</u></b>							
SR-0011B		Plutonium Metal or Oxide packaged for long-term storage (Number of Containers)	919	919	919	0	919
		Plutonium or Uranium Residues packaged for disposition (Kilograms of Bulk)	490	490	490	0	490
SR-0011C		Enriched Uranium packaged for disposition (Number of Containers)	3,472	3,472	3,472	+405	3,877
		Depleted and Other Uranium packaged for disposition (Metric Tons)	11,536	11,536	11,536	0	11,536
SR-0012		Spent Nuclear Fuel packaged for final disposition (Metric Tons of Heavy Metal)	6	7	9	+33	42
SR-0013		Depleted and Other Uranium packaged for disposition (Metric Tons)	11,645	11,645	11,645	0	11,645
		Transuranic Waste Dispositioned (Cubic meters) - CH	11,189	11,189	11,429	+4,210	15,639
		Transuranic Waste Dispositioned (Cubic meters) - RH	26	26	105	0	105
		Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed	170,153	176,953	183,753	+79,731	263,484

Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2017	Targeted Completion Through 2018	Targeted Completion Through 2019	Balance Remaining	Life-Cycle Estimate
		(Cubic meters)					
SR-0014C		Liquid Waste in Inventory eliminated (Thousands of Gallons)	6,600	7,053	7,997	+36,334	44,331
		Liquid Waste Tanks closed (Number of Tanks)	8	8	8	+43	51
		High-Level Waste packaged for final disposition (Number of Containers)	4,151	4,201	4,336	+3,918	8,254
SR-0020							
		Material Access Areas eliminated (Number of Material Access Areas)	2	2	2	+1	3
SR-0030							
		Nuclear Facility Completions (Number of Facilities)	0	0	0	+192	192
		Radioactive Facility Completions (Number of Facilities)	14	14	14	+33	47
		Industrial Facility Completions (Number of Facilities)	28	28	28	+610	638
		Remediation Complete (Number of Release Sites)	408	408	410	+105	515
SR-0040							
		Nuclear Facility Completions (Number of Facilities)	11	11	11	0	11
		Radioactive Facility Completions (Number of Facilities)	7	7	7	0	7
		Industrial Facility Completions (Number of Facilities)	232	232	232	0	232

**Environmental Management  
Program Life-Cycle (LCC) Cost Range (\$M)**

Site	LCC Total Range
Argonne National Laboratory-East	179 -
Ashtabula	138 -
Brookhaven National Laboratory	486 - 491
Columbus	172 -
D&D Fund Deposit	3,343 -
Energy Technology Engineering Center	345 - 361
Fernald	3,220 -
Hanford Site	56,807 - 64,547
Headquarters	2,063 -
Idaho National Laboratory	18,730 - 21,432
Inhalation Toxicology Laboratory	13 -
Kansas City Plant	30 -
Laboratory for Energy-Related Health Research	40 -
Lawrence Berkeley National Laboratory	74 -
Lawrence Livermore National Laboratory	545 - 555
Los Alamos National Laboratory	6,247 - 7,326
Miamisburg	670 -
Moab	1,186 - 1,197
Nevada National Security Site	2,662 -
Oak Ridge	18,390 - 18,724
Office of River Protection	69,977 - 77,218
Other	1,343 -
Paducah Gaseous Diffusion Plant	34,927 - 41,068
Pantex Plant	206 -
Portsmouth Gaseous Diffusion Plant	17,485 - 18,500
Program Direction	11,714 -
Rocky Flats Environmental Technology Site	8,789 -
Sandia National Laboratory	284 - 285
Savannah River Site	97,010 - 115,093
Stanford Linear Accelerator Center	70 -
Technology Development and Deployment	2,819 -
Waste Isolation Pilot Plant	7,130 - 7,544
West Valley Demonstration Project	1,865 - 2,048
	-
Total EM Program	368,963 - 413,930

**Environmental Management  
Lifecycle Costs by Program Baseline Summary (PBS) (\$K)**

PBS Code	PBS Name	Prior Costs (97 – 2017)	FY2018 and Remaining Cost (Low Range)	FY2018 and Remaining Cost (High Range)	Lifecycle Cost (Low Range)	Lifecycle Cost (High Range)
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**Argonne National Laboratory - West**

CH-ANLW-0030	Soil and Water Remediation-Argonne National Laboratory-West	8,245	0	0	8,245	8,245
<b>Argonne National Laboratory - West Total</b>		<b>8,245</b>	<b>0</b>	<b>0</b>	<b>8,245</b>	<b>8,245</b>

**Argonne National Laboratory-East**

CH-ANLE-0030	Soil and Water Remediation	30,244	0	0	30,244	30,244
CH-ANLE-0040.NEW	Argonne Recovery Act Project	78,918	0	0	78,918	78,918
CH-ANLE-0040	Nuclear Facility D&D	69,806	0	0	69,806	69,806
<b>Argonne National Laboratory-East Total</b>		<b>178,968</b>	<b>0</b>	<b>0</b>	<b>178,968</b>	<b>178,968</b>

**Ashtabula**

OH-AB-0030	Soil and Water Remediation-Ashtabula	137,991	0	0	137,991	137,991
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Environmental Management Lifecycle Costs by Program Baseline Summary (PBS) (\$K)						
PBS Code	PBS Name	Prior Costs (97 – 2017)	FY2018 and Remaining Cost (Low Range)	FY2018 and Remaining Cost (High Range)	Lifecycle Cost (Low Range)	Lifecycle Cost (High Range)
<b>Ashtabula Total</b>		<b>137,991</b>	<b>0</b>	<b>0</b>	<b>137,991</b>	<b>137,991</b>
<b>Brookhaven National Laboratory</b>						
BRNL-0030	Soil and Water Remediation-Brookhaven National Laboratory	261,717	0	0	261,717	261,717
BRNL-0040	Nuclear Facility D&D-Brookhaven Graphite Research Reactor	137,216	0	0	137,216	137,216
BRNL-0041.NEW	A/B Waste Lines Removal and FHWMF Perimeter Area Soils Remediation	3,351	0	0	3,351	3,351
BRNL-0041	Nuclear Facility D&D-High Flux Beam Reactor	61,272	19,726	25,000	80,998	86,272
BRNL-0100	Brookhaven Community and Regulatory Support	2,907	0	0	2,907	2,907
<b>Brookhaven National Laboratory Total</b>		<b>466,463</b>	<b>19,726</b>	<b>25,000</b>	<b>486,189</b>	<b>491,463</b>

**Environmental Management  
Lifecycle Costs by Program Baseline Summary (PBS) (\$K)**

<b>PBS Code</b>	<b>PBS Name</b>	<b>Prior Costs (97 – 2017)</b>	<b>FY2018 and Remaining Cost (Low Range)</b>	<b>FY2018 and Remaining Cost (High Range)</b>	<b>Lifecycle Cost (Low Range)</b>	<b>Lifecycle Cost (High Range)</b>
<b>California Site Support (Defense)</b>						
VL-FOO-0013B-D	Solid Waste	15,969	2,000	2,000	17,969	17,969
VL-FOO-0100-D	LLNL Community and Regulatory Support	5,617	0	0	5,617	5,617
<b>California Site Support (Defense) Total</b>		<b>21,586</b>	<b>2,000</b>	<b>2,000</b>	<b>23,586</b>	<b>23,586</b>

<b>California Site Support (Non-Defense)</b>						
CBC-CA-0013B-N	Solid Waste Stabilization and Disposition-California Sites-2012 (Non-Defense)	6,226	0	0	6,226	6,226
CBC-CA-0100-N	Community and Regulatory Support (Non-Defense)	2,932	0	0	2,932	2,932
VL-FOO-0013B-N	Solid Waste Stabilization and Disposition-Oakland Sites-2012 (Non-Defense)	68	0	0	68	68
VL-FOO-0100-N	Oakland Community and Regulatory Support (Non-Defense)	89	0	0	89	89

Environmental Management Lifecycle Costs by Program Baseline Summary (PBS) (\$K)						
PBS Code	PBS Name	Prior Costs (97 – 2017)	FY2018 and Remaining Cost (Low Range)	FY2018 and Remaining Cost (High Range)	Lifecycle Cost (Low Range)	Lifecycle Cost (High Range)
VL-FOO-0900-N	Pre-2004 Completions (Non-Defense)	20,896	0	0	20,896	20,896
<b>California Site Support (Non-Defense) Total</b>		<b>30,211</b>	<b>0</b>	<b>0</b>	<b>30,211</b>	<b>30,211</b>
<b>Chicago Operations Office</b>						
CH-OPS-0900	Pre-2004 Completions	98,862	0	0	98,862	98,862
<b>Chicago Operations Office Total</b>		<b>98,862</b>	<b>0</b>	<b>0</b>	<b>98,862</b>	<b>98,862</b>
<b>Columbus</b>						
OH-CL-0040	Columbus Nuclear Facility D&D	172,289	0	0	172,289	172,289
<b>Columbus Total</b>		<b>172,289</b>	<b>0</b>	<b>0</b>	<b>172,289</b>	<b>172,289</b>
<b>Consolidated Business Center</b>						
CBC-0100-FN	CBC Post Closure Administration - Fernald	65,734	0	0	65,734	65,734

**Environmental Management  
Lifecycle Costs by Program Baseline Summary (PBS) (\$K)**

<b>PBS Code</b>	<b>PBS Name</b>	<b>Prior Costs (97 – 2017)</b>	<b>FY2018 and Remaining Cost (Low Range)</b>	<b>FY2018 and Remaining Cost (High Range)</b>	<b>Lifecycle Cost (Low Range)</b>	<b>Lifecycle Cost (High Range)</b>
CBC-0100-MD	CBC Post Closure Administration - Mound	2,043	0	0	2,043	2,043
CBC-0100-RF	CBC Post Closure Administration - Rocky Flats	28,210	0	0	28,210	28,210
CBC-ND-0100	CBC - Non-Defense Post Closure	10,705	0	0	10,705	10,705
CBC-UM-0100	CBC - Non-Defense Post Closure Administration - UMTRA Sites	383	0	0	383	383
<b>Consolidated Business Center Total</b>		<b>107,074</b>	<b>0</b>	<b>0</b>	<b>107,074</b>	<b>107,074</b>

**D&D Fund Deposit**

HQ-DD-0100	Contribution to the Uranium Enrichment D&D Fund	3,342,826	0	0	3,342,826	3,342,826
<b>D&amp;D Fund Deposit Total</b>		<b>3,342,826</b>	<b>0</b>	<b>0</b>	<b>3,342,826</b>	<b>3,342,826</b>

**Energy Technology Engineering Center**

CBC-ETEC-0040	Nuclear Facility D&D-Energy Technology Engineering Center	322,529	20,552	36,951	343,081	359,480
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Environmental Management Lifecycle Costs by Program Baseline Summary (PBS) (\$K)						
PBS Code	PBS Name	Prior Costs (97 – 2017)	FY2018 and Remaining Cost (Low Range)	FY2018 and Remaining Cost (High Range)	Lifecycle Cost (Low Range)	Lifecycle Cost (High Range)
VL-ETEC-0040	Nuclear Facility D&D-Energy Technology Engineering Center	1,771	0	0	1,771	1,771
<b>Energy Technology Engineering Center Total</b>		<b>324,300</b>	<b>20,552</b>	<b>36,951</b>	<b>344,852</b>	<b>361,251</b>
<b>Fernald</b>						
OH-FN-0013	Solid Waste Stabilization and Disposition-Fernald	1,626,711	0	0	1,626,711	1,626,711
OH-FN-0020	Safeguards and Security-Fernald	15,509	0	0	15,509	15,509
OH-FN-0030	Soil and Water Remediation-Fernald	1,338,302	0	0	1,338,302	1,338,302
OH-FN-0050	Non-Nuclear Facility D&D-Fernald	226,037	0	0	226,037	226,037
OH-FN-0100	Fernald Post-Closure Administration	0	0	0	0	0
OH-FN-0101	Fernald Community and Regulatory Support	13,902	0	0	13,902	13,902
<b>Fernald Total</b>		<b>3,220,461</b>	<b>0</b>	<b>0</b>	<b>3,220,461</b>	<b>3,220,461</b>

**Environmental Management  
Lifecycle Costs by Program Baseline Summary (PBS) (\$K)**

PBS Code	PBS Name	Prior Costs (97 – 2017)	FY2018 and Remaining Cost (Low Range)	FY2018 and Remaining Cost (High Range)	Lifecycle Cost (Low Range)	Lifecycle Cost (High Range)
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<b>General Atomics</b>						
VL-GA-0012	SNF Stabilization and Disposition-General Atomics	15,169	0	0	15,169	15,169
<b>General Atomics Total</b>		<b>15,169</b>	<b>0</b>	<b>0</b>	<b>15,169</b>	<b>15,169</b>

<b>Headquarters</b>						
HQ-CDP-0100-N	Congressionally Directed Projects - Non Defense	-25	0	0	-25	-25
HQ-MS-0100	Policy, Management, and Technical Support	848,158	598,734	598,734	1,446,892	1,446,892
HQ-OPS-0900	Pre-2004 Completions	0	0	0	0	0
HQ-UR-0100	Uranium/Thorium Reimbursements	484,908	131,398	131,398	616,306	616,306
HQ-SS-0020	Safeguards and Security	95	0	0	95	95
<b>Headquarters Total</b>		<b>1,333,136</b>	<b>730,132</b>	<b>730,132</b>	<b>2,063,268</b>	<b>2,063,268</b>

**Environmental Management  
Lifecycle Costs by Program Baseline Summary (PBS) (\$K)**

<b>PBS Code</b>	<b>PBS Name</b>	<b>Prior Costs (97 – 2017)</b>	<b>FY2018 and Remaining Cost (Low Range)</b>	<b>FY2018 and Remaining Cost (High Range)</b>	<b>Lifecycle Cost (Low Range)</b>	<b>Lifecycle Cost (High Range)</b>
<b>Idaho National Laboratory</b>						
HQ-SNF-0012X-ID	SNF Stabilization and Disposition-Storage Operations Awaiting Geologic Repository	18,995	0	0	18,995	18,995
HQ-SNF-0012X	SNF Stabilization and Disposition-Storage Operations Awaiting Geologic Repository	60,089	0	0	60,089	60,089
HQ-SNF-0012Y	SNF Stabilization and Disposition-New/Upgraded Facilities Awaiting Geologic Repository	66,844	0	0	66,844	66,844
ID-0011	NM Stabilization and Disposition	19,058	0	0	19,058	19,058
ID-0012B-N	SNF Stabilization and Disposition (Non-Defense)	75,581	219,832	248,509	295,413	324,090
ID-0012B	SNF Stabilization and Disposition (Defense)	580,681	2,644,389	3,521,371	3,225,070	4,102,052
ID-0012C-N	Fort Saint Vrain Facility	19,173	1,040	1,040	20,213	20,213
ID-0012C	SNF Stabilization and Disposition-2035	0	0	0	0	0

**Environmental Management  
Lifecycle Costs by Program Baseline Summary (PBS) (\$K)**

<b>PBS Code</b>	<b>PBS Name</b>	<b>Prior Costs (97 – 2017)</b>	<b>FY2018 and Remaining Cost (Low Range)</b>	<b>FY2018 and Remaining Cost (High Range)</b>	<b>Lifecycle Cost (Low Range)</b>	<b>Lifecycle Cost (High Range)</b>
ID-0013B.NEW	INL Recovery Act Project--TRU Waste	115,315	0	0	115,315	115,315
ID-0013B	Solid Waste Stabilization and Disposition	3,958,466	1,434,189	1,631,393	5,392,655	5,589,859
ID-0014B-T	Radioactive Liquid Tank Waste Stabilization and Disposition- 2012 (T)	71,140	0	0	71,140	71,140
ID-0014B	Radioactive Liquid Tank Waste Stabilization and Disposition- 2012	2,635,865	3,064,399	4,554,913	5,700,264	7,190,778
ID-0014C	Radioactive Liquid Tank Waste Stabilization and Disposition- 2035	0	0	0	0	0
ID-0030B	Soil and Water Remediation-2012	1,582,995	772,978	815,261	2,355,973	2,398,256
ID-0030C	Soil and Water Remediation-2035	0	0	0	0	0
ID-0040B.NEW	D&D NE Facilities (New)	90,956	0	0	90,956	90,956
ID-0040B	Nuclear Facility D&D-2012	698,414	0	0	698,414	698,414
ID-0040C	Nuclear Facility D&D-2035	0	0	0	0	0

Environmental Management Lifecycle Costs by Program Baseline Summary (PBS) (\$K)						
PBS Code	PBS Name	Prior Costs (97 – 2017)	FY2018 and Remaining Cost (Low Range)	FY2018 and Remaining Cost (High Range)	Lifecycle Cost (Low Range)	Lifecycle Cost (High Range)
ID-0050B	Non-Nuclear Facility D&D-2012	122,763	0	0	122,763	122,763
ID-0050C	Non-Nuclear Facility D&D-2035	0	0	0	0	0
ID-0100	Idaho Community and Regulatory Support	91,007	75,447	132,431	166,454	223,438
ID-0900	Pre-2004 Completions	310,264	0	0	310,264	310,264
<b>Idaho National Laboratory Total</b>		<b>10,517,605</b>	<b>8,212,274</b>	<b>10,904,918</b>	<b>18,729,879</b>	<b>21,422,523</b>

Inhalation Toxicology Laboratory						
CBC-ITL-0030	Soil and Water Remediation - ITL	12,537	0	0	12,537	12,537
VL-ITL-0030	Soil and Water Remediation-Inhalation Toxicology Laboratory	13	0	0	13	13
<b>Inhalation Toxicology Laboratory Total</b>		<b>12,550</b>	<b>0</b>	<b>0</b>	<b>12,550</b>	<b>12,550</b>

**Environmental Management  
Lifecycle Costs by Program Baseline Summary (PBS) (\$K)**

PBS Code	PBS Name	Prior Costs (97 – 2017)	FY2018 and Remaining Cost (Low Range)	FY2018 and Remaining Cost (High Range)	Lifecycle Cost (Low Range)	Lifecycle Cost (High Range)
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<b>Kansas City Plant</b>						
VL-KCP-0030	Soil and Water Remediation-Kansas City Plant	30,277	0	0	30,277	30,277
<b>Kansas City Plant Total</b>		<b>30,277</b>	<b>0</b>	<b>0</b>	<b>30,277</b>	<b>30,277</b>

<b>Laboratory for Energy-Related Health Research</b>						
LEHR-0040	Nuclear Facility D&D-Laboratory for Energy-Related Health Research	39,549	0	0	39,549	39,549
VL-LEHR-0040	Nuclear Facility D&D-Laboratory for Energy-Related Health Research	559	0	0	559	559
<b>Laboratory for Energy-Related Health Research Total</b>		<b>40,108</b>	<b>0</b>	<b>0</b>	<b>40,108</b>	<b>40,108</b>

<b>Lawrence Berkeley National Laboratory</b>						
CBC-LBNL-0030	Soil and Water Remediation-Lawrence Berkeley National Laboratory	34,695	0	0	34,695	34,695

Environmental Management Lifecycle Costs by Program Baseline Summary (PBS) (\$K)						
PBS Code	PBS Name	Prior Costs (97 – 2017)	FY2018 and Remaining Cost (Low Range)	FY2018 and Remaining Cost (High Range)	Lifecycle Cost (Low Range)	Lifecycle Cost (High Range)
CBC-LBNL-0040	Decontamination and Decommissioning - LBNL	37,789	0	0	37,789	37,789
VL-LBNL-0030	Soil and Water Remediation-Lawrence Berkeley National Laboratory	1,539	0	0	1,539	1,539
<b>Lawrence Berkeley National Laboratory Total</b>		<b>74,023</b>	<b>0</b>	<b>0</b>	<b>74,023</b>	<b>74,023</b>
<b>Lawrence Livermore National Laboratory</b>						
HQ-SW-0013Y	Solid Waste Stabilization and Disposition-NNSA Current Generation - LLNL	157,769	0	0	157,769	157,769
VL-LLNL-0013	Solid Waste Stabilization and Disposition-Lawrence Livermore National Laboratory	71,966	0	0	71,966	71,966
VL-LLNL-0030	Soil and Water Remediation-Lawrence Livermore National Laboratory - Main Site	136,158	0	0	136,158	136,158
VL-LLNL-0031	Soil and Water Remediation-Lawrence Livermore National Laboratory - Site 300	136,031	42,713	52,815	178,744	188,846

Environmental Management Lifecycle Costs by Program Baseline Summary (PBS) (\$K)						
PBS Code	PBS Name	Prior Costs (97 – 2017)	FY2018 and Remaining Cost (Low Range)	FY2018 and Remaining Cost (High Range)	Lifecycle Cost (Low Range)	Lifecycle Cost (High Range)
<b>Lawrence Livermore National Laboratory Total</b>		<b>501,924</b>	<b>42,713</b>	<b>52,815</b>	<b>544,637</b>	<b>554,739</b>

<b>Los Alamos National Laboratory</b>						
VL-FAO-0101	Miscellaneous Programs and Agreements in Principle	105,829	85,435	85,435	191,264	191,264
VL-LANL-0013	Solid Waste Stabilization and Disposition-LANL Legacy	1,197,860	997,114	1,266,546	2,194,974	2,464,406
VL-LANL-0030	Soil and Water Remediation-LANL	1,840,234	1,946,227	2,756,387	3,786,461	4,596,621
VL-LANL-0040-D	Nuclear Facility D&D-LANL (Defense)	52,830	0	0	52,830	52,830
VL-LANL-0040-N	Nuclear Facility D&D-LANL (Non-Defense)	21,585	0	0	21,585	21,585
<b>Los Alamos National Laboratory Total</b>		<b>3,218,338</b>	<b>3,028,776</b>	<b>4,108,368</b>	<b>6,247,114</b>	<b>7,326,706</b>

<b>Miamisburg</b>						
OH-MB-0013	Solid Waste	264,692	0	0	264,692	264,692



Environmental Management Lifecycle Costs by Program Baseline Summary (PBS) (\$K)						
PBS Code	PBS Name	Prior Costs (97 – 2017)	FY2018 and Remaining Cost (Low Range)	FY2018 and Remaining Cost (High Range)	Lifecycle Cost (Low Range)	Lifecycle Cost (High Range)
OH-MB-0020	Safeguards and Security-Miamisburg	28,284	0	0	28,284	28,284
OH-MB-0030	Soil and Water	264,080	0	0	264,080	264,080
OH-MB-0031.NEW	Mound Operable Unit 1 Recovery Act Project	17,526	0	0	17,526	17,526
OH-MB-0031	Soil and Water Remediation - OU-1	0	0	0	0	0
OH-MB-0040	Nuclear Facility D&D-Miamisburg	-406	0	0	-406	-406
OH-MB-0100	Miamisburg Post-Closure Administration	86,578	0	0	86,578	86,578
OH-MB-0101	Miamisburg Community and Regulatory Support	9,710	0	0	9,710	9,710
<b>Miamisburg Total</b>		<b>670,464</b>	<b>0</b>	<b>0</b>	<b>670,464</b>	<b>670,464</b>
<b>Moab</b>						
CBC-MOAB-0031	Soil and Water Remediation-Moab	527,320	659,287	670,263	1,186,607	1,197,583

Environmental Management Lifecycle Costs by Program Baseline Summary (PBS) (\$K)						
PBS Code	PBS Name	Prior Costs (97 – 2017)	FY2018 and Remaining Cost (Low Range)	FY2018 and Remaining Cost (High Range)	Lifecycle Cost (Low Range)	Lifecycle Cost (High Range)
<b>Moab Total</b>		<b>527,320</b>	<b>659,287</b>	<b>670,263</b>	<b>1,186,607</b>	<b>1,197,583</b>

<b>Nevada National Security Site</b>						
NV-0030	Soil and Water Remediation - Offsites	88,373	0	0	88,373	88,373
VL-NV-0013	Solid Waste Stabilization and Disposition-Nevada	107,838	0	0	107,838	107,838
VL-NV-0030	Soil and Water Remediation - Nevada	1,158,662	568,370	568,370	1,727,032	1,727,032
VL-NV-0080	Operate Waste Disposal Facility-Nevada	206,031	400,866	400,866	606,897	606,897
VL-NV-0100	Nevada Community and Regulatory Support	73,731	57,768	57,768	131,499	131,499
<b>Nevada National Security Site Total</b>		<b>1,634,636</b>	<b>1,027,004</b>	<b>1,027,004</b>	<b>2,661,640</b>	<b>2,661,640</b>

<b>New Mexico Site Support</b>						
VL-FAO-0100-D	Nuclear Material Stewardship (Defense)	108,725	0	0	108,725	108,725

Environmental Management Lifecycle Costs by Program Baseline Summary (PBS) (\$K)						
PBS Code	PBS Name	Prior Costs (97 – 2017)	FY2018 and Remaining Cost (Low Range)	FY2018 and Remaining Cost (High Range)	Lifecycle Cost (Low Range)	Lifecycle Cost (High Range)
VL-FAO-0100-N	Nuclear Material Stewardship (Non-Defense)	15,044	0	0	15,044	15,044
VL-FAO-0900	Pre-2004 Completions	232,740	0	0	232,740	232,740
<b>New Mexico Site Support Total</b>		<b>356,509</b>	<b>0</b>	<b>0</b>	<b>356,509</b>	<b>356,509</b>
<b>NNSA Service Center</b>						
VL-SPRU-0040	Nuclear Facility D&D-Separations Process Research Unit	232,942	0	0	232,942	232,942
VL-SV-0100	South Valley Superfund	6,061	0	0	6,061	6,061
<b>NNSA Service Center Total</b>		<b>239,003</b>	<b>0</b>	<b>0</b>	<b>239,003</b>	<b>239,003</b>
<b>Oak Ridge</b>						
HQ-SW-0013X-OR	Solid Waste Stabilization and Disposition-Science Current Generation	143,584	0	0	143,584	143,584
HQ-SW-0013X	Solid Waste Stabilization and Disposition-Science Current Generation	92,469	0	0	92,469	92,469

**Environmental Management  
Lifecycle Costs by Program Baseline Summary (PBS) (\$K)**

<b>PBS Code</b>	<b>PBS Name</b>	<b>Prior Costs (97 – 2017)</b>	<b>FY2018 and Remaining Cost (Low Range)</b>	<b>FY2018 and Remaining Cost (High Range)</b>	<b>Lifecycle Cost (Low Range)</b>	<b>Lifecycle Cost (High Range)</b>
HQ-SW-0013Y	Solid Waste Stabilization and Disposition-NNSA Current Generation - Y-12	207,616	0	0	207,616	207,616
OR-0011D	U233 Disposition Program	293,003	285,411	295,953	578,414	588,956
OR-0011Y	NM Stabilization and Disposition-ETTP Uranium Facilities Management	52,430	0	0	52,430	52,430
OR-0011Z	Downblend of U-233 in Building 3019	164,347	0	0	164,347	164,347
OR-0013A	Solid Waste Stabilization and Disposition-2006	464,926	0	0	464,926	464,926
OR-0013B	Solid Waste Stabilization and Disposition-2012	1,695,733	409,826	443,299	2,105,559	2,139,032
OR-0020	Safeguards and Security	314,297	368,551	372,014	682,848	686,311
OR-0030	Soil and Water Remediation-Melton Valley	350,609	0	0	350,609	350,609
OR-0031	Soil and Water Remediation-Offsites	59,892	0	0	59,892	59,892
OR-0040	Nuclear Facility D&D-East Tennessee Technology Park (D&D)	4,032,313	683,781	756,595	4,716,094	4,788,908

**Environmental Management  
Lifecycle Costs by Program Baseline Summary (PBS) (\$K)**

<b>PBS Code</b>	<b>PBS Name</b>	<b>Prior Costs (97 – 2017)</b>	<b>FY2018 and Remaining Cost (Low Range)</b>	<b>FY2018 and Remaining Cost (High Range)</b>	<b>Lifecycle Cost (Low Range)</b>	<b>Lifecycle Cost (High Range)</b>
	Fund)					
OR-0041.NEW	Y-12 Recovery Act Project	156,504	0	0	156,504	156,504
OR-0041	Nuclear Facility D&D-Y-12	774,365	2,646,751	2,780,224	3,421,116	3,554,589
OR-0042.NEW	Oak Ridge Recovery Act Project	58,284	0	0	58,284	58,284
OR-0042	Nuclear Facility D&D-Oak Ridge National Laboratory	927,278	1,815,847	1,873,605	2,743,125	2,800,883
OR-0043	Nuclear Facility D&D-East Tennessee Technology Park (Defense)	87,148	66,524	89,196	153,672	176,344
OR-0100	Oak Ridge Reservation Community & Regulatory Support (Defense)	139,304	272,909	272,909	412,213	412,213
OR-0101	Oak Ridge Contract/Post-Closure Liabilities/Administration	105,169	0	0	105,169	105,169
OR-0102	East Tennessee Technology Park Contract/Post-Closure Liabilities/Administration	288,823	728,588	728,588	1,017,411	1,017,411
OR-0103	Oak Ridge Reservation Community & Regulatory Support (D&D Fund)	44,375	0	0	44,375	44,375

**Environmental Management  
Lifecycle Costs by Program Baseline Summary (PBS) (\$K)**

<b>PBS Code</b>	<b>PBS Name</b>	<b>Prior Costs (97 – 2017)</b>	<b>FY2018 and Remaining Cost (Low Range)</b>	<b>FY2018 and Remaining Cost (High Range)</b>	<b>Lifecycle Cost (Low Range)</b>	<b>Lifecycle Cost (High Range)</b>
OR-0104	Community and Regulatory (Non-Defense)	3,554	0	0	3,554	3,554
OR-0900-D	Pre-2004 Completions (Defense)	16,829	0	0	16,829	16,829
OR-0900-N	Pre-2004 Completions (Non-Defense)	618,567	0	0	618,567	618,567
OR-TD-0100	Technology Development Activities - Oak Ridge	5,660	12,000	12,000	17,660	17,660
OR-TDD-0100	Oak Ridge Technology and Development	2,415	0	0	2,415	2,415
<b>Oak Ridge Total</b>		<b>11,099,493</b>	<b>7,290,188</b>	<b>7,624,383</b>	<b>18,389,681</b>	<b>18,723,876</b>

<b>Ohio Field Office</b>						
OH-OPS-0900-D	Pre-2004 Completions	57,659	0	0	57,659	57,659
OH-OPS-0900-N	Pre-2004 Completions (Non-Defense)	396,924	0	0	396,924	396,924
<b>Ohio Field Office Total</b>		<b>454,583</b>	<b>0</b>	<b>0</b>	<b>454,583</b>	<b>454,583</b>

**Environmental Management  
Lifecycle Costs by Program Baseline Summary (PBS) (\$K)**

<b>PBS Code</b>	<b>PBS Name</b>	<b>Prior Costs (97 – 2017)</b>	<b>FY2018 and Remaining Cost (Low Range)</b>	<b>FY2018 and Remaining Cost (High Range)</b>	<b>Lifecycle Cost (Low Range)</b>	<b>Lifecycle Cost (High Range)</b>
<b>Paducah Gaseous Diffusion Plant</b>						
PA-0011	NM Stabilization and Disposition-Paducah Uranium Facilities Management	56,255	78,287	81,859	134,542	138,114
PA-0011X	NM Stabilization and Disposition-Depleted Uranium Hexafluoride Conversion	796,286	2,604,637	2,604,637	3,400,923	3,400,923
PA-0013	Solid Waste Stabilization and Disposition	285,273	0	0	285,273	285,273
PA-0020	Safeguards and Security	123,309	992,141	1,035,566	1,115,450	1,158,875
PA-0040	Nuclear Facility D&D-Paducah	2,091,125	27,619,122	33,706,354	29,710,247	35,797,479
PA-0100	Paducah Community and Regulatory Support (Non-Defense)	10,534	0	0	10,534	10,534
PA-0101	Paducah Contract/Post-Closure Liabilities/Administration (Non-Defense)	-1,856	0	0	-1,856	-1,856
PA-0102	Paducah Contract/Post-Closure Liabilities/Administration (D&D Fund)	41,538	742	742	42,280	42,280

Environmental Management Lifecycle Costs by Program Baseline Summary (PBS) (\$K)						
PBS Code	PBS Name	Prior Costs (97 – 2017)	FY2018 and Remaining Cost (Low Range)	FY2018 and Remaining Cost (High Range)	Lifecycle Cost (Low Range)	Lifecycle Cost (High Range)
PA-0103	Paducah Community and Regulatory Support (D&D Fund)	38,358	191,507	198,259	229,865	236,617
<b>Paducah Gaseous Diffusion Plant Total</b>		<b>3,440,821</b>	<b>31,486,436</b>	<b>37,627,417</b>	<b>34,927,258</b>	<b>41,068,239</b>
<b>Pantex Plant</b>						
VL-PX-0030	Soil and Water Remediation-Pantex	191,127	0	0	191,127	191,127
VL-PX-0040	Nuclear Facility D&D-Pantex	15,209	0	0	15,209	15,209
<b>Pantex Plant Total</b>		<b>206,336</b>	<b>0</b>	<b>0</b>	<b>206,336</b>	<b>206,336</b>
<b>Portsmouth Gaseous Diffusion Plant</b>						
PO-0011	NM Stabilization and Disposition-Portsmouth Uranium Facilities Management	102,164	0	0	102,164	102,164
PO-0011X	NM Stabilization and Disposition-Depleted Uranium Hexafluoride Conversion	773,116	1,248,184	1,248,184	2,021,300	2,021,300



Environmental Management Lifecycle Costs by Program Baseline Summary (PBS) (\$K)						
PBS Code	PBS Name	Prior Costs (97 – 2017)	FY2018 and Remaining Cost (Low Range)	FY2018 and Remaining Cost (High Range)	Lifecycle Cost (Low Range)	Lifecycle Cost (High Range)
PO-0013	Solid Waste Stabilization and Disposition	444,906	0	0	444,906	444,906
PO-0020	Safeguards and Security	219,314	245,776	245,776	465,090	465,090
PO-0040	Nuclear Facility D&D-Portsmouth	2,478,509	11,445,092	12,460,227	13,923,601	14,938,736
PO-0041	Nuclear Facility D&D-Portsmouth GCEP	70,200	0	0	70,200	70,200
PO-0101	Portsmouth Cold Standby	372,398	0	0	372,398	372,398
PO-0103	Portsmouth Contract/Post-Closure Liabilities/Administration (D&D Fund)	13,118	24,468	24,468	37,586	37,586
PO-0104	Portsmouth Community and Regulatory Support (D&D Fund)	11,847	36,048	36,048	47,895	47,895
<b>Portsmouth Gaseous Diffusion Plant Total</b>		<b>4,485,574</b>	<b>12,999,568</b>	<b>14,014,703</b>	<b>17,485,142</b>	<b>18,500,277</b>

**Princeton Plasma Physics Laboratory**

CH-PPPL-0030	Soil and Water Remediation-Princeton Site A/B	309	0	0	309	309
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Environmental Management Lifecycle Costs by Program Baseline Summary (PBS) (\$K)						
PBS Code	PBS Name	Prior Costs (97 – 2017)	FY2018 and Remaining Cost (Low Range)	FY2018 and Remaining Cost (High Range)	Lifecycle Cost (Low Range)	Lifecycle Cost (High Range)

<b>Princeton Plasma Physics Laboratory Total</b>	<b>309</b>	<b>0</b>	<b>0</b>	<b>309</b>	<b>309</b>
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Program Direction						
HQ-PD-0100	Program Direction	6,358,433	5,355,319	5,355,319	11,713,752	11,713,752
<b>Program Direction Total</b>		<b>6,358,433</b>	<b>5,355,319</b>	<b>5,355,319</b>	<b>11,713,752</b>	<b>11,713,752</b>

Richland Operations Office						
HQ-SNF-0012X-RL	SNF Stabilization and Disposition-Storage Operations Awaiting Geologic Repository	2,785	0	0	2,785	2,785
RL-0011	NM Stabilization and Disposition-PFP	2,774,623	27,210	102,871	2,801,833	2,877,494
RL-0012	SNF Stabilization and Disposition	3,035,286	16,906	16,906	3,052,192	3,052,192
RL-0013B	Solid Waste Stabilization and Disposition-200 Area-2012	796	0	0	796	796

**Environmental Management  
Lifecycle Costs by Program Baseline Summary (PBS) (\$K)**

<b>PBS Code</b>	<b>PBS Name</b>	<b>Prior Costs (97 – 2017)</b>	<b>FY2018 and Remaining Cost (Low Range)</b>	<b>FY2018 and Remaining Cost (High Range)</b>	<b>Lifecycle Cost (Low Range)</b>	<b>Lifecycle Cost (High Range)</b>
RL-0013C	Solid Waste Stabilization & Disposition	3,240,551	6,364,292	6,621,921	9,604,843	9,862,472
RL-0020	Safeguards and Security	1,070,977	3,222,796	3,222,796	4,293,773	4,293,773
RL-0030	Soil and Water Remediation-Groundwater/Vadose Zone	2,414,809	5,036,035	5,515,079	7,450,844	7,929,888
RL-0040	Nuclear Facility D&D-Remainder of Hanford	2,077,103	11,736,456	15,559,687	13,813,559	17,636,790
RL-0041	Nuclear Facility D&D-River Corridor Closure Project	4,646,913	1,484,223	1,571,631	6,131,136	6,218,544
RL-0042	Nuclear Facility D&D-Fast Flux Test Facility Project	326,009	847,506	916,981	1,173,515	1,242,990
RL-0043	HAMMER Facility	7,426	0	0	7,426	7,426
RL-0044	B-Reactor Museum	1,940	0	0	1,940	1,940
RL-0080	Operate Waste Disposal Facility	71,232	0	0	71,232	71,232
RL-0100	Richland Community and Regulatory Support	355,258	473,013	473,013	828,271	828,271
RL-0201	Hanford Sitewide Services	201,829	7,497,231	7,549,192	7,699,060	7,751,021

Environmental Management Lifecycle Costs by Program Baseline Summary (PBS) (\$K)						
PBS Code	PBS Name	Prior Costs (97 – 2017)	FY2018 and Remaining Cost (Low Range)	FY2018 and Remaining Cost (High Range)	Lifecycle Cost (Low Range)	Lifecycle Cost (High Range)
RL-0900	Pre-2004 Completions	132,586	0	0	132,586	132,586
<b>Richland Operations Office Total</b>		<b>20,360,124</b>	<b>36,705,668</b>	<b>41,550,077</b>	<b>57,065,792</b>	<b>61,910,201</b>

River Protection						
HQ-HLW-0014X-RV	Radioactive Liquid Tank Waste Stabilization and Disposition- Storage Operations Awaiting Geologic Rep	0	93,469	93,469	93,469	93,469
ORP-TDD-0014	River Protection TDD	4	0	0	4	4
ORP-0014-T	Radioactive Liquid Tank Waste Stabilization and Disposition (T)	0	0	0	0	0
ORP-0014	Radioactive Liquid Tank Waste Stabilization and Disposition	8,754,426	43,880,715	51,122,003	52,635,141	59,876,429
ORP-0060	Major Construction-Waste Treatment Plant	11,137,943	5,675,057	5,675,057	16,813,000	16,813,000
ORP-0061	Pre-Waste Treatment Plan, Transition Activity	433,314	0	0	433,314	433,314
ORP-0070	Waste Treatment Plant Operations	481	0	0	481	481

**Environmental Management  
Lifecycle Costs by Program Baseline Summary (PBS) (\$K)**

<b>PBS Code</b>	<b>PBS Name</b>	<b>Prior Costs (97 – 2017)</b>	<b>FY2018 and Remaining Cost (Low Range)</b>	<b>FY2018 and Remaining Cost (High Range)</b>	<b>Lifecycle Cost (Low Range)</b>	<b>Lifecycle Cost (High Range)</b>
ORP-0100	Office of River Protection Community and Regulatory Support	1,458	0	0	1,458	1,458
ORP-TD-0100	Technology Development Activities - River Protection	63	0	0	63	63
<b>River Protection Total</b>		<b>20,327,689</b>	<b>49,649,241</b>	<b>56,890,529</b>	<b>69,976,930</b>	<b>77,218,218</b>

**Rocky Flats Environmental Technology Site**

RF-0011	NM Stabilization and Disposition	470,485	0	0	470,485	470,485
RF-0013	Solid Waste Stabilization and Disposition	892,507	0	0	892,507	892,507
RF-0020	Safeguards and Security	300,388	0	0	300,388	300,388
RF-0030	Soil and Water	2,088,694	0	0	2,088,694	2,088,694
RF-0040	Nuclear Facility D&D-North Side Facility Closures	1,920,831	0	0	1,920,831	1,920,831
RF-0041	Nuclear Facility D&D-South Side Facility Closures	756,890	0	0	756,890	756,890

Environmental Management Lifecycle Costs by Program Baseline Summary (PBS) (\$K)						
PBS Code	PBS Name	Prior Costs (97 – 2017)	FY2018 and Remaining Cost (Low Range)	FY2018 and Remaining Cost (High Range)	Lifecycle Cost (Low Range)	Lifecycle Cost (High Range)
RF-0100	RFETS	102,965	2,216,407	2,216,407	2,319,372	2,319,372
RF-0101	Rocky Flats Community and Regulatory Support	37,041	0	0	37,041	37,041
CBC-RF-0102	Rocky Flats Future Use	3,061	0	0	3,061	3,061
<b>Rocky Flats Field Office Total</b>		<b>6,572,862</b>	<b>2,216,407</b>	<b>2,216,407</b>	<b>8,789,269</b>	<b>8,789,269</b>
<b>Sandia National Laboratory</b>						
VL-SN-0030	Soil and Water Remediation-Sandia	259,664	24,330	25,127	283,994	284,791
<b>Sandia National Laboratory Total</b>		<b>259,664</b>	<b>24,330</b>	<b>25,127</b>	<b>283,994</b>	<b>284,791</b>
<b>Savannah River Site</b>						
HQ-HLW-0014X-SR	Radioactive Liquid Tank Waste Stabilization and Disposition- Storage Operations Awaiting Geologic Rep	0	0	0	0	0

**Environmental Management  
Lifecycle Costs by Program Baseline Summary (PBS) (\$K)**

<b>PBS Code</b>	<b>PBS Name</b>	<b>Prior Costs (97 – 2017)</b>	<b>FY2018 and Remaining Cost (Low Range)</b>	<b>FY2018 and Remaining Cost (High Range)</b>	<b>Lifecycle Cost (Low Range)</b>	<b>Lifecycle Cost (High Range)</b>
HQ-SNF-0012X-SR	SNF Stabilization and Disposition-Storage Operations Awaiting Geologic Repository	68,140	0	0	68,140	68,140
SR-0011A	NM Stabilization and Disposition-2006	134,065	0	0	134,065	134,065
SR-0011B	NM Stabilization and Disposition-2012	3,671,623	0	0	3,671,623	3,671,623
SR-0011C	NM Stabilization and Disposition-2035	3,594,845	6,788,812	7,378,252	10,383,657	10,973,097
SR-0012	SNF Stabilization and Disposition	636,548	7,090,588	8,193,022	7,727,136	8,829,570
SR-0013	Solid Waste Stabilization and Disposition	2,050,927	9,161,210	12,207,786	11,212,137	14,258,713
SR-0014B	Radioactive Liquid Tank Waste Stabilization and Disposition- 2012	0	0	0	0	0
SR-0014C	Radioactive Liquid Tank Waste Stabilization and Disposition- 2035	12,441,439	20,975,206	28,396,501	33,416,645	40,837,940
SR-0014C-T	Radioactive Liquid Tank Waste Stabilization and Disposition- 2035 (T)	137,603	0	0	137,603	137,603
SR-0020	Safeguards and Security	2,342,112	8,543,453	10,547,981	10,885,565	12,890,093

Environmental Management Lifecycle Costs by Program Baseline Summary (PBS) (\$K)						
PBS Code	PBS Name	Prior Costs (97 – 2017)	FY2018 and Remaining Cost (Low Range)	FY2018 and Remaining Cost (High Range)	Lifecycle Cost (Low Range)	Lifecycle Cost (High Range)
SR-0020-ARGUS	Argus Security Systems - Savannah River	4,150	0	0	4,150	4,150
SR-0030	Area Completion	2,244,058	13,284,238	16,707,982	15,528,296	18,952,040
SR-0040	Nuclear Facility D&D	494,319	0	0	494,319	494,319
SR-0040B	Nuclear Facility D&D-2012	778	0	0	778	778
SR-0042	Infrastructure	0	1,592,058	1,642,058	1,592,058	1,642,058
SR-0100	Non-Closure Mission Support	255,884	1,135,380	1,579,956	1,391,264	1,835,840
SR-0101	Savannah River Community and Regulatory Support	164,742	0	0	164,742	164,742
SR-0900	Pre-2004 Completions	198,242	0	0	198,242	198,242
<b>Savannah River Site Total</b>		<b>28,439,476</b>	<b>68,570,945</b>	<b>86,653,538</b>	<b>97,010,421</b>	<b>115,093,014</b>

**SEFOR, University of Arkansas**

CBC-SEFOR-0040N	Southwest Experimental Fast Oxide Reactor (SEFOR) to the	9,417	0	0	9,417	9,417
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**Environmental Management  
Lifecycle Costs by Program Baseline Summary (PBS) (\$K)**

PBS Code	PBS Name	Prior Costs (97 – 2017)	FY2018 and Remaining Cost (Low Range)	FY2018 and Remaining Cost (High Range)	Lifecycle Cost (Low Range)	Lifecycle Cost (High Range)
University of Arkansas						
<b>SEFOR, University of Arkansas Total</b>		<b>9,417</b>	<b>0</b>	<b>0</b>	<b>9,417</b>	<b>9,417</b>

<b>Stanford Linear Accelerator Center</b>						
CBC-SLAC-0030	Soil and Water Remediation-Stanford Linear Accelerator Center	69,038	0	0	69,038	69,038
VL-SLAC-0030	Soil and Water Remediation-Stanford Linear Accelerator Center	1,043	0	0	1,043	1,043
<b>Stanford Linear Accelerator Center Total</b>		<b>70,081</b>	<b>0</b>	<b>0</b>	<b>70,081</b>	<b>70,081</b>

<b>Technology Development and Deployment</b>						
HQ-TD-0100	Mission Innovation and Technology	1,824,624	994,813	994,813	2,819,437	2,819,437
<b>Technology Development and Deployment Total</b>		<b>1,824,624</b>	<b>994,813</b>	<b>994,813</b>	<b>2,819,437</b>	<b>2,819,437</b>

**Tuba City**

**Environmental Management  
Lifecycle Costs by Program Baseline Summary (PBS) (\$K)**

<b>PBS Code</b>	<b>PBS Name</b>	<b>Prior Costs (97 – 2017)</b>	<b>FY2018 and Remaining Cost (Low Range)</b>	<b>FY2018 and Remaining Cost (High Range)</b>	<b>Lifecycle Cost (Low Range)</b>	<b>Lifecycle Cost (High Range)</b>
CBC-TUBA-0031	Tuba City Mill Tailings	540	0	0	540	540
<b>Tuba City Total</b>		<b>540</b>	<b>0</b>	<b>0</b>	<b>540</b>	<b>540</b>

**Waste Isolation Pilot Plant**

CB-0020	Safeguards and Security - WIPP	64,134	124,545	124,545	188,679	188,679
CB-0080	Operate Waste Disposal Facility-WIPP	3,285,373	1,904,700	2,223,687	5,190,073	5,509,060
CB-0081	Central Characterization Project	435,208	126,228	169,897	561,436	605,105
CB-0083	Critical Infrastructure Repair/Replacement	0	46,695	46,695	46,695	46,695
CB-0090	Transportation-WIPP	505,171	331,477	381,979	836,648	887,150
CB-0100	US/Mexico/Border/Material Partnership	11,387	0	0	11,387	11,387
CB-0101	Community and Regulatory Support	288,698	0	0	288,698	288,698

Environmental Management Lifecycle Costs by Program Baseline Summary (PBS) (\$K)						
PBS Code	PBS Name	Prior Costs (97 – 2017)	FY2018 and Remaining Cost (Low Range)	FY2018 and Remaining Cost (High Range)	Lifecycle Cost (Low Range)	Lifecycle Cost (High Range)
CB-0900	Pre-2004 Completions	7,137	0	0	7,137	7,137
<b>Waste Isolation Pilot Plant Total</b>		<b>4,597,108</b>	<b>2,533,645</b>	<b>2,946,803</b>	<b>7,130,753</b>	<b>7,543,911</b>
<b>West Valley Demonstration Project</b>						
OH-WV-0012	SNF Stabilization and Disposition-West Valley	32,319	0	0	32,319	32,319
OH-WV-0013	Nuclear Facility D&D West Valley	363,394	82,447	118,818	445,841	482,212
OH-WV-0014	Radioactive Liquid Tank Waste Stabilization and Disposition- West Valley High-Level Waste Storage	0	0	0	0	0
OH-WV-0020	Safeguards and Security-West Valley	35,320	32,632	34,298	67,952	69,618
OH-WV-0040	Nuclear Facility D&D-West Valley	986,013	332,658	478,281	1,318,671	1,464,294
<b>West Valley Demonstration Project Total</b>		<b>1,417,046</b>	<b>447,737</b>	<b>631,397</b>	<b>1,864,783</b>	<b>2,048,443</b>
<b>Grand Total</b>		<b>137,204,520</b>	<b>232,016,761</b>	<b>274,087,964</b>	<b>369,221,281</b>	<b>411,292,484</b>

<b>Environmental Management Project Schedule Range</b> <b>50% to 80% Confidence Level</b> <b>(Single date indicates both 50% and 80% Confidence Levels are the same)</b>	
<b>Site</b>	<b>Completion Date</b>
Energy Technology Engineering Center	TBD <sup>a</sup>
Separations Process Research Unit	2021
Brookhaven National Laboratory	2020
Lawrence Livermore National Laboratory	2023
Sandia National Laboratory	2028
Nevada Nuclear Security Site	2030
Moab	2034
Waste Isolation Pilot Plant	2035 - 2042
Los Alamos National Laboratory	2036
West Valley Demonstration Project	2040 - 2045
Idaho National Laboratory	2045 - 2060
Portsmouth Gaseous Diffusion Plant	2039 – 2041
Oak Ridge	2046
Paducah Gaseous Diffusion Plant	2065 - 2070
Savannah River Site	2065
Hanford Site	2070-2075

<sup>a</sup>EM will continue to aggressively pursue cleanup at ETEC in accordance with the Administrative Order on Consent while working with regulators to facilitate cleanup as quickly as possible.

## Carlsbad

### Overview

The Carlsbad Field Office will support cleanup of radioactive and chemical waste resulting from the Manhattan Project and Cold War activities. The Carlsbad Field Office has the responsibility for management of the National Transuranic Waste Program and the Waste Isolation Pilot Plant, the Nation's only mined geologic repository for the permanent disposal of defense-generated transuranic waste. The Carlsbad Field Office's National Transuranic Waste Program coordinates with all DOE sites that generate transuranic waste to retrieve, repackage, characterize, ship, and dispose of transuranic waste resulting in cleaning up sites, reducing risks, and decreasing nuclear footprints.

Direct maintenance and repair for operations at the Carlsbad Field Office is estimated to be \$11,712,000 in FY 2019.

The Carlsbad Field Office plans to purchase the following vehicle in FY 2019: one Fire Truck.

### Current Status

The Waste Isolation Pilot Plant resumed operations by emplacing waste in the underground on January 4, 2017. While DOE completed the recovery effort with the resumption of waste emplacement, the Waste Isolation Pilot Plant will operate in an interim status until critical facility structures, systems, and components are repaired or replaced; and two line-item capital projects that will make up the new permanent mine ventilation system are completed: the new safety significant confinement ventilation system (15-D-411) and utility shaft (formerly exhaust shaft) (15-D-412). These areas (facility repairs/replacements and new permanent ventilation system) are necessary to increase the Waste Isolation Pilot Plant emplacement capability, to ensure mining of new repository space is complete in time to ensure continuity of waste emplacement, and to sustain mining and waste emplacement operations. Ongoing actions to support waste operations include: implementation of corrective actions; sustainment of safety management program improvements; underground stabilization activities (e.g., geotechnical surveys, roof bolting, temporary shoring and closure of south portion of mine); continued radiological contamination mitigation in the repository; collection and analysis of environmental samples; cleaning and maintenance of underground equipment; repair of failed or failing equipment and infrastructure beyond design life; supplemental ventilation system operation; mining operations; progress on the Critical Decision-2/3, Approve Performance Baseline/Approve Start of Construction for the new safety significant confinement ventilation system and new utility shaft (formerly exhaust shaft); periodic replacement of the underground ventilation system filters; and other activities to ensure protection of the workers, the public, and the environment.

### Highlights of the FY 2019 Budget Request

The funding request supports disposal facility operations, regulatory and environmental compliance actions, the Central Characterization Project to maintain progress toward legacy transuranic waste related milestones at generator sites, transportation capabilities, and continued progress on the line item capital asset projects.

The Waste Isolation Pilot Plant activities planned in FY 2019 (within PBS Operate Waste Disposal Facility-WIPP, CB-0080) include continuing base operations, maintaining enhancements/improvements established in response to the Accident Investigation Boards' three reports, and implementing associated required corrective actions. Continued base operations include: Documented Safety Analysis maintenance, environmental monitoring, Resource Conservation and Recovery Act permit maintenance, surface and underground operations, maintenance/repair of equipment and infrastructure to maintain operational capabilities, resumption of mining, and continuation of waste emplacement operations using existing disposal panels. Key enhancements/improvements established in response to the Accident Investigation Boards' judgments of need to be maintained in FY 2019 include: safety management programs, continued radiological contamination mitigation in the repository, emergency management capabilities, and contractor assurance system effectiveness.

Waste characterization at DOE waste generator sites will be funded by their respective site and includes activities such as visual examination, real time radiography, nondestructive assay, dose to curie conversion, and flammable gas analysis. Certification of waste characterization activities of legacy transuranic waste at Savannah River Site, Oak Ridge National

### Environmental Management/

Carlsbad

Laboratory, Lawrence Livermore National Laboratory, and Los Alamos National Laboratory will be funded by PBS Central Characterization Project (CB-0081), whereas the Idaho National Laboratory funds its waste characterization certification. Transportation certification is funded by PBS Central Characterization Project (CB-0081).

Transportation activities (within PBS Transportation-WIPP, CB-0090) include support of a core shipping capability for inter-site shipments and transuranic waste shipments to the Waste Isolation Pilot Plant using Type B transportation containers, maintenance and support for transportation containers, Nuclear Regulatory Commission Certificate of Compliance maintenance for transportation containers, as well as maintenance of established shipping corridors and associated stakeholder support activities with state and tribal organizations. In FY 2019, the transportation capability supports up to ten waste shipments per week to the Waste Isolation Pilot Plant, with expected shipments from Idaho Site, Los Alamos National Laboratory, Savannah River Site, Oak Ridge National Laboratory, Lawrence Livermore National Laboratory, and potentially other sites.

The FY 2019 request includes \$1,000,000 in FY 2019 line-item funding for construction of the new utility shaft (formerly exhaust shaft) and \$84,212,000 for the construction of the new safety significant confinement ventilation system. The new safety significant confinement ventilation system is a top priority because it will restore air flow in the Waste Isolation Pilot Plant underground for simultaneous operations such as mine stability, new disposal panel mining, underground equipment and facility maintenance, and waste emplacement activities in both “clean” and contaminated underground areas. The exhaust shaft has been renamed the utility shaft, which provides the best description for the multiple capabilities the shaft is expected to be utilized for including: airflow, salt hoists, waste emplacement, material handling, transporting personnel and emergency egress. In addition, as design-engineering matured, it was determined that for usability and nuclear safety reasons, the new shaft would better serve as an intake shaft and that the existing air intake shaft would better be used as an exhaust shaft to provide for an unfiltered exhaust pathway for mining dust and supporting mine operations.

#### **FY 2018 - 2019 Key Milestones/Outlook**

- (Second Quarter 2018) Complete temporary supplemental ventilation system startup
- (First Quarter 2018) Resume mining
- (Second Quarter 2018) Achieve Critical Decision-2/3 to commence construction on the Safety Significant Confinement Ventilation System (15-D-411) and Utility Shaft (formerly Exhaust Shaft) (15-D-412)
- (2019) Achieve significant progress in repair/replacement of critical infrastructure needed to increase the Waste Isolation Pilot Plant emplacement capacity
- (Second Quarter 2019) Submit the fifth Compliance Recertification Application to the Environmental Protection Agency

#### **Regulatory Framework**

The Waste Isolation Pilot Plant has four primary regulators: 1) the Environmental Protection Agency, which regulates radioactive (transuranic) constituents and certifies that the Waste Isolation Pilot Plant will comply with the long-term radioactive waste disposal regulations (40 Code of Federal Regulations Part 191, Subparts B and C); 2) the New Mexico Environment Department, which regulates the hazardous constituents of waste in the repository during the operational time frame; 3) the Nuclear Regulatory Commission, which certifies the design and capability of Type B radioactive material shipping containers; and 4) the Department of Transportation, which regulates highway transportation and radioactive and hazardous material shipping containers.

In the Waste Isolation Pilot Plant Land Withdrawal Act of 1992, as amended, (Public Law 102-579), Congress established regulatory conditions and standards covering limits on the types and quantities of waste that the Department could place in the repository. The Waste Isolation Pilot Plant operates under a renewed Resource Conservation and Recovery Act, Part B, Hazardous Waste Facility Permit issued by the New Mexico Environment Department in December 2010.

The Environmental Protection Agency regulates the Waste Isolation Pilot Plant under specific criteria established in 40 Code of Federal Regulations Part 194 that require the Department to demonstrate that the Waste Isolation Pilot Plant would meet containment standards, which apply after final facility closure, for 10,000 years. The Environmental Protection Agency initially certified the Waste Isolation Pilot Plant’s compliance with these regulations on May 18, 1998. The

Department received its subsequent Compliance Recertifications, verifying continued compliance from the Environmental Protection Agency in March 2006, November 2010, and July 2017. The next Compliance Recertification Application is due to be submitted to the Environmental Protection Agency in March 2019.

In addition, under the terms of the Waste Isolation Pilot Plant Land Withdrawal Act, the Mine Safety and Health Administration is responsible for quarterly inspections of the Waste Isolation Pilot Plant facility. After the February 2014 operational incidents, an updated Memorandum of Understanding was developed between the Department and Mine Safety and Health Administration. The Mine Safety and Health Administration has been conducting regular and at least quarterly inspections of the Waste Isolation Pilot Plant.

### **Contractual Framework**

Program planning and management at the Carlsbad Field Office is conducted through the issuance and execution of contracts to large and small businesses. The Carlsbad Field Office develops near-term and long-term planning approaches in order to develop contract strategies and operations plans at a more detailed level. Selected contractors then execute these plans to complete cleanup.

The Waste Isolation Pilot Plant contract is a Management and Operating Contract. It was awarded to Nuclear Waste Partnership, LLC, on a cost plus award fee basis (with mostly performance-based incentives) with an original base performance period of October 1, 2012, to September 30, 2017, with one five year option period of October 1, 2017, to September 30, 2022. DOE is currently evaluating contracting strategy options for future years.

This contract covers all site operations at the Waste Isolation Pilot Plant and support of the National Transuranic Waste Program, including the receipt and handling of transuranic waste shipments, characterization of waste at generator sites, verification/certification of waste documentation, permitting and certification of the repository, and transportation engineering and certification. The Waste Isolation Pilot Plant planning and implementation activities are included within this Management and Operating contract.

The Carlsbad Field Office also manages contracts that provides management analysis, site integration, transportation services, transportation communications support, and electric utilities. The transportation services prime contract is with a small business, Cast Specialty Transportation, Inc. This indefinite delivery/indefinite quantity contract has a base year period and four option periods for out-years. The Cast Specialty contract is for the period June 2017 to May 2022. As transportation requirements become known during the term of the contract, the Contracting Officer will place fixed price per unit task orders with the contractor for the transportation of transuranic waste.

### **Strategic Management**

The Department will work to reduce the footprint at transuranic waste sites across the complex through disposal of transuranic waste streams. The Carlsbad Field Office is key to the ultimate cleanup of transuranic waste across the DOE complex, as well as support to other DOE mission programs.

**Carlsbad  
Funding (\$K)**

	<b>FY 2017 Enacted</b>	<b>FY 2018 Annualized CR*</b>	<b>FY 2019 Request</b>	<b>FY 2019 Request vs FY 2017 Enacted</b>
<b>Defense Environmental Cleanup</b>				
<b>Waste Isolation Pilot Plant</b>				
<b>Waste Isolation Pilot Plant</b>				
CB-0080 / Operate Waste Disposal Facility-WIPP	253,318	251,598	305,212	+51,894
CB-0081 / Central Characterization Project	19,534	19,401	19,500	-34
CB-0083 / Critical Infrastructure Repair/Replacement	0	0	46,695	+46,695
CB-0090 / Transportation-WIPP	19,868	19,733	25,500	+5,632
<b>Subtotal, Waste Isolation Pilot Plant</b>	<b>292,720</b>	<b>290,732</b>	<b>396,907</b>	<b>+104,187</b>
<b>Safeguards and Security</b>				
CB-0020 / Safeguards and Security	5,200	5,165	6,580	+1,380
<b>CB-0101 Economic Assistance to the State of NM</b>				
CB-0101 / Economic Assistance to the State of New Mexico	26,800	26,618	0	-26,800
<b>Total, Defense Environmental Cleanup</b>	<b>324,720</b>	<b>322,515</b>	<b>403,487</b>	<b>+78,767</b>

\*A full-year 2018 appropriation for this account was not enacted at the time the budget was prepared; therefore, the budget assumes this account is operating under the Continuing Appropriations Act, 2018 (Division D of P.L. 115-56, as amended). The amounts included for 2018 reflect the annualized level provided by the continuing resolution. (These amounts are shown only at the Congressional control level and above; below that level, a dash (—) is shown).



**Carlsbad**  
**Explanation of Major Changes (\$K)**

<b>FY 2019 Request vs FY 2017 Enacted</b>
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**Defense Environmental Cleanup**

**Waste Isolation Pilot Plant**

**CB-0080 / Operate Waste Disposal Facility-WIPP**

- Increase reflects maintaining operational resources to sustain improved Safety Management Programs and to sustain and potentially increase waste emplacement rates achieved in FY 2018 as well as progress in constructing the new safety significant confinement ventilation project (15-D-411). +51,894

**CB-0081 / Central Characterization Project**

- No significant change. -34

**CB-0083 / Critical Infrastructure Repair/Replacement**

- Increase reflects a new PBS, CB-0083 Critical Infrastructure Repair/Replacement, to address the Waste Isolation Pilot Plant's repair or replacement of critical facility structures, systems, and components. +46,695

**CB-0090 / Transportation-WIPP**

- Increase reflects transportation activities required for operations at a rate of up to ten shipments per week. +5,632

**CB-0101 Economic Assistance to the State of NM**

**CB-0101 / Economic Assistance to the State of New Mexico**

- No funding is required for the State of New Mexico economic assistance due to the expiration of the legal requirement in the Land Withdrawal Act, as amended (Public Law 102-579). -26,800

**Safeguards and Security**

**CB-0020 / Safeguards and Security**

- Increased funding primarily reflects incorporation of cyber security activities within the Safeguards and Security program (PBS CB-0020). +1,380

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<b>Total, Carlsbad</b>	<b>+78,767</b>
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## Operate Waste Disposal Facility-WIPP (PBS: CB-0080)

### Overview

This PBS can be found within the Defense Environmental Cleanup appropriation.

This PBS includes all activities necessary for waste emplacement operations and supports activities related to the disposal of contact-handled and remote-handled transuranic waste at the Waste Isolation Pilot Plant. Key elements of Waste Isolation Pilot Plant operations are: 1) operation of the disposal repository – including mining, waste handling, and the maintenance/repair of infrastructure to safely maintain the facility and operations in compliance with all Federal and state laws, regulations, and environmental requirements; and 2) environmental compliance – maintenance of compliance certification through monitoring and verifying the performance of the system’s sensitive parameters.

FY 2019 funding includes the following activities: continuing base operations, maintaining enhancements/improvements established in response to the Accident Investigation Boards’ three reports, and implementing required corrective actions. Actions within this PBS include surface and underground operations, including waste emplacement in existing approved disposal panels; environmental monitoring; emergency management; quality assurance; nuclear safety measures, including Documented Safety Analysis maintenance; security, safety and health programs, including safety management program and oversight program enhancements such as fire protection systems; regulatory compliance, including Resource Conservation and Recovery Act permit maintenance; project planning and control; implementation of DOE Order 413.3B requirements; mining and panel closure activities; decontamination of contaminated areas; purchase of mining equipment, procurement, finance and accounting; information systems; oversight and interagency programs; ground control; and maintenance and repair of facilities and equipment.

Increasing waste emplacement concurrent with other activities in the facility requires completion of a new permanent ventilation system, which consists of two line-item construction projects: the Safety Significant Confinement Ventilation System (15-D-411) and Utility Shaft (formerly Exhaust Shaft) (15-D-412).

The request for this PBS supports maintenance and repair activities required in the course of daily operations. Funding is being requested separately for repair or replacement of critical facility structures, systems, and components within PBS Critical Infrastructure Repair/Replacement (CB-0083).

The emplaced volumes provided in the table below reflect container volume of certified transuranic waste emplaced at the Waste Isolation Pilot Plant, including void space and unfilled volume within the disposal package. This differs from the “Transuranic Dispositioned” corporate performance metric, which reflects estimated waste inventories (stored or to-be-generated) at generator sites, prior to full characterization and final disposition package configuration. The final volume of waste (and waste container) disposed at the Waste Isolation Pilot Plant usually differs from the estimated volume as it exists at the site. For example, a significant portion of the “Transuranic Dispositioned” inventory may be disposed of, after characterization, as low-level waste, which is not disposed at the Waste Isolation Pilot Plant.

**Transuranic Waste Emplaced in the WIPP Repository**

<b>Contact Handled (CH), Container Volume by Site (cubic meters)</b>											
<b>Fiscal Year</b>	<b>ANL-E</b>	<b>Hanford</b>	<b>INL</b>	<b>LANL</b>	<b>LLNL</b>	<b>NTS</b>	<b>ORNL</b>	<b>RFETS</b>	<b>SRS</b>	<b>WIPP</b>	<b>Cumulative Total</b>
1999	0	0	15	190	0	0	0	62	0	0.0	266
2000	0	13	87	0	0	0	0	252	0	0.0	618
2001	0	68	717	74	0	0	0	1044	62	0.3	2,583
2002	0	18	2065	8	0	0	0	2903	141	0.5	7,717
2003	97	250	567	327	0	0	0	4017	2285	0.0	15,259
2004	24	448	342	0	0	106	0	4650	3240	0.2	24,069
2005	0	853	2564	171	146	235	0	2134	1554	0.0	31,726
2006	0	715	7890	546	0	64	0	0	1340	0.0	42,282
2007	0	765	5390	823	0	0	0	0	1548	0.0	50,808
2008	0	622	3304	689	0	0	12	0	1267	0.3	56,703
2009	0	9	4621	727	0	0	37	0	719	2.5	62,817
2010	0	475	5114	1063	0	0	230	0	862	0.0	70,561
2011	0	825	4211	1014	0	0	79	0	1138	0.0	77,827
2012	0	0	2620	1514	0	0	57	0	1469	0.0	83,487
2013	0	0	2101	1463	0	0	0	0	1465	0.0	88,516
2014	0	0	1138	556	0	0	0	0	416	0.0	90,626
2017	0	0	446	119	0	0	20	0	80	21	91,312
2018	0	0	354	46	0	0	63	0	30	0	91,805
<b>Site Totals:</b>	<b>121</b>	<b>5,061</b>	<b>43,544</b>	<b>9,328</b>	<b>146</b>	<b>405</b>	<b>498</b>	<b>15,062</b>	<b>17,586</b>	<b>25</b>	<b>91,775</b>

<b>Remote Handled (RH), Container Volume by Site (cubic meters)</b>									
<b>Fiscal Year</b>	<b>ANL-E</b>	<b>BAPL</b>	<b>GEVNC</b>	<b>INL</b>	<b>LANL</b>	<b>ORNL</b>	<b>SNL</b>	<b>SRS</b>	<b>Cumulative Total</b>
2007	0.0	0.0	0.0	22.7	0.0	0.0	0.0	0.0	23
2008	2.5	0.0	0.0	47.4	0.0	0.0	0.0	0.0	73
2009	7.4	0.0	0.6	15.7	14.2	5.0	0.0	18.4	134
2010	7.3	0.0	19.1	18.9	0.0	32.8	0.0	0.0	212
2011	17.5	1.9	0.0	17.4	0.0	5.0	0.0	5.0	259
2012	15.4	1.3	0.0	14.7	0.0	3.2	4.6	1.7	300
2013	12.9	0.0	0.0	38.9	0.0	0.0	0.0	0.0	352
2014	3.7	0	0	1.3	0	0	0	0	357
<b>Site Totals:</b>	<b>67</b>	<b>3</b>	<b>20</b>	<b>177</b>	<b>14</b>	<b>46</b>	<b>5</b>	<b>25</b>	<b>357</b>

As of January 2, 2018, approximately 92,162 cubic meters of transuranic waste have been disposed of at WIPP.

**Operate Waste Disposal Facility-WIPP (PBS: CB-0080)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
<b>\$253,318</b>	<b>\$305,212</b>	<b>+\$51,894</b>
<ul style="list-style-type: none"> <li>• Maintained safety, personnel health fire and emergency management programs, surface and underground operations, program administration, generator site interface, public affairs programs, payments to the National Institute of Standards and Technology and other organizations for independent oversight, environmental oversight, and right-of-ways, project planning and control, procurement, finance and accounting, information services and oversight and interagency programs, etc.</li> <li>• Provided funding for 40 Code of Federal Regulations Part 191/194 compliance, site environmental compliance, Resource Conservation and Recovery Act permit compliance, Quality Assurance, and payments to regulatory agencies.</li> <li>• Supported routine site maintenance items and activities.</li> <li>• Continued with Above Ground Storage Capability activities with preparation and completion of conceptual design and submittal of modification to Hazardous Waste Storage Facility Permit by June 2016.</li> <li>• 15-D-411: Safety Significant Confinement Vent               <ul style="list-style-type: none"> <li>– Started Preliminary Design for Safety Significant Confinement Ventilation System capital asset project.                   <ul style="list-style-type: none"> <li>o Achieved a 100 percent Design by the end of FY 2017.</li> </ul> </li> <li>– Earned Value Management System implementation for the Safety Significant Confinement Ventilation system and the Exhaust Shaft capital asset projects.                   <ul style="list-style-type: none"> <li>o Achieve ANSI-748B Compliant System by fourth quarter FY 2018.</li> </ul> </li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Perform activities for continued waste emplacement operations including sustainment of safety management program improvements, active mining, mine stabilization, and habitability activities in all underground areas, radiological contamination control activities, High Efficiency Particulate Air Filter change out, purchase of mining equipment and infrastructure improvements.</li> <li>• Maintain safety and personnel health programs, surface and underground operations, program administration, generator site interface, public affairs programs, interagency and cooperative agreements for independent oversight, environmental oversight, and right-of-ways.</li> <li>• Provide funding for 40 Code of Federal Regulations Part 191/194 compliance, site environmental compliance, Resource Conservation and Recovery Act permit compliance, quality assurance, and payments to regulatory agencies.</li> <li>• Support routine facility and equipment maintenance items and activities.</li> <li>• Maintain enhancements/improvements established in response to the Accident Investigation Boards’ various reports and required corrective actions.</li> <li>• If not yet approved, continue support of Above Ground Storage Capability Permit Modification Request to the Hazardous Waste Storage Facility Permit for the ability to start final design and construction activities.</li> <li>• Continue progress toward construction of Safety Significant Confinement Ventilation System (15-D-411) and Utility Shaft (formerly Exhaust Shaft) (15-D-412) projects to support completion of the new permanent</li> </ul>	<ul style="list-style-type: none"> <li>• Increase reflects maintaining operational resources to sustain improved Safety Management Programs and to sustain and potentially increase waste emplacement rates achieved in FY 2018 as well as progress in constructing the new safety significant confinement ventilation project (15-D-411).</li> </ul>

- o Declaration of Readiness for Certification of Earned Value Management System by the fourth quarter of FY 2018.
  - 15-D-412: Utility Shaft (formerly Exhaust Shaft)
    - Started Preliminary Design Utility Shaft (formerly Exhaust Shaft) capital asset project.
      - o Achieved a 100 percent Design by the end of FY 2017.
      - o Earned Value Management System implementation for Exhaust Shaft and the Safety Significant Confinement Ventilation System capital asset projects.
      - o Achieve ANSI-748B Compliant System by fourth quarter FY 2018.
  - Declaration of Readiness for Certification of Earned Value Management System by the fourth quarter FY 2018.
-

**Central Characterization Project (PBS: CB-0081)**

**Overview**

This PBS can be found within the Defense Environmental Cleanup appropriation.

This project scope includes labor, materials, and supplies for operation of mobile waste characterization systems deployed to DOE generator sites for characterization of transuranic waste to be disposed at the Waste Isolation Pilot Plant. It also includes generator site services at selected sites to characterize transuranic waste for transportation to the Waste Isolation Pilot Plant or to another site for processing and/or final certification, when cost-effective. The use of mobile systems provides generator sites with a highly regulated program that has already been certified for use. The Central Characterization Project provides a DOE-wide single certification program for remote-handled transuranic waste shipments to the Waste Isolation Pilot Plant at the generator/shipping sites and a DOE-wide transuranic waste shipping confirmation process required by the Waste Isolation Pilot Plant’s Hazardous Waste Facility Permit issued by the New Mexico Environment Department. While Defense Environmental Cleanup funds support the Central Characterization Project resources at Environmental Management sites and projects for disposition of legacy transuranic waste and transuranic waste generated by environmental cleanup activities, the resources required for characterization of newly generated, mission derived transuranic waste are funded by the benefitting mission programs (but provided via the Waste Isolation Pilot Plant management and operating contract and subcontracts).

In response to the findings of the Accident Investigation Board on the radiological release event and related reviews, DOE is implementing corrective actions that will also strengthen the waste processing programs at generator sites and the review and certification capabilities within the Central Characterization Project.

**Central Characterization Project (PBS: CB-0081)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$19,534	\$19,500	-\$34
<ul style="list-style-type: none"> <li>• Provided acceptable knowledge and procedural support, mobile waste loading support at select generator sites and waste certification support required for characterization activities.</li> <li>• Supported generator site interface for the Central Characterization Project activities, Central Characterization Project administration, and Performance Demonstration Program for</li> </ul>	<ul style="list-style-type: none"> <li>• Provide acceptable knowledge and procedural support, and mobile waste loading support at actively shipping generator sites.</li> <li>• Support generator site interface for the Central Characterization Project activities, Central Characterization Project administration, and Performance</li> </ul>	<ul style="list-style-type: none"> <li>• No significant change.</li> </ul>

Resource Conservation and Recovery Act constituents.

- Supported Central Characterization Program for legacy transuranic waste disposition at Idaho National Laboratory (transportation certification only, where Idaho National Laboratory funds characterization certification), and the Oak Ridge National Laboratory.
- Continued corrective actions from Radiological Release Accident Investigation Board Report Phase II.

Demonstration Program for Resource Conservation and Recovery Act constituents.

- Conduct Central Characterization Project certifications for transuranic waste disposition and transportation at the Savannah River Site, Oak Ridge National Laboratory, and Lawrence Livermore National Laboratory, and Los Alamos National Laboratory. Provide only transportation certification at Idaho National Laboratory (where Idaho National Laboratory funds waste certification).

**Critical Infrastructure Repair/Replacement (PBS: CB-0083)**

**Overview**

This PBS can be found within the Defense Environmental Cleanup appropriation.

Historically the Waste Isolation Pilot Plant operated some infrastructure and equipment beyond its life-cycle design in harsh environmental conditions of salt dust, high heat, and high humidity (during the summer monsoonal seasons). The extended high waste emplacement rate beyond facility design and extremely corrosive environment, combined with minimal routine maintenance and repair has led to degraded installed structures, systems, components, and major items of equipment. Major repairs and replacements of facility structures, systems, and components are necessary to maintain life safety, nuclear safety, and ensure the capability to emplace waste at a production rate that supports EM’s clean-up mission.

Since the events of February 2014, efforts have primarily focused on recovering a safe working environment and re-establishing some level of waste receipt and emplacement operations at the Waste Isolation Pilot Plant. The return to waste emplacement operations required incident mitigation (completed May 2014), re-establishing mine habitability, temporary ventilation upgrades, facility and safety management program enhancements, and reassessment of the safety basis. With these measures, the Waste Isolation Pilot Plant resumed emplacing waste in the underground on January 4, 2017. This new PBS, CB-0083 “Critical Infrastructure Repair/Replacement,” establishes a specific focus to increase the Waste Isolation Pilot Plant waste emplacement capability and ensure mining of new repository space is completed in time to ensure waste emplacement is sustained.

The following are primary repair and replacement needs that are anticipated to be supported by this requested funding level in FY 2019:

Project Name	Current Status	Mission Impact	Resolution/Description	Duration (months)	TEC	TPC
Electrical Substation Replacement	Beyond design life Rusted and corroded housing with high potential for system failure	Upon failure: Stop waste shipments and emplacement No Panel 8 mining Egress from mine with no further entries	Procure subcontractor services to design, procure, and install replacement substations.	12	<b>1,200,000</b>	<b>2,373,123</b>



Lightning Array Design Upgrade and New Construction	System is uncertifiable. It does not provide full protection	Upon lightning strike: Damage to critical equipment Stop waste shipments and emplacement Stop mining and ground control	Procure subcontractor services for the design and installation to repair the Lightning Array protection system. [An independent contractor that specializes in lightning protection systems determined the system is not certifiable.]	12	<b>1,000,000</b>	<b>2,160,428</b>
Design of Safety Significant Fire Suppression System (Waste Handling Building 411)	System is impaired. Compensatory measures are in place. Fire system is a Technical Safety Requirement (TSR) to protect workers and waste.	Reduction in shipping and waste emplacement Potential life safety issue Potential for offsite release	Procure Subcontractor services to design new/refurbished Fire suppression system in the Waste Handling Building. The DOE Operational Readiness Review team identified these deficiencies	12	<b>500,000</b>	<b>1,221,828</b>
Safety Significant Fire Suppression System (Waste Handling Building 411 Fire System)	System is impaired. Compensatory measures are in place. Fire system is required by the TSR to protect workers and waste.	Reduction in shipping and waste emplacement Potential life safety issue Potential for offsite release	Procure subcontractor services to address deficiencies noted in the safety significant fire suppression system. The DOE Operational Readiness Review team identified these deficiencies	12	<b>4,000,000</b>	<b>6,603,986</b>
Fire Water Loop Phase 3 (Spurs to facilities)	System is degraded but operable with compensatory measures	Waste Handling interruptions Significant operations impacts	Procure subcontractor services to fabricate, install, and test the spurs to the facilities installed in this phase.	12	<b>4,478,611</b>	<b>7,205,506</b>
Fire Water Loop Phase 4 (Alarms)	System is degraded but operable with compensatory measures	Waste Handling interruptions Significant operations impacts	Procure subcontractor services to design, fabricate, install, and test the alarms installed in this phase.	12	<b>3,102,391</b>	<b>5,372,371</b>
Salt Hoist Repairs	Significant corrosion has resulted in detrimental steel degradation. Base and footer concrete spalling. Guides in the shaft are degraded.	Stop salt haulage Stop personnel transportation Stop waste shipments and emplacement when Panel 7 is filled	Procure subcontractor services for the refurbishment of the Salt Hoist and Salt Shaft (i.e., the secondary access shaft at WIPP).	12	<b>9,700,000</b>	<b>13,890,081</b>

Salt Shaft Loading Pocket Salt Removal and Steel Replacement	Hoist guides are not aligned properly Salt bin clearance is minimal and salt walls are impacting alignment of the bin	Salt haulage will stop Mining will stop Stop waste shipments and emplacement when Panel 7 is filled	Procure subcontractor services to provide adequate clearance for the salt bin and repair/realign the structural steel components.	6	2,036,000	3,865,963
Continuous Miner	Not available Needed for mining Panel 8	Upon failure: significant operations impact	Procure, assemble in underground, and make operable	24	3,600,000	4,002,075
<b>TOTAL</b>					<b>29,617,002</b>	<b>46,695,361</b>

**Critical Infrastructure Repair/Replacement (PBS: CB-0083)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$0	\$46,695	+\$46,695
	<ul style="list-style-type: none"> <li>Repair and replace the Waste Isolation Pilot Plant's degraded facility structures, systems, and components.</li> </ul>	<ul style="list-style-type: none"> <li>Increase reflects a new PBS, CB-0083 Critical Infrastructure Repair/Replacement, to address the Waste Isolation Pilot Plant's repair or replacement of critical facility structures, systems, and components.</li> </ul>

**Transportation-WIPP (PBS: CB-0090)**

**Overview**

This PBS can be found within the Defense Environmental Cleanup appropriation.

This program includes all transportation activities required to support the disposal of both contact-handled and remote-handled transuranic waste to the Waste Isolation Pilot Plant, or transport to other designated sites for treatment and/or characterization prior to shipment for disposal. This includes carrier services, transportation packaging, shipping coordination, and stakeholder interfaces related to transportation. As required in the Waste Isolation Pilot Plant Land Withdrawal Act, as amended, this program provides for technical assistance to states, Indian tribes, and communities for the purpose of training public safety officials and other emergency responders in any State or Indian tribal lands through which DOE plans to transport transuranic waste to or from the Waste Isolation Pilot Plant and inter-site transfers of transuranic waste.

FY 2019 funding supports waste shipment capabilities between generator sites and waste shipment capabilities to the Waste Isolation Pilot Plant, as well as shipping coordination between generator sites and the Waste Isolation Pilot Plant and transportation corridor grants with stakeholders.

**Transportation-WIPP (PBS: CB-0090)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
<b>\$19,868</b>	<b>\$25,500</b>	<b>+\$5,632</b>
<ul style="list-style-type: none"> <li>• Provided transportation capabilities through the carrier contracts.</li> <li>• Supported shipping corridor readiness, including training and associated stakeholder and regulatory grants, including Nuclear Regulatory Commission fees.</li> <li>• Maintained package certification and associated required maintenance for packages used: TRUPACT II's, Half PACTS, TRUPACT III's, and RH-72B's.</li> <li>• Preserved transportation readiness and capability for inter-site shipments.</li> </ul>	<ul style="list-style-type: none"> <li>• Provides transportation capabilities for up to ten shipments per week through the carrier contract.</li> <li>• Supports shipping corridor readiness, including training and associated stakeholder and regulatory grants, including Nuclear Regulatory Commission fees.</li> <li>• Maintains package certification and associated required maintenance for packages used: TRUPACT II's, Half PACTS, TRUPACT III's, and RH-72B's.</li> <li>• Continue transportation readiness and capability for inter-site shipments.</li> </ul>	<ul style="list-style-type: none"> <li>• Increase reflects transportation activities required for operations at a rate of up to ten shipments per week.</li> </ul>

**Economic Assistance to the State of New Mexico (PBS: CB-0101)**

**Overview**

This PBS can be found within the Defense Environmental Cleanup appropriation.

This PBS provided funding for the State of New Mexico economic assistance in accordance with the Consolidated Appropriations Act, 2017 (Public Law 115-3).

**Economic Assistance to the State of New Mexico (PBS: CB-0101)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$26,800	\$0	-\$26,800
<ul style="list-style-type: none"> <li>• Provided one-time payment for the State of New Mexico economic assistance in accordance with the Consolidated Appropriations Act, 2017 (Public Law 115-3).</li> </ul>	<ul style="list-style-type: none"> <li>• No activities.</li> </ul>	<ul style="list-style-type: none"> <li>• No funding is required for the State of New Mexico economic assistance due to the expiration of the legal requirement in the Land Withdrawal Act, as amended (Public Law 102-579).</li> </ul>

**Safeguards and Security (PBS: CB-0020)**

**Overview**

This PBS can be found within the Defense Environmental Cleanup appropriation.

The scope of the Security Program at the Waste Isolation Pilot Plant includes, but is not limited to, planning, administering, and executing a program that protects government assets and ensures the security of disposed sensitive wastes.

The Cyber Security Program at the Carlsbad Field Office protects government information and technology systems to support both disposal operations at the Waste Isolation Pilot Plant and transuranic waste characterization, packaging, certification, and transportation activities within the National Transuranic Waste Program.

**Safeguards and Security (PBS: CB-0020)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$5,200	\$6,580	+\$1,380
<ul style="list-style-type: none"> <li>• Provided security coverage at the Waste Isolation Pilot Plant.</li> </ul>	<ul style="list-style-type: none"> <li>• Provide security coverage at the Waste Isolation Plant.</li> <li>• Provide cyber security to ensure DOE information resources are identified and protected.</li> </ul>	<ul style="list-style-type: none"> <li>• Increased funding primarily reflects incorporation of cyber security activities within the Safeguards and Security program (PBS CB-0020).</li> </ul>

**Carlsbad  
Capital Summary (\$K)**

<b>Total</b>	<b>Prior Years</b>	<b>FY 2017 Enacted</b>	<b>FY 2019 Request</b>	<b>FY 2019 Request vs FY 2017 Enacted</b>
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**Capital Operating Expenses Summary (including (Major Items of Equipment (MIE))**

Capital Equipment > \$500K (including MIE)	0	0	0	0	0
Plant Projects (GPP and IGPP) (<\$10M)	37,931	0	8,314	29,617	+21,303
<b>Total, Capital Operating Expenses</b>	<b>37,931</b>	<b>0</b>	<b>8,314</b>	<b>29,617</b>	<b>+21,303</b>

<b>Capital Equipment &gt; \$500K (including MIE)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
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<b>Total, Capital Equipment (including MIE)</b>	<b>37,931</b>	<b>0</b>	<b>8,314</b>	<b>29,617</b>	<b>+21,303</b>
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**Plant Projects (GPP and IGPP) (Total Estimated Cost (TEC) <\$10M)**

**Carlsbad**

IT Refurbishment/Revitalization	4,427	0	4,427	0	-4,427
Electrical Distribution Single Point of Failure/ Revitalization	3,250	0	3,250	0	-3,250
Plant Air Recapitalization	637	0	637	0	-637
Electrical Substation Replacement	1,200	0	0	1,200	+1,200
Lightning Array Design Upgrade and New Construction	1,000	0	0	1,000	+1,000
Design of Safety Significant Fire Suppression System (Waste Handling Building 411)	500	0	0	500	+500
Safety Significant Fire Suppression System (Waste Handling Building 411 Fire System)	4,000	0	0	4,000	+4,000
Fire Water Loop Phase 3 (Spurs to facilities)	4,479	0	0	4,479	+4,479
Fire Water Loop Phase 4 (Alarms)	3,102	0	0	3,102	+3,102
Salt Hoist Repairs	9,700	0	0	9,700	+9,700
Salt Shaft Loading Pocket Salt Removal and Steel Replacement	2,036	0	0	2,036	+2,036
Continuous Miner	3,600	0	0	3,600	+3,600

	<b>Total</b>	<b>Prior Years</b>	<b>FY 2017 Enacted</b>	<b>FY 2019 Request</b>	<b>FY 2019 Request vs FY 2017 Enacted</b>
<b>Total, Carlsbad</b>	<b>37,931</b>	<b>0</b>	<b>8,314</b>	<b>29,617</b>	<b>+21,303</b>
<b>Total, Plant Projects (GPP and IGPP) (Total Estimated (TEC) &lt;\$10M</b>	<b>37,931</b>	<b>0</b>	<b>8,314</b>	<b>29,617</b>	<b>+21,303</b>
<b>Total, Capital Summary</b>	<b>37,931</b>	<b>0</b>	<b>8,314</b>	<b>29,617</b>	<b>+21,303</b>

**Carlsbad  
Construction Projects Summary (\$K)**

	<b>Total</b>	<b>Prior Years</b>	<b>FY 2017 Enacted</b>	<b>FY 2019 Request</b>	<b>FY 2019 Request vs FY 2017 Enacted</b>
<b>15-D-411, Safety Significant Confinement Ventilation System (WIPP) (CB-0080)</b>					
Total Estimate Cost (TEC)	TBD	35,218	2,532	84,212	+81,680
Other Project Costs (OPC)	TBD	5,000	2,000	5,000	+3,000
<b>Total Project Cost (TPC) 15-D-411</b>	<b>TBD</b>	<b>40,218</b>	<b>4,532</b>	<b>89,212</b>	<b>+84,680</b>
<b>15-D-412, Utility Shaft, formerly Exhaust Shaft (WIPP) (CB-0080)</b>					
Total Estimate Cost (TEC)	TBD	11,500	30,000	1,000	-29,000
Other Project Costs (OPC)	TBD	2,000	1,500	638	-862
<b>Total Project Cost (TPC) 15-D-412</b>	<b>TBD</b>	<b>13,500</b>	<b>31,500</b>	<b>1,638</b>	<b>-29,862</b>



**15-D-411, Safety Significant Confinement Ventilation System (CB-0080)  
Waste Isolation Pilot Plant, Carlsbad, New Mexico  
Project is for Design and Construction**

**1. Summary, Significant Changes, and Schedule and Cost History**

**Summary**

The FY 2019 Request for the Safety Significant Confinement Ventilation System is \$89,212,000: \$84,212,000 for construction and \$5,000,000 for other project costs.

The most recent DOE Order 413.3B approved Critical Decision is Critical Decision-1 that was approved on December 23, 2015, with a preliminary cost range of \$189,000,000 - \$280,000,000 and Critical Decision-4 in the second quarter of fiscal year 2021.

**Significant Changes**

This Construction Project Data Sheet is an update of the FY 2018 Construction Project Data Sheet and does not include a new start for the budget year.

This project will design and construct a new ventilation system for the Waste Isolation Pilot Plant underground repository. This project provides the entire surface and subsurface equipment and infrastructure for the underground ventilation system.

**Critical Milestone History**

(Fiscal quarter or date)

	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	D&D Complete	CD-4
FY 2016	10/22/2014	3QFY 2015	3QFY 2015	1QFY 2016	4QFY 2016	TBD	N/A	TBD
FY 2017	10/22/2014	3QFY 2015	1QFY 2016	2QFY 2018	2QFY 2018	TBD	N/A	TBD
FY 2018	10/22/2014	12/10/2015	12/23/2015	2QFY 2018	2QFY 2018	TBD	N/A	TBD
FY 2019	10/22/2014	12/10/2015	12/23/2015	2QFY 2018	2QFY 2018	TBD	N/A	TBD

**CD-0**—Approve Mission Need for a construction project with a conceptual scope and cost range

**Conceptual Design Complete** - Actual date the conceptual design was completed

**CD-1**- Approve Design Scope and Project Cost and Schedule Ranges

**CD-2 - Approve Project Performance Baseline**

**Final Design Complete** - Estimated date the project design will be completed

**CD-3** -Approve Start of Construction

**D&D Complete** -Completion of D&D work (see Section 9)

**CD-4** - Approve Start of Operations or Project Closeout

**PB** - Indicates the Performance Baseline

	Performance Baseline Validate	CD-3A
FY 2016	1QFY 2016	4QFY 2016
FY 2017	2QFY 2018	4QFY 2016
FY 2018	2QFY 2018	4QFY 2017
FY 2019	2QFY 2018	4QFY 2017

CD-3A - Site Preparation, and Long Lead Procurement

**Environmental Management/**

**Carlsbad/15-D-411 Safety Significant Confinement Ventilation System, WIPP**

Note: The above schedules are only estimates and are consistent with the high end of the schedule range.

**Project Cost History**

(Dollars in Thousands)

	TEC, Design	TEC, Construction	TEC, Total	OPC Except D&D	OPC, D&D	OPC, Total	TPC
FY 2016	TBD	TBD	TBD	TBD	N/A	TBD	TBD
FY 2017	TBD	TBD	TBD	TBD	N/A	TBD	TBD
FY 2018	TBD	TBD	TBD	TBD	N/A	TBD	TBD
FY 2019	TBD	TBD	TBD	TBD	TBD	TBD	TBD

No construction, excluding for approved long lead procurement and site preparation, will be performed until the project performance baseline has been validated and CD-3 has been approved.

**2. Project Scope and Justification**

**Scope**

Design and construct a new ventilation system for the Waste Isolation Pilot Plant underground repository to replace the contaminated underground ventilation system components currently in place. This project will design and construct a new ventilation system for the Waste Isolation Pilot Plant underground repository, including High Efficiency Particulate Air (HEPA) filters and fans, ductwork and dampers, diesel generator, exhaust stack, exhaust filter buildings, filter banks, and site support utilities. This project provides the entire surface infrastructure and equipment for the underground ventilation system. The new underground ventilation system will support additional personnel and equipment underground and will allow mining dust to exit the Waste Isolation Pilot Plant underground in an unfiltered exhaust pathway. Together, these outcomes provide the capability for simultaneous underground activities, such as mining and waste emplacement, which significantly increases operational efficiency.

**Justification**

In February 2014, the Waste Isolation Pilot Plant experienced two separate and unrelated events: a vehicle fire underground and a radiological release. As a result, the nation's only geologic repository suspended operations, leading to impacts to ongoing transuranic waste disposition efforts across the DOE complex, and impacting enforceable regulatory commitments. In addition, the radiological release led to the contamination of portions of the Waste Isolation Pilot Plant underground. The existing Waste Isolation Pilot Plant underground ventilation system of which the surface ventilation infrastructure is a component is inadequate to support operations of both "clean" and contaminated underground areas. The underground ventilation system serves the Waste Isolation Pilot Plant underground by providing acceptable working conditions, in a life-sustaining environment, during normal operations. The underground ventilation system serves as a first line of defense in the event of a waste handling accident by providing a single pass, direct flow of air through the underground facility to a series of high efficiency particulate air filtration units. In the event of breached waste containers, the underground ventilation system assists in the confinement of released material.

Failure to provide safe habitual standards for the worker and meet surface environmental protection needs will delay achieving Waste Isolation Pilot Plant normal operations and compromise the EM clean-up mission. The underground ventilation system is paramount to providing safe underground working conditions.

The project is being conducted in accordance with the project management requirements in DOE Order 413.3B, *Program and Project Management for the Acquisition of Capital Assets*.

Key Performance Parameters (KPPs)

The Threshold KPPs, represent the acceptable performance that the project must achieve. Achievement of the Threshold KPPs will be a prerequisite for approval of CD-4, Project Completion. The Objective KPPs represent the desired project performance.

Performance Measure	Threshold	Objective
Provide ventilation (540,000 cfm) measured at the exhaust shaft collar on the surface) for concurrent mining, maintenance, and waste emplacement operations in either filtered or unfiltered mode of operation.	540,000 cfm measured at the exhaust shaft collar on the surface.	Maintain concurrent mining, maintenance, and waste emplacement operations.
Provide a ventilation system that can maintain continuous operations (540,000 cfm measured at the exhaust shaft collar on the surface) while allowing maintenance and filter medium replacement with isolation dampers on 22 HEPA filter units with 1 HEPA unit in standby and 1 HEPA filter unit in maintenance mode.	540,000 cfm measured at the exhaust shaft collar on the surface 22 HEPA filter units with 1 HEPA unit in standby and 1 HEPA filter unit in maintenance mode.	Provide maintenance and filter medium replacement.
Provide a safety significant pressure boundary with safety significant isolation dampers that will close within 75 seconds of initiation of an underground continuous air monitoring detection of a radioactive contamination event that will provide a ventilation system that will allow operations to be continued or re-established with a HEPA filtered ventilation mode of operation.	Safety significant isolation dampers that will close within 75 seconds of initiation of an underground continuous air monitoring detection of a radioactive contamination event.	Provide a ventilation system that will allow operations to be continued or re-established with a HEPA filtered ventilation mode of operation.

**3. Project Cost and Schedule**

Financial Schedule

(Dollars in Thousands)			
	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
FY 2015 <sup>a</sup>	N/A	N/A	0
FY 2016	N/A	N/A	5,208
FY 2017	N/A	N/A	12,892
Total, Design	N/A	N/A	18,100
Construction			
FY 2018	N/A	N/A	45,119
FY 2019	N/A	N/A	94,821
Outyears	N/A	N/A	TBD
Total, Construction	N/A	N/A	TBD

TEC			
FY 2015	12,000	12,000	0
FY 2016	23,218	23,218	5,208
FY 2017	2,532	2,532	12,892
FY 2018	46,000	46,000	45,119
FY 2019	84,212	84,212	94,821
Outyears	TBD	TBD	TBD
Total, TEC	TBD	TBD	TBD
Other Project Costs			
OPC (except D&D)			
FY 2015	5,000	5,000	1,232
FY 2016	0	0	782
FY 2017	2,000	2,000	1,789
FY 2018	3,500	3,500	2,673
FY 2019	5,000	5,000	2,006
Outyears	TBD	TBD	TBD
Total, OPC (except D&D)	TBD	TBD	TBD
OPC D&D			
Outyears	TBD	TBD	TBD
Total OPC D&D	TBD	TBD	TBD
Total OPC with D&D			
FY 2015	5,000	5,000	1,232
FY 2016	0	0	782
FY 2017	2,000	2,000	1,789
FY 2018	3,500	3,500	2,673
FY 2019	5,000	5,000	2,006
Outyears	TBD	TBD	TBD
Total OPC	TBD	TBD	TBD
Total Project Costs			
FY 2015	17,000	17,000	1,232
FY 2016	23,218	23,218	5,990
FY 2017	4,532	4,532	14,681
FY 2018	49,500	49,500	47,792
FY 2019	89,212	89,212	96,827
Outyears	TBD	TBD	TBD
Total, TPC	TBD	TBD	TBD

<sup>a</sup>The FY 2015 Omnibus Appropriations Bill appropriated \$12,000,000 in construction funding for this project.

**Details of Project Cost Estimate**

(Dollars in Thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design			
Design	18,100	N/A	N/A
Contingency	0	N/A	N/A
Total, Design	18,100	N/A	N/A
Construction			
Site Work	TBD	N/A	N/A
Long-lead Equipment	TBD	N/A	N/A
Construction	TBD	N/A	N/A
Contingency	TBD	N/A	N/A
Total, Construction	TBD	N/A	N/A
Total, TEC	TBD	N/A	N/A
Contingency, TEC	TBD	N/A	N/A
Other Project Cost (OPC)			
OPC except D&D			
Conceptual Planning	TBD	N/A	N/A
Conceptual Design	TBD	N/A	N/A
Reviews	TBD	N/A	N/A
Contingency	TBD	N/A	N/A
Other OPC	TBD	N/A	N/A
Total, OPC except D&D	TBD	N/A	N/A
OPC, D&D			
D&D	TBD	N/A	N/A
Contingency	TBD	N/A	N/A
Total, OPC D&D	TBD	N/A	N/A
Total, OPC	TBD	N/A	N/A
Contingency	TBD	N/A	N/A
Total, TPC	TBD	N/A	N/A
Total, Contingency	TBD	N/A	N/A

**Schedule of Appropriation Requests**

(Dollars in Thousands)

Request		Prior Years	FY 2017	FY 2018	FY 2019	Outyears	Total
FY 2016	TEC	35,218				TBD	TBD
	OPC	5,000				TBD	TBD
	TPC	40,218				TBD	TBD
FY 2017	TEC	35,218	2,352			TBD	TBD
	OPC	5,000	0			TBD	TBD
	TPC	40,218	2,352			TBD	TBD
FY 2018	TEC	35,218	2,532	46,000		TBD	TBD
	OPC	5,000	2,000	3,500		TBD	TBD
	TPC	40,218	4,532	49,500		TBD	TBD
FY 2019	TEC	35,218	2,532	46,000	84,212	TBD	TBD
	OPC	5,000	2,000	3,500	5,000	TBD	TBD
	TPC	40,218	4,532	49,500	89,212	TBD	TBD

**4. Related Operations and Maintenance Funding Requirements**

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	FY 2021
Expected Useful Life (number of years)	32
Expected Future Start of D&D of this capital asset (fiscal quarter)	FY 2053

Related Funding requirements

(Dollars in Thousands)

	Annual Costs		Life Cycle Costs	
	Current Total Estimate	Previous Total Estimate	Current Total Estimate	Previous Total Estimate
Operations	TBD	TBD	TBD	TBD
Utilities	TBD	TBD	TBD	TBD
<u>Maintenance &amp; Repair</u>	TBD	TBD	TBD	TBD
<b>Total</b>	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>

**5. D&D Information**

This project will design and construct a new ventilation system for the Waste Isolation Pilot Plant underground repository. The existing facilities will undergo decontamination and decommissioning as part of this project.

The new area being constructed in this project is replacing existing facilities, and the costs of D&D of the facilities that are being replaced are included in the costs of this construction project.

The location of this construction project is an environmental closure site and, therefore, is exempt from the “one-for-one” requirement.

**6. Acquisition Approach**

The acquisition approach is to use the existing cost-plus incentive management and operations contract with Nuclear Waste Partnership LLC. Additionally, the management and operations contractor will establish one or more firm-fixed-price subcontracts for Title I (Conceptual), Title II (Final Decision), and Title III (Construction) services through a competitive bid process.

**15-D-412, Utility Shaft (formerly Exhaust Shaft) (CB-0080)  
Waste Isolation Pilot Plant, Carlsbad, New Mexico  
Project is for Design and Construction**

**1. Summary, Significant Changes, and Schedule and Cost History**

**Summary**

The FY 2019 Request for the Utility Shaft (formerly Exhaust Shaft) is \$1,638,000: \$1,000,000 for construction and \$638,000 for other project costs.

The most recent DOE Order 413.3B approved Critical Decision is Critical Decision-1 that was approved on December 23, 2015, with a preliminary cost range of \$81,000,000 to \$118,095,000 and Critical Decision-4 in the second quarter of fiscal year 2021.

**Significant Changes**

This Construction Project Data Sheet is an update of the FY 2018 Construction Project Data Sheet and does not include a new start for the budget year.

This project will design and 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. The exhaust shaft has been renamed the utility shaft, which provides the best description for the multiple capabilities the shaft is expected to be utilized for including: airflow, salt hoists, waste emplacement, material handling, transporting personnel, and emergency egress. In addition, as design-engineering matured, it was determined that for usability and nuclear reasons, the new shaft would better serve as an intake shaft and that the existing air intake shaft would better be used as an exhaust shaft to provide for an unfiltered exhaust pathway for mining dust and supporting mine operations.

**Critical Milestone History**

(fiscal quarter or date)

	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	D&D Complete	CD-4
FY 2016	10/22/2014	3QFY2015	3QFY2015	1QFY2016	4QFY2016	TBD	N/A	TBD
FY 2017	10/22/2014	4QFY2015	1QFY2016	1QFY2018	1QFY2018	TBD	N/A	TBD
FY 2018	10/22/2014	12/10/2015	12/23/2015	2QFY2018	2QFY2018	TBD	N/A	TBD
FY 2019	10/22/2014	12/10/2015	12/23/2015	2QFY2018	2QFY2018	TBD	N/A	TBD

**CD-0**—Approve Mission Need for a construction project with a conceptual scope and cost range

**Conceptual Design Complete** -Actual date the conceptual design was completed

**CD-1**- Approve Design Scope and Project Cost and Schedule Ranges

**CD-2 - Approve Project Performance Baseline**

**Final Design Complete** - Estimated date the project design will be completed

**CD-3** -Approve Start of Construction

**D&D Complete** -Completion of D&D work (see Section 9)

**CD-4** - Approve Start of Operations or Project Closeout

**PB** - Indicates the Performance Baseline

	Performance Baseline Validate	CD-3A
FY 2016	1QFY 2016	
FY 2017	1QFY 2018	

**Environmental Management/**

**Project Cost History**

(Dollars in Thousands)

	TEC, Design	TEC, Construction	TEC, Total	OPC Except D&D	OPC, D&D	OPC, Total	TPC
FY 2016	TBD	TBD	TBD	TBD	N/A	TBD	TBD
FY 2017	TBD	TBD	TBD	TBD	N/A	TBD	TBD
FY 2018	TBD	TBD	TBD	TBD	N/A	TBD	TBD
FY 2019	14,033	TBD	TBD	TBD	N/A	TBD	TBD

No construction, excluding for approved long lead procurement, will be performed until the project performance baseline has been validated and CD-3 has been approved.

**2. Project Scope and Justification**

**Scope**

Design and construct a new utility shaft to provide for multiple capabilities including: airflow, salt hoists, waste emplacement, material handling, transporting personnel, and emergency egress.

**Justification**

In February 2014, the Waste Isolation Pilot Plant experienced two separate events: a vehicle fire underground and a radiological release. As a result, the nation's only geologic repository suspended operations, leading to impacts to ongoing transuranic waste disposition efforts across the DOE complex, and impacting enforceable regulatory commitments. In addition, the radiological release has led to the contamination of portions of the Waste Isolation Pilot Plant underground. The existing Waste Isolation Pilot Plant exhaust shaft is contaminated and is inadequate to support operations of both "clean" and contaminated underground areas. The underground ventilation system serves the Waste Isolation Pilot Plant underground by providing acceptable working conditions, in a life-sustaining environment, during normal operations. The underground ventilation system serves as a first line of defense in the event of a waste handling accident by providing a single pass, direct flow of air through the underground facility to a series of high efficiency particulate air filtration units. In the event of breached waste containers, the underground ventilation system assists in the confinement of released material.

Failure to provide safe habitability standards for the worker and meet surface environmental protection needs will delay resumption of Waste Isolation Pilot Plant normal operations and compromise the EM cleanup mission. The underground ventilation system is paramount to providing safe underground working conditions.

This project is being conducted in accordance with the project management requirements in DOE Order 413.3B, *Program and Project Management for the Acquisition of Capital Assets*.

**Key Performance Parameters (KPPs)**

The Threshold KPPs, represent the acceptable performance that the project must achieve. Achievement of the Threshold KPPs will be a prerequisite for approval of CD-4, Project Completion. The Objective KPPs represent the desired project performance.



Performance Measure	Threshold	Objective
Provide an unfiltered exhaust pathway for mining dust from the underground repository at 150,000 cubic feet per minute ventilation flow rate through the new exhaust stack	Unfiltered exhaust pathway for mining dust at 150,000 cubic feet per minute ventilation flow rate through the new exhaust stack.	Provide an unfiltered exhaust pathway for mining dust.
Provide 500,000 cubic feet per minute of intake ventilation flow rate to the new air intake shaft (Shaft Number 5) for the underground repository.	500,000 cubic feet per minute of intake ventilation flow rate to the new air intake shaft (Shaft Number 5).	Provide 500,000 cubic feet per minute.

### 3. Project Cost and Schedule

#### Financial Schedule

(Dollars in Thousands)

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
FY 2015 <sup>a</sup>	N/A	N/A	0
FY 2016	N/A	N/A	1,207
FY 2017	N/A	N/A	12,826
Total, Design	N/A	N/A	14,033
Construction			
FY 2018	N/A	N/A	31,463
FY 2019	N/A	N/A	890
Outyears	N/A	N/A	TBD
Total, Construction	N/A	N/A	TBD
TEC			
FY 2015	4,000	4,000	0
FY 2016	7,500	7,500	1,207
FY 2017	30,000	30,000	12,826
FY 2018	19,600	19,600	31,463
FY 2019	1,000	1,000	890
Outyears	TBD	TBD	TBD
Total, TEC	TBD	TBD	TBD
Other Project Cost (OPC)			
FY 2014	1,000	1,000	0
FY 2015	1,000	1,000	0
FY 2017	1,500	1,500	925
FY 2018	1,900	1,900	662
FY 2019	638	638	231
Outyears	TBD	TBD	TBD

Total, OPC	TBD	TBD	TBD
Total Project Costs			
FY 2014	1,000	1,000	0
FY 2015	5,000	5,000	0
FY 2016	7,500	7,500	1,207
FY 2017	31,500	31,500	13,751
FY 2018	21,500	21,500	32,125
FY 2019	1,638	1,638	1,121
Outyears	TBD	TBD	TBD
Total, TPC	TBD	TBD	TBD

<sup>a</sup> The FY 2015 Omnibus Appropriations Bill appropriated \$4,000,000 in construction funding for this project.

**Details of Project Cost Estimate**

	(Dollars in Thousands)		
	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design			
Design	TBD	TBD	N/A
Contingency	TBD	TBD	N/A
Total, Design	TBD	TBD	N/A
Construction			
Site Work	TBD	TBD	N/A
Long-lead Equipment	TBD	TBD	N/A
Construction	TBD	TBD	N/A
Contingency	TBD	TBD	N/A
Total, Construction	TBD	TBD	N/A
Total, TEC	TBD	TBD	N/A
Contingency, TEC	TBD	TBD	N/A
Other Project Cost (OPC)			
OPC except D&D			
Conceptual Planning	TBD	TBD	N/A
Conceptual Design	TBD	TBD	N/A
Independent Reviews & Estimates	TBD	TBD	N/A
Contingency	TBD	TBD	N/A
Other OPC	TBD	TBD	N/A
Total, OPC except D&D	TBD	TBD	N/A
Total, OPC	TBD	TBD	N/A
Contingency, OPC	TBD	TBD	N/A
Total, TPC	TBD	TBD	N/A
Total, Contingency	TBD	TBD	N/A

**Schedule of Appropriation Requests**

(Dollars in Thousands)

Request		Prior Years	FY 2017	FY 2018	FY 2019	Outyears	Total
FY 2016	TEC	11,500				TBD	TBD
	OPC	2,000				TBD	TBD
	TPC	13,500				TBD	TBD
FY 2017	TEC	11,500	2,533			TBD	TBD
	OPC	2,000	0			TBD	TBD
	TPC	13,500	2,533			TBD	TBD
FY 2018	TEC	11,500	30,000	19,600		TBD	TBD
	OPC	2,000	1,500	1,900		TBD	TBD
	TPC	13,500	31,500	21,500		TBD	TBD
FY 2019	TEC	11,500	30,000	19,600	1,000	TBD	TBD
	OPC	2,000	1,500	1,900	638	TBD	TBD
	TPC	13,500	31,500	21,500	1,638	TBD	TBD

**4. Related Operations and Maintenance Funding Requirements**

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	FY 2021
Expected Useful Life (number of years)	32
Expected Future Start of decontamination and decommissioning of this capital asset (fiscal quarter)	FY 2053

Related Funding requirements

(Dollars in Thousands)

	Annual Costs		Life Cycle Costs	
	Current Total Estimate	Previous Total Estimate	Current Total Estimate	Previous Total Estimate
Operations	TBD	TBD	TBD	TBD
Utilities	TBD	TBD	TBD	TBD
<u>Maintenance &amp; Repair</u>	TBD	TBD	TBD	TBD
<b>Total</b>	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>

**5. D&D Information**

This project will design and construct a new 2,150 foot vertical utility shaft to the Waste Isolation Pilot Plant repository. There is no cost estimated for decontamination and decommissioning in this construction project.

The location of this construction project is an environmental closure site and, therefore, is exempt from the “one-for-one” requirement.

**6. Acquisition Approach**

The acquisition approach is to use the existing cost-plus incentive management and operations contract with Nuclear Waste Partnership LLC. Additionally, the management and operations contractor will establish a firm-fixed-price contract for Title I (Conceptual), Title II (Final Design) and Title III (Construction) services through a competitive bid process.

**Environmental Management/**



## Idaho

### Overview

The Idaho Site supports the Department's cleanup of radioactive and chemical waste resulting from the Manhattan Project and Cold War activities. The Idaho Cleanup Project is responsible for the treatment, storage and disposition of a variety of radioactive and hazardous waste streams, removal and disposition of targeted buried waste, protection of the Snake River Plain Aquifer, removal or deactivation of unneeded facilities, and the removal of DOE's inventory of spent (used) nuclear fuel and high-level waste from Idaho.

The Idaho Site has achieved significant risk reduction in treating challenging radioactive waste, decontaminating and decommissioning contaminated excess facilities, remediating contaminated soils, and transferring spent (used) nuclear fuel from wet storage to dry storage. Near-term remaining work includes continued Subsurface Disposal Area waste exhumation, processing of stored legacy remote-handled and contact-handled transuranic waste, closure of the tank farm and placement of all nuclear materials in safe storage ready for disposal.

Longer-term work scope will include any remaining legacy spent (used) nuclear fuel not acceptable for the Office of Nuclear Energy's missions, calcine waste disposition, decontamination and decommissioning of remaining excess facilities, and completing Comprehensive Environmental Response, Compensation and Liability Act Record of Decision cleanup requirements, including Test Area North groundwater remediation, completion of buried waste exhumations, and final caps.

Direct maintenance and repair at the Idaho Site is estimated to be \$24,613,000.

### Highlights of the FY 2019 Budget Request

The funding request continues progress in processing, characterizing, and packaging stored contact-handled and remote-handled transuranic waste via the Advanced Mixed Waste Treatment Project and the Remote-handled Waste Disposition Project. The remaining stored legacy waste presents technical and safety challenges, such as treatment of remote-handled transuranic waste requires special precautionary procedures to protect workers.

The funding request also continues progress toward treating the stored sodium bearing waste. Commissioning of the Integrated Waste Treatment Unit has taken several years longer than planned, delaying the start of sodium bearing waste treatment.

This request will continue progress toward buried waste exhumation under the Accelerated Retrieval Project. Eight out of nine retrieval areas have been completed, and this funding request will complete exhumation of the ninth and final retrieval area.

This request also supports spent (used) nuclear fuel activities such as continued progress to meet the Idaho Settlement Agreement milestone of all spent (used) nuclear fuel out of wet storage by 2023, by transferring Experimental Breeder Reactor-II spent (used) nuclear fuel from the Chemical Processing Plant building-666 into dry storage at the Radioactive Scrap and Waste Facility and transferring Advanced Test Reactor spent (used) nuclear fuel from Chemical Processing Plant building-666 into dry storage at Chemical Processing Plant-603.

### FY 2018 - 2019 Key Milestones/Outlook

- (November 2017) Complete Interim Tank Farm Cap
- (June 2018) Complete exhumation in Accelerated Retrieval Project VIII
- (September 2018) Complete treatment for legacy Remote-Handled Transuranic waste
- (December 2018) Complete Data Reconciliation/Level 1 Validation for all legacy transuranic waste identified in the Idaho Settlement Agreement

### Environmental Management/

Idaho

**The following are the Idaho Cleanup Projects' regulatory milestones:**

- (November 2017) Complete Interim Tank Farm Cap
- (June 2018) 70 percent of Waste Treated Through the Integrated Waste Treatment Unit
- (September 2018) Process 4,500 cubic meters of waste historically managed as transuranic waste
- (December 2018) Permanently cease use of the tank farm tanks
- (December 2018) Maintain each year a 2,000 cubic meter Running Average of Legacy Transuranic Waste Over Three Years Shipped Out of Idaho
- (December 2018) Remove above-ground legacy stored transuranic waste out of Idaho
- (December 2018) Remove Subsurface Disposal Area exhumed waste retrieved prior to December 2017 out of Idaho

**Regulatory Framework**

Milestones are at risk due to the Waste Isolation Pilot Plant impacts from the 2014 truck fire and unrelated radiological release events and delays to the start-up of the Integrated Waste Treatment Unit. There are two primary regulators of the Idaho Site: the United States Environmental Protection Agency and the State of Idaho Department of Environmental Quality. The United States Nuclear Regulatory Commission monitors DOE activities related to radioactive liquid waste tank stabilization and disposition. It also licenses the Independent Spent Fuel Storage Installation containing Three Mile Island fuel debris and some Fort St. Vrain spent (used) nuclear fuel. Five primary compliance agreements, amendments and consent orders executed between 1991 and 2015 govern cleanup work at the Idaho Site. Those five agreements encompass the majority of the cleanup requirements and commitments. The five primary agreements are:

Federal Facility Agreement and Consent Order (1991): The Federal Facility Agreement and Consent Order for the Idaho National Engineering Laboratory between DOE, the United States Environmental Protection Agency, and Idaho Department of Environmental Quality established a strategy and plan for cleanup at the Idaho Site under the Comprehensive Environmental Response, Compensation, and Liability Act. The agreement divides the Idaho Site into ten waste area groups based on similar characteristics or geographic boundaries. Nine groups generally correspond to the Site's major facility areas. The tenth group assesses overall risk to the aquifer beneath the site, addresses sites outside the boundaries of the Idaho Site's primary facility areas, and allows for inclusion of newly identified release sites.

Notice of Non-Compliance Consent Order (1992): This consent order (between DOE and the State of Idaho Department of Environmental Quality) establishes actions and milestones to resolve Resource Conservation and Recovery Act compliance issues including configuration of stored liquid waste in the Idaho Nuclear Technology and Engineering Center tank farm. An overpressure event occurred with the liquid waste processing facility (Integrated Waste Treatment Unit) in 2012, which resulted in a revised completion date of December 31, 2014, in the Site Treatment Plan. This milestone was also missed, which resulted in the Idaho Department of Environmental Quality issuing DOE a Notice of Violation with associated fines on January 6, 2015. Discussions with the State resulted in a revised schedule which included interim milestones for treating the waste. The interim milestone to commence operations on September 30, 2016, was missed. This consent order was modified in 2015 to extend the milestone to complete closure of the remaining tank farm tanks to December 31, 2018.

Idaho Settlement Agreement (1995): This agreement (between DOE, State of Idaho, and United States Navy) resolved a lawsuit regarding the receipt of spent (used) nuclear fuel at the Idaho National Laboratory. The agreement specifies milestones such as the removal of all spent (used) nuclear fuel from the Idaho Site by January 1, 2035, treatment and offsite shipment of stored transuranic waste December 31, 2018, treatment of high level waste by 2035 for offsite disposition, and treatment of liquid radioactive waste by December 31, 2012. The State suspended the receipt of offsite spent (used) nuclear fuel for storage at the Idaho Site until the remaining sodium bearing waste is treated.

Site Treatment Plan: To fulfill requirements in the 1992 Federal Facility Compliance Act, the Idaho National Engineering Laboratory prepared the Idaho National Engineering Laboratory Site Treatment Plan to address the treatment and long-term storage of mixed waste (radioactive waste mixed with hazardous chemicals). The plan also has prescriptive schedules and requirements for processing of mixed waste. This enforceable plan was approved by the State of Idaho and is updated annually.

Section 3116 of the Ronald W. Reagan National Defense Authorization Act of FY 2005 (Public Law 108-375): The Federal Facility Agreement defines the enforceable commitments for completing the closure of non-compliant radioactive waste tanks at Idaho. Originally, all tanks were to be closed in accordance with the waste incidental to reprocessing methodology in DOE Order 435.1. Section 3116 of the FY 2005 National Defense Authorization Act allows the Secretary of Energy, in consultation with the Nuclear Regulatory Commission, to determine when waste from reprocessing of spent (used) nuclear fuel is appropriate for onsite disposal as other than high-level waste when certain criteria are met. To meet criteria established in the statute, DOE must remove waste to the maximum extent practical.

### **Contractual Framework**

Program planning and management at the Idaho Cleanup Project is conducted through the issuance and execution of contracts to large and small businesses. Idaho develops near-term-and long-term planning approaches in order to develop contract strategies and program/project plans at a more detailed level. Selected contractors then execute these plans to complete cleanup on schedule. The existing cleanup contract for the Idaho Site expires on May 31, 2021.

### **Strategic Management**

The Idaho Site will identify disposal pathways and schedules for transuranic waste, liquid sodium bearing waste, tank farm closure, calcined waste, and spent (used) nuclear fuel to meet key Idaho Site commitments.

The following factors present the strongest impacts to the overall achievement of the program's strategic goal:

- Availability of offsite disposal facilities and shipping assets (containers, tractors, trailers and drivers, and shipping schedules), including shipping rates to the Waste Isolation Pilot Plant for legacy transuranic waste. The backlog of certified transuranic waste currently consists of more than 20,000 containers and at expected shipment rates, it will take until 2023 to ship these containers to the Waste Isolation Pilot Plant; shipments to the Waste Isolation Pilot Plant resumed in April 2017 at shipping rates significantly below the historical rates prior to the 2014 events at the Waste Isolation Pilot Plant.
- Start-up challenges and associated delays in treating sodium bearing waste at the first-of-a-kind Integrated Waste Treatment Unit.
- Availability of spent (used) nuclear fuel data and inter-site coordination for foreign and domestic research reactor receipts.
- Off-site disposition of the high-level waste and spent (used) nuclear fuel.
- Development and documentation of the technical and legal basis to classify Sodium Bearing Waste as transuranic waste.

**Idaho  
Funding (\$K)**

	<b>FY 2017 Enacted</b>	<b>FY 2018 Annualized CR*</b>	<b>FY 2019 Request</b>	<b>FY 2019 Request vs FY 2017 Enacted</b>
<b>Defense Environmental Cleanup</b>				
<b>Idaho National Laboratory</b>				
<b>Idaho Cleanup and Waste Disposition</b>				
ID-0012B-D / SNF Stabilization and Disposition-2012 (Defense)	18,000	17,878	17,000	-1,000
ID-0013 / Solid Waste Stabilization and Disposition	205,502	204,106	148,387	-57,115
ID-0014B / Radioactive Liquid Tank Waste Stabilization and Disposition-2012	100,286	99,605	137,739	+37,453
ID-0030B / Soil and Water Remediation-2012	55,300	54,924	42,900	-12,400
<b>Subtotal, Idaho Cleanup and Waste Disposition</b>	<b>379,088</b>	<b>376,513</b>	<b>346,026</b>	<b>-33,062</b>
<b>Idaho Community and Regulatory Support</b>				
ID-0100 / Idaho Community and Regulatory Support	3,000	2,980	3,200	+200
<b>Total, Idaho National Laboratory</b>	<b>382,088</b>	<b>379,493</b>	<b>349,226</b>	<b>-32,862</b>
<b>Non-Defense Environmental Cleanup</b>				
<b>Small Sites</b>				
<b>Idaho National Laboratory</b>				
ID-0012B-N / SNF Stabilization and Disposition-2012 (Non-Defense)	8,000	7,946	10,000	+2,000
<b>Total, Idaho</b>	<b>390,088</b>	<b>387,439</b>	<b>359,226</b>	<b>-30,862</b>

\*A full-year 2018 appropriation for this account was not enacted at the time the budget was prepared; therefore, the budget assumes this account is operating under the Continuing Appropriations Act, 2018 (Division D of P.L. 115-56, as amended). The amounts included for 2018 reflect the annualized level provided by the continuing resolution. (These amounts are shown only at the Congressional control level and above; below that level, a dash (—) is shown).



**Idaho**  
**Explanation of Major Changes (\$K)**

<b>FY 2019 Request vs FY 2017 Enacted</b>
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**Defense Environmental Cleanup**

**Idaho National Laboratory**

**Idaho Cleanup and Waste Disposition**

**ID-0012B-D / SNF Stabilization and Disposition-2012 (Defense)**

- Decrease reflects security changes. The amount of spent (used) nuclear fuel planned to be transferred will be reduced. -1,000

**ID-0013 / Solid Waste Stabilization and Disposition**

- Decrease reflects progress in treatment of the legacy transuranic waste. -57,115

**ID-0014B / Radioactive Liquid Tank Waste Stabilization and Disposition-2012**

- The increase continues commissioning and startup of the Integrated Waste Treatment Unit and the associated treatment of sodium bearing waste. +37,453

**ID-0030B / Soil and Water Remediation-2012**

- Decrease represents efficiencies in waste exhumation activities at the subsurface disposal area due to a very experienced and efficient crew. Efficiencies have also resulted from waste concentration less than expected, as well as implementation of previous lessons learned. -12,400

**Idaho Community and Regulatory Support**

**ID-0100 / Idaho Community and Regulatory Support**

- Increase is a result of continued regulatory support for the Federal Facility Agreement/Consent Order due to inflation. +200

**Non-Defense Environmental Cleanup**

**Small Sites**

**ID-0012B-N / SNF Stabilization and Disposition-2012 (Non-Defense)**

- Increase reflects operational requirements of facilities at Fort St. Vrain. +2,000

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<b>Total, Idaho</b>	<b>-30,862</b>
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**SNF Stabilization and Disposition-2012 (Defense) (PBS: ID-0012B-D)**

**Overview**

This PBS can be found within the Defense Environmental Cleanup appropriation.

This project includes safe and secure storage of legacy spent (used) nuclear fuel and managing the receipt of off-site spent (used) nuclear fuel shipments. EM currently manages and stores approximately 267 metric tons of spent (used) nuclear fuel at the Idaho Site and in Colorado. The EM plan includes the receipt of approximately 22 metric tons of spent (used) nuclear fuel from off-site locations, including Foreign and Domestic Research Reactor spent (used) nuclear fuel, from FY 2005 through disposition.

**SNF Stabilization and Disposition-2012 (Defense) (PBS: ID-0012B-D)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
<b>\$18,000</b>	<b>\$17,000</b>	<b>-\$1,000</b>
<ul style="list-style-type: none"> <li>Maintained all dry spent (used) nuclear fuel storage facilities.</li> <li>Maintained the Chemical Processing Plant building-666 and 603 with accompanying spent (used) nuclear fuel.</li> <li>Retrieved Experimental Breeder Reactor II fuel (20 shipments) from storage for transfer to the Materials and Fuels Complex.</li> <li>Conducted scientific applied research and technology development activities to assure safe extended storage of spent (used) nuclear fuel and conduct planning and preliminary design for future disposition.</li> <li>Received and stored up to 15 shipments of Advanced Test Reactor spent (used) nuclear fuel.</li> </ul>	<ul style="list-style-type: none"> <li>Maintain all dry spent (used) nuclear fuel storage facilities with accompanying spent (used) nuclear fuel in a safe and secure state.</li> <li>Maintain the wet storage facility Chemical Processing Plant building-666 and dry storage facility Chemical Processing Plant Building-603, with accompanying spent (used) nuclear fuel in a safe and secure state.</li> <li>Retrieve Experimental Breeder Reactor II fuel from storage for transfer to the Materials and Fuels Complex.</li> <li>Conduct scientific applied research and technology development activities to assure safe extended storage of spent (used) nuclear fuel and conduct planning and preliminary design for future disposition.</li> </ul>	<ul style="list-style-type: none"> <li>Decrease reflects security changes. The amount of spent (used) nuclear fuel planned to be transferred will be reduced.</li> </ul>

- Receive and store up to 15 shipments of Advanced Test Reactor spent (used) nuclear fuel.
  - Plan for receipt of foreign and domestic research reactor spent (used) nuclear fuel from off-site.
-

**Solid Waste Stabilization and Disposition (PBS: ID-0013)**

**Overview**

This PBS can be found within the Defense Environmental Cleanup appropriation.

This waste treatment and disposal activity dispositions stored transuranic waste, low-level waste, Resource Conservation and Recovery Act hazardous waste, and mixed low-level waste in compliance with the Idaho Settlement Agreement requirements; closes on-site low-level waste disposal facilities at the Radioactive Waste Management Complex; and accelerates the consolidation of waste management facilities to reduce operating costs. The various waste inventories to be disposed by this project were generated primarily by other DOE sites and also active operations at the Idaho Site. Completion of these activities is necessary for compliance with the Idaho Settlement Agreement, and contributes to reducing the footprint and completing cleanup of the site which also includes direct maintenance and repair that are applicable to these areas.

In FY 2019, certification of transuranic waste for disposal at the Waste Isolation Pilot Plant, and disposal and shipment of mixed low-level waste for disposal will continue. The inventory of certified transuranic waste will be safely and compliantly stored at the Idaho Site pending shipment to the Waste Isolation Pilot Plant.

DOE waste generator sites fund their respective characterization activities such as visual examination, real time radiography, nondestructive assay, dose to curie conversion, and flammable gas analysis. The Idaho National Laboratory funds its legacy transuranic waste characterization certification, whereas PBS Central Characterization Project (CB-0081) funds these activities at Savannah River Site, Oak Ridge National Laboratory, Lawrence Livermore National Laboratory, and Los Alamos National Laboratory. Transportation certification is funded by PBS Central Characterization Project (CB-0081).

**Solid Waste Stabilization and Disposition (PBS: ID-0013)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$205,502	\$148,387	-\$57,115
<ul style="list-style-type: none"> <li>• Provided for site-wide environmental compliance and oversight.</li> <li>• Retrieved mixed low-level waste/low-level waste from the transuranic waste storage area.</li> <li>• Maintained and operated the Radioactive Waste Management Complex infrastructure including utility systems, project management, engineering,</li> </ul>	<ul style="list-style-type: none"> <li>• Maintain and operate the Radioactive Waste Management Complex infrastructure outside the subsurface disposal area including utility systems, project management, engineering, training, environmental safety and health and quality assurance. This project also includes monitoring of air, water, soils, and</li> </ul>	<ul style="list-style-type: none"> <li>• Decrease reflects progress in treatment of the legacy transuranic waste.</li> </ul>

training, environmental safety and health and quality assurance. This project also includes monitoring of air, water, soils, and biota surveillance.

- Met requirements of the Idaho Settlement Agreement and Site Treatment Plan by repackaging and characterizing remote-handled transuranic waste at the Idaho Nuclear Technology and Engineering Center and contact-handled transuranic waste at the Advanced Mixed Waste Treatment Project in preparation for shipment to the Waste Isolation Pilot Plant.
- Processed approximately 4,500 cubic meters of contact-handled transuranic waste to prepare it for disposal at offsite facilities.
- Completed treatment of sodium contaminated remote-handled legacy transuranic waste.
- Maintained capabilities to receive, repackage, and characterize contact-handled transuranic waste from other DOE sites and ship offsite within a one-year timeframe.
- Treated and disposed mixed low-level and low-level waste offsite.
- Provided for increased storage of processed and certified transuranic waste pending the resumption of operations at and shipments to the Waste Isolation Pilot Plant.
- Characterized, packaged, certified, temporarily stored, and initiated shipments of transuranic waste to the Waste Isolation Pilot Plant.

biota surveillance.

- Continue repackaging and characterizing contact-handled transuranic waste at the Advanced Mixed Waste Treatment Project. Transuranic waste will be certified for the Waste Isolation Pilot Plant disposal, and mixed low-level waste will be dispositioned off-site.
- Continue treatment of remote handled mixed low-level waste.
- Process 4,500 cubic meters of waste historically managed as transuranic waste for disposal at offsite facilities.
- Maintain capabilities to receive, repackage, and characterize contact-handled transuranic waste from other DOE sites and ship offsite within regulatory timeframe.
- Treat and dispose mixed low-level and low-level waste offsite.
- Provide for storage of processed and certified transuranic waste pending shipment to the Waste Isolation Pilot Plant.
- Characterize, package, certify, and temporarily store exhumed waste on site pending shipment to the Waste Isolation Pilot Plant.

**Radioactive Liquid Tank Waste Stabilization and Disposition-2012 (PBS: ID-0014B)**

**Overview**

This PBS can be found within the Defense Environmental Cleanup appropriation.

The overall objectives of this project are to treat and dispose of the sodium bearing tank waste; close the tank farm tanks, associated piping and infrastructure; and operate and maintain the Idaho Nuclear Technology and Engineering Center. This project also includes activities to support the preparation of stored calcined high-level waste for final disposition. Completion of this project will close the last four high-level liquid waste tanks and cap the tank farm area leading to the reduction of the most significant environmental, safety and health threat which also includes direct maintenance and repair for these areas.

**Radioactive Liquid Tank Waste Stabilization and Disposition-2012 (PBS: ID-0014B)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
<b>\$100,286</b>	<b>\$137,739</b>	<b>+\$37,453</b>
<ul style="list-style-type: none"> <li>• Prepared for initiation of tank cleaning activities supporting Resource Conservation and Recovery Act closure of the final four high-level waste tanks.</li> <li>• Developed and further the regulatory path forward for disposal of the sodium bearing waste treatment product.</li> <li>• Maintained tank farm and systems necessary for safe delivery of sodium bearing waste until treatment is complete.</li> <li>• Continued providing Idaho Nuclear Technology and Engineering Center utilities, maintenance and operations for the process waste system, support laboratories, and existing process facilities.</li> <li>• Continued safe storage and management of calcine.</li> </ul>	<ul style="list-style-type: none"> <li>• Continue commissioning activities at the Integrated Waste Treatment Unit.</li> <li>• Conduct analysis of alternatives and develop contingency plan for treatment of sodium bearing waste.</li> <li>• The Integrated Waste Treatment Unit will move into hot commissioning phase pending successful demonstration of the next stimulant run (expected to be completed later this fiscal year). In case the stimulant run is not successful, EM will initiate an alternatives analysis and develop contingency plans for treatment of the sodium bearing waste.</li> <li>• Develop and further the regulatory path forward for disposal of the sodium bearing waste treatment product.</li> <li>• Maintain tank farm and systems necessary for</li> </ul>	<ul style="list-style-type: none"> <li>• The increase continues commissioning and startup of the Integrated Waste Treatment Unit and the associated treatment of sodium bearing waste.</li> </ul>

- Continued start-up and commissioning activities.
  - Constructed additional storage facilities and containers when the Integrated Waste Treatment Unit becomes operational.
  - safe delivery of sodium bearing waste until treatment is complete.
  - Continue providing Idaho Nuclear Technology and Engineering Center utilities, maintenance and operations for the process waste system, support laboratories, and existing process facilities.
  - Continue safe storage and management of calcine including study of retrieval options.
-

**Soil and Water Remediation (PBS: ID-0030B)**

**Overview**

This PBS can be found within the Defense Environmental Cleanup appropriation.

The objective of this project is remediation of contaminated soil and groundwater and closure of legacy Comprehensive Environmental Response, Compensation, and Liability Act sites at the Idaho National Laboratory. Completion of this project will contribute to reducing the footprint and the completion of the Idaho Cleanup Project.

**Soil and Water Remediation-2012 (PBS: ID-0030B)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$55,300	\$42,900	-\$12,400
<ul style="list-style-type: none"> <li>• Provided risk reduction through implementation of the Comprehensive Environmental Response, Compensation, and Liability Act Record of Decision for buried transuranic waste at the Waste Area Group 7 (Radioactive Waste Management Complex) subsurface disposal area.</li> <li>• Continued exhumation of targeted buried waste at the Accelerated Retrieval Project VIII facility and conduct planning and infrastructure activities for exhumations at Accelerated Retrieval Project IX retrieval area.</li> <li>• Maintained the remedies at Waste Area Group 2 (Test Reactor Area); Waste Area Group 4 (Central Facilities Area); Waste Area Group 5 (Power Burst Facility/Auxiliary Reactor Area); and Waste Area Group 6 (Experimental Breeder Reactor/BORAX).</li> <li>• Implemented the Comprehensive Environmental Response, Compensation, and Liability Act Record of Decision for the Waste Area Group 3</li> </ul>	<ul style="list-style-type: none"> <li>• Provide risk reduction through implementation of the Comprehensive Environmental Response, Compensation, and Liability Act Record of Decision for buried transuranic waste at the Waste Area Group 7 (Radioactive Waste Management Complex) subsurface disposal area.</li> <li>• Continue exhumations at Accelerated Retrieval Project IX retrieval area.</li> <li>• Maintain the remedies at Waste Area Group 2 (Test Reactor Area); Waste Area Group 4 (Central Facilities Area); Waste Area Group 5 (Power Burst Facility/Auxiliary Reactor Area); and Waste Area Group 6 (Experimental Breeder Reactor/BORAX).</li> <li>• Implement the Comprehensive Environmental Response, Compensation, and Liability Act Record of Decision for the Waste Area Group 3 (Operable Unit 3-14) (Idaho Nuclear Technology and Engineering Center) tank farm soils and groundwater.</li> </ul>	<ul style="list-style-type: none"> <li>• Decrease represents efficiencies in waste exhumation activities at the subsurface disposal area due to a very experienced and efficient crew. Efficiencies have also resulted from waste concentration less than expected, as well as implementation of previous lessons learned.</li> </ul>



- (Operable Unit 3-14) (Idaho Nuclear Technology and Engineering Center) tank farm soils and groundwater.
- Implemented the Comprehensive Environmental Response, Compensation, and Liability Act Record of Decision for Waste Area Group 1 (Operable Unit 1-07B) TAN Groundwater.
  - Implemented the Comprehensive Environmental Response, Compensation, and Liability Act Record of Decision for Waste Area Group 10 (Operable Unit 10-08) site wide ground water, miscellaneous sites, and future sites.
  - Implemented the Comprehensive Environmental Response, Compensation, and Liability Act Record of Decision for Waste Area Group 10 (Operable Unit 10-04) unexploded ordinance.
  - Maintained Radioactive Waste Management Complex infrastructure.
  - Maintained Idaho Comprehensive Environmental Response, Compensation, and Liability Act Disposal Facility operations.
  - Provided for site-wide environmental compliance.
- Implement the Comprehensive Environmental Response, Compensation, and Liability Act Record of Decision for Waste Area Group 1 (Operable Unit 1-07B) TAN Groundwater.
  - Implement the Comprehensive Environmental Response, Compensation, and Liability Act Record of Decision for Waste Area Group 10 (Operable Unit 10-08) site wide ground water, miscellaneous sites, and future sites.
  - Implement the Comprehensive Environmental Response, Compensation, and Liability Act Record of Decision for Waste Area Group 10 (Operable unit 10-04) unexploded ordinance.
  - Maintain Radioactive Waste Management Complex infrastructure.
  - Maintain Idaho Comprehensive Environmental Response, Compensation, and Liability Act Disposal Facility operations.
  - Monitor ground water and investigate subsurface with analysis of contaminants and transport mechanisms affecting the Snake River Aquifer.
-

**Idaho Community and Regulatory Support (PBS: ID-0100)**

**Overview**

This PBS can be found within the Defense Environmental Cleanup appropriation.

This project scope includes work in three major areas for environmental regulatory oversight and stakeholder interactions and support:

- 1) State of Idaho Department of Environmental Quality (Resource Conservation and Recovery Act compliance, and Air Quality Permitting Fees-Federal Facility Agreement/Consent Order) and Environmental Protection Agency support.
- 2) The United States Geological Survey performs groundwater monitoring and subsurface investigation on the regional (Eastern Snake River Plain Aquifer) and sub-regional (site-wide) scale for the Idaho Site.
- 3) The Idaho Site Citizens Advisory Board is chartered by the DOE as an EM Site-Specific Advisory Board.

**Idaho Community and Regulatory Support (PBS: ID-0100)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
<b>\$3,000</b>	<b>\$3,200</b>	<b>+\$200</b>
<ul style="list-style-type: none"> <li>• Continued groundwater monitoring and subsurface investigation with analysis of contaminants and transport mechanisms affecting the Snake River Aquifer, both on-site and off-site.</li> <li>• Payment of fees for the Title V Air Permit and technical assistance for air quality compliance.</li> <li>• Provided grant to the State of Idaho Department of Environmental Quality.</li> </ul>	<ul style="list-style-type: none"> <li>• Continue groundwater monitoring and subsurface investigation with analysis of contaminants and transport mechanisms affecting the Snake River Aquifer, both on-site and off-site.</li> <li>• Provide for site-wide environmental compliance and oversight.</li> <li>• Payment of fees for the Title V Air Permit and technical assistance for air quality compliance.</li> <li>• Provide grant to the State of Idaho Department of Environmental Quality.</li> <li>• Provide for Citizens Advisory Board requirements.</li> </ul>	<ul style="list-style-type: none"> <li>• Increase is a result of continued regulatory support for the Federal Facility Agreement/Consent Order due to inflation.</li> </ul>

**SNF Stabilization and Disposition-2012 (Non-Defense) (PBS: ID-0012B-N)**

**Overview**

This PBS can be found within the Non-Defense Environmental Cleanup appropriation.

The purpose of this project is to maintain and operate the Nuclear Regulatory Commission-licensed Independent Spent Fuel Storage Installations in accordance with license basis documents. This includes the management of spent (used) nuclear fuel presently stored at Fort St. Vrain in Colorado and the Three Mile Island Independent Spent Fuel Storage Installation on the Idaho Site, and payment of related fees for the Idaho Spent Fuel Facility that is designed and licensed, but not yet built.

**SNF Stabilization and Disposition-2012 (Non-Defense) (PBS: ID-0012B-N)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
<b>\$8,000</b>	<b>\$10,000</b>	<b>+\$2,000</b>
<ul style="list-style-type: none"> <li>• Provided payments to the Nuclear Regulatory Commission to implement license and for licensing-related activities related to Fort St. Vrain, Three Mile Island-2 Spent (Used) Nuclear Fuel, and Idaho Spent Fuel Facility.</li> <li>• Provided security for Fort St. Vrain Spent (Used) Nuclear Fuel.</li> <li>• Continued to operate and monitor Fort St. Vrain and Three Mile Island-2 Spent (Used) Nuclear Fuel.</li> <li>• Implemented Nuclear Regulatory Commission license renewal for Three Mile Island-2.</li> <li>• Completed facility license upgrades for Fort St. Vrain Spent (Used) Nuclear Fuel.</li> </ul>	<ul style="list-style-type: none"> <li>• Provide payments to the Nuclear Regulatory Commission to implement license and licensing-related activities related to the Fort St. Vrain, Three Mile Island-2, and Idaho Spent Fuel Facilities.</li> <li>• Provide security for Fort St. Vrain Spent (used) nuclear fuel facility.</li> <li>• Continue to monitor Fort St. Vrain and Three Mile Island-2 Spent (used) nuclear fuel.</li> <li>• Operate new upgraded systems to meet Nuclear Regulatory Commission license conditions.</li> </ul>	<ul style="list-style-type: none"> <li>• Increase reflects operational requirements of facilities at Fort St. Vrain.</li> </ul>



## Oak Ridge

### Overview

Oak Ridge was placed on the National Priorities List in 1989; therefore, cleanup of the Oak Ridge Reservation is being conducted under the Comprehensive, Environmental, Response, Compensation and Liability Act of 1980.

The Oak Ridge Office of Environmental Management supports the Department's effort to clean up the Manhattan Project and Cold War legacies.

The Oak Ridge Office of Environmental Management is comprised of three portfolios based on site geographic locations, located within the boundary of the City of Oak Ridge. One-half million people live within a thirty mile radius of the Oak Ridge Reservation. These three site locations are surrounded and delineated by surface waters and/or groundwater that transport contaminants off-site from past federal operations:

- The East Tennessee Technology Park site occupies approximately 2,200 acres adjacent to the Clinch River. The Office of Environmental Management is addressing this area in compliance with the Comprehensive, Environmental, Response, Compensation and Liability Act. The site is a former gaseous diffusion plant that was shut down in 1987. It is currently being cleaned up and transitioned into a private sector industrial park.
- The Oak Ridge National Laboratory covers 3,300 acres and conducts multi-program energy and basic research. It is the Department of Energy's largest multi-program national laboratory. Historically, it supported both defense production operations and civilian energy research. Manhattan Project and Cold War era legacies co-exist with modernized laboratory facilities.
- The Y-12 National Security Complex spans 811 acres. It began as a uranium processing facility, but now it refurbishes nuclear weapon components and serves as the nation's storehouse for Uranium-235 and carries out other national security activities. Manhattan Project and Cold War era legacies co-exist with revitalized national security facilities. The Environmental Management Waste Management Facility (a Comprehensive, Environmental, Response, Compensation and Liability Act disposal facility supporting cleanup of all three sites) is also located there.

The Office of Environmental Management addresses the scope required to remediate the cold war nuclear weapon production legacy while protecting workers, public health, and the environment. The priorities and sequencing of scope are done in accordance with the regulatory framework and milestones contained within the Oak Ridge Federal Facility Agreement, the Site Treatment Plan, and a Polychlorinated Biphenyl Federal Facilities Compliance Agreement with the United States Environmental Protection Agency and/or the State of Tennessee.

Direct maintenance and repairs at Oak Ridge is estimated to be \$54,701,000 in FY 2019.

The Oak Ridge Operations Office plans to purchase the following vehicles in FY 2019: 17 Heavy Duty Dump Trucks; 1 Heavy Duty Service Truck; and 1 4x2 passenger minivan.

### Highlights of the FY 2019 Budget Request

The following represents the most significant near-term projects for the Oak Ridge Office of Environmental Management:

- Maintain Oak Ridge Office of Environmental Management facilities in a safe, compliant and secure manner
- Operate Oak Ridge Office of Environmental Management waste management facilities, such as the on-site disposal facility and sanitary landfills at the Y-12 National Security Complex, and wastewater and gaseous waste treatment operations at Oak Ridge National Laboratory
- Continue preparation of Building 2026 to support processing of the remaining Uranium-233 material at Oak Ridge National Laboratory
- Continue deactivation and demolition of remaining facilities at the East Tennessee Technology Park
- Continue slab and soil remediation at the East Tennessee Technology Park

- Continue transuranic waste processing activities at the Transuranic Waste Processing Facility and support disposition of transuranic waste at the Waste Isolation Pilot Plant
- Complete early site preparation activities for the Outfall 200 Mercury Treatment Facility at the Y-12 National Security Complex
- Continue planning and initiate design for a new On-Site Waste Disposal Facility, to support the Y-12 National Security Complex and Oak Ridge National Laboratory cleanup
- Continue mercury-related technology development, including characterization, remediation, monitoring, and modeling

The FY 2019 request includes funding for two line-item construction projects: Outfall 200 Mercury Treatment Facility (\$11,274,000) and On-Site Waste Disposal Facility (\$5,000,000).

- The purpose of the Outfall 200 Mercury Treatment Facility project is to construct a robust water treatment facility that will remove mercury from Upper East Fork Poplar Creek, before it leaves the Y-12 National Security Complex site and enters the City of Oak Ridge. It also provides infrastructure to prepare for large-scale demolition of the former mercury use buildings located at the Y-12 National Security Complex site. The \$11,274,000 requested for the Outfall 200 Mercury Treatment Facility project includes \$11,247,000 for design and construction activities (Total Estimated Cost). No funds are requested for other project costs.
- The purpose of the On-Site Waste Disposal Facility project is to provide waste disposal capacity for demolition debris and remediation waste from Y-12 National Security Complex and Oak Ridge National Laboratory cleanup projects once the existing disposal facility has reached capacity. Its construction enables the Office of Environmental Management to avoid costly transportation operations and allows the program to address high-risk contaminated facilities. The \$5,000,000 requested for the On-Site Waste Disposal Facility project includes \$4,690,000 for the Total Estimated Cost (design activities) and \$310,000 for other project costs.

#### **FY 2018 and FY 2019 Key Milestones/Outlook**

- (September 2018) Receive Critical Decision 2/3 Approval for the Building 2026 Uranium-233 Processing Preparation Project
- (September 2018) Complete Demolition of the Central Neutralization Facilities at the East Tennessee Technology Park
- (October 2018) Complete Y-12 Colex (column exchange) West Side Demolition
- (October 2018) Initiate Offsite Vendor Testing for the Transuranic Sludge Processing Facility Buildout Project
- (November 2018) Complete Demolition of the Poplar Creek Facilities at the East Tennessee Technology Park
- (June 2019) Complete Outfall 200 Mercury Treatment Facility Early Site Preparation
- (July 2019) Complete Building K-1037 Demolition Project
- (October 2019) Complete Processing of Legacy Transuranic Debris Waste

#### **Regulatory Framework**

Cleanup of the Oak Ridge Reservation is primarily governed by three regulatory agreements/compliance orders:

- The Federal Facility Agreement for the Oak Ridge Reservation was signed by DOE, the United States Environmental Protection Agency, and the Tennessee Department of Environment and Conservation on January 1, 1992. The document establishes a procedure framework and schedule for developing, implementing, and monitoring appropriate site response actions under the Comprehensive Environmental Response, Compensation, and Liability Act.
- The Oak Ridge Reservation Compliance Order was signed on September 26, 1995 by DOE and the Tennessee Department of Environment and Conservation. The document enforces treatment of mixed low-level wastes and transuranic wastes under the Resource Conservation and Recovery Act. This order establishes milestones in the Site Treatment Plan to complete treatment of all Oak Ridge mixed low-level wastes with a known disposition path by 2012 (accomplished in 2011). This order also established milestones for processing and shipment certification of transuranic wastes.
- The Oak Ridge Reservation Polychlorinated Biphenyl Federal Facilities Compliance Agreement was signed by DOE and the Environmental Protection Agency on October 28, 1996 to establish a framework for treatment of polychlorinated biphenyl contaminated wastes under the Toxic Substances Control Act. This agreement requires substantive annual progress in disposition of polychlorinated biphenyl contaminated waste at Oak Ridge.

## Contractual Framework

Program planning and execution at Oak Ridge is conducted through contracts to large and small businesses. Oak Ridge develops near- and long-term program/project plans and contract strategies to execute these plans to complete cleanup on schedule. The major contracts for performing/supporting environmental management cleanup at Oak Ridge include:

- The URS|CH2M Oak Ridge LLC contract for decontamination and decommissioning of surplus buildings, legacy soil and groundwater remediation at the East Tennessee Technology Park (former uranium enrichment gaseous diffusion plant), surveillance and maintenance of facilities at Oak Ridge National Laboratory and Y-12 National Security Complex, design and technical services support for the Outfall 200 Mercury Treatment Facility, and operations of waste treatment facilities and water quality activities at Oak Ridge National Laboratory and Y-12 National Security Complex, covering the period 2011-2020.
- The North Wind Solutions contract for processing of Environmental Management legacy transuranic debris waste at the Transuranic Waste Processing Center. The contract consists of a three-year base period, through October 2018, for waste processing, and also includes a two-year option period.
- The Isotek Systems LLC contract is to complete the disposition of Uranium-233 material stored in Building 3019 at Oak Ridge National Laboratory. The contractor has completed the direct disposition campaign and is preparing for processing the remainder of the inventory. The authorized work under the contract is through December 2019; however, the remainder of work will be definitized for the processing campaign, which will further extend the period of performance.
- An Architect-Engineering Services contract with CH2M Hill Constructors, Inc. (acquired by Jacobs Engineering in December 2017), was awarded in March 2015 for the design phase of the Transuranic Sludge Processing project. The contract scope includes technology maturation, including the construction and operations of a test facility, final design of the processing facility, and Title III support during the construction phase.

## Strategic Management

The Oak Ridge cleanup strategy includes near-term goals to: (1) complete cleanup and reindustrialize the East Tennessee Technology Park; (2) begin the processing campaign for the remaining Uranium-233 inventory; (3) complete transuranic debris processing; (4) begin construction of the Outfall 200 Mercury Treatment Facility at Y-12; (5) complete the design of a new on-site disposal facility called the On Site Waste Disposal Facility; (6) construct and operate the Transuranic Sludge Test Facility; and (7) continue the groundwater monitoring program for the reservation.

A key component to cleanup success in Oak Ridge is continued partnering with regulatory agencies and stakeholders. The Oak Ridge Federal Facility Agreement and the Site Treatment Plan are agreements between DOE, the Tennessee Department of Environment and Conservation, and/or the United States Environmental Protection Agency to promote cooperation. Milestones for completion of cleanup efforts are established and provide a mechanism for ensuring that Oak Ridge cleanup priorities are developed in collaboration with all stakeholders to reduce risk and protect public health and the environment. In addition, collaboration occurs on an annual basis with the Oak Ridge Reservation Site Specific Advisory Board and Oak Ridge area stakeholders to ensure that program priorities are reviewed, and as appropriate revised, to reflect community input.

Oak Ridge  
Funding (\$K)

FY 2017 Enacted	FY 2018 Annualized CR*	FY 2019 Request	FY 2019 Request vs FY 2017 Enacted
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**Defense Environmental Cleanup**

**Oak Ridge**

**OR Cleanup and Disposition**

OR-0013B / Solid Waste Stabilization and Disposition-2012	68,457	67,992	67,000	-1,457
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**OR Nuclear Facility D&D**

OR-0041 / Nuclear Facility D&D-Y-12	72,851	72,356	46,488	-26,363
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OR-0042 / Nuclear Facility D&D-Oak Ridge National Laboratory	70,100	69,624	60,007	-10,093
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<b>Subtotal, OR Nuclear Facility D&amp;D</b>	<b>142,951</b>	<b>141,980</b>	<b>106,495</b>	<b>-36,456</b>
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**OR Reservation Community and Regulatory Support**

OR-0100 / Oak Ridge Reservation Community & Regulatory Support (Defense)	5,500	5,463	4,711	-789
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**OR Technology Development and Deployment**

OR-TD-0100 / Technology Development Activities - Oak Ridge	3,000	2,980	3,000	0
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**U233 Disposition Program**

OR-0011D / U233 Disposition Program	43,311	43,017	45,000	+1,689
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<b>Total, Oak Ridge</b>	<b>263,219</b>	<b>261,432</b>	<b>226,206</b>	<b>-37,013</b>
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**Safeguards and Security**

Environmental Management/  
Oak Ridge



	<b>FY 2017 Enacted</b>	<b>FY 2018 Annualized CR*</b>	<b>FY 2019 Request</b>	<b>FY 2019 Request vs FY 2017 Enacted</b>
OR-0020 / Safeguards and Security	15,500	15,395	14,023	-1,477
<b>Total, Defense Environmental Cleanup</b>	<b>278,719</b>	<b>276,827</b>	<b>240,229</b>	<b>-38,490</b>
<b>Non-Defense Environmental Cleanup</b>				
<b>Small Sites</b>				
<b>Oak Ridge</b>				
OR-0104 / Community and Regulatory (Non-Defense)	6,000	5,959	0	-6,000
<b>Uranium Enrichment Decontamination and Decommissioning Fund</b>				
<b>Oak Ridge</b>				
<b>Oak Ridge</b>				
OR-0040 / Nuclear Facility D&D-East Tennessee Technology Park (D&D Fund)	194,673	193,351	151,039	-43,634
<b>Pension and Community and Regulatory Support</b>				
<b>Oak Ridge</b>				
OR-0102 / East Tennessee Technology Park Contract/Post-Closure Liabilities/Administration	18,772	18,645	17,258	-1,514
<b>Total, Uranium Enrichment Decontamination and Decommissioning Fund</b>	<b>213,445</b>	<b>211,996</b>	<b>168,297</b>	<b>-45,148</b>
<b>Total, Oak Ridge</b>	<b>498,164</b>	<b>494,782</b>	<b>408,526</b>	<b>-89,638</b>

\*A full-year 2018 appropriation for this account was not enacted at the time the budget was prepared; therefore, the budget assumes this account is operating under the Continuing Appropriations Act, 2018 (Division D of P.L. 115-56, as amended). The amounts included for 2018 reflect the annualized level provided by the continuing resolution. (These amounts are shown only at the Congressional control level and above; below that level, a dash (—) is shown).

**Oak Ridge**  
**Explanation of Major Changes (\$K)**

<b>FY 2019 Request vs FY 2017 Enacted</b>
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**Defense Environmental Cleanup**

**Oak Ridge**

**OR Cleanup and Disposition**

**OR-0013B / Solid Waste Stabilization and Disposition-2012**

- Decrease reflects completing the development of a testing strategy for processing remote-handled sludge inventory. -1,457

**OR Nuclear Facility D&D**

**OR-0041 / Nuclear Facility D&D-Y-12**

- Decrease reflects completion of the characterization and demolition of excess contaminated excess facilities executed in FY 2017 and a ramp down of the Y-12 Colex West Side equipment removal activities as it nears completion. -26,363

**OR-0042 / Nuclear Facility D&D-Oak Ridge National Laboratory**

- Decrease reflects completion of characterization and demolition of excess contaminated facilities executed in prior years at the Oak Ridge National Laboratory. -10,093

**OR Reservation Community and Regulatory Support**

**OR-0100 / Oak Ridge Reservation Community & Regulatory Support (Defense)**

- Decrease reflects that the grant to the Tennessee Department of Environment and Conservation for oversight of community and regulatory commitments has been discontinued. -789

**OR Technology Development and Deployment**

**OR-TD-0100 / Technology Development Activities - Oak Ridge**

- No change. 0

**U233 Disposition Program**

**OR-0011D / U233 Disposition Program**

- Increase is attributed to the construction and operational readiness activities associated with the Uranium-233 processing campaign. +1,689

**Safeguards and Security**

**OR-0020 / Safeguards and Security**

- Decrease reflects reduced Safeguards and Security requirements at the East Tennessee Technology Park which is offset by the inclusion of Cyber Security in PBS OR-0020, Safeguards and Security, beginning in FY 2019. -1,477

**Non-Defense Environmental Cleanup**

**Small Sites**

**OR-0104 / Community and Regulatory (Non-Defense)**

- Decrease reflects the completion of activities for preserving the historic contribution Building K-25 made to the Manhattan Project. -6,000

**Uranium Enrichment Decontamination and Decommissioning Fund**

**OR-0040 / Nuclear Facility D&D-East Tennessee Technology Park (D&D Fund)**

- Decrease reflects the completion of Building K-27 demolition and waste disposal activities, and the ramp- -43,634

down of decommissioning and demolition activities with the completion of the Poplar Creek Facilities, Central Neutralization Facilities and Building K-1037 in the East Tennessee Technology Park.

**Pension and Community and Regulatory Support**

**OR-0102 / East Tennessee Technology Park Contract/Post-Closure Liabilities/Administration**

- Decrease reflects reduced funding requirements for contractor post-retirement life, medical benefits, and pensions. -1,514

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<b>Total, Oak Ridge</b>	<b>-89,638</b>
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**Solid Waste Stabilization and Disposition (PBS: OR-0013B)**

**Overview**

This PBS is within the Defense Environmental Cleanup appropriation.

This PBS funds the storage and processing for the disposition of the Oak Ridge Reservation transuranic waste. Contact-handled transuranic debris processing was initiated in FY 2006 and processing of remote-handled transuranic debris began in FY 2008 at the Transuranic Waste Processing Center. Processing of legacy transuranic debris will continue, supporting certification of waste for disposal. The inventory of processed and certified transuranic waste will be safely stored at Oak Ridge until off-site shipments to the Waste Isolation Pilot Plant are complete.

This PBS includes the Sludge Processing Facility Buildout Project. This project will provide the facilities to retrieve, process and dispose of legacy transuranic sludges currently being stored in tanks at the Oak Ridge National Laboratory. Work to mature the technology of the selected alternative will be used to continue progress on this project.

DOE waste generator sites fund their respective site characterization activities such as visual examination, real time radiography, nondestructive assay, dose to curie conversion, and flammable gas analysis. PBS Central Characterization Project (CB-0081) funds certification of waste characterization activities of legacy transuranic waste at Savannah River Site, Oak Ridge National Laboratory, Lawrence Livermore National Laboratory, and Los Alamos National Laboratory, whereas the Idaho National Laboratory funds its waste characterization certification. Transportation certification is funded by PBS Central Characterization Project (CB-0081).

**Solid Waste Stabilization and Disposition-2012 (PBS: OR-0013B)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$68,457	\$67,000	-\$1,457
<ul style="list-style-type: none"> <li>Continued to manage and store transuranic waste in compliance with regulations.</li> <li>Continued transuranic waste processing and storage to meet contractual and regulatory commitments.</li> </ul>	<ul style="list-style-type: none"> <li>Maintain regulatory and safety basis documents and permits and operate waste storage facilities at the Oak Ridge National Laboratory.</li> <li>Continue transfers of transuranic waste from storage facilities to the Transuranic Waste</li> </ul>	<ul style="list-style-type: none"> <li>Decrease reflects completing the development of a testing strategy for processing remote-handled sludge inventory.</li> </ul>

- Maintained regulatory and safety basis documents and permits and operated waste storage facilities at the Oak Ridge National Laboratory.
  - Continued transfers of transuranic waste to the Transuranic Waste Processing Facility and continued processing and certification of transuranic debris waste to meet regulatory milestones.
  - Continued processing and certification of legacy debris.
  - Returned processed and certified transuranic debris waste to storage pending reopening of the Waste Isolation Pilot Plant.
  - Treated and shipped mixed low-level waste to off-site disposal.
  - Continued planning and technology maturation activities required to design and construct the facilities to process transuranic sludge.
  - Continued to develop a testing strategy for processing approximately 2,000 cubic meters of remote-handled sludge inventory.
- Processing Facility.
- Continue processing of legacy contact-handled and remote-handled debris at the Transuranic Waste Processing Facility to meet regulatory milestones.
  - Fund transuranic waste characterization activities.
  - Obtain certification by the Central Characterization Project that the processed transuranic waste meets Waste Isolation Pilot Plant disposal criteria. Certified waste will be returned to storage pending shipments to Waste Isolation Pilot Plant.
  - Manage and stored mixed low-level waste in compliance with regulations.
  - Continue technology maturation and planning for the transuranic sludge processing.
-

## **Nuclear Facility D&D-Y-12 (PBS: OR-0041)**

### **Overview**

This PBS is within the Defense Environmental Cleanup appropriation.

This PBS funds the cleanup at the Y-12 National Security Complex, which is a contributor of mercury to the Upper East Fork Poplar Creek that flows through the City of Oak Ridge. The near-term focus of work at the Y-12 National Security Complex includes: designing and constructing a water treatment system to reduce mercury flux; surveillance and maintenance of current surplus facilities awaiting future decontamination and decommissioning; and groundwater and surface water monitoring to assess the effectiveness of completed cleanup actions that support future remediation decisions identified in Comprehensive, Environmental, Response, Compensation and Liability Act Records of Decision.

Funds also support the cost-effective cleanup of the Oak Ridge Reservation through the operation of the Environmental Management Waste Management Facility (maximum capacity of 2,200,000 cubic yards) and the Oak Ridge Reservation Landfills for disposition of waste from all on-site DOE program offices. A total of \$18,000,000 in payments to a State of Tennessee trust fund will provide funding for the perpetual care of the Environmental Management Waste Management Facility after final closure. A follow-on On Site Waste Disposal Facility will be necessary once the capacity of the existing on-site disposal facility is reached. Planning and preparation activities have been initiated to ensure a follow-on facility is in place when the existing facility is full.

This PBS includes two Line Item Construction projects; the Outfall 200 Mercury Treatment Facility and the On Site Waste Disposal Facility. The Outfall 200 Mercury Treatment Facility will construct a water treatment facility to remove mercury from Upper East Fork Poplar Creek which leaves the site, and to prepare for the environmental cleanup of the Y-12 National Security Complex site. The On Site Waste Disposal Facility is a proposed landfill to provide on-site waste disposal capacity for demolition debris and remediation waste from Oak Ridge Reservation clean-up projects once the existing disposal facility has reached capacity.

The scope of this PBS also includes direct maintenance and repair that are applicable to these areas.

**Nuclear Facility D&D-Y-12 (PBS: OR-0041)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
<b>\$72,851</b>	<b>\$46,488</b>	<b>-\$26,363</b>
<ul style="list-style-type: none"> <li>• Complied with legal agreements between the Department, United States Environmental Protection Agency, Region 4, and the State of Tennessee; environmental laws and regulations; and DOE Order requirements for Environmental Management Waste Management Facility operations; groundwater and surface water monitoring; surveillance and maintenance of waste sites and inactive facilities; and preparation of an annual remediation effectiveness report.</li> <li>• Continued surveillance and maintenance for EM-owned facilities at Y-12.</li> <li>• Operated the Environmental Management Waste Management Facility and other Oak Ridge Reservation Landfills to receive wastes from demolition and remedial activities in accordance with DOE Order requirements for groundwater and surface water monitoring, including Environmental Management Waste Management Facility waste acceptance criteria attainment activities.</li> <li>• Continued planning design and preparation of regulatory documentation and Critical</li> </ul>	<ul style="list-style-type: none"> <li>• Continue routine surveillance and maintenance for EM-owned excess contaminated facilities at Y-12.</li> <li>• Operate the Environmental Management Waste Management Facility and other Oak Ridge Reservation landfills.</li> <li>• Continue implementing Oak Ridge Reservation groundwater strategy.</li> <li>• Complete Y-12 Colex West Side equipment removal.</li> </ul>	<ul style="list-style-type: none"> <li>• Decrease reflects completion of the characterization and demolition of excess contaminated excess facilities executed in FY 2017 and a ramp down of the Y-12 Colex West Side equipment removal activities as it nears completion.</li> </ul>



Decision reviews for the Outfall 200 Mercury Treatment Facility.

- Continued monitoring of off-site groundwater in accordance with regulatory agreements by sampling wells and surface water.
  - Continued preparation of Comprehensive Environmental Response, Compensation, and Liability Act documentation and other planning for the new Comprehensive Environmental Response, Compensation, and Liability Act On-Site Disposal Facility.
  - Characterized and demolished excess contaminated facilities.
  - Supported preliminary design of the Environmental Management Disposal Facility, a new landfill for the Oak Ridge Reservation.
-

**Nuclear Facility D&D-Oak Ridge National Laboratory (PBS: OR-0042)**

**Overview**

This PBS is within the Defense Environmental Cleanup appropriation.

This PBS funds the cleanup of the Oak Ridge National Laboratory which includes operations and surveillance and maintenance of liquid, gaseous, and process waste operations systems in support of the Office of Environmental Management and Office of Science missions. The scope includes maintenance and monitoring of more than 200 inactive facilities (including several inactive research reactors and isotope production facilities), three contaminated groundwater plumes, contaminated surface water, and numerous areas of soil and sediment contamination awaiting future decontamination, decommissioning, and environmental remediation actions. The activities performed under this PBS will ensure worker safety and mitigate the potential for contaminant release and continue environmental monitoring of surface and groundwater systems to support future remediation decisions identified in the Comprehensive Environmental Response Compensation and Liability Act Records of Decision. The scope of this PBS also includes direct maintenance and repair that are applicable to these areas.

**Nuclear Facility D&D-Oak Ridge National Laboratory (PBS: OR-0042)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$70,100	\$60,007	-\$10,093
<ul style="list-style-type: none"> <li>Monitored groundwater and surface water in accordance with the Melton Valley and Bethel Valley Records of Decision.</li> <li>Maintained liquid, gaseous and process waste operations systems in support of the Offices of Science and Environmental Management missions.</li> <li>Performed surveillance and maintenance required by the Melton Valley Comprehensive Environmental Response, Compensation and</li> </ul>	<ul style="list-style-type: none"> <li>Monitor groundwater and surface water in accordance with the Melton Valley and Bethel Valley Records of Decision.</li> <li>Maintain liquid, gaseous and process waste operations systems in support of the missions of the Offices of Environmental Management and Science.</li> <li>Perform surveillance and maintenance required by the Melton Valley Comprehensive Environmental Response,</li> </ul>	<ul style="list-style-type: none"> <li>Decrease reflects completion of characterization and demolition of excess contaminated facilities executed in prior years at the Oak Ridge National Laboratory.</li> </ul>

Liability Act Record of Decision and for inactive facilities and reactors at the Oak Ridge National Laboratory.

- Conducted infrastructure upgrades to the Liquid and Gaseous Waste Operations facilities to ensure mission critical activities continue at Oak Ridge Environmental Management, the Office of Science and at the Oak Ridge National Laboratory.
- Characterized and demolished excess contaminated facilities.

Compensation and Liability Act Record of Decision and for inactive facilities and reactors at the Oak Ridge National Laboratory in a safe and compliant manner.

- Conduct infrastructure upgrades to the Liquid and Gaseous Waste Operations facilities to ensure mission critical activities continue at Oak Ridge Environmental Management, the Office of Science and at the Oak Ridge National Laboratory.

**Oak Ridge Reservation Community & Regulatory Support (Defense) (PBS: OR-0100)**

**Overview**

This PBS is within the Defense Environmental Cleanup appropriation.

This PBS funds a Tennessee non-regulatory Agreement-In-Principle grant, the Tennessee regulatory Federal Facility Agreement grant and the activities of the Oak Ridge Site Specific Advisory Board. The Agreement-In-Principle grant supports the Tennessee Department of Environment and Conservation's independent oversight and monitoring of DOE activities taking place both on-site and off-site associated with the Oak Ridge DOE programs. The Federal Facility Agreement regulatory grant provides funding for regulatory requirements of cleanup activities under the interagency Federal Facility Agreement under Comprehensive Environmental Response and Liability Act. The support for the Site Specific Advisory Board is chartered under the Federal Advisory Committee Act.

**Oak Ridge Reservation Community & Regulatory Support (Defense) (PBS: OR-0100)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$5,500	\$4,711	-\$789
<ul style="list-style-type: none"> <li>Continued support to the State of Tennessee for conducting annual oversight, monitoring, and reporting. This includes: annual reports to the public; independent monitoring program of all environmental media; off reservation monitoring program of wells owned by private citizens adjacent to DOE land; establishment of background levels; oversight of DOE facility surveillance walkthroughs; Federal Facility Agreement support activities; and emergency management exercises.</li> <li>Continued activities by the Site Specific Advisory</li> </ul>	<ul style="list-style-type: none"> <li>Continue support to the State of Tennessee for conducting annual oversight, monitoring, and reporting. This includes: annual reports to the public; independent monitoring program of all environmental media; off reservation monitoring program of wells owned by private citizens adjacent to DOE land; establishment of background levels; oversight of DOE facility surveillance walkthroughs; Federal Facility Agreement support activities; and emergency management exercises.</li> <li>Continue activities by the Site Specific Advisory</li> </ul>	<ul style="list-style-type: none"> <li>Decrease reflects that the grant to the Tennessee Department of Environment and Conservation for oversight of community and regulatory commitments has been discontinued.</li> </ul>

Board sponsored by DOE-EM to assist in public participation activities and out-reach assistance.

- Supported grant to the Tennessee Department of Environment and Conservation for oversight of community and regulatory commitments.

Board sponsored by DOE-EM to assist in public participation activities and outreach assistance.

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## Technology Development Activities (PBS: OR-TD-0100)

### Overview

This PBS is within the Defense Environmental Cleanup appropriation.

The Technology Development and Deployment program focuses on resolving technical challenges through the application of science and innovation to develop practical solutions for environmental cleanup in response to the highest priority needs of the Office of Environmental Management sites. The goal is to improve the technical maturity of current technologies, develop cost-effective alternative technologies, and improve and/or provide the next-generation of technologies for insertion into program activities. EM is enhancing its technology development and deployment efforts with a coordinated two-prong approach in which select projects will be managed at Headquarters while others will be managed at the field sites:

- Longer-term activities with low technology readiness levels (higher development risks) are managed at Headquarters; and
- Shorter-term activities with higher technology readiness levels are managed at the sites where the technology will result in direct mission-related benefits.

The largest environmental risks on the Department of Energy Oak Ridge Reservation stem from ongoing offsite release of mercury from the Y-12 National Security Complex. Downstream bioaccumulation of mercury in fish is a regulatory concern and mercury migration into and through other media such as groundwater, poses challenges to environmental remediation and management. To protect human health and the environment, the Department of Energy is initiating a series of early actions that can be taken pending demolition of the former mercury process buildings. The challenges associated with the remediation of mercury in soil and water are unique across the complex in both scale and complexity. Current mercury discharges from the Y-12 National Security Complex exceed regulatory standards. Early actions are required in order to address mercury sources; characterize areas that are accessible pending building demolition; and treat surface water to meet regulatory standards at the site boundary. The goal of this technology development and deployment investment is to reduce the overall remediation scope, schedule, and cost through improved understanding of mercury sources and transport through environmental media and the watershed; and to develop characterization, removal, and waste treatment/disposition techniques.

**Technology Development Activities - Oak Ridge (PBS: OR-TD-0100)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
<b>\$3,000</b>	<b>\$3,000</b>	<b>\$0</b>
<ul style="list-style-type: none"> <li>Planned, developed, evaluated, and demonstrated mercury characterization, remediation and mitigation approaches, and technologies focusing on the Lower East Fork Poplar Creek.</li> <li>Began comparative testing and demonstration of technologies to solidify/stabilize or otherwise treat mercury soil/debris, to be performed in conjunction with the Applied Field Research Initiative for Remediation of Mercury and Industrial Contaminants at Oak Ridge National Laboratory.</li> <li>Began assessments of technologies for debris sorting, decontamination, and macroencapsulation.</li> </ul>	<ul style="list-style-type: none"> <li>Continue planned mercury technology development activities, to include focus areas related to understanding soil and groundwater source control, water chemistry and sediment manipulation, and ecological manipulation.</li> </ul>	<ul style="list-style-type: none"> <li>No change.</li> </ul>

**U233 Disposition Program (PBS: OR-0011D)**

**Overview**

This PBS is within the Defense Environmental Cleanup appropriation.

Oak Ridge maintains the DOE inventory of Uranium-233 which is currently stored in Building 3019 at the Oak Ridge National Laboratory. Uranium-233 is a special nuclear material which requires strict safeguards and security controls to protect against access. The Defense Nuclear Facilities Safety Board issued Recommendation 97-1, *Safe Storage of Uranium-233*, which identified concerns related to long-term storage of the inventory in Building 3019. Disposing of the uranium-233 inventory will reduce the substantial annual costs associated with safeguards and security requirements, which are funded by the Office of Science. Further, the risk of a nuclear criticality event will be eliminated, as well as, the need for future facility upgrades to Building 3019 to ensure safe storage of the inventory.

With the completion of the Uranium-233 Consolidated Edison Uranium Solidification Project Direct Disposition Campaign, the focus has shifted to the preparation activities for the future down blending, solidification, and disposal operations in Building 2026 for the remainder of the material.

**U233 Disposition Program (PBS: OR-0011D)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$43,311	\$45,000	+\$1,689
<ul style="list-style-type: none"> <li>Continued required surveillance and maintenance and other activities at Building 3019 to maintain a safe and secure condition.</li> <li>Continued direct disposition of Consolidated Edison Uranium Solidification Project material from the Building 3019 inventory to offsite disposal.</li> </ul>	<ul style="list-style-type: none"> <li>Continue required surveillance and maintenance and other activities at Building 3019 and Building 2026 to maintain a safe and secure condition.</li> <li>Continue planning and preparation for the Uranium-233 processing campaign.</li> <li>Begin construction and prepare for development of operational readiness activities for the Uranium-233 processing campaign.</li> </ul>	<ul style="list-style-type: none"> <li>Increase is attributed to the construction and operational readiness activities associated with the Uranium-233 processing campaign.</li> </ul>



**Safeguards and Security (PBS: OR-0020)**

**Overview**

This PBS can be found within the Defense Environmental Cleanup appropriation.

The Oak Ridge Environmental Management Safeguards and Security Program provides security services to support the site’s cleanup program. These funds also implement Homeland Security Presidential Directive-12 identification credentials for all employees to sustain a reliable, cleared workforce.

The Cyber Security Program protects government information and technology systems in compliance with DOE requirements to support the cleanup of the Oak Ridge site. Activities include vulnerability management, continuous diagnostic and mitigation implementation, cyber security awareness, and user training.

**Safeguards and Security (PBS: OR-0020)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
<b>\$15,500</b>	<b>\$14,023</b>	<b>-\$1,477</b>
<ul style="list-style-type: none"> <li>• Provided safeguard and security services for the following major facilities: Building K-27, Building K-1037, Centrifuge Facilities, Classified Burial Grounds, Environmental Management Waste Management Facility, Transuranic Waste Processing Facility, and the overall East Tennessee Technology Park were applied in the areas of: protection program management, emergency response, Physical Security, information protection, Protective Force,</li> </ul>	<ul style="list-style-type: none"> <li>• Provide safeguard and security services for the following major facilities: K-1037, Centrifuge Facilities, Classified Burial Grounds, Environmental Management Waste Management Facility, Transuranic Waste Processing Facility, and the overall East Tennessee Technology Park will be applied in the areas of: protection program management, emergency response, Physical Security, information protection, Protective Force, Personnel Security, and Nuclear</li> </ul>	<ul style="list-style-type: none"> <li>• Decrease reflects reduced Safeguards and Security requirements at the East Tennessee Technology Park which is offset by the inclusion of Cyber Security in PBS OR-0020, Safeguards and Security, beginning in FY 2019.</li> </ul>

Personnel Security, Cyber Security and Nuclear Material Control and Accountability.

- Site security services were applied using a graded, risk-based management approach supporting site cleanup mission priorities and protecting government equipment, materials, information, and the site workforce.

Material Control and Accountability.

- Site security services will be applied using a graded, risk-based management approach supporting site cleanup mission priorities and protecting government equipment, materials, information, and the site workforce.
  - Provide cyber security to ensure DOE information resources are identified and protected.
-

**Community and Regulatory (Non-Defense) (PBS: OR-0104)**

**Overview**

This PBS is within the Non-Defense Environmental Cleanup appropriation.

This PBS funds activities which support the multi-party 2012 Memorandum of Agreement to comply with Section 106 of the National Historic Preservation Act; preserving the historical significance of the former K-25 site. The K-25 Building was once the largest facility in the world, over 44 acres under roof, and was a significant part of the Manhattan Project.

**Community and Regulatory (Non-Defense) (PBS: OR-0104)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$6,000	\$0	-\$6,000
<ul style="list-style-type: none"> <li>Completed design and initiated construction of facilities pursuant to the agreement reached in 2012 between DOE, the advisory council on Historic Preservation, and State and local governments to complete the demolition of Building K-25 in exchange for preserving the historic contributions Building K-25 made to the Manhattan Project.</li> </ul>	<ul style="list-style-type: none"> <li>No activities in FY 2019.</li> </ul>	<ul style="list-style-type: none"> <li>Decrease reflects the completion of activities for preserving the historic contribution Building K-25 made to the Manhattan Project.</li> </ul>

**Nuclear Facility D&D-East Tennessee Technology Park (D&D Fund) (PBS: OR-0040)**

**Overview**

This PBS funds decontamination and decommissioning of facilities and remedial actions for contaminated sites at the East Tennessee Technology Park. Approximately 2,200 acres of the 5,000 acres at the site contain potential contamination including known groundwater contaminant plumes from former burial grounds and contaminated soils. The decommissioning and demolition of the last five large gaseous diffusion plants, K-27 was completed in FY 2017. There remains many contaminated ancillary and support buildings that require demolition before the site can be closed and transitioned to a private sector park. The scope of this PBS includes: remedial actions (including planning, removal actions, and development of Comprehensive, Environmental, Response, Compensation and Liability Act documentation); decontamination and decommissioning of remaining facilities (including planning, deactivation of utilities, asbestos and other hazardous material abatement, equipment dismantlement and disposal, structure demolition, and waste disposition); site infrastructure services (including fire protection; utility services; environmental, safety, and health programs; real property management); and capital improvements and repairs. The scope of this PBS also includes direct maintenance and repair that are applicable to these areas.

The end-state of the majority of the site will be appropriate for commercial reuse.

**Nuclear Facility D&D-East Tennessee Technology Park (D&D Fund) (PBS: OR-0040)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$194,673	\$151,039	-\$43,634
<ul style="list-style-type: none"> <li>Maintained East Tennessee Technology Park in a safe and secure condition.</li> <li>Conducted activities at the East Tennessee Technology Park to provide infrastructure and support to cleanup projects.</li> <li>Continued Building K-27 Building demolition and waste disposal activities.</li> <li>Performed decontamination and</li> </ul>	<ul style="list-style-type: none"> <li>Maintain East Tennessee Technology Park in a safe and secure condition.</li> <li>Conduct activities at the East Tennessee Technology Park to provide infrastructure and support to cleanup projects.</li> <li>Perform pre-demolition and demolition activities on remaining facilities</li> <li>Conduct characterization and slab and soil</li> </ul>	<ul style="list-style-type: none"> <li>Decrease reflects the completion of Building K-27 demolition and waste disposal activities, and the ramp-down of decommissioning and demolition activities with the completion of the Poplar Creek Facilities, Central Neutralization Facilities and Building K-1037 in the East Tennessee Technology Park.</li> </ul>

decommissioning activities on remaining facilities.

- Prepared and demolished buildings in the K-1200.

remediation of the main plant area, Zone 2.

- Complete Poplar Creek Facilities Decommissioning and Demolition Project.
  - Complete Central Neutralization Facilities Decommissioning and Demolition Project.
  - Complete the Building K-1037 Demolition Project.
-

**East Tennessee Technology Park Contract/Post-Closure Liabilities/Administration (PBS: OR-0102)**

**Overview**

This PBS funds ongoing, long-term contractor obligations including post-retirement life and medical, long-term disability and pension benefits for pre-April 1998 retirees, who supported the Oak Ridge enrichment facility programs.

**East Tennessee Technology Park Contract/Post-Closure Liabilities/Administration (PBS: OR-0102)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
<b>\$18,772</b>	<b>\$17,258</b>	<b>-\$1,514</b>
<ul style="list-style-type: none"> <li>Continued funding of contractor liabilities associated with post-retirement life, medical benefits and pensions.</li> </ul>	<ul style="list-style-type: none"> <li>Continue funding of contractor liabilities associated with post-retirement life, medical benefits and pensions.</li> </ul>	<ul style="list-style-type: none"> <li>Decrease reflects reduced funding requirements for contractor post-retirement life, medical benefits, and pensions.</li> </ul>

**Oak Ridge  
Capital Summary (\$K)**

Total	Prior Years	FY 2017 Enacted	FY 2019 Request	FY 2019 Request vs FY 2017 Enacted
<b>Capital Operating Expenses Summary (including (Major Items of Equipment (MIE))</b>				
Capital Equipment > \$500K (including MIE)	0	0	0	0
Plant Projects (GPP and IGPP) (<\$10M)	9,878	4,600	4,035	2,000
<b>Total, Capital Operating Expenses</b>	<b>9,878</b>	<b>4,600</b>	<b>4,035</b>	<b>2,000</b>
<hr/>				
<b>Capital Equipment &gt; \$500K (including MIE)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<hr/>				
<b>Total, Capital Equipment (including MIE)</b>	<b>9,878</b>	<b>4,600</b>	<b>4,035</b>	<b>2,000</b>
<hr/>				
<b>Plant Projects (GPP and IGPP) (Total Estimated Cost (TEC) &lt;\$10M)</b>				
<u><b>Oak Ridge</b></u>				
Viewing Tower/Equipment Building	850	1,729	850	0
History Center	1,500	1,495	1,500	0
Interpretational Displays	400	1,376	400	0
Building 2026 U-233 Processing	5,128	0	1,285	0
Building 2026 Security Project	2,000	0	0	2,000
<b>Total, Oak Ridge</b>	<b>9,878</b>	<b>4,600</b>	<b>4,035</b>	<b>2,000</b>
<hr/>				
<b>Total, Plant Projects (GPP and IGPP) (Total Estimated (TEC) &lt;\$10M)</b>	<b>9,878</b>	<b>4,600</b>	<b>4,035</b>	<b>2,000</b>
<hr/>				
<b>Total, Capital Summary</b>	<b>9,878</b>	<b>4,600</b>	<b>4,035</b>	<b>2,000</b>

**Oak Ridge  
Construction Projects Summary (\$K)**

Total	Prior Years	FY 2017 Enacted	FY 2019 Request	FY 2019 Request vs FY 2017 Enacted
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**14-D-403, Outfall 200 Mercury Treatment Facility, OR (OR-0041)**

Total Estimate Cost (TEC)	TBD	23,408	3,869	11,274	+7,405
Other Project Costs (OPC)	TBD	11,894	1,231	0	-1,231
<b>Total Project Cost (TPC) 15-D-403</b>	<b>TBD</b>	<b>35,302</b>	<b>5,100</b>	<b>11,274</b>	<b>+6,174</b>

**On Site Disposal Facility (OR-0041)**

Total Estimate Cost (TEC)	N/A	0	0	0	0
Other Project Costs (OPC)	N/A	8,214	0	0	0
<b>Subtotal, On Site Disposal Facility (OR-0041)</b>	<b>N/A</b>	<b>8,214</b>	<b>0</b>	<b>0</b>	<b>0</b>

**17-D-401, On Site Disposal Facility (OR-0041)**

Total Estimate Cost (TEC)	TBD	0	6,000	4,690	-1,310
Other Project Costs (OPC)	TBD	7,050	5,000	310	-4,690
<b>17-D-401, Environmental Management Disposal Facility (OR-0041)</b>	<b>TBD</b>	<b>7,050</b>	<b>11,000</b>	<b>5,000</b>	<b>-6,000</b>
<b>Total Project Cost (TPC) 17-D-401</b>	<b>TBD</b>	<b>15,264</b>	<b>11,000</b>	<b>5,000</b>	<b>-6,000</b>



**17-D-401, On Site Waste Disposal Facility  
Y-12 National Security Complex, Oak Ridge Tennessee  
Project is for Design and Construction**

**1. Summary and Significant Changes, and Schedule and Cost History**

**Summary**

The FY 2019 Request for the On Site Waste Disposal Facility is \$4,690,000.

The most recent DOE O 413.3B approved Critical Decision is Critical Decision-0. The approval of the Critical Decision -0 was provided on May 26, 2016. The current approved CD-0 cost range is \$175,000,000-\$355,000,000.

**Significant Changes**

This FY 2019 Construction Project Data Sheet is an update to the FY 2018 Construction Project Data Sheet for the On-Site Waste Disposal Facility and does not include a new start for the budget year.

A Federal Project Director has been assigned to the project and has approved this data sheet.

The scope of this project is to plan, design and construct an engineered Comprehensive Environmental Response, Compensation and Liability Act waste disposal facility including all necessary site development, infrastructure improvements, and support facilities, but does not include the cost of operations and final closure of the facility. The On-Site Waste Disposal Facility will be constructed on or in the vicinity of the Y-12 National Security Complex in Oak Ridge, TN. The facility will accept disposal of low-level and mixed low-level wastes generated through the cleanup of legacy facilities on the Oak Ridge Reservation. The On-Site Waste Disposal Facility is expected to provide a disposal capacity of up to 2,200,000 cubic yards.

Future critical decisions for this line item project will be phased into three separate subprojects.

**Critical Milestone History**

**Fiscal Year or Date**

Request	CD-0	Conceptual Design Complete	CD-1	Final Design Complete	CD-2/3	D&D Complete	CD-4
<b>FY 2018</b>							
Phase 1	5/26/2016	4Q FY2017	4Q FY2018	TBD	TBD	N/A	TBD
Phase 2	5/26/2016	4Q FY2017	4Q FY2018	TBD	TBD	N/A	TBD
Phase 3	5/26/2016	4Q FY2017	4Q FY2018	TBD	TBD	N/A	TBD
<b>FY 2019</b>							
Phase 1	5/26/2016	4Q FY2017	4Q FY2018	TBD	TBD	N/A	TBD
Phase 2	5/26/2016	4Q FY2017	4Q FY2018	TBD	TBD	N/A	TBD
Phase 3	5/26/2016	4Q FY2017	4Q FY2018	TBD	TBD	N/A	TBD

**CD-0** – Approve Mission Need for a construction project with a conceptual scope and cost range

**Conceptual Design Complete** – Actual date the conceptual design was completed (if applicable)

**CD-1** – Approve Design Scope and Project Cost and Schedule Ranges

**CD-2** – Approve Project Performance Baseline

**Final Design Complete** – Estimated/Actual date the project design will be/was complete(d)

**CD-3** – Approve Start of Construction

**Environmental Management/**

**Oak Ridge/17-D-401 On Site Waste**

**Disposal Facility Y-12 National Security**

**Complex, Oak Ridge Tennessee**

**D&D Complete** – Completion of D&D work (see Section 9)

**CD-4** – Approve Start of Operations or Project Closeout

Note: The schedule dates are only estimates and are consistent with the high end of the schedule range.

**Project Cost History**

(Dollars in Thousands)

	TEC, Design	TEC, Construction	TEC, Total	OPC, Except D&D	OPC, D&D	OPC, Total	TPC
<b>FY 2018</b>	<b>21,396</b>	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>
Phase 1	21,396	TBD	TBD	TBD	TBD	TBD	TBD
Phase 2	0	TBD	TBD	TBD	TBD	TBD	TBD
Phase 3	0	TBD	TBD	TBD	TBD	TBD	TBD
<b>FY 2019</b>	<b>21,396</b>	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>
Phase 1	21,396	TBD	TBD	TBD	TBD	TBD	TBD
Phase 2	0	TBD	TBD	TBD	TBD	TBD	TBD
Phase 3	0	TBD	TBD	TBD	TBD	TBD	TBD

**2. Project Scope and Justification**

**Scope**

The purpose of this project is to provide safe, cost effective, long-term disposal of Low-Level Waste and Mixed Low-Level Waste generated by Comprehensive Environmental Response, Compensation, and Liability Act cleanup projects at the Oak Ridge Reservation. The scope of the project includes planning, design and construction of an engineered Comprehensive Environmental Response, Compensation, and Liability Act waste disposal facility including all necessary site development, infrastructure improvements, and support facilities, but does not include operations nor the final closure of the facility. The On-Site Waste Disposal Facility is expected to provide a disposal capacity of approximately 2.2 million yd<sup>3</sup> with a 47-acre footprint. Components of the landfill include: bottom liner system, leachate collection/drainage/transfer systems, underdrain system, french drains and buttressing, and interim caps.

The On-Site Waste Disposal Facility is to be constructed in the three following phases.

Phase 1: This phase will consist of a full and final design of the entire disposal facility footprint that will consist of multiple disposal cells. The final cap will be conceptually designed but is not part of this project. The construction in Phase I will include cell 1 and 2 along with all support facilities construction (e.g., water treatment system) and site preparation of entire footprint to support transition to operations.

Phase 2: This phase will consist of construction of cells 3 and 4 after a full review of the final design and any necessary updates.

Phase 3: This phase will consist of construction of remaining cell (s) after a full review of the final design and any necessary updates.

The Comprehensive Environmental Response, Compensation, and Liability Act and DOE O 413.3B Critical Decision process to support design and construction of the facility is ongoing.

**Justification**

The projected waste volumes from the remaining Comprehensive Environmental Response, Compensation, and Liability Act cleanup of Y-12 and ORNL will exceed the capacity of the existing on-site disposal facility, the Environmental Management

Waste Management Facility. The scope of this project is to construct a new on-site disposal facility; the On-Site Waste Disposal Facility, to provide the required additional waste disposal capacity.

The project is being conducted in accordance with the project management requirements in DOE O 413.3B, Program and Project Management for the Acquisition of Capital Assets.

**Key Performance Parameters (KPPs)**

The Threshold Key Performance Parameters, represent the acceptable performance that the project must achieve. Achievement of the Threshold Key Performance Parameters will be a prerequisite for approval of Critical Decision -4, Project Completion. The Objective Key Performance Parameters represent the desired project performance.

Performance Measure	Threshold	Objective
KPPs to be developed		

**3. Project Cost and Schedule**

**Financial Schedule**

(Dollars in Thousands)

	Budget Authority (Appropriations)	Obligations	Costs
<b>Total Estimated Cost (TEC)</b>			
<b>Design</b>			
FY 2017 Phase 1	N/A	N/A	0
FY 2018 Phase 1	N/A	N/A	1,000
FY 2019 Phase 1	N/A	N/A	6,000
Outyears	N/A	N/A	TBD
<b>Total, Design</b>	<b>N/A</b>	<b>N/A</b>	<b>TBD</b>
<b>Construction</b>			
Outyears	N/A	N/A	TBD
<b>Total, Construction</b>	<b>N/A</b>	<b>N/A</b>	<b>TBD</b>
<b>TEC</b>			
FY 2017 Phase 1	6,000	0	0
FY 2018 Phase 1	1,000	7,000	1,000
FY 2019 Phase 1	4,690	4,690	6,000
Outyears	TBD	TBD	TBD
<b>Total TEC</b>	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>
<b>Other Project Cost (OPC)</b>			
<b>OPC except D&amp;D</b>			
FY 2011 Phase 1	1,063	1,063	343
FY 2012 Phase 1	214	214	737
FY 2013 Phase 1	627	627	591
FY 2014 Phase 1	2,332	2,332	2,140
FY 2015 Phase 1	3,978	3,978	3,320

(Dollars in Thousands)

		Budget Authority (Appropriations)	Obligations	Costs
FY 2016	Phase 1	7,050	7,050	4,266
FY 2017	Phase 1	5,000	1,000	6,531
FY 2018	Phase 1	4,000	8,000	6,336
FY 2019	Phase 1	310	310	310
Outyears		TBD	TBD	TBD
Total, OPC except D&D		TBD	TBD	TBD
OPC				
FY 2011	Phase 1	1,063	1,063	343
FY 2012	Phase 1	214	214	737
FY 2013	Phase 1	627	627	591
FY 2014	Phase 1	2,332	2,332	2,140
FY 2015	Phase 1	3,978	3,978	3,320
FY 2016	Phase 1	7,050	7,050	4,266
FY 2017	Phase 1	5,000	1,000	6,531
FY 2018	Phase 1	4,000	8,000	6,336
FY 2019	Phase 1	310	310	310
Outyears		TBD	TBD	TBD
Total, OPC		TBD	TBD	TBD
Total Project Cost (TPC)				
FY 2011	Phase 1	1,063	1,063	343
FY 2012	Phase 1	214	214	737
FY 2013	Phase 1	627	627	591
FY 2014	Phase 1	2,332	2,332	2,140
FY 2015	Phase 1	3,978	3,978	3,320
FY 2016	Phase 1	7,050	7,050	4,266
FY 2017	Phase 1	11,000	1,000	6,531
FY 2018	Phase 1	5,000	15,000	7,336
FY 2019	Phase 1	5,000	5,000	6,310
Outyears		TBD	TBD	TBD
Total, TPC		TBD	TBD	TBD

**Details of Project Cost Estimate**

(Dollars in Thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design			
Design, Phase 1	21,396	21,396	N/A
Contingency	0	0	N/A
Total, Design	21,396	21,396	N/A
Construction			
Construction, Phase 1	TBD	TBD	N/A
Construction, Phase 2	TBD	TBD	N/A
Construction, Phase 3	TBD	TBD	N/A
Contingency	TBD	TBD	N/A
Total, Construction	TBD	TBD	N/A
Total, TEC	TBD	TBD	N/A
Contingency, TEC	TBD	TBD	N/A
Other Project Cost (OPC)			
OPC except D&D			
OPC, Phase 1	TBD	TBD	N/A
OPC, Phase 2	TBD	TBD	N/A
OPC, Phase 3	TBD	TBD	N/A
Contingency	TBD	TBD	N/A
Total, OPC except D&D	TBD	TBD	N/A
Total, OPC	TBD	TBD	N/A
Contingency, OPC	TBD	TBD	N/A
Total, TPC	TBD	TBD	N/A
Contingency, TPC	TBD	TBD	N/A

**Schedule of Appropriation Requests**

Request		Prior Years	FY 2018	FY 2019	Out years	Total
FY 2018	TEC	6,000	1,000		TBD	TBD
	OPC	20,264	4,000		TBD	TBD
	TPC	26,264	5,000		TBD	TBD
FY 2019	TEC	6,000	1,000	4,690	TBD	TBD
	OPC	20,264	4,000	310	TBD	TBD
	TPC	26,264	5,000	5,000	TBD	TBD

**4. Related Operations and Maintenance Funding Requirements**

Start of Operation or Beneficial Occupancy (fiscal quarter or date) TBD  
 Expected Useful Life (number of years) TBD  
 Expected Future Start of D&D of this Capital Asset (fiscal quarter) N/A

Related Funding Requirements

(Dollars in Thousands)

	Annual Costs		Life Cycle Costs	
	Current Total Estimate	Previous Total Estimate	Current Total Estimate	Previous Total Estimate
Operations	TBD	N/A	TBD	N/A
Utilities	0	0	0	0
Maintenance	0	0	0	0
Total, Operations & Maintenance	TBD		TBD	

**5. D&D Information**

The new area being constructed in this project is not replacing existing facilities.

Area	Square Feet
New area being constructed by this project at Y-12 National Security Complex	(footprint)*
Area of D&D in this project at Y-12 National Security Complex	0
Area at Y-12 National Security Complex to be transferred, sold, and/or D&D outside the project including area previously “banked”	0
Area of D&D in this project at other sites	0
Area at other sites to be transferred, sold, and/or D&D outside the project including area previously “banked”	0
Total area eliminated	0

The one-for-one replacement requirement is met by using previously “banked” square footage from demolished facilities at the East Tennessee Technology Park, Oak Ridge, Tennessee.

Note: Although located in the general area of the Y-12 National Security Complex, it is likely that the On-Site Waste Disposal Facility will be constructed outside the footprint of the Complex.

**6. Acquisition Approach**

Awarded contract to URS/CH2M Oak Ridge, LLC (UCOR) on April 29, 2011. This contract includes the design of the On-Site Waste Disposal Facility and support for DOE Order 413.3B Critical Decision approval through Critical Decision-1 and preparation of Critical Decision -2/3 documents. The contract is a cost plus award fee with performance based incentives.

An Acquisition Strategy (AS) will be developed for the project to support Critical Decision-1 approval. This AS will address the contracting approach for Critical Decision -2/3 approval , construction and transition to operations.

**14-D-403, Outfall 200 Mercury Treatment Facility  
Y-12 National Security Complex, Oak Ridge Tennessee  
Project is for Design and Construction**

**1. Summary, Significant Changes and Schedule and Cost History**

**Summary**

The FY 2019 Request for the Outfall 200 Mercury Treatment Facility is \$11,274,000.

The most recent DOE O 413.3B approved Critical Decision is Critical Decision-3A, *Early Site Preparation*, which was approved by the Project Management Executive on August 2, 2017. The upper end of the preliminary cost range, \$244,000,000, which was approved at Critical Decision-1 on May 6, 2015, is the default Total Project Cost for the project until the project performance baseline is approved at Critical Decision-2/3.

**Significant Changes**

This Construction Project Data Sheet is an update of the FY 2018 Construction Project Data Sheet and does not include a new start for the budget year.

A Federal Project Director has been assigned to the project and has approved this data sheet.

This project will design and construct a Mercury Treatment Facility for Outfall 200 flow having a total footprint of approximately 74,000 square feet. The total footprint is comprised of two primary areas, the headworks area and the Mercury Treatment Facility area, joined by a transfer pipeline corridor. The headworks area will consist of collection and transfer components, grit separation equipment, and storm water storage tank. The treatment facility will consist of outdoor tanks, piping, and transfer and treatment equipment along with an approximately 22,000 square foot metal building to house weather-sensitive equipment and controls. In addition, construction will include utilities, foundations, parking, and fencing. The facility will accomplish mercury removal through a combination of unit operations, including grit removal, chemical precipitation, clarification and media filtration.

The funds being requested in FY 2019 will be used to continue preparations for Critical Decision-2/3 approval and to continue planning for construction contract acquisition.

**Critical Milestone History**

Request	Fiscal Quarter or Date								
	CD-0	Conceptual Design Complete	CD-1	CD-3A	CD-2	Final Design Complete	CD-3	D&D Complete	CD-4
FY 2015	2Q FY201 4 <sup>a</sup>	N/A	2Q FY 2015	N/A	4Q FY201 7	1Q FY2017	TBD	N/A	TBD
FY 2016	3/17/201 4 <sup>a</sup>	1Q FY2015	2Q FY 2015	N/A	TBD	TBD	TBD	N/A	TBD
FY 2017	3/17/201 4 <sup>a</sup>	10/13/201 4	5/6/2015	N/A	TBD	TBD	TBD	N/A	TBD
FY 2018	3/17/201 4 <sup>a</sup>	10/13/201 4	5/6/2015	N/A	TBD	TBD	TBD	N/A	TBD
FY 2019	3/17/201 4 <sup>a</sup>	10/13/201 4	5/6/2015	8/2/2017	TBD	4Q FY2017 <sup>b</sup>	TBD	N/A	TBD

<sup>a</sup>Critical Decision -0 approval was originally issued on 7/20/2007 for the aggregate cleanup of the Y-12 National Security Site. Conceptual Design activities for this project were not initiated until FY 2012. An updated, project-specific Critical Decision-0 was approved on March 17, 2014.

<sup>b</sup>A design contractor will provide Title III design support during the construction phase.

Note: The schedule dates are only estimates and are consistent with the high end of the schedule range.

**CD-0** – Approve Mission Need for a construction project with a conceptual scope and cost range

**Conceptual Design Complete** – Actual date the conceptual design was completed (if applicable)

**CD-1** – Approve Design Scope and Project Cost and Schedule Ranges

**CD-3A** – Approve Early Site Preparation

**CD-2** – Approve Project Performance Baseline

**Final Design Complete** – Estimated/Actual date the project design will be/was complete(d)

**CD-3** – Approve Start of Construction

**D&D Complete** – Completion of D&D work (see Section 9)

**CD-4** – Approve Start of Operations or Project Closeout

**PB** – Indicates the Performance Baseline

### Project Cost History

(Dollars in Thousands)

	TEC, Design	TEC, Construction	TEC, Total	OPC, Except D&D	OPC, D&D	OPC, Total	TPC
FY 2015	34,500	TBD	TBD	TBD	N/A	TBD	TBD
FY 2016	34,500	TBD	TBD	TBD	N/A	TBD	TBD
FY 2017	34,500	TBD	TBD	TBD	N/A	TBD	TBD
FY 2018	30,175	TBD	TBD	TBD	N/A	TBD	TBD
FY 2019	29,062	TBD	TBD	TBD	N/A	TBD	TBD

No construction, excluding early site preparation activities approved at Critical Decision -3A, will be performed until the project performance baseline has been validated and Critical Decision -3 has been approved.

## **2. Project Scope and Justification**

### Scope

The scope of this project is to design and construct a Mercury Treatment Facility for Outfall 200 flow having a footprint of approximately 74,000 square feet comprised of two primary areas, the headworks area and the Mercury Treatment Facility area, joined by a transfer pipeline corridor. The headworks area will consist of collection and transfer components, grit separation equipment, and storm water storage tank. The treatment facility will consist of outdoor tanks, piping, and transfer and treatment equipment along with an approximately 22,000 square foot metal building to house weather-sensitive equipment and controls and office areas. In addition, construction will include utilities, foundations, parking, and fencing. The Outfall 200 Mercury Treatment Facility will be constructed at the Y-12 National Security Complex in Oak Ridge, Tennessee, as a Comprehensive Environmental Response, Compensation, and Liability Act of 1980 interim remedial action. The facility will provide treatment of storm sewer water discharges through Outfall 200, for the removal of mercury. The facility will accomplish mercury removal through a combination of unit operations, including grit removal, chemical precipitation, clarification and media filtration.

The Comprehensive Environmental Response, Compensation, and Liability Act and DOE O 413.3B Critical Decision process to support design and construction of the facility is ongoing.



**Justification**

Historical missions at the Y-12 National Security Complex resulted in the release of mercury to the environment. Residual mercury in the 60-year-old, deteriorating storm drain infrastructure, infiltrating groundwater and sediment-bound mercury are remobilized and transported through the storm drain network to Outfall 200 into the Upper East Fork Poplar Creek. Currently, this is the largest environmental risk on the U.S. Department of Energy Oak Ridge Reservation. The primary pathway of concern is surface water because the Upper East Fork Poplar Creek flows directly from the Y-12 complex into the city of Oak Ridge. Over the past two decades, DOE has implemented a series of projects that have reduced the concentrations of mercury measured at the site boundary at Station 17, the Y-12 National Pollutant Discharge Elimination System permit compliance point. Despite the success of these actions, an unknown volume of mercury remains in the soils beneath and adjacent to the buildings, storm sewers, and process pipelines, which continues to be released to the storm sewer system. Design and construction of a water treatment system for Outfall 200 flow is expected to mitigate the current downstream migration of mercury, as well as potential future changes in mercury flux characteristics.

The project is being conducted in accordance with the project management requirements in DOE O 413.3B, Program and Project Management for the Acquisition of Capital Assets.

**Key Performance Parameters (KPPs)**

The Threshold Key Performance Parameters, represent the acceptable performance that the project must achieve. Achievement of the Threshold Key Performance Parameters will be a prerequisite for approval of Critical Decision -4, Project Completion. The Objective Key Performance Parameters represent the desired project performance.

Performance Measure	Threshold	Objective
KPPs to be developed		

**3. Project Cost and Schedule**

**Financial Schedule**

(Dollars in Thousands)

Budget Authority (Appropriations)	Obligations	Costs
--------------------------------------	-------------	-------

Total Estimated Cost (TEC)

Design

FY 2014	N/A	N/A	0
FY 2015	N/A	N/A	1,184
FY 2016	N/A	N/A	6,279
FY 2017	N/A	N/A	5,741
FY 2018	N/A	N/A	1,708
FY 2019	N/A	N/A	600
Outyears	N/A	N/A	TBD
Total, Design <sup>d</sup>	N/A	N/A	TBD

Construction

FY 2017	N/A	N/A	1,629
FY 2018	N/A	N/A	15,872
FY 2019	N/A	N/A	5,116
Outyears	N/A	N/A	TBD
Total, Construction	N/A	N/A	TBD

TEC

FY 2014	4,608	0	0
FY 2015	9,400	14,008	1,184
FY 2016	9,400	9,400	6,279
FY 2017	4,000	4,000	7,369
FY 2018	16,000	16,000	17,580
FY 2019	11,274	11,274	5,716
Outyears	TBD	TBD	TBD
Total TEC	TBD	TBD	TBD

Other Project Cost (OPC)

OPC except D&D

FY 2012 <sup>a</sup>	5,153	5,153	2,325
FY 2013 <sup>b</sup>	253	253	2,937
FY 2014 <sup>c</sup>	4,375	4,375	2,965
FY 2015	1,413	1,413	2,583
FY 2016	700	700	774
FY 2017	1,100	1,100	1,541
FY 2018	1,100	1,100	526
FY 2019	0	0	490
Outyears	TBD	TBD	TBD
Total, OPC except D&D	TBD	TBD	TBD

	(Dollars in Thousands)		
	Budget Authority (Appropriations)	Obligations	Costs
<b>OPC</b>			
FY 2012 <sup>a</sup>	5,153	5,153	2,325
FY 2013 <sup>b</sup>	253	253	2,937
FY 2014 <sup>c</sup>	4,375	4,375	2,965
FY 2015	1,413	1,413	2,583
FY 2016	700	700	774
FY 2017	1,100	1,100	1,541
FY 2018	1,100	1,100	526
FY 2019	0	0	490
Outyears	TBD	TBD	TBD
<b>Total, OPC</b>	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>
<b>Total Project Cost (TPC)</b>			
FY 2012 <sup>a</sup>	5,153	5,153	2,325
FY 2013 <sup>b</sup>	253	253	2,937
FY 2014 <sup>c</sup>	8,983	4,375	2,965
FY 2015	10,813	15,421	3,767
FY 2016	10,100	10,100	7,053
FY 2017	5,100	5,100	8,911
FY 2018	17,100	17,100	18,106
FY 2019	11,274	11,274	6,206
Outyears	TBD	TBD	TBD
<b>Total, TPC</b>	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>

<sup>a</sup>FY 2012 cost of \$2,325 is funded by Recovery Act appropriations.

<sup>b</sup>FY 2013 cost of \$2,684 is funded by Recovery Act appropriations.

<sup>c</sup>FY 2014 cost of \$145 is funded by Recovery Act appropriations.

<sup>d</sup>A design contractor will provide Title III design support during the construction phase.

**Details of Project Cost Estimate**

(Dollars in Thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design			
Design	15,204	19,575	N/A
Title III	12,608	9,350	N/A
Contingency	1,250	1,250	N/A
Total Design	29,062	30,175	N/A
Construction			
Construction	TBD	TBD	N/A
Early Site Preparation	TBD		
Contingency	TBD	TBD	N/A
Total Construction	TBD	TBD	N/A
Total, TEC	TBD	TBD	N/A
Contingency, TEC	TBD	TBD	N/A
Other Project Cost (OPC)			
OPC except D&D			
Conceptual Design	TBD	7,300	N/A
Start-Up	TBD	TBD	N/A
Contingency	TBD	TBD	N/A
Other OPC	TBD	TBD	N/A
Total, OPC except D&D	TBD	TBD	N/A
Total, OPC	TBD	TBD	N/A
Contingency, OPC	TBD	TBD	N/A
Total, TPC	TBD	TBD	N/A
Total, Contingency	TBD	TBD	N/A

**Schedule of Appropriation Requests**

Request		Prior Years	FY2016	FY 2017	FY 2018	FY 2019	Outyears	Total
FY 2015 Request	TEC	14,008	TBD	TBD	TBD			TBD
	OP	11,194	TBD	TBD	TBD			TBD
	TPC	25,202	TBD	TBD	TBD			TBD
FY 2016 Request	TEC	14,008	6,800	TBD	TBD			TBD
	OP	11,194	500	TBD	TBD			TBD
	TPC	25,202	7,300	TBD	TBD			TBD
FY 2017 Request	TEC	14,008	9,400	4,000	TBD			TBD
	OP	11,194	700	1,100	TBD			TBD
	TPC	25,202	10,100	5,100	TBD			TBD
FY 2018 Request	TEC	14,008	9,400	4,000	16,000			TBD
	OP	11,194	700	1,100	1,100			TBD
	TPC	25,202	10,100	5,100	17,100			TBD
FY 2019 Request	TEC	14,008	9,400	4,000	16,000	11,274	TBD	TBD
	OP	11,194	700	1,100	1,100	0	TBD	TBD
	TPC	25,202	10,100	5,100	17,100	11,274	TBD	TBD

**4. Related Operations and Maintenance Funding Requirements**

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	TBD
Expected Useful Life (number of years)	30
Expected Future Start of D&D of this Capital Asset (fiscal quarter)	TBD

Related Funding Requirements

(Dollars in Thousands)

	Annual Costs		Life Cycle Costs	
	Current Total Estimate	Previous Total Estimate	Current Total Estimate	Previous Total Estimate
Operations	TBD	6,000	TBD	180,000
Utilities	0	0	0	0
Maintenance	0	0	0	0
<b>Total, Operations &amp; Maintenance</b>	<b>TBD</b>	<b>6,000</b>	<b>TBD</b>	<b>180,000</b>

## 5. D&D Information

The new area being constructed in this project is not replacing existing facilities.

Area	Square Feet
New area being constructed by this project at Y-12 National Security Complex	22,000
Area of D&D in this project at Y-12 National Security Complex	0
Area at Y-12 National Security Complex to be transferred, sold, and/or D&D outside the project including area previously "banked"	0
Area of D&D in this project at other sites	0
Area at other sites to be transferred, sold, and/or D&D outside the project including area previously "banked"	22,000
Total area eliminated	22,000

The one-for-one replacement requirement is met by using previously "banked" square footage from demolished facilities at the East Tennessee Technology Park, Oak Ridge, Tennessee.

## 6. Acquisition Approach

Awarded contract to URS/CH2M Oak Ridge, LLC (UCOR) on April 29, 2011. This contract includes the design of the Outfall 200 Mercury Treatment Facility, support for Critical Decision-3A/early site preparation construction activities, early site preparation utilities relocation and secant pile wall construction, support for DOE Order 413.3B Critical Decision approval through Critical Decision-2/3, and construction management technical support services. The contract is a cost plus award fee with performance based incentives. An 8a contract will also be awarded for limited early site preparation activities.

This Project Data Sheet assumes the design contractor will provide the Title III support during the construction phase and, therefore, Title III Costs are Project Engineering and Design.

An Acquisition Strategy was developed for the project to support Critical Decision-1 approval. An Acquisition Plan was developed for the project construction phase. A firm fixed price contract is being competitively procured for the balance of construction.

## Paducah

### Overview

The Paducah Site cleanup will position the Department of Energy to meet the nation's Manhattan Project and Cold War legacy responsibilities. The overall cleanup strategy at Paducah includes near-term actions to control or eliminate ongoing sources of contamination, along with the continued investigation of other potential sources.

To complete cleanup, Paducah will maintain a safe, secure, and compliant posture; support high priority groundwater remediation; deactivate and decommission excess facilities; and disposition mixed and low-level waste.

Paducah will continue to operate the Depleted Uranium Hexafluoride Conversion Facility.

Direct maintenance and repair at Paducah is estimated to be \$42,652,000 in FY 2019.

The Paducah Operations Office plans to purchase the following vehicles in FY 2019: 1 Ambulance; 1 Ladder Fire Truck; and 1 Pumper Fire Truck.

### Highlights of the FY 2019 Budget Request

This FY 2019 Budget Request supports activities to continue environmental remediation and to further stabilize the gaseous diffusion plant. The stabilization activities include non-destructive assay characterization, activities to remove hazardous materials, and surveillance and maintenance.

This budget request also supports the safe operation of the Depleted Uranium Hexafluoride Conversion facility.

### FY 2018 and FY 2019 Key Milestones/Outlook

- (December 2017) Initiate Non-Destructive Assay Characterization in C-360 Building.
- (July 2018) Complete Limited Area footprint reduction for the administrative facilities (C-100, C-101, C-102, and C-304).
- (July 2018) Complete fieldwork for realignment of the DOE 229 Boundary.
- (August 2018) Complete design and initiate construction of a modular firing range.
- (September 2018) Complete deactivation of the C-400 Cleaning Building.
- (September 2018) Initiate field planning for demolition of the C-400 Cleaning Building.
- (September 2018) Complete disposition of 22 colds trap stored in C-746-Q Building.
- (December 2018) Complete construction of a modular firing range.
- (September 2019) Submit the Remedial Investigation Work Plan for the sampling of the C-400 Complex, including around and under the slab at C-400 Cleaning Building.
- (September 2019) Complete demolition of the C-400 Cleaning Building.

### Regulatory Framework

In May 1994, the Paducah site was placed on the United States Environmental Protection Agency's National Priorities List under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980. The 1997 Federal Facility Agreement among the Department, the Commonwealth of Kentucky and the United States Environmental Protection Agency (Region 4) established the framework for cleanup at Paducah, instituted enforceable milestones, and coordinated site-specific cleanup requirements under the Comprehensive Environmental Response, Compensation, and Liability Act and the Resource Conservation and Recovery Act. The Department also achieved resolution of long-standing regulatory disputes through an Agreed Order with the Commonwealth of Kentucky.

The United States Environmental Protection Agency and the Kentucky Department for Environmental Protection are the principal regulatory agencies for Paducah's waste management operations, in compliance with provisions of the Resource

### Environmental Management/

Paducah

Conservation and Recovery Act, Hazardous Waste Management Permits; the Toxic Substances Control Act regulations for polychlorinated biphenyl wastes; DOE Order 435.1, *Radioactive Waste Management*; the Commonwealth of Kentucky surface water discharge regulations and the Commonwealth of Kentucky solid and hazardous waste regulations.

### **Contractual Framework**

Program planning and management at Paducah is conducted through the issuance and execution of contracts to large and small businesses. Paducah develops near-term and long-term planning approaches in order to develop contract strategies and program/project plans at a more detailed level. Selected contractors then execute these plans to complete cleanup on schedule. Current contracts at Paducah include:

- Mid-America Conversion Services, LLC, a cost-plus-award-fee/firm-fixed-price contract for operations of the Paducah and Portsmouth depleted uranium hexafluoride facilities and cylinder surveillance and maintenance, covering the period from 2/1/2017 - 1/30/2022.
- Four Rivers Nuclear Partnerships, a cost-plus-award-fee contract with cost reimbursable and indefinite-delivery indefinite quantity contract for deactivation and remediation services, covering the period 6/20/17 – 6/19/22. This contract has the potential for a thirty-six month option period and a twenty-four month option period.
- Swift and Staley, Inc., a small business, hybrid firm-fixed -price contract for site support services, covering the period 10/02/2015 – 10/01/2018. This contract has the potential for a twenty-two month option period.

### **Strategic Management**

The overall environmental cleanup strategy at Paducah is based on taking near-term actions to control or eliminate ongoing sources of contamination along with continued investigation of other potential sources. DOE has been working with the Kentucky Department for Environmental Protection and the United States Environmental Protection Agency (Region 4) to further define which projects can be sequenced, while optimizing resources and utilizing a risk-based approach, to ensure timely environmental cleanup. In addition, Paducah is operating a depleted uranium hexafluoride conversion facility.

In August 2017, the three Federal Facility Agreement parties (DOE, United States Environmental Protection Agency and the Commonwealth of Kentucky) agreed to focus the next ten years on the investigation and cleanup of the C-400 Complex for all contaminants of concern. This work also includes the demolition of the C-400 Cleaning Building and focuses on the primary source of offsite groundwater contamination at the Paducah Site. Other environmental cleanup projects will be re-sequenced.

The factors that could have an impact on individual projects and may impact the overall cleanup scope, schedule, and costs are identified below:

- DOE does not have a regulatory agreement on final cleanup levels, which remains a long-term, end-state issue.
- The final Comprehensive Environmental Response, Compensation and Liability Act action for the Paducah environmental remedial activities are ongoing. Until Records of Decision are agreed upon, a degree of project uncertainty exists. For example, current planning assumptions include that no more than three burial grounds will require excavation and that the other burial grounds will be capped and managed in-situ.
- Future decontamination and decommissioning costs are subject to several uncertainties, including the timing and extent of final environmental contamination; regulatory frameworks (Resource Conservation and Recovery Act vs. Comprehensive Environmental Response, Compensation and Liability Act cleanup levels); disposal options; and stakeholder/regulator acceptance.



**Paducah Project Office  
Funding (\$K)**

	<b>FY 2017 Enacted</b>	<b>FY 2018 Annualized CR*</b>	<b>FY 2019 Request</b>	<b>FY 2019 Request vs FY 2017 Enacted</b>
<b>Defense Environmental Cleanup</b>				
<b>Safeguards and Security</b>				
PA-0020 / Safeguards and Security	14,049	13,954	15,577	+1,528
<b>Non-Defense Environmental Cleanup</b>				
<b>Gaseous Diffusion Plants</b>				
<b>Paducah Gaseous Diffusion Plant</b>				
PA-0011 / NM Stabilization and Disposition-Paducah Uranium Facilities Management	1,369	1,360	1,369	0
PA-0011X / NM Stabilization and Disposition-Depleted Uranium Hexafluoride Conversion	48,976	48,643	48,595	-381
<b>Subtotal, Paducah Gaseous Diffusion Plant</b>	<b>50,345</b>	<b>50,003</b>	<b>49,964</b>	<b>-381</b>
<b>Uranium Enrichment Decontamination and Decommissioning Fund</b>				
<b>Paducah</b>				
<b>Paducah Gaseous Diffusion Plant</b>				
PA-0040 / Nuclear Facility D&D-Paducah	205,530	204,134	202,581	-2,949
<b>Pension and Community and Regulatory Support</b>				
<b>Paducah Gaseous Diffusion Plant</b>				
PA-0103 / Paducah Community and Regulatory Support	1,725	1,713	2,102	+377
PA-0102 / Paducah Contract/Post-Closure Liabilities/Administration	661	657	0	-661
<b>Subtotal, Paducah Gaseous Diffusion Plant</b>	<b>2,386</b>	<b>2,370</b>	<b>2,102</b>	<b>-284</b>
<b>Total, Uranium Enrichment Decontamination and Decommissioning Fund</b>	<b>207,916</b>	<b>206,504</b>	<b>204,683</b>	<b>-3,233</b>
<b>Total, Paducah</b>	<b>272,310</b>	<b>270,461</b>	<b>270,224</b>	<b>-2,086</b>

\*A full-year 2018 appropriation for this account was not enacted at the time the budget was prepared; therefore, the budget assumes this account is operating under the Continuing Appropriations Act, 2018 (Division D of P.L. 115-56, as amended). The amounts included for 2018 reflect the annualized level provided by the continuing resolution. (These amounts are shown only at the Congressional control level and above; below that level, a dash (—) is shown).

**Paducah Project Office  
Explanation of Major Changes (\$K)**

<b>FY 2019 Request vs FY 2017 Enacted</b>
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<b>Defense Environmental Cleanup</b>	
<b>Safeguards and Security</b>	
<b>PA-0020 / Safeguards and Security</b>	
<ul style="list-style-type: none"> <li>Increase is attributable to the return of cyber activities which were included in the FY 2018 Request under Project Baseline Summary PA Cyber Security (PBS PA-0025). Cyber activities will be funded within the Safeguards and Security program (PBS PA-0020).</li> </ul>	+1,528
 <b>Non-Defense Environmental Cleanup</b>	
<b>Gaseous Diffusion Plants</b>	
<b>Paducah Gaseous Diffusion Plant</b>	
<b>PA-0011 / NM Stabilization and Disposition-Paducah Uranium Facilities Management</b>	
<ul style="list-style-type: none"> <li>No change.</li> </ul>	0
<b>PA-0011X / NM Stabilization and Disposition-Depleted Uranium Hexafluoride Conversion</b>	
<ul style="list-style-type: none"> <li>No significant change.</li> </ul>	-381
 <b>Uranium Enrichment Decontamination and Decommissioning Fund</b>	
<b>Paducah</b>	
<b>PA-0040 / Nuclear Facility D&amp;D-Paducah</b>	
<ul style="list-style-type: none"> <li>Decrease reflects completion of deactivation of the C-400 Cleaning Building and completion of the Northeast Plume Optimization project.</li> </ul>	-2,949
 <b>Pension and Community and Regulatory Support</b>	
<b>PA-0102 / Paducah Contract/Post-Closure Liabilities/Administration</b>	
<ul style="list-style-type: none"> <li>Decrease reflects the use of carryover resources. No significant programmatic change.</li> </ul>	-661
<b>PA-0103 / Paducah Community and Regulatory Support</b>	
<ul style="list-style-type: none"> <li>No significant change.</li> </ul>	+377
<hr/>	
<b>Total, Paducah</b>	<b>-2,086</b>

**Safeguards and Security (PBS: PA-0020)**

**Overview**

This PBS can be found within the Defense Environmental Cleanup appropriation.

The safeguards and security program at the Paducah Gaseous Diffusion Plant provides security services to protect nuclear materials, classified uranium enrichment technology, equipment, personnel, and facilities. This program includes maintaining a security protective force to ensure safeguard of nuclear materials, classified technology/information, and personnel. The safeguards and security program also supports the Paducah remediation and cleanup programs. Within the safeguards and security program, the Department continues to pursue realignment of sensitive security areas to support accelerated and less costly cleanup of the site.

**Safeguards and Security (PBS: PA-0020)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$14,049	\$15,577	+\$1,528
<ul style="list-style-type: none"> <li>• Provided security services for personnel, equipment, information, classified matter, and special nuclear materials relating to DOE missions, to include decommissioning, decontamination, and demolition activities.</li> <li>• Continued construction of on-site firing range.</li> <li>• Continued Limited Area footprint reduction at the Northwest Corner of the plant.</li> <li>• Continued Limited Area footprint reduction for the process buildings.</li> </ul>	<ul style="list-style-type: none"> <li>• Provide safeguards and security services using a graded approach for the Paducah Gaseous Diffusion Plant to include: physical security systems, protective forces, information security, operational security, personnel security, material control and accountability, program management, and cyber security.</li> <li>• Complete construction of on-site firing range.</li> <li>• Continue Limited Area footprint reduction at the Northwest Corner of the plant.</li> <li>• Continue Limited Area footprint reduction for the process buildings.</li> <li>• Begin design of the modular security complex.</li> </ul>	<ul style="list-style-type: none"> <li>• Increase is attributable to the return of cyber activities which were included in the FY 2018 Request under Project Baseline Summary PA Cyber Security (PBS PA-0025). Cyber activities will be funded within the Safeguards and Security program (PBS PA-0020).</li> </ul>

**NM Stabilization and Disposition (PBS: PA-0011)**

**Overview**

This PBS is within the Non-Defense Environmental Cleanup appropriation.

This PBS project scope includes management of legacy polychlorinated biphenyl remediation activities to maintain compliance with the Toxic Substances Control Act (40 CFR 761), the Uranium Enrichment Toxic Substances Control Act Federal Facilities Compliance Agreement of 1992, DOE Orders, and other applicable requirements. Polychlorinated biphenyls were used as coolant fluids and are a toxic environmental contaminant. The polychlorinated biphenyl collection and containment trough systems in the cascade buildings (C-310, C-315, C-331, C-333, C-335, and C-337) cover approximately 6,400,000 ft<sup>2</sup> and contain approximately 16,000 collection systems.

**NM Stabilization and Disposition-Paducah Uranium Facilities Management (PBS: PA-0011)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$1,369	\$1,369	\$0
<ul style="list-style-type: none"> <li>Continued to maintain cleanup, sampling, and decontamination of polychlorinated spills and leaks, and monitoring activities related to polychlorinated biphenyls.</li> <li>Inspected and maintained polychlorinated biphenyl collection and containment systems.</li> <li>Conducted cleanup, sampling and disposal of polychlorinated biphenyl spills.</li> </ul>	<ul style="list-style-type: none"> <li>Continue to monitor activities related to polychlorinated biphenyls and to maintain cleanup, sampling, and decontamination of polychlorinated spills and leaks.</li> <li>Maintain polychlorinated biphenyl collection and containment trough systems in the cascade buildings.</li> </ul>	<ul style="list-style-type: none"> <li>No change.</li> </ul>

**NM Stabilization and Disposition-Depleted Uranium Hexafluoride Conversion (PBS: PA-0011X)**

**Overview**

This PBS is within the Non-Defense Environmental Cleanup appropriation.

This PBS scope includes operating a depleted uranium hexafluoride conversion facility at the Paducah Gaseous Diffusion Plant site. The facility converts depleted uranium hexafluoride into a more stable chemical form (depleted uranium oxide) suitable for beneficial reuse or disposition. The depleted uranium oxide and cylinders will initially be stored on-site and ultimately sent to a disposal facility if beneficial reuses are not realized. The hydrogen fluoride co-product is sold on the commercial market for unrestricted use. The proceeds from the sale of hydrogen fluoride are used to offset project operating costs. The scope of this PBS also includes direct maintenance and repair that are applicable to these areas.

This PBS also includes surveillance and maintenance of all depleted uranium hexafluoride cylinders during conversion of the existing stockpile. Completion of these activities will contribute to reducing the footprint and total cleanup of the site.

**NM Stabilization and Disposition-Depleted Uranium Hexafluoride Conversion (PBS: PA-0011X)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$48,976	\$48,595	-\$381
<ul style="list-style-type: none"> <li>Maintained safe DUF6 conversion operations with a gradual ramp up to steady-state operations.</li> <li>Packaged converted depleted uranium oxide for beneficial reuse or disposal.</li> <li>Conducted cylinder surveillance and maintenance to keep existing material in a safe, stable condition.</li> </ul>	<ul style="list-style-type: none"> <li>Continue steady operations of the DUF6 conversion facility with emphasis on plant availability and achieving optimal throughput.</li> <li>Package converted depleted uranium oxide and store on site.</li> <li>Conduct cylinder surveillance and maintenance to keep material in a safe, stable condition.</li> </ul>	<ul style="list-style-type: none"> <li>No significant change.</li> </ul>

**Nuclear Facility D&D (PBS: PA-0040)**

**Overview**

This PBS is within the Uranium Enrichment Decontamination and Decommissioning Fund appropriation.

The scope of this PBS includes environmental cleanup and risk reduction through focused response actions and surveillance and maintenance activities. The response actions involve treatment of on-site and off-site groundwater plumes, remediation of contaminated soils and burial grounds, and decontamination and decommissioning of inactive or excess facilities, including the gaseous diffusion plant facilities. The scope also includes landfill operations and maintenance activities. Compliance requirements at the Paducah site are subject to negotiations with the regulators.

This PBS supports activities to continue environmental cleanup, further stabilize the gaseous diffusion plant to achieve a safe configuration, including facility modifications, surveillance and maintenance activities, and actions to remove hazardous materials. The scope of this PBS also includes direct maintenance and repair that are applicable to these areas.

Completion of these activities is required for reducing the site footprint and completing cleanup of the site.

**Nuclear Facility D&D-Paducah (PBS: PA-0040)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$205,530	\$202,581	-\$2,949
<ul style="list-style-type: none"> <li>Reached final regulatory agreement to accelerate the investigation and cleanup of the C-400 Complex.</li> <li>Continued deactivation of the C-410 Feed Plant Complex.</li> <li>Continued deactivation of C-340 A/B/C Uranium Metal Production Complex.</li> <li>Completed Northeast Plume Optimization Pump and Treat System.</li> <li>Continued operations of C-400 Phase 1 trichloroethylene source treatment system.</li> </ul>	<ul style="list-style-type: none"> <li>Continue operations such as utility operations, pump-and-treat operations, waste and landfill operations, infrastructure support, environmental monitoring and reporting, surveillance and maintenance of facilities.</li> <li>Continue non-destructive assay characterization in process buildings.</li> <li>Submit the Remedial Investigation Work Plan for the sampling around and under slab at C-400 Cleaning Building.</li> <li>Complete demolition of the C-400 Cleaning</li> </ul>	<ul style="list-style-type: none"> <li>Decrease reflects completion of deactivation of the C-400 Cleaning Building and completion of the Northeast Plume Optimization project.</li> </ul>

- Continued pump-and-treat operations and environmental surveillance, monitoring, and reporting.
- Conducted management and infrastructure surveillance and maintenance.

Building.

- Continue utilities and space optimizations to reduce power and water needs.

**Paducah Contract/Post-Closure Liabilities/Administration (PBS: PA-0102)**

**Overview**

This PBS is within the Uranium Enrichment Decontamination and Decommissioning Fund appropriation.

This PBS supports a contract liability to provide record searches performed for DOE and the Department of Justice investigations/studies, pending litigation expenses, severance and the administration of post-retirement life and medical support.

**Paducah Contract/Post-Closure Liabilities/Administration (PBS: PA-0102)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$661	\$0	-\$661
<ul style="list-style-type: none"> <li>• Provided support to DOE and Department of Justice for all investigations and litigation.</li> <li>• Provided payment into the Paducah pension program to remain in compliance with the Employee Retirement Income Security Act and other applicable laws, and DOE O 350.1 requirements.</li> </ul>	<ul style="list-style-type: none"> <li>• Planned prior year carryover allows for the continuation of support to the DOE and Department of Justice for all investigations and litigation.</li> <li>• Planned prior year carryover allows for the continuation of payments into the Paducah pension and post-retirement benefits program to remain in compliance with the Employee Retirement Income Security Act and other applicable laws, and DOE O 350.1 requirements.</li> </ul>	<ul style="list-style-type: none"> <li>• Decrease reflects the use of carryover resources. No significant programmatic change.</li> </ul>



**Paducah Community and Regulatory Support (PBS: PA-0103)**

**Overview**

This PBS is within the Uranium Enrichment Decontamination and Decommissioning Fund appropriation.

This PBS scope supports an Agreement-in-Principle grant to the Commonwealth of Kentucky to provide independent oversight of the environmental programs, including surface water, groundwater, air and other environmental monitoring; and a Federal Facility Agreement grant with the Commonwealth of Kentucky to assure Federal Facility Agreement conditions and compliance schedules are met in accordance with state, federal, and local guidance, regulations and statutes. This PBS also includes support to the Paducah Citizens Advisory Board for assistance in all public participation activities.

**Paducah Community and Regulatory Support (PBS: PA-0103)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$1,725	\$2,102	+\$377
<ul style="list-style-type: none"> <li>Supported the Citizens Advisory Board to assist in the public participation activities required by the Comprehensive Environmental Response, Compensation, and Liability Act.</li> <li>Continued to ensure requirements are met regarding the grants.</li> </ul>	<ul style="list-style-type: none"> <li>Continue support to the Citizens Advisory Board to assist in the public participation activities required by the Comprehensive Environmental Response, Compensation, and Liability Act.</li> <li>Continue to ensure requirements are met regarding the Federal Facility Agreement and Agreement-In-Principle grants.</li> </ul>	<ul style="list-style-type: none"> <li>No significant change.</li> </ul>



## Portsmouth

### Overview

The Portsmouth Site will position the Department of Energy to meet the nation's Manhattan Project and Cold War legacy responsibilities, including environmental cleanup, waste management, depleted uranium hexafluoride conversion, deactivation and decommissioning and long-term stewardship.

To complete cleanup, Portsmouth will maintain a safe, secure, and compliant posture; support deactivation and decommissioning of the gaseous diffusion plant; dispose of all low-level and mixed low-level waste resulting from deactivation and decommissioning activities; dispose of all excess materials; and perform groundwater trichloroethylene source zone removal.

The Portsmouth site will continue to operate its Depleted Uranium Hexafluoride Conversion Facility.

Direct maintenance and repair at Portsmouth is estimated to be \$47,765,000 in FY 2019.

The Portsmouth Operations Office plans to purchase the following vehicles in FY 2019: 1 47' Bucket Truck; 1 90' Bucket Truck; 1 Digger Derrick; 2 Rolloff Trucks; 1 Heavy Rescue Truck; 1 Fire Pumper Truck.

### Highlights of the FY 2019 Budget Request

This FY 2019 Budget Request continues progress on the deactivation and decommissioning of the Portsmouth Gaseous Diffusion Plant and the safe operation of the Depleted Uranium Hexafluoride Conversion Facility.

The FY 2019 proposal includes funding the On-Site Waste Disposal Facility, Line Item Capital Project at \$41,168,000 (\$1,000,000 for design, \$38,668,000 for construction, and \$1,500,000 for other project cost). The mission of this project is to construct an on-site facility for the disposal of waste generated from the demolition of the Portsmouth Gaseous Diffusion Plant and associated facilities.

### FY 2018 and FY 2019 Key Milestones/Outlook

- (December 2017) Achieve functionality of the On-Site Waste Disposal Facility Sediment Pond 3.
- (March 2018) Complete On-Site Waste Disposal Facility CD-3A work scope.
- (June 2018) Declare first process building (X-326) demolition ready.
- (September 2018) Achieve deactivation requirements for one unit in the second process building (X-333).
- (September 2018) Initiate X-740 Plume Excavation site preparation.
- (February 2019) Initiate 5 Unit Plume Excavation site preparation.
- (May 2019) Initiate construction of On-Site Waste Disposal Facility Cell One and North Leachate Transmission System.
- (September 2019) Initiate start-up of the Material Sizing Area in the final process building (X-330).
- (September 2019) Achieve deactivation requirements for three additional units in the second process building (X-333).

### Regulatory Framework

Oversight of cleanup activities at the Portsmouth site is the responsibility of the Ohio Environmental Protection Agency. The ongoing environmental media cleanup activities are being conducted in accordance with the State of Ohio Consent Decree, under the Resource Conservation and Recovery Act, which requires investigation and remediation of solid and hazardous waste management units. A Decision Document will be prepared under the Consent Decree for final soil and groundwater cleanup in FY 2019.

DOE and the Ohio Environmental Protection Agency reached an agreement on the regulatory framework for final decontamination and decommissioning of the facilities and the disposition of project waste under the Ohio Environmental

Protection Agency issuance of the Directors Final Findings and Orders for Decontamination and Decommissioning, which uses the framework of the Comprehensive Environmental Response, Compensation, and Liability Act requirements. The On-Site Waste Disposal Record of Decision was issued in June 2015, and the Process Building Record of Decision was issued in July 2015. Compliance with DOE O. 435.1, Radioactive Waste Management, requirements is required for issuance of the Disposal Authorization Statement.

DOE and the Ohio Environmental Protection Agency have an agreement for the management of the storage of the depleted uranium hexafluoride cylinders. A separate Ohio Environmental Protection Agency Directors Final Findings and Orders formalizes the terms and requirements of this agreement.

### **Contractual Framework**

Program planning and management at Portsmouth is conducted through the issuance and execution of contracts to large and small businesses. Portsmouth develops near-term and long-term planning approaches in order to develop contract strategies and program/project plans at a more detailed level. Selected contractors then execute these plans to complete cleanup on schedule. Current contracts at Portsmouth include:

- Mid-America Conversion Services, LLC, a cost-plus-award-fee/fixed-price contract for operation of the Portsmouth and Paducah depleted uranium hexafluoride facilities and cylinder surveillance and maintenance, covering the period from 2/1/2017 - 1/30/2022.
- Fluor-BWXT Portsmouth LLC, a cost-plus-award-fee, cost-plus-fixed-fee, and Indefinite Delivery/Indefinite Quantity contract for decontamination and decommissioning of uranium gaseous diffusion buildings, legacy soil, and groundwater remediation, covering 3/29/2016 - 9/30/2018. The contract has the potential for a thirty-month option period from 10/1/2018 through 3/28/2021.
- Portsmouth Mission Alliance, LLC, a fixed-price hybrid including both fixed-price and cost-reimbursable contract for infrastructure support services, covering the period of 4/25/2016 – 4/24/2019. The contract has the potential for a twenty-two month option period from 4/25/2019 – 2/24/2021.

### **Strategic Management**

The key environmental cleanup strategies for the Portsmouth site are to continue process building deactivation, including equipment removal actions and hazardous material abatement; continue construction activities associated with an On-Site Waste Disposal Facility for disposition of the remaining process buildings and Balance of Plant deactivation and demolition waste and debris; continue operations of groundwater treatment facilities in support of installed remedies; remove stored low-level and mixed waste streams contaminated with hazardous or toxic chemicals; and operate the Depleted Uranium Hexafluoride Conversion Facility.

Future decontamination and decommissioning costs will be dependent upon the timing and extent of final environmental contamination, regulatory frameworks, and disposal/recycling options for the decontamination and decommissioning of materials and wastes. The regulatory documents which could have significant impacts on individual projects and may affect the overall costs and schedule are outlined below:

- DOE will develop Remedial Design/Remedial Action Work Plans as part of the decision making process, in coordination with the Ohio Environmental Protection Agency, that will describe in detail the actions required to perform the demolition and waste disposition activities.
- DOE has received approval of the Resource Conservation and Recovery Act Facility Investigation/Corrective Measure Study Work Plan from the Ohio Environmental Protection Agency as part of the decision making process for the Resource Conservation Recovery Act soil remediation Decision Documents.
- DOE will be completing the Resource Conservation Recovery Act Facility Investigation/Corrective Measure Study Report as part of the decision making process for the Resource Conservation and Recovery Act soil and groundwater Decision Document.
- DOE will continue to transfer uranium from thin-wall to thick-wall cylinders to place the material in Department of Transportation compliant configuration prior to shutdown of the X-344 Facility.

**Portsmouth Project Office  
Funding (\$K)**

	<b>FY 2017 Enacted</b>	<b>FY 2018 Annualized CR*</b>	<b>FY 2019 Request</b>	<b>FY 2019 Request vs FY 2017 Enacted</b>
<b>Defense Environmental Cleanup</b>				
<b>Safeguards and Security</b>				
PO-0020 / Safeguards and Security	14,049	13,954	15,078	+1,029
<b>Non-Defense Environmental Cleanup</b>				
<b>Gaseous Diffusion Plants</b>				
<b>Portsmouth Gaseous Diffusion Plant</b>				
PO-0011X / NM Stabilization and Disposition-Depleted Uranium Hexafluoride Conversion	50,959	50,613	50,611	-348
<b>Uranium Enrichment Decontamination and Decommissioning Fund</b>				
<b>Portsmouth</b>				
<b>Portsmouth Gaseous Diffusion Plant</b>				
PO-0040 / Nuclear Facility D&D-Portsmouth	315,168	313,027	348,099	+32,931
<b>Pension and Community and Regulatory Support</b>				
<b>Portsmouth Gaseous Diffusion Plant</b>				
PO-0104 / Portsmouth Community and Regulatory Support	1,020	1,013	1,020	0
PO-0103 / Portsmouth Contract/Post-Closure Liabilities/Administration	775	770	650	-125
<b>Subtotal, Portsmouth Gaseous Diffusion Plant</b>	<b>1,795</b>	<b>1,783</b>	<b>1,670</b>	<b>-125</b>
<b>Total, Uranium Enrichment Decontamination and Decommissioning Fund</b>	<b>316,963</b>	<b>314,810</b>	<b>349,769</b>	<b>+32,806</b>
<b>Total, Portsmouth</b>	<b>381,971</b>	<b>379,377</b>	<b>415,458</b>	<b>+33,487</b>

\*A full-year 2018 appropriation for this account was not enacted at the time the budget was prepared; therefore, the budget assumes this account is operating under the Continuing Appropriations Act, 2018 (Division D of P.L. 115-56, as amended). The amounts included for 2018 reflect the annualized level provided by the continuing resolution. (These amounts are shown only at the Congressional control level and above; below that level, a dash (—) is shown).

**Portsmouth Project Office  
Explanation of Major Changes (\$K)**

<b>FY 2019 Request vs FY 2017 Enacted</b>
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<b>Defense Environmental Cleanup</b>	
<b>Safeguards and Security</b>	
<b>PO-0020 / Safeguards and Security</b>	
• Increase is attributable to the return of cyber activities which were included in the FY 2018 Request under Project Baseline Summary PA Cyber Security (PBS PA-0025). Cyber activities will be funded within the Safeguards and Security program (PBS PA-0020).	+1,029
<b>Non-Defense Environmental Cleanup</b>	
<b>Gaseous Diffusion Plants</b>	
<b>Portsmouth Gaseous Diffusion Plant</b>	
<b>PO-0011X / NM Stabilization and Disposition-Depleted Uranium Hexafluoride Conversion</b>	
• No significant change.	-348
<b>Uranium Enrichment Decontamination and Decommissioning Fund</b>	
<b>Pension and Community and Regulatory Support</b>	
<b>PO-0103 / Portsmouth Contract/Post-Closure Liabilities/Administration</b>	
• Decrease reflects reduction in severance payments and litigation needs.	-125
<b>PO-0104 / Portsmouth Community and Regulatory Support</b>	
• No change.	0
<b>Portsmouth</b>	
<b>PO-0040 / Nuclear Facility D&amp;D-Portsmouth</b>	
• Increase supports decontamination and decommissioning activities.	+32,931
<b>Total, Portsmouth</b>	<b>+33,487</b>

**Safeguards and Security (PBS: PO-0020)**

**Overview**

This PBS can be found within the Defense Environmental Cleanup appropriation.

The safeguards and security program at the Portsmouth Gaseous Diffusion Plant provides security services to protect nuclear materials, sensitive uranium enrichment technology, equipment, and facilities. This program includes maintaining a security guard force to protect nuclear materials and classified technology/information. The safeguards and security program also supports the Portsmouth decommissioning and decontamination program. Within the safeguards and security program, the Department continues to pursue realignment of sensitive security areas to support accelerated and less costly cleanup of the site.

**Safeguards and Security (PBS: PO-0020)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
<b>\$14,049</b>	<b>\$15,078</b>	<b>+\$1,029</b>
<ul style="list-style-type: none"> <li>Continued a cost savings measure to safeguards and security using a graded approach for the Portsmouth Gaseous Diffusion Plant.</li> <li>Provided Protective Forces, Nuclear Material Control and Accountability and communications security services.</li> </ul>	<ul style="list-style-type: none"> <li>Provide safeguards and security services using a graded approach for the Portsmouth Gaseous Diffusion Plant to include: physical security systems, protective forces, information security, operational security, personnel security, material control and accountability, program management, and cyber security.</li> <li>Support the development of risk assessment reduction of security footprint at the site.</li> </ul>	<ul style="list-style-type: none"> <li>Increase is attributable to the return of cyber activities which were included in the FY 2018 Request under Project Baseline Summary PA Cyber Security (PBS PA-0025). Cyber activities will be funded within the Safeguards and Security program (PBS PA-0020).</li> </ul>

**NM Stabilization and Disposition-Depleted Uranium Hexafluoride Conversion (PBS: PO-0011X)**

**Overview**

This PBS is within the Non-Defense Environmental Cleanup appropriation.

This PBS scope includes operating a depleted uranium hexafluoride conversion facility at the Portsmouth Gaseous Diffusion Plant site. The facility converts depleted uranium hexafluoride into a more stable chemical form (depleted uranium oxide) suitable for beneficial reuse or disposition. The depleted uranium oxide and cylinders will initially be stored on-site and ultimately sent to a disposal facility if beneficial reuses are not realized. The hydrogen fluoride co-product is sold on the commercial market for unrestricted use. The proceeds from the sale of hydrogen fluoride are used to offset project operating costs. The scope of this PBS also includes direct maintenance and repair that are applicable to these areas.

This PBS also includes surveillance and maintenance of all depleted uranium hexafluoride cylinders during conversion of the existing stockpile. Completion of these activities will contribute to reducing the footprint and total cleanup of the site.

**NM Stabilization and Disposition-Depleted Uranium Hexafluoride Conversion (PBS: PO-0011X)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$50,959	\$50,611	-\$348
<ul style="list-style-type: none"> <li>Continued to maintain safe DUF6 conversion operations with a gradual ramp up to steady-state operations.</li> <li>Packaged converted depleted uranium oxide for beneficial reuse or disposition.</li> <li>Continued cylinder maintenance and surveillance to maintain existing material in safe, stable condition.</li> </ul>	<ul style="list-style-type: none"> <li>Continue steady state operations of the DUF6 conversion facility with emphasis on plant availability and maintain optimum throughput.</li> <li>Package converted depleted uranium oxide and store on site.</li> <li>Conduct cylinder surveillance and maintenance, to keep existing material in a safe and stable condition.</li> </ul>	<ul style="list-style-type: none"> <li>No significant change.</li> </ul>



**Nuclear Facility D&D-Portsmouth (PBS: PO-0040)**

**Overview**

This PBS is within the Uranium Enrichment Decontamination and Decommissioning Fund appropriation.

This PBS scope includes remedial actions due to contamination resulting from the plant's historical uranium enrichment operations, facility decontamination and decommissioning, and surveillance and maintenance activities at the Portsmouth Gaseous Diffusion Plant.

This PBS also includes the design and construction of a capital project, the On-Site Waste Disposal Facility, for disposition of the wastes generated from the site-wide cleanup, including wastes generated from the decontamination, decommissioning, and demolition of the Gaseous Diffusion Plant.

The FY 2019 request of \$348,099,000 supports removal of high-risk radioactively contaminated equipment and hazardous materials from the uranium processing buildings. As part of this request, it includes \$41,168,000 (\$1,000,000 for design, \$38,668,000 for construction, and 1,500,000 for other project costs) for the Portsmouth On-Site Waste Disposal Facility. The mission of this project is to construct an on-site waste disposal facility for waste generated from the demolition of the Portsmouth Gaseous Diffusion Plant and associated facilities.

**Nuclear Facility D&D-Portsmouth (PBS: PO-0040)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$315,168	\$348,099	+\$32,931
<ul style="list-style-type: none"> <li>Completed deactivation of six of ten cell floor processing units in X-326, the first of three major process buildings, in preparation for the initiation of pre-demolition activities.</li> <li>Completed deactivation of three of eight cell floor processing units in X-333, the second of three major process buildings.</li> <li>Continued On-Site Waste Disposal Facility site preparation including infrastructure activities such as fencing, access controls, ingress</li> </ul>	<ul style="list-style-type: none"> <li>Continue operations such as utility operations, pump-and-treat operations, waste and landfill operations, infrastructure support, environmental monitoring and reporting, surveillance and maintenance of facilities.</li> <li>Achieve deactivation requirements for three additional units in the second process building (X-333).</li> <li>Start-up of Material Sizing Area in the final process building (X-330).</li> </ul>	<ul style="list-style-type: none"> <li>Increase supports decontamination and decommissioning activities.</li> </ul>

- roadways, and the raw water booster station.
  - Completed construction of the eight-acre On-Site Waste Disposal Facility Sedimentation Pond 3.
  - Initiated construction of On-Site Waste Disposal Facility Sedimentation Pond 4.
  - Excavated and moved over 1,400,000 cubic yards of soil in preparation for the first On-Site Waste Disposal Facility waste cell installation.
  - Continued treatment and offsite waste disposition while the construction of the On-Site Waste Disposal Facility is in progress.
  - Performed facility site services, programmatic safety and environmental technical oversight.
  - Conducted soil and groundwater environmental monitoring and reporting and associated sample collection.
  - Conducted surveillance and maintenance of DOE facilities to maintain compliance with applicable DOE Orders and standards (e.g., health, safety, etc.).
  - Continue progress on deactivation of the second (X-333) and third (X-330) process buildings.
  - Initiate 5 Unit Plume Excavation site preparation.
  - Initiate Construction of On-Site Waste Disposal Facility Cell One and North Leachate Transmission System.
-

**Portsmouth Contract/Post-Closure Liabilities/Administration (PBS: PO-0103)**

**Overview**

This PBS is within the Uranium Enrichment Decontamination and Decommissioning Fund appropriation.

This PBS supports pending litigation expenses, severance and the administration of post retirement life and medical benefits.

**Portsmouth Contract/Post-Closure Liabilities/Administration (PBS: PO-0103)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
<b>\$775</b>	<b>\$650</b>	<b>-\$125</b>
<ul style="list-style-type: none"> <li>• Provided defense against legal claims filed against the Government and its contractors.</li> <li>• Continued record searches in support of legal claims, DOE and Department of Justice investigations/studies, Freedom of Information Act requests, and requests from both State and Federal regulatory and elected officials.</li> <li>• Provided payment into the Portsmouth pension program to remain in compliance with the Employee Retirement Income Security Act, DOE 350.1 and other applicable laws.</li> </ul>	<ul style="list-style-type: none"> <li>• Continue to provide defense against legal claims filed against the Government and its contractors.</li> <li>• Continue record searches in support of legal claims, Freedom of Information Act requests, and requests from both state and Federal regulatory and elected officials.</li> <li>• Continue to provide payment into the Portsmouth pension program to remain in compliance with the Employee Retirement Income Security Act, DOE 350.1 and other applicable laws.</li> </ul>	<ul style="list-style-type: none"> <li>• Decrease reflects reduction in severance payments and litigation needs.</li> </ul>

**Portsmouth Community and Regulatory Support (PBS: PO-0104)**

**Overview**

This PBS is within the Uranium Enrichment Decontamination and Decommissioning Fund appropriation.

This PBS supports activities to promote active involvement with the state and local stakeholders in the Environmental Management planning and decision-making processes and provides the opportunity for meaningful involvement in managing the cleanup and closure of the site.

**Portsmouth Community and Regulatory Support (PBS: PO-0104)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$1,020	\$1,020	\$0
<ul style="list-style-type: none"> <li>Supported oversight activities of the Ohio Environmental Protection Agency.</li> <li>Supported the designated Site Specific Advisory Board.</li> <li>Supported technical/scientific activities for the Ohio University.</li> </ul>	<ul style="list-style-type: none"> <li>Support oversight activities of the Ohio Environmental Protection Agency.</li> <li>Support the designated Site Specific Advisory Board.</li> </ul>	<ul style="list-style-type: none"> <li>No change.</li> </ul>

**Portsmouth  
Construction Projects Summary (\$K)**

	<b>Total</b>	<b>Prior Years</b>	<b>FY 2017 Enacted</b>	<b>FY 2019 Request</b>	<b>FY 2019 Request vs FY 2017 Enacted</b>
<b>15-U-408, On Site Waste Disposal Facility (PO-0040)</b>					
Total Estimate Cost (TEC)	TBD	26,249	39,196	39,668	-472
Other Project Costs (OPC)	TBD	2,705	1,972	1,500	472
<b>Total Project Cost (TPC) 15-U-408</b>	<b>TBD</b>	<b>28,954</b>	<b>41,168</b>	<b>41,168</b>	<b>0</b>



**15-U-408, On-Site Waste Disposal Facility - Initial Infrastructure & Cell 1, 4 & 5 Liner Construction**  
**Portsmouth Gaseous Diffusion Plant, Piketon, Ohio**  
**Project is for Design and Construction**

**1. Summary, Significant Changes, and Schedule and Cost History**

**Summary**

The FY 2019 Request for the On-Site Waste Disposal Facility – Initial Infrastructure & Cell 1, 4, & 5 Liner Construction is \$41,168,000.

The most recent DOE Order 413.3B approved Critical Decision for the On-Site Waste Disposal Facility Cell 1 Liner Construction project resulted in an approved Critical Decision-0, Approve Mission Need, Critical Decision-1, Approve Alternative Selection and Cost Range, and Critical Decision-3A, Approve Start of Partial Construction/Execution, on August 28, 2015, with a preliminary cost range of \$242,000,000 to \$350,000,000.

**Significant Changes**

This Construction Project Data Sheet is an update to the FY 2018 Construction Project Data Sheet and does not include a new start for the budget year.

A realignment strategy has been implemented to recover some of the schedule in the On-Site Waste Disposal Facility by deferring a portion of the infrastructure that supports future On-Site Waste Disposal Facility cells. This realignment strategy optimizes and re-sequences the On-Site Waste Disposal Facility project schedule to accelerate the completion of the first three cells, which are required to support disposal of decommissioning and demolition debris from the X-326 process building demolition.

A Certified Level III Federal Project Director has been assigned to the project and has approved this construction project data sheet.

This project is the first in a series of line-item capital projects to construct the entire On-Site Waste Disposal Facility with ten cells, two contingency cells, and final covers. The three major infrastructure components that constitute the entirety of the On-Site Waste Disposal Facility project are: 1) the On-Site Waste Disposal Facility infrastructure/support areas, 2) the On-Site Waste Disposal Facility waste placement proper (liners/covers and leachate collection/conveyance systems) with associated impacted material transfer area, and 3) the site-wide Interim Leachate Treatment System.

The On-Site Waste Disposal Facility 90 percent design and the Interim Leachate Treatment System 60 percent design have been submitted to the Ohio Environmental Protection Agency for approval. The following Critical Decision-3A site preparatory activities are anticipated to be completed by mid FY 2018: X-114A Facility decontamination and decommissioning/demolition; land clearing; construction of Sedimentation Pond 2; Phase 1 Raw Water Line, Filling Station No. 1 and Booster Station installation; On-Site Waste Disposal Facility Access Control Facility; temporary trailer construction with electrical power, communications, potable water and sanitary sewer installations; and initiation of major earthwork for infrastructure areas (Sedimentation Pond 3).

**Critical Milestone History**

The table below provides the preliminary schedule for Critical Decisions and major milestones for the Initial Infrastructure & Cell 1, 4 & 5 Liner Construction project.

	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete <sup>b</sup>	CD-3	D&D Complete	CD-4
FY 2015	4Q FY2014	N/A	2Q FY2015	3Q FY2015	3Q FY2015	3Q FY2015	N/A	2Q FY2019
FY 2016	4Q FY2015	04/10/2014 <sup>a</sup>	4Q FY2015	TBD	TBD	TBD	TBD	TBD
FY 2017	4Q FY2015	04/10/2014 <sup>a</sup>	4Q FY2015	TBD	TBD	TBD	N/A	TBD
FY 2018	08/28/2015	04/10/2014 <sup>a</sup>	08/28/2015	2Q FY2018	TBD	TBD	N/A	TBD
FY 2019	08/28/2015	04/10/2014 <sup>a</sup>	08/28/2015	2Q FY2018	1Q FY2018	2Q FY2018	N/A	TBD

<sup>a</sup> Conceptual Design was completed as part of the Remedial Investigation/Feasibility Study development prior to Critical Decision-0.

<sup>b</sup> Title III design scope is planned to be, in part, subcontracted through a competitively-awarded contract with an Architectural and Engineering firm.

**CD-0** – Approve Mission Need for a construction project with a conceptual scope and cost range

**Conceptual Design Complete** – Actual date the conceptual design was completed (if applicable)

**CD-1** – Approve Design Scope and Project Cost and Schedule Ranges

**CD-2** – Approve Project Performance Baseline

**Final Design Complete** – Estimated/Actual date the project design will be/was complete(d)

**CD-3** – Approve Start of Construction

**D&D Complete** –Completion of D&D work (see Section 9)

**CD-4** – Approve Start of Operations or Project Closeout

**PB** – Indicates the Performance Baseline

(Fiscal quarter or date)

CD-3A Milestones <sup>a,b</sup>			
	Long Lead Procurement Complete	Initial Site Preparation Complete	Access Control Fencing Complete
FY 2015	1Q FY2015	3Q FY2015	3Q FY2015
FY 2016	2Q FY2015	4Q FY2016	4Q FY2016
FY 2017	2Q FY2017	2Q FY2017	2Q FY2017
FY 2018	2Q FY2018	2Q FY2018	2Q FY2018
FY 2019	2Q FY2018	2Q FY2018	2Q FY2018

Notes: <sup>a</sup>Critical Decision-3A was approved on 8/28/2015 to allow for long-lead procurement, site preparation, and access control fencing necessary prior to Critical Decision 2/3 approval. At Critical Decision-2/3 approval, all remaining Critical Decision-3A scope not completed will become part of the Critical Decision 3 scope.

<sup>b</sup> The above milestones reflect the projected upper range finish dates of the Critical Decision-3A scope, as defined in the Critical Decision-3A proposal, in accordance with DOE Order 413.3B.



**Project Cost History**

(Dollars in Thousands)

	TEC, Design	TEC, Construction	TEC, Total	OPC Except D&D	OPC D&D	OPC, Total	TPC
FY 2015	10,819	276,507	287,326	22,674	N/A	22,674	310,000
FY 2016	TBD	TBD	TBD	TBD	TBD	TBD	TBD
FY 2017	TBD	TBD	TBD	TBD	N/A	TBD	TBD
FY 2018	TBD	TBD	TBD	TBD	N/A	TBD	TBD
FY 2019	TBD	TBD	TBD	TBD	N/A	TBD	TBD

No construction, excluding approved long-lead procurement and site preparation, will be performed until the project performance baseline has been validated and Critical Decision-3 has been approved.

**2. Project Scope and Justification**

**Scope**

The On-Site Waste Disposal Facility initial infrastructure and Cell 1, 4 and 5 Liner Construction project includes design, construction, and startup of the Cell 1, 4 and 5 liners, including the initial infrastructure needed to support first waste placement, and decontamination and decommissioning/demolition of the X-114A Facility. The three liners consist of the following major components: installation of the associated cell liner systems and valve houses; installation of the north leachate transmission system; and construction of the On-Site Waste Disposal Facility modular, temporary leachate treatment system. Major components of the On-Site Waste Disposal Facility infrastructure included in this capital project are access roads; three sedimentation ponds; electrical power, communications, and raw water utilities; access control and fencing; personnel trailers; lay-down, storage, and borrow areas; and an environmental monitoring system. The initial infrastructure constitutes what is needed prior to waste placement and operation of the first three waste cells. Construction of the initial infrastructure and three cell liners will require major earthwork activities including clearing/grubbing and large-scale grading involving cut and fill of soil and rock. The decommissioning/demolition of the X-114A Facility, which lies within the On-Site Waste Disposal Facility footprint, was performed in conjunction with new construction activities.

**Justification**

The mission need for this project was established by the approval of Mission Need (Critical Decision-0) for the On-Site Waste Disposal Facility Cell 1 Liner Construction Project on August 28, 2015 and the Mission Need (Critical Decision-0) for the On-Site Waste Disposal Facility Cell 4 and Cell 5 Liner Construction Project on August 15, 2016.

The Ohio Environmental Protection Agency and the DOE entered into a formal agreement regarding the decision-making process for the Portsmouth Gaseous Diffusion Plant D&D Project and for the associated waste management. The terms of the agreement are contained in the April 13, 2010, Director’s Final Findings and Orders for Removal Action and Remedial Investigation and Feasibility Study and Remedial Design and Remedial Action, including the July 16, 2012, Modification thereto. The Comprehensive Environmental Response, Compensation, and Liability Act process was completed in June 2015, resulting in a Record of Decision selecting a combined on-site and off-site waste disposal approach as the preferred alternative.

Evaluations are underway to finalize waste acceptance criteria that meet the requirements of the Director’s Final Findings and Orders, as well as requirements set forth in DOE Order 435.1, Radioactive Waste Management. This waste disposition response action provides a permanent solution for waste generated by the cleanup of Portsmouth ensuring capacity for waste expected to be generated from the Portsmouth D&D Project that is protective of human health, safety, and the environment. Additionally, this action is determined through a feasibility study conducted under the Director’s Final Findings and Orders to be the best value to the government in that it provides a cost-effective and implementable solution to the waste disposal needs facing the Portsmouth D&D Project.

The project is being conducted in accordance with the project management requirements in DOE Order 413.3B, Program and Project Management for the Acquisition of Capital Assets.

Key Performance Parameters

The Threshold Key Performance Parameters, represent the acceptable performance that the project must achieve. Achievement of the Threshold Key Performance Parameters will be a prerequisite for approval of CD-4, Project Completion. The Objective Key Performance Parameters represent the desired project performance.

Performance Measure	Threshold	Objective
Design and construct a low-level waste disposal cell liner (Cell 1) of at least 7 acres (compacted clay liner) that includes a 3-foot clay barrier, secondary geosynthetic liner layer, leak detection layer, primary geosynthetic liner layer, and leachate collection layer.	6.5 Acres	7 Acres
Design and construct a low-level waste disposal cell liner (Cell 4) of at least 6.5 acres (compacted clay liner) that includes a 3-foot clay barrier, secondary geosynthetic liner layer, leak detection layer, primary geosynthetic liner layer, and leachate collection layer.	6.0 Acres	6.5 Acres
Design and construct a low-level waste disposal cell liner (Cell 5) of at least 6.5 acres (compacted clay liner) that includes a 3-foot clay barrier, secondary geosynthetic liner layer, leak detection layer, primary geosynthetic liner layer, and leachate collection layer.	6.0 Acres	6.5 Acres
Design and construct a Leachate Transmission System and Modular Leachate Treatment System with a minimum base flow design capacity of 50 gpm and a max design flow of 100 gpm.	50 gpm	100 gpm

**3. Project Cost and Schedule**

Financial Schedule

(Dollars in Thousands)

Budget Authority (Appropriations)	Obligations	Costs
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[Total Estimated Cost (TEC)]

Design

FY 2015	N/A	N/A	364
FY 2016	N/A	N/A	3,899
FY 2017	N/A	N/A	4,917
FY 2018	N/A	N/A	5,137
FY 2019	N/A	N/A	1,000
Outyears	N/A	N/A	TBD
Total, Design	N/A	N/A	TBD

Construction

FY 2015	N/A	N/A	277
FY 2016	N/A	N/A	14,766
FY 2017	N/A	N/A	34,051
FY 2018	N/A	N/A	35,081

(Dollars in Thousands)

	Budget Authority (Appropriations)	Obligations	Costs
FY 2019	N/A	N/A	38,668
Outyears	N/A	N/A	TBD
Total, Construction	N/A	N/A	TBD
TEC			
FY 2015	4,500	4,500	641
FY 2016	21,749	21,749	18,665
FY 2017	N/A	N/A	39,196
FY 2018	N/A	N/A	40,218
FY 2019	N/A	N/A	39,668
Outyears	TBD	TBD	TBD
Total, TEC	TBD	TBD	TBD
[Other Project Cost (OPC)]			
OPC			
FY 2015	0	0	0
FY 2016	2,705	2,705	2,705
FY 2017	N/A	N/A	1,972
FY 2018	N/A	N/A	2,179
FY 2019	N/A	N/A	1,500
Outyears	TBD	TBD	TBD
Total, OPC	TBD	TBD	TBD
Total Project Cost (TPC)			
FY 2015	4,500	4,500	641
FY 2016	24,454	24,454	21,370
FY 2017	41,168	41,168	41,168
FY 2018	38,882	38,882	42,397
FY 2019	41,168	41,168	41,168
Outyears	TBD	TBD	TBD
Total, TPC	TBD	TBD	TBD

Note: Beginning in FY 2017, OPC was appropriated to the capital construction line-item account (15-U-408) within PBS PO-0040, Nuclear Facility D&D. Prior to FY 2017, OPC was appropriated to the operating account within PBS PO-0040. Title III design scope is planned to be, in part, subcontracted through a competitively-awarded contract with an Architectural and Engineering firm.

**Details of Project Cost Estimate**

(Dollars in Thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design			
Design	TBD	TBD	N/A
Contingency	TBD	TBD	N/A
Total, Design	TBD	TBD	N/A
Construction			
Building & Site Work	TBD	TBD	N/A
D&D	TBD	TBD	N/A
Contingency	TBD	TBD	N/A
Total, Construction	TBD	TBD	N/A
Total, TEC	TBD	TBD	N/A
Contingency, TEC	TBD	TBD	N/A
Other Project Cost (OPC)			
OPC except D&D			
Conceptual Planning	TBD	TBD	N/A
Cold startup	TBD	TBD	N/A
Other OPC Costs	TBD	TBD	N/A
Contingency	TBD	TBD	N/A
Total, OPC except D&D	TBD	TBD	N/A
D&D ( <i>if any</i> )			
D&D	N/A	N/A	N/A
Contingency	N/A	N/A	N/A
Total, D&D	N/A	N/A	N/A
Total, OPC	TBD	TBD	N/A
Contingency, OPC	TBD	TBD	N/A
Total, TPC	350,000	TBD	N/A
Total, Contingency	TBD	TBD	N/A

**Schedule of Appropriation Requests**

(Dollars in Thousands)

Request Year		Prior Years	FY 2017	FY 2018	FY 2019	Outyears	Total
FY 2015	TEC	92,245	66,283	76,725	52,073	0	287,326
	OPC	12,035	5,860	2,369	2,410	0	22,674
	TPC	104,280	72,143	79,094	54,483	0	310,000
FY 2016	TEC	26,249	TBD	TBD	TBD	TBD	TBD
	OPC	0	TBD	TBD	TBD	TBD	TBD
	TPC	26,249	TBD	TBD	TBD	TBD	TBD
FY 2017	TEC	26,249	40,468	TBD	TBD	TBD	TBD
	OPC	0	700	TBD	TBD	TBD	TBD
	TPC	26,249	41,168	TBD	TBD	TBD	TBD
FY 2018	TEC	26,249	40,468	35,984	TBD	TBD	TBD
	OPC	2,705	700	2,898	TBD	TBD	TBD
	TPC	28,954	41,468	38,882	TBD	TBD	TBD
FY 2019	TEC	26,249	N/A	N/A	N/A	TBD	TBD
	OPC	2,705	N/A	N/A	N/A	TBD	TBD
	TPC	28,954	41,168	38,882	41,168	TBD	TBD

**4. Related Operations and Maintenance Funding Requirements**

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	TBD
Expected Useful Life (duration of waste placement operations)	3-5 years
Expected Future Start of D&D of this Capital Asset (fiscal quarter)	N/A <sup>a</sup>

Notes:

<sup>a</sup>No future D&D required for this project.

Related Funding Requirements

(Dollars in Thousands)

	Annual Costs		Life Cycle Costs	
	Current Total Estimate	Previous Total Estimate	Current Total Estimate	Previous Total Estimate
Operations	TBD	TBD	TBD	TBD
Utilities	TBD	TBD	TBD	TBD
Maintenance	TBD	TBD	TBD	TBD
Total, Operations & Maintenance	TBD	TBD	TBD	TBD

Note: Post-closure and long-term stewardship activities are not included within this table or anywhere else on this Construction Project Data Sheet.

**5. D&D Information**

This project required the removal of a 25 year old outdoor firing range that was located within the planned footprint of the On-Site Waste Disposal Facility. Building demolition and debris removal was completed August 3, 2016 and construction completion report was delivered October 28, 2016. This structure is the only building slated for demolition and no further D&D activities are planned for this project.

Area	Square Feet
X-114A Outdoor Firing Range	1,410

This project is providing new capability and is not replacing a current capability; thus, this project was not justified on the basis of replacing current facilities.

The location of this construction project is an environmental management closure site and, therefore, is exempt from the "one-for-one" requirement.

**6. Acquisition Approach**

The acquisition approach for the project will be to have the prime contractor execute the work through subcontracting mechanisms with an emphasis on fixed price through competitive bids and the use of consent packages, consistent with current Portsmouth Decontamination and Decommissioning prime contract requirements under FAR 44. Title III design scope is planned to be, in part, subcontracted through a competitively-awarded contract with an Architectural and Engineering firm.

## Richland

### Overview

The cleanup of the Richland Site will support the Department of Energy in meeting the challenges of the nation's Manhattan Project and Cold War environmental legacy responsibilities. The Richland Operations Office manages cleanup of the Hanford Site, with the exception of the work managed by the Office of River Protection and the Pacific Northwest National Laboratory (managed by the Office of Science, Pacific Northwest Site Office).

The Hanford Site was established during World War II to produce plutonium for the nation's nuclear weapons. The Hanford mission is now primarily site cleanup and environmental restoration to protect the Columbia River.

The legacy of Hanford's 40 years of nuclear weapons production for the nation's defense includes enormous quantities of spent (used) nuclear fuel, leftover plutonium in various forms, buried waste, contaminated soil and groundwater, and contaminated buildings that must undergo cleanup and be torn down. Forty percent of the approximately 1 billion curies of human-made radioactivity that exist across the nuclear weapons complex reside at Hanford and must be dealt with to protect human health and the environment. Continued remediation of the waste sites and demolition of old facilities is required to prevent contamination of the Columbia River due to contaminants leaching from the soils into the groundwater.

The Department is working to reduce the footprint at the Richland Site and has realized significant cleanup momentum over the past several years. As such, efforts continue to be focused on completing cleanup along the Columbia River Corridor and transitioning the Central Plateau of the Hanford Site to a modern, protective waste management operation, thereby, reducing the risks to workers, the community, and the environment.

Direct maintenance and repair at the Richland site is estimated to be \$78,911,000.

The Richland Operations Office plans to purchase the following vehicles in FY 2019: 1 EF26 Ladder Truck; 1 EF30 Ladder Truck; 1 EF32 Hazmat Truck; 1 Bucket Truck; 1 Septic Truck; 1 Potable Water Truck; 28 small work vans; 4 water trucks; 1 Digger Derrick Truck; 2 Truck Tractors; 1 Vapor Tracking Van; 2 Large Service Cargo Vans; 1 Reuse Truck; 3 Fire Engine Pumper Truck (1,500 gallon tank); and 2 Wildland Tankers AWD (2,500 gallon).

### Highlights of the FY 2019 Budget Request

Richland's FY 2019 budget request represents continued achievement of important cleanup progress required by the Tri-Party Agreement. In summary, the Richland budget request is designed to maintain safe operations; Hanford site-wide services; continue groundwater pump-and-treat operations; continue progress toward waste remediation; continue progress toward repackaging of large/small container contact-handled transuranic mixed waste and remote-handled transuranic mixed waste; and continue waste site remediation in the River Corridor. Cleanup work is accomplished while maintaining safe and compliant waste management, decontamination and decommissioning, and groundwater capabilities in the Central Plateau.

The FY 2019 request includes funding for Line Item 18-D-404, the Waste Encapsulation and Storage Facility Modifications and Capsule Storage (\$1,000,000). This project includes the activities required to achieve safe, compliant, and cost-effective interim dry storage of the 1,936 cesium and strontium capsules currently stored at the Waste Encapsulation and Storage Facility. The Waste Encapsulation and Storage Facility cannot provide a continued capability to manage the capsules for an extended period of time. This line-item construction project supports the mission need by equipping the Waste Encapsulation and Storage Facility to remove the capsules. The \$1,000,000 requested for this project is for design effort supporting the critical decision process.

The Richland Operations Office also provides the Hanford site landlord services. The services include, but are not limited to, roads and transportation services; electrical and water services; facility maintenance; network and software engineering; physical and cyber security, and records management.

### Environmental Management/

Richland

## **FY 2018 & FY 2019 Key Milestones/Outlook**

- (June 2018) M-015-21A; Submit 200-BP-5 and 200-PO-1 OU Feasibility Study Report and Proposed Plan(s) to Ecology.
- (June 2018) M-091-03L; Submit Annual Revision of Transuranic Mixed Waste and Mixed Low-Level Waste Project Management Plan to Ecology.
- (September 2018) M-016-175; Begin sludge removal from 105-KW Fuel Storage Basin.
- (September 2018) M-091-47D; Certify or treat 280 cubic meters of Transuranic Mixed Waste and Mixed Low-Level Waste.
- (September 2018) M-016-00B; Complete All Interim 300 Area Remediation Milestones.
- (September 2018) M-092-09; Establish milestones and/or target dates for Sodium Facilities.
- (December 2018) M-024-69; Complete Construction of All Wells Listed for CY 2018.
- (March 2019) M-026-07D; Submit to U. S. Environmental Protection Agency and Ecology an Evaluation of Development Status of Tritium Treatment Technology.
- (June 2019) M-091-03M; Submit Revision of Transuranic Mixed Waste and Mixed Low-Level Waste Project Management Plan to Ecology.
- (September 2019) M-091-47E; Certify or Treat 280 cubic meters of Transuranic, Mixed Waste or Mixed Low-Level Waste.

## **Regulatory Framework**

The U. S. Department of Energy, the U. S. Environmental Protection Agency, and the State of Washington Department of Ecology signed a comprehensive cleanup and compliance agreement on May 15, 1989. The Hanford Federal Facility Agreement and Consent Order, or Tri-Party Agreement, is an agreement for achieving compliance with the Comprehensive Environmental Response, Compensation, and Liability Act remedial action provisions along with the Resource Conservation and Recovery Act treatment, storage, and disposal unit regulations and corrective action provisions. In October 2010, the Department of Energy and the Washington State Department of Ecology reached an agreement on revised timetables under the Tri-Party Agreement and a Consent Decree filed in the federal district court for cleanup on the Hanford Site. Tri-Party Agreement milestones have been updated in accordance with the Consent Decree. In 2016, the three parties also reached agreement on additional milestone date changes which revised timetables for multiple near-term and outyear milestones captured under the Tri-Party Agreement.

## **Contractual Framework**

Program planning and management at Richland is conducted through the issuance and execution of contracts to large and small businesses. Richland develops near- and long-term planning approaches in order to develop contract strategies and program/project plans at a more detailed level. Selected contractors then execute these plans to complete cleanup on schedule. Current prime contracts at Richland include:

- CH2M Hill Plateau Remediation Company, a cost-plus-award-fee term contract for the cleanup of the Hanford Central Plateau. This contract has a base period of performance from October 1, 2008, through September 30, 2013, with contract option to extend through September 30, 2018. The 5-year option period of October 1, 2013 through September 30, 2018, has been exercised.
- Mission Support Alliance, LLC, a cost-plus-award-fee contract with a base period of performance from May 26, 2009, through May 25, 2014, with one 3-year option and one 2-year option. The Mission Support Alliance contract first options have been exercised for the period of May 26, 2014, through May 25, 2019.
- HPM Corporation, a hybrid contract that includes firm-fixed price with award fee, cost reimbursement, and an Indefinite Delivery Indefinite Quantity component. This contract was awarded in 2012 for two years with four 1-year option periods.

Richland is currently engaged in acquisition planning for successor contracts for Hanford Cleanup.



## **Strategic Management**

The Hanford mission includes eliminating hazards near the Columbia River by cleaning up most of the River Corridor, treating contaminated groundwater near the Columbia River, and demolishing the site's main plutonium production facility, the Plutonium Finishing Plant. The work will reduce the active cleanup footprint to 75 square miles in the center of the site, reduce overhead costs and reduce cleanup mortgages.

The Hanford mission is also guided by an agreement established on May 15, 1989. The Hanford Federal Facility Agreement and Consent Order, known as the Tri-Party Agreement, is a cleanup and compliance agreement signed by DOE, the Environmental Protection Agency and the Washington State Department of Ecology. It is a framework for implementing many of the environmental regulations that apply to Hanford. The agreement establishes the milestones for achieving compliance with Comprehensive Environmental Response, Compensation, and Liability Act remedial action provisions and with Resource Conservation and Recovery Act treatment, storage, and disposal unit regulations and corrective action provisions. More specifically, the Tri-Party Agreement includes, but is not limited to: (1) cleanup commitments; (2) agency cleanup responsibilities; and (3) enforceable milestones to achieve regulatory compliance and remediation.

Richland Funding (\$K)

	FY 2017 Enacted	FY 2018 Annualized CR*	FY 2019 Request	FY 2019 Request vs FY 2017 Enacted
<b>Defense Environmental Cleanup</b>				
<b>Hanford Site</b>				
<b>Central Plateau Remediation</b>				
RL-0011 / NM Stabilization and Disposition-PFP	143,404	142,430	0	-143,404
RL-0012 / SNF Stabilization and Disposition	36,131	35,886	8,000	-28,131
RL-0013C / Solid Waste Stabilization and Disposition- 2035	91,820	91,196	152,000	+60,180
RL-0030 / Soil and Water Remediation-Groundwater/Vadose Zone - 2035	127,476	126,610	131,000	+3,524
RL-0201 / Hanford Site Wide Services	272,473	270,623	272,473	0
<b>Subtotal, Central Plateau Remediation</b>	<b>671,304</b>	<b>666,745</b>	<b>563,473</b>	<b>-107,831</b>
<b>Richland Community and Regulatory Support</b>				
RL-0100 / Richland Community and Regulatory Support	24,701	24,533	5,121	-19,580
<b>River Corridor and Other Cleanup Operations</b>				
RL-0040 / Nuclear Facility D&D-Remainder of Hanford - 2035	31,400	31,187	23,760	-7,640
RL-0041 / Nuclear Facility D&D-River Corridor Closure Project	112,355	111,592	65,817	-46,538
<b>Subtotal, River Corridor and Other Cleanup Operations</b>	<b>143,755</b>	<b>142,779</b>	<b>89,577</b>	<b>-54,178</b>
<b>Total, Hanford Site</b>	<b>839,760</b>	<b>834,057</b>	<b>658,171</b>	<b>-181,589</b>
<b>Safeguards and Security</b>				
RL-0020 / Safeguards and Security	74,176	73,672	86,686	+12,510
<b>Total, Defense Environmental Cleanup</b>	<b>913,936</b>	<b>907,729</b>	<b>744,857</b>	<b>-169,079</b>
<b>Non-Defense Environmental Cleanup</b>				
<b>Fast Flux Test Reactor Facility D&amp;D</b>				
<b>Fast Flux Test Reactor Facility D&amp;D</b>				
RL-0042 / Nuclear Facility D&D-Fast Flux Test Facility Project	2,240	2,225	2,240	0
<b>Total, Richland</b>	<b>916,176</b>	<b>909,954</b>	<b>747,097</b>	<b>-169,079</b>

\*A full-year 2018 appropriation for this account was not enacted at the time the budget was prepared; therefore, the budget assumes this account is operating under the Continuing Appropriations Act, 2018 (Division D of P.L. 115-56, as amended). The amounts included for 2018 reflect the annualized level provided by the continuing resolution. These amounts are shown only at the Congressional control level and above; below that level, a dash (—) is shown).

**Richland**  
**Explanation of Major Changes (\$K)**

<b>FY 2019 Request vs FY 2017 Enacted</b>
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**Defense Environmental Cleanup**

**Hanford Site**

**Central Plateau Remediation**

**RL-0011 / NM Stabilization and Disposition-PFP**

- The decrease reflects the decommissioning and demolition of the Plutonium Finishing Plant facilities to slab-on-grade. -143,404

**RL-0012 / SNF Stabilization and Disposition**

- The decrease reflects completion of facility modifications to prepare for installation of sludge removal systems for the K-West Basin, as well as purchase of the engineered containers for sludge repackaging (the line-item construction project: 15-D-401 – Containerized Sludge). Additionally, the decrease reflects a transition of surveillance and maintenance of the K West Basin to PBS RL-0041 until facility deactivation and dewatering activities are complete. -28,131

**RL-0013C / Solid Waste Stabilization and Disposition- 2035**

- This increase supports design efforts and continued planning for the critical decision process for dry storage options for the cesium and strontium capsules as well as activities supporting waste management and single-shell tank stabilization. Also includes operating the Environmental Restoration and Disposal Facility which was moved from PBS RL-0041. +60,180

**RL-0030 / Soil and Water Remediation-Groundwater/Vadose Zone - 2035**

- The increase supports implementation of final remedies to stop contaminants reaching the Columbia River and continued progress to obtain the final Record of Decision for operable units in the River Corridor. +3,524

**RL-0201 / Hanford Site Wide Services**

- No change. 0

**Richland Community and Regulatory Support**

**RL-0100 / Richland Community and Regulatory Support**

- Decrease reflects regulatory and permitting costs supporting site-wide clean-up being moved under PBS RL-0201, Site-Wide Services, to more appropriately align them with other cleanup support costs. Also reflects reductions for discretionary payments in lieu of taxes to support focus on cleanup mission. -19,580

**River Corridor and Other Cleanup Operations**

**RL-0040 / Nuclear Facility D&D-Remainder of Hanford - 2035**

- The decrease reflects completion of corrective actions for the partial collapse of PUREX Tunnel #1 and the -7,640

**Environmental Management/**

**Richland**

<b>FY 2019 Request vs FY 2017 Enacted</b>
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initial planning for completion of PUREX Tunnel #2 stabilization.

**RL-0041 / Nuclear Facility D&D-River Corridor Closure Project**

- The decrease reflects completion of 618-10 burial ground remediation and transfer of the Environmental Restoration Disposal Facility operations to RL-0013. -46,538

**Safeguards and Security**

**RL-0020 / Safeguards and Security**

- Increase primarily reflects funding of Cyber Security activities. +12,510

**Non-Defense Environmental Cleanup**

**Fast Flux Test Reactor Facility D&D**

**RL-0042 / Nuclear Facility D&D-Fast Flux Test Facility Project**

- No change. 0

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<b>Total, Richland</b>	<b>-169,079</b>
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**NM Stabilization and Disposition-PFP (PBS: RL-0011)**

**Overview**

This PBS can be found within the Defense Environmental Cleanup appropriation.

The Plutonium Finishing Plant complex consists of several buildings that were used for defense production of plutonium nitrates, oxides and metal from 1950 through early 1989. This PBS implements actions to package and ship special nuclear materials and fuels to storage facilities; cleanout facilities and demolish them to slab-on-grade; and transition the below-grade structures to PBS RL-0040, Nuclear Facility Decommissioning & Decontamination - Remainder of Hanford. These actions can be grouped in the following key categories: 1) stabilization, packaging and shipment of the special nuclear materials and residues from the Plutonium Finishing Plant complex; 2) interim storage of special nuclear materials; 3) maintaining the facilities in a safe and secure manner until the completion of demolition; and 4) cleanout and demolition of facilities.

**NM Stabilization and Disposition-PFP (PBS: RL-0011)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$143,404	\$0	-\$143,404
<ul style="list-style-type: none"> <li>• Provided site-wide services for day-to-day operations of general utilities, fire department and analytical services. Site-wide services are prorated across the PBS's.</li> <li>• Provided services for industrial, radiological and nuclear Plutonium Finishing Plant facilities/structures and systems including the vital safety systems.</li> <li>• Supported deactivation, decommissioning and dismantlement activities for the major Plutonium Finishing Plant facilities to achieve ready-for-demolition status. Major facilities include: 234-5Z (Plutonium Conversion Facility), 291-Z (Exhaust Building), 291-Z (Stack), 236-Z and Plutonium Reclamation Facility), 243-Z (Low Level Waste</li> </ul>	<ul style="list-style-type: none"> <li>• Transition the below-grade structures to PBS RL-0040, Nuclear Facility Decommissioning &amp; Decontamination – Remainder of Hanford.</li> </ul>	<ul style="list-style-type: none"> <li>• The decrease reflects the decommissioning and demolition of the Plutonium Finishing Plant facilities to slab-on-grade.</li> </ul>

Treatment Facility) and 242-Z (Waste Treatment Facility). Activities include deactivation, decontamination and removal of gloveboxes and process and support systems (i.e., criticality, HVAC, Fire Protection), and equipment as needed to prepare facilities for demolition. Funding also supports Plutonium Reclamation Facility Canyon equipment removal and cleanout of the Plutonium Reclamation Facility Canyon.

- Accomplished program management and cross cutting activities to support decontamination and decommissioning field teams.
  - Completed Plutonium Finishing Plant Facility transition and selected disposition activities to achieve slab-on-grade.
-

### SNF Stabilization and Disposition (PBS: RL-0012)

#### Overview

This PBS can be found within the Defense Environmental Cleanup appropriation.

This PBS scope includes the stabilization, removal, and shipment of nuclear materials including spent (used) nuclear fuel and radioactively contaminated sludge from the K Basins. Waste to be removed includes 27 cubic meters of radioactively contaminated sludge that currently resides in engineered containers in the K West basin. This PBS currently supports the removal of the sludge from the K-West Basin for interim storage on the Central Plateau. After removal of sludge from the K West Basin, PBS RL-0041 will disposition the K West Basin and other K Basin Closure Project-related facilities, to achieve footprint reduction.

This PBS includes the design, procurement, construction, testing, and commissioning of an integrated set of process/systems to remove radioactive sludge currently stored in the K West Basin. The overall Sludge Treatment Project recommended a two-phase retrieval, storage, and packaging strategy. Phase 1 is the retrieval and transfer of the sludge material now consolidated in the engineered containers in the K West Basin. The consolidated sludge originated from previous recovery campaigns and will be retrieved and transported to T Plant at Hanford’s Central Plateau for temporary storage. The project has completed the construction of the sludge handling and supporting equipment and will complete operations to transfer the sludge from the 105 K-West Basin for storage in the Central Plateau in FY 2019.

### SNF Stabilization and Disposition (PBS: RL-0012)

#### Activities and Explanation of Changes

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
<b>\$36,131</b>	<b>\$8,000</b>	<b>-\$28,131</b>
<ul style="list-style-type: none"> <li>• Provided site-wide services of day-to-day operations of general utilities, fire department, and analytical services.</li> <li>• Provided operation and maintenance support to maintain the K West Basin, a CAT 2 nuclear facility, in a safe and compliant manner. Funding also supports surveillance and maintenance activities.</li> <li>• Continued K West Basin facility modifications to prepare for installation of sludge removal system and procurement of long-lead equipment for</li> </ul>	<ul style="list-style-type: none"> <li>• Provide support to operations of the Engineered Container Retrieval and Transfer System to transfer sludge to the Central Plateau.</li> </ul>	<ul style="list-style-type: none"> <li>• The decrease reflects completion of facility modifications to prepare for installation of sludge removal systems for the K-West Basin, as well as purchase of the engineered containers for sludge repackaging (the line-item construction project: 15-D-401 – Containerized Sludge). Additionally, the decrease reflects a transition of surveillance and maintenance of the K West Basin to PBS RL-0041 until facility deactivation and dewatering activities are complete.</li> </ul>

sludge removal.

- Continued T Plant modifications necessary to receive and store sludge.
  - Provided project management support during the Containerized Sludge construction, installation, and readiness activities.
-



**Solid Waste Stabilization and Disposition (PBS: RL-0013C)**

**Overview**

This PBS can be found within the Defense Environmental Cleanup appropriation.

The scope of this PBS includes storage and disposal of irradiated nuclear fuel, transuranic waste, mixed low-level waste, and low-level waste generated at the Hanford Site and other DOE and Department of Defense facilities. This PBS also includes packaging of EM legacy and non-legacy irradiated nuclear fuel and storage in the Canister Storage Building or 200 Area Interim Storage Area. In addition, 1,936 cesium and strontium capsules in wet storage in the Waste Encapsulation and Storage Facility will be transferred to dry storage, and retrieval of contact- and remote-handled suspect transuranic waste in the low-level burial grounds will also be performed. About 24,000 cubic meters of suspect transuranic waste is to be processed and an estimated 10,000 cubic meters will eventually be shipped to the Waste Isolation Pilot Plant. About 51,000 cubic meters of mixed low-level waste will be treated and disposed in the mixed waste trenches or other facilities. Over 200 de-fueled naval reactor compartments will be disposed of in a dedicated trench and about 130,000 cubic meters of low-level waste will be disposed through site closure.

**Solid Waste Stabilization and Disposition- 2035 (PBS: RL-0013C)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
<b>\$91,820</b>	<b>\$152,000</b>	<b>+\$60,180</b>
<ul style="list-style-type: none"> <li>• Provided site-wide services for day-to-day operations of general utilities, fire department, and analytical services; operations necessary to support safe and compliant interim storage of irradiated nuclear fuel, which include operating and maintaining the Canister Storage Building and the 200 Area Interim Storage Area facilities, associated structures, operating systems, equipment and monitoring systems. Site-wide services are prorated across the PBS's.</li> <li>• Supported safe storage of 1,936 cesium and strontium capsules in the Waste Encapsulation and Storage Facility.</li> <li>• Maintained T Plant Complex in a safe, compliant,</li> </ul>	<ul style="list-style-type: none"> <li>• Support operations necessary to provide for safe and compliant interim storage of spent nuclear fuel, which include operating and maintaining the Canister Storage Building and the 200 Area Interim Storage Area facilities, operating systems, equipment and monitoring systems.</li> <li>• Support safe storage of 1,936 cesium and strontium capsules in the Waste Encapsulation and Storage Facility.</li> <li>• Continue project planning and design for dry storage options for the cesium and strontium capsules.</li> <li>• Maintain T Plant Complex in a safe, compliant, and cost-effective manner for</li> </ul>	<ul style="list-style-type: none"> <li>• This increase supports design efforts and continued planning for the critical decision process for dry storage options for the cesium and strontium capsules as well as activities supporting waste management and single-shell tank stabilization. Also includes operating the Environmental Restoration and Disposal Facility which was moved from PBS RL-0041.</li> </ul>

and cost-effective manner for acceptance/storage of low-level waste, mixed low-level waste, and transuranic waste. Provide the operations necessary to support K-Basin sludge storage.

- Provided core project management staff for waste management operations, cesium/strontium capsules, and irradiated nuclear fuel.
- Maintained Waste Receiving and Processing Facility operations, the Central Waste Complex, the Low Level Burial Grounds, and the Mixed Waste Disposal Trenches for compliant acceptance and storage of low-level, mixed low-level and transuranic wastes at Hanford.
- Repackaged large container transuranic mixed waste.

acceptance/storage of low-level waste, mixed low-level waste, and transuranic waste (including single-shell transuranic tanks). Provide the operations necessary to support K-Basin sludge storage.

- Provide core project, waste and transportation management, including safe and compliant storage of the spent nuclear fuel.
- Maintain operations of the Central Waste Complex, the Low Level Burial Grounds, the Waste Receiving and Processing Facility, and the Mixed Waste Disposal Trenches for compliant acceptance and storage of low-level, mixed low-level and transuranic wastes at Hanford.
- Support operations of the Environmental Restoration Disposal Facility.
- Repackage suspect transuranic/mixed waste to meet Federal and State regulations.
- Waste management and stabilization (including single-shell tanks and support of the composite analysis).

**Soil and Water Remediation-Groundwater/Vadose Zone (PBS: RL-0030)**

**Overview**

This PBS can be found within the Defense Environmental Cleanup appropriation.

This PBS scope includes groundwater/vadose zone remediation activities that address groundwater contamination and protection of the groundwater resources on the Hanford Site. The principal activities for this PBS include: 1) field characterization to assess the extent of radiological/chemical contamination and contaminants for movement in the vadose zone and groundwater; 2) vadose zone, groundwater and risk assessment modeling and evaluating cumulative impacts to the Hanford groundwater and Columbia River; 3) operation of groundwater remediation systems and implementation of alternative methods; 4) installation of wells to maintain an integrated Comprehensive Environmental Response, Compensation, and Liability Act and Resource Conservation and Recovery Act compliant network for monitoring groundwater plumes and for implementing groundwater/vadose zone remedies; 5) groundwater well drilling, maintenance, decommissioning; and 6) complete final restoration of groundwater on the Hanford Site. This PBS supports the regulatory decision-making process for remediation of all of the groundwater operable units on the Hanford site. It also supports the regulatory processes for waste sites along the River Corridor and on the Central Plateau as well as the regulatory processes for and remediation of soil contamination in the Central Plateau deep vadose zone.

**Soil and Water Remediation-Groundwater/Vadose Zone - 2035 (PBS: RL-0030)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$127,476	\$131,000	+\$3,524
<ul style="list-style-type: none"> <li>• Provided site-wide services of day-to-day operations of general utilities, fire department, and analytical services. Site-wide services are prorated across the PBS's.</li> <li>• Continued integration of Site-wide groundwater and vadose zone cleanup activities, groundwater contamination monitoring, as well as operations, maintenance, and necessary modifications of existing remediation systems.</li> <li>• Continued to meet Tri-Party Agreement M-24 Well Drilling commitments.</li> </ul>	<ul style="list-style-type: none"> <li>• Continue integration of site-wide groundwater and vadose zone cleanup activities, groundwater contamination monitoring, as well as operations, maintenance, and necessary modifications of existing remediation systems.</li> <li>• Continue to meet Tri-Party Agreement M-24 Well Drilling Commitments.</li> <li>• Continue progress toward completing decision documentation for the Comprehensive Environmental Response, Compensation and Liability Act Remedial Investigation/Feasibility Study process to obtain the final Records of</li> </ul>	<ul style="list-style-type: none"> <li>• The increase supports implementation of final remedies to stop contaminants reaching the Columbia River and continued progress to obtain the final Record of Decision for operable units in the River Corridor.</li> </ul>

Decisions for operable units in the River Corridor.

- Support implementation of final remedies to stop contaminants from reaching the Columbia River.
-

**Hanford Site Wide Services (PBS: RL-0201)**

**Overview**

This PBS can be found within the Defense Environmental Cleanup appropriation.

This PBS scope includes services and projects to ensure safe and secure daily operations on the 586-square-mile Hanford Site. The Richland Operations Office provides these Hanford Site landlord services. These site services are essential to support cleanup activities at both the Richland Operations Office and the Office of River Protection, as well as the science and research mission of the Pacific Northwest National Laboratory, which also includes General Plant Projects as well as direct maintenance and repair that are applicable to these areas. These integrated infrastructure services and projects include, but are not limited to, roads and transportation services; electrical and water services; facility maintenance; network and software engineering; and records management.

**Hanford Site Wide Services (PBS: RL-0201)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
<b>\$272,473</b>	<b>\$272,473</b>	<b>\$0</b>
<ul style="list-style-type: none"> <li>Services include, but are not limited to, roads and transportation services; electrical and water services; facility maintenance; network and software engineering; and records management.</li> <li>Infrastructure projects to repair water lines, electrical utilities, fire alarm systems and overlay roads essential to Hanford clean-up efforts including the Office of River Protection activities in support of direct low-activity waste feed.</li> </ul>	<ul style="list-style-type: none"> <li>Services include, but are not limited to, roads and transportation services; electrical and water services; facility maintenance; network and software engineering; records management; and regulatory permits and fees.</li> <li>Payment of required site-wide regulatory costs.</li> </ul>	<ul style="list-style-type: none"> <li>No change.</li> </ul>

**Richland Community and Regulatory Support (PBS: RL-0100)**

**Overview**

This PBS can be found within the Defense Environmental Cleanup appropriation.

The scope of this PBS includes stakeholder support and assistance payments. The activities included in this PBS are: 1) grants to Washington State and Oregon State; and 2) funding to support the Hanford Advisory Board and related activities. This PBS scope will end upon completion of the Hanford EM mission.

**Richland Community and Regulatory Support (PBS: RL-0100)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
<b>\$24,701</b>	<b>\$5,121</b>	<b>-\$19,580</b>
<ul style="list-style-type: none"> <li>Supported Washington and Oregon States' emergency preparedness, environmental oversight, Hanford Advisory Board and other related activities.</li> <li>Supported Washington State Department of Ecology's Resource Conservation and Recovery Act mixed waste fee and Washington State Department of Health's air emissions monitoring invoice and payment-in-lieu-of-taxes to Grant, Benton, and Franklin Counties.</li> </ul>	<ul style="list-style-type: none"> <li>Support Washington and Oregon States' emergency preparedness, environmental oversight, Hanford Advisory Board and other related activities.</li> </ul>	<ul style="list-style-type: none"> <li>Decrease reflects regulatory and permitting costs supporting site-wide cleanup being moved under PBS RL-0201, Site-Wide Services, to more appropriately align them with other cleanup support costs. Also reflects reductions for discretionary payments in lieu of taxes to support focus on cleanup mission.</li> </ul>

**Nuclear Facility D&D-Remainder of Hanford (PBS: RL-0040)**

**Overview**

This PBS can be found within the Defense Environmental Cleanup appropriation.

This PBS scope includes implementation of various Hanford Site cleanup initiatives: cleanup of radioactivity and chemical contamination in about 1,000 waste sites with potential impact to groundwater and approximately 500 facilities primarily on the Central Plateau. Life-cycle work scope includes: decontamination, decommissioning, dismantlement, and disposition of surplus facilities (including canyon facilities); remediation of all 200 Area waste sites containing large inventories of mobile contaminants that may migrate into groundwater plumes (includes removal of contaminants or construction of surface barrier caps over waste sites); deactivation and disposition of contaminated equipment; final disposition of Cold War legacy wastes; site occupational medicine program; safe operation of facilities awaiting deactivation and demolition; and maintenance and repair of system infrastructure. Following the assessment activities for the Central Plateau through the remedial decision process under PBS RL-0030, remedial design and implementation will be performed under PBS RL-0040. This PBS scope includes the physical cleanup of these waste sites and facilities.

**Nuclear Facility D&D-Remainder of Hanford - 2035 (PBS: RL-0040)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
<b>\$31,400</b>	<b>\$23,760</b>	<b>-\$7,640</b>
<ul style="list-style-type: none"> <li>• Provided site-wide services of day-to-day operations of general utilities, fire department, and analytical services. Site-wide services are prorated across the PBS's.</li> <li>• Supported surveillance and maintenance activities necessary to ensure safety for waste sites and facilities. Also supports Environmental Safety and Health oversight, quality management, safety and job hazards analysis, and technical support.</li> <li>• Provided steam for critical site heating systems, occupational medicine, Bonneville Power Administration electricity, litigation support,</li> </ul>	<ul style="list-style-type: none"> <li>• Support surveillance and maintenance activities necessary to ensure safety for waste sites and surplus facilities on Hanford's Central Plateau. Also supports core project management functions which includes: Environment, Safety and Health oversight, quality management, safety and job hazards analysis, technical support, and integration with site activities.</li> <li>• Support 200 Area risk mitigation activities focusing on PUREX Tunnel #2 stabilization.</li> </ul>	<ul style="list-style-type: none"> <li>• The decrease reflects completion of corrective actions for the partial collapse of PUREX Tunnel #1 and the initial planning for completion of PUREX Tunnel #2 stabilization.</li> </ul>

General Services Administration office space rent and Land Conveyance efforts.

- Supported infrastructure systems and projects to ensure critical utilities, roads and facility systems are safe for continued operations and uninterrupted low-activity waste operations at the Waste Treatment and Immobilization Plant.
-



**Nuclear Facility D&D-River Corridor Closure Project (PBS: RL-0041)**

**Overview**

This PBS can be found within the Defense Environmental Cleanup appropriation.

The River Corridor Closure Project addresses the remediation of contaminated soils and facilities adjacent to the Columbia River. This project will remediate waste sites; deactivate, decontaminate, decommission, and demolish associated facilities; and place the old production reactors in an interim safe storage condition until a final decision is made addressing reactor disposition. Remediation activities are being conducted in accordance with Comprehensive Environmental Response, Compensation, and Liability Act Interim Action Records of Decision. The River Corridor is divided into four major sub-areas: (1) 100 Area, comprised of shutdown plutonium production reactors, support facilities, and burial grounds; (2) 300 Area, comprised of former reactor fuel fabrication, research and development, and support facilities; (3) the support complex in the 400 Area, comprised of a small number of former maintenance and storage facilities and waste sites located outside of the Fast Flux Test Facility reactor protected area; and (4) 600 Area, which includes two major burial grounds (618-10 and 618-11) located between the 100 and 300 Areas, and vacant land extending from the Columbia River to the Central Plateau in the middle of the Site.

**Nuclear Facility D&D-River Corridor Closure Project (PBS: RL-0041)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$112,355	\$65,817	-\$46,538
<ul style="list-style-type: none"> <li>• Provided site-wide services for day-to-day operations of general utilities, fire department, and analytical services; and continued operations of specific key utilities (water, sewer electrical) in those same areas.</li> <li>• Continued operation of the Environmental Restoration Disposal Facility for disposal of low-level radioactive, hazardous, and mixed wastes generated during Hanford cleanup.</li> <li>• Supported safe activities for K Area Remediation.</li> <li>• Continued remediation of the highly radioactive waste site 300-296 waste located beneath the 324 Building (i.e., the Radiochemical Engineering</li> </ul>	<ul style="list-style-type: none"> <li>• Provide operations and maintenance support to maintain the K West Basin, a Category 2 nuclear facility, in a safe and compliant manner. Funding also support surveillance and maintenance activities.</li> <li>• Continue to support operations necessary to provide for safe and compliant monitoring of the 324 Building.</li> <li>• Support safe surveillance and monitoring activities for K Area Remediation.</li> <li>• Provide support for the remediation of the 300-296 waste site under the 324 Building.</li> </ul>	<ul style="list-style-type: none"> <li>• The decrease reflects completion of 618-10 burial ground remediation and transfer of the Environmental Restoration Disposal Facility operations to RL-0013.</li> </ul>

Complex), in the 300 Area close to the City of Richland.

- Remediation of 618-10 vertical piping units.
  - Support progress toward facility and waste remediation efforts in the 100 K Area.
-

**Safeguards and Security (PBS: RL-0020)**

**Overview**

This PBS can be found within the Defense Environmental Cleanup appropriation.

The Safeguards and Security Program at the Hanford site protects nuclear materials, equipment, information, facilities, and supports the Hanford remediation and cleanup programs. These activities provide for overall site access security and protection of personnel and government property as part of EM’s overall landlord responsibilities for the 586 square mile Hanford site.

**Safeguards and Security (PBS: RL-0020)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
<b>\$74,176</b>	<b>\$86,686</b>	<b>+\$12,510</b>
<ul style="list-style-type: none"> <li>• Provided a Safeguards and Security services program at the Hanford Site, including protection of Category I Spent Nuclear Material.</li> <li>• Provided site safeguards and security services for both the Richland Operations Office and the Office of River Protection, including protection program management, emergency response, Physical Security, information protection, Protective Force, Personnel Security, Cyber Security and Nuclear Material Control and Accountability.</li> <li>• Continued implementation of revised access controls and common identification standards (Homeland Security Presidential Directive-12).</li> </ul>	<ul style="list-style-type: none"> <li>• Provide services within the Safeguards and Security programs for the Hanford Site, including protection of Category I Spent Nuclear Material. Safeguards and Security services are provided for both the Richland Operations Office and the Office of River Protection, including Protection Program Management, Emergency Preparedness and Response, Physical Security, Information Protection, Protective Force, Personnel Security, Cyber Security and Nuclear Material Control and Accountability.</li> <li>• Enable 10 CFR 1046, programmatic adherence to new 10 CFR 712 requirements for Human Reliability Program policy changes.</li> <li>• Provide for upgrade/replacement of aged/obsolete physical security, qualification, and training systems and facilities.</li> </ul>	<ul style="list-style-type: none"> <li>• Increase primarily reflects funding of Cyber Security activities.</li> </ul>



**Nuclear Facility D&D-Fast Flux Test Facility Project (PBS: RL-0042)**

**Overview**

This PBS can be found within the Non-Defense Environmental Cleanup appropriation.

This PBS scope includes deactivation and decommissioning of the Fast Flux Test Facility, a 400-megawatt (thermal) liquid metal (sodium) cooled fast neutron flux nuclear test reactor, and 44 support buildings and structures. The deactivation activities consist of: reactor de-fueling; disposition of 376 reactor fuel assemblies by washing, drying, loading in storage casks and transferring to appropriate storage locations; draining approximately 260,000 gallons of sodium from operating plant systems, reactor vessel, and fuel storage vessels; sodium residual cleaning of all plant systems and vessels; disposition of 260,000 gallons of bulk sodium by conversion to sodium hydroxide for use by the Waste Treatment Plant; and the shutdown of Fast Flux Test Facility auxiliary systems.

The Fast Flux Test Facility Project has completed the sodium drain from the Fast Flux Test Facility to the Sodium Storage Facility, stored the reactor nuclear fuel and placed the facility in long-term surveillance and maintenance.

**Nuclear Facility D&D-Fast Flux Test Facility Project (PBS: RL-0042)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$2,240	\$2,240	\$0
<ul style="list-style-type: none"> <li>Supported long-term safe and compliant surveillance and maintenance for Fast Flux Test Facility and support facilities. This support is required until the residual and bulk sodium is dispositioned and facility deactivation and decommissioning is resumed.</li> </ul>	<ul style="list-style-type: none"> <li>Support long-term safe and compliant surveillance and maintenance for Fast Flux Test Facility and support facilities, which also includes residual and stored bulk sodium at the Fast Flux Test Facility.</li> </ul>	<ul style="list-style-type: none"> <li>No change.</li> </ul>

**Richland  
Capital Summary (\$K)**

Pursuant to Section 3121 of the Ike Skelton National Defense Authorization Act for FY 2011 (P.L. 111-383), notification is being provided for general plant projects with a total estimated cost of more than \$5 million planned for execution in FY 2019.

	<b>Total</b>	<b>Prior Years</b>	<b>FY 2017 Enacted</b>	<b>FY 2019 Request</b>	<b>FY 2019 Request vs FY 2017 Enacted</b>
<b>Capital Operating Expenses Summary (including (Major Items of Equipment (MIE))</b>					
Capital Equipment > \$500K (including MIE)	0	0	0	0	0
Plant Projects (GPP and IGPP) (<\$10M)	0	0	0	15,172	+15,172
<b>Total, Capital Operating Expenses</b>	<b>15,172</b>	<b>0</b>	<b>0</b>	<b>15,172</b>	<b>+15,172</b>
<b>Capital Equipment &gt; \$500K (including MIE)</b>					
	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Total, Capital Equipment (including MIE)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Plant Projects (GPP and IGPP) (Total Estimated Cost (TEC) &lt;\$10M)</b>					
<b><u>Richland</u></b>					
Cesium and Strontium Capsule Project <sup>a</sup>	386	0	0	386	+386
L-781, 181D Vertical Turbine Pumps, Header, Instrumentation, Commission	663	0	0	663	+663
L-826, 181B Vertical Turbine Pumps, Header, Instrumentation, Commission	628	0	0	628	+628
L-849, Replace 200E 1.1M Gallon PW Tank <sup>a</sup>	0	0	0	0	0
L-850, Replace 200W 1.1M Gallon PW Tank <sup>a</sup>	5,150	0	0	5,150	+5,150
L-853, 200E Sewer Flow Equalization (DFLAW High Priority) <sup>a</sup>	0	0	0	0	0
L-854, 200E Sewer Consolidations (DFLAW High Priority) <sup>a</sup>	0	0	0	0	0
L-888, 400 Area Fire Station <sup>a</sup>	1,469	0	0	1,469	+1,469
L-894, Raw Water Cross Connection Isolation 200E/W <sup>a</sup>	0	0	0	0	0
<b>Environmental Management/ Richland</b>	<b>256</b>				

	<b>Total</b>	<b>Prior Years</b>	<b>FY 2017 Enacted</b>	<b>FY 2019 Request</b>	<b>FY 2019 Request vs FY 2017 Enacted</b>
L-895, Fire Protection Infrastructure for Plateau Raw Water <sup>a</sup>	0	0	0	0	0
L-897, 200 Area Water Treatment Plant <sup>a</sup>	6,294	0	0	6,294	+6,294
L-898, Area Mission Critical Distribution Feeders Replacement	582	0	0	582	+582
<b>Total, Richland</b>	<b>15,172</b>	<b>0</b>	<b>0</b>	<b>15,172</b>	<b>+15,172</b>
<hr/>					
<b>Total, Plant Projects (GPP and IGPP) (Total Estimated (TEC) &lt;\$10M</b>	<b>15,172</b>	<b>0</b>	<b>0</b>	<b>15,172</b>	<b>+15,172</b>
<hr/>					
<b>Total, Capital Summary</b>	<b>15,172</b>	<b>0</b>	<b>0</b>	<b>15,172</b>	<b>+15,172</b>

<sup>a</sup>These capital investments represent expenditures that may be accelerated to FY 2018 based on emerging or identified risks.

**Richland  
Construction Projects Summary (\$K)**

Total	Prior Years	FY 2017 Enacted	FY 2019 Request	FY 2019 Request vs FY 2017 Enacted
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**18-D-404, Modifications of Waste Encapsulation and Storage Facility  
(RL-0013C)**

Total Estimate Cost (TEC)	TBD	0	0	1,000	+1,000
Other Project Costs (OPC)	TBD	0	0	0	0
<b>Total Project Cost (TPC) 18-D-404</b>	<b>TBD</b>	<b>0</b>	<b>0</b>	<b>1,000</b>	<b>+1,000</b>



**18-D-404, Modification of Waste Encapsulation and Storage Facility  
Hanford, Richland, WA  
Project is for Design and Construction**

**1. Summary, Significant Changes, and Schedule and Cost History**

**Summary**

The FY 2019 Request for the Modification of Waste Encapsulation and Storage Facility is \$1,000,000.

The scope for this project change was approved on March 17, 2017 with a Total Project Cost of \$41,500,000. This was a refinement from the programmatic CD-0 approved on November 5, 2015, which reflected a preliminary cost range or \$93,000,000 to \$150,000,000.

**Significant Changes**

This Construction Project Data Sheet is an update of the FY 2018 Construction Project Data Sheet and does not include a new start for the budget year.

Line-Item funding is being requested for Waste Encapsulation and Storage Facility modifications to facilitate the radioactive cesium/strontium (Cs/Sr) capsule transfer system. This Construction Project Data Sheet is an updated submittal for the Design and construction funding required for Waste Encapsulation and Storage Facility modifications.

A Federal Project Director at the appropriate level has been assigned to this project and the Federal Project Director has approved this Construction Project Data Sheet.

**Critical Milestone History**

Fiscal Quarter or Date

Fiscal Year (FY)	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	Fisca-3	CD-4	D&D Complete
FY 2018 Request	11/5/2015	3QFY2017	4QFY2018	TBD	TBD	TBD	TBD	N/A
FY 2019 Request	11/5/2015	4QFY2017	2QFY2018	TBD	TBD	TBD	TBD	N/A

- CD-0 –Mission Need approved
- CD-1 – Approve Alternative Selection and Cost Range. CD-1 Submittal 4Q FY2017.
- CD-2 – Approve Performance Baseline. CD-2 Submittal 4Q FY2018.
- CD-3 – Approve Start of Construction. CD-3 Submittal 4Q FY2018.
- CD-4 – Approve Start of Operations (Ready to transfer capsules out of WESF pool cells)
- D&D Start – Start of Decommissioning and Decontamination (D&D) work
- D&D Complete – Completion of D&D work

**Project Cost History**

(Dollars in Thousands)

	TEC, Design	TEC, Construction	TEC, Total	OPC Except D&D	OPC, D&D	OPC, Total	TPC
FY 2018 Request	TBD	TBD	TBD	TBD	TBD	TBD	TBD
FY 2019 Request	7,500	TBD	TBD	TBD	TBD	TBD	TBD

**2. Project Scope and Justification**

**Scope**

The scope of the Management of the Cesium and Strontium Capsules Program includes the activities required to achieve safe, compliant, and cost-effective interim dry storage of the 1,936 cesium and strontium capsules currently stored at the Waste Encapsulation and Storage Facility. The Waste Encapsulation and Storage Facility cannot provide a continued capability to manage the capsules for an extended period of time. This Line-Item construction supports the mission need by equipping the Waste Encapsulation and Storage Facility to remove the capsules.

The scope of the Waste Encapsulation and Storage Facility modifications line item (part of the Management of the Cesium and Strontium Capsules Program) includes the following activities to support interim dry storage of the capsules currently stored at the Waste Encapsulation and Storage Facility:

- Design and completion of modifications necessary to support capsule retrieval, packaging, and transfer of capsules from the Waste Encapsulation and Storage Facility.
- Project and construction management, preparation of any required regulatory documents/permits and safety analyses, testing and system startup.

**Justification**

Currently, the cesium and strontium capsules are stored underwater at the Waste Encapsulation and Storage Facility in pools (cells) of water. The Waste Encapsulation and Storage Facility has exceeded its design life and lengthening the period of exposure of the pool cell structure to radiation increases the risk that the pool cells structure will degrade and eventually become unsuitable for containing the water that is currently needed for shielding, cooling, and for preventing a release of radioactive material. The Hanford site workers and public health and safety could be at a significant risk if a beyond design basis accident resulted in a loss of pool cell water at the Waste Encapsulation and Storage Facility. The Fukushima Daiichi event in Japan has raised concerns regarding the effects to the aging Waste Encapsulation and Storage Facility in the unlikely event a beyond design basis accident were to occur. The Office of the Inspector General in 2014 noted that DOE’s Office of Environmental Management considers the Waste Encapsulation and Storage Facility its largest “beyond design threat” facility, and has recommended that DOE “expeditiously proceed with its plans to pursue a dry storage alternative to support transfer of the capsules out of the Waste Encapsulation and Storage Facility at the earliest possible timeframe.” The Office of the Inspector General also noted that each year Richland delays moving the capsules into dry storage, it misses an opportunity to realize cost savings of about \$6,200,000 per year, based on the difference in costs to operate “wet” and “dry” storage systems.

This project is being conducted in accordance with project management requirements in Doe O 413.3B, Program and Project Management for the Acquisition of Capital Assets. The modifications are needed in order to remove the capsules from the Waste Encapsulation and Storage Facility pools for safety reasons.

Key Performance Parameters (KPPs)

The Threshold KPPs, represent the acceptable performance that the project must achieve. Achievement of the Threshold KPPs will be a prerequisite for approval of CD-4, Project Completion. The Objective KPPs represent the desired project performance.

Performance Measure	Threshold	Objective
Modify the WESF to allow for the installation and operation of a CSS [Cask Storage System].	<ul style="list-style-type: none"><li>• WESF modifications have been completed.</li><li>• Cask storage system (CSS) handling equipment has been installed and has completed acceptance testing,</li><li>• Complete readiness testing.</li></ul>	This KPP is considered complete when readiness activities and testing are complete.

### 3. Project Cost and Schedule

#### Financial Schedule

(Dollars in Thousands)

	Budget Authority (Appropriations)	Obligations	Costs
<b>Total Estimated Cost (TEC)</b>			
Design			
FY 2018	N/A	N/A	6,500
FY 2019	N/A	N/A	1,000
Total, Design	N/A	N/A	7,500
Construction			
Outyears	N/A	N/A	TBD
Total, Construction	N/A	N/A	TBD
TEC			
FY 2018	6,500	6,500	6,500
FY 2019	1,000	1,000	1,000
Outyears	TBD	TBD	TBD
Total, TEC	TBD	TBD	TBD
<b>Other Project Cost (OPC)</b>			
OPC			
FY 2017	2,000	2,000	2,000
FY 2018	500	500	500
FY 2019	0	0	0
Outyears	TBD	TBD	TBD
Total, OPC	TBD	TBD	TBD
<b>Total Project Cost (TPC)</b>			
TPC			
FY 2017	2,000	2,000	2,000
FY 2018	7,000	7,000	7,000
FY 2019	1,000	1,000	1,000
Outyears	TBD	TBD	TBD
Total, OPC	TBD	TBD	TBD

**Details of Project Cost Estimate**

(Dollars in Thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design			
Design	6,500	TBD	N/A
Contingency	1,000	TBD	N/A
Total, Design	7,500	TBD	N/A
Construction			
Equip/Construction	TBD	TBD	N/A
Contingency	TBD	TBD	N/A
Total, Construction	TBD	TBD	N/A
Total, TEC	TBD	TBD	N/A
Contingency, TEC	TBD	TBD	N/A
Other Project Cost (OPC)			
OPC except D&D			
Conceptual Design	TBD	TBD	N/A
Support	TBD	TBD	N/A
Contingency	TBD	TBD	N/A
Total, OPC	TBD	TBD	N/A
Contingency, OPC	TBD	TBD	N/A
Total, TPC	TBD	TBD	N/A
Total Contingency	TBD	TBD	N/A

**Schedule of Appropriation Requests**

(Dollars in Thousands)

		Prior Years	FY2017	FY2018	FY2019	Outyears	Total
FY 2018 Request	TEC	0	0	6,500		TBD	TBD
	OPC	0	2,000	500		TBD	TBD
	TPC	0	2,000	7,000		TBD	TBD
FY 2019 Request	TEC	0	0	6,500	1,000	TBD	TBD
	OPC	0	2,000	500	0	TBD	TBD
	TPC	0	2,000	7,000	1,000	TBD	TBD

#### 4. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy (fiscal quarter or date) FY 2023  
 Expected Useful Life (number of years) 2 years  
 Expected Future Start of D&D of this capital asset (fiscal quarter) FY 2028

None is included in Line Item request.

#### Related Funding Requirements

(Dollars in Thousands)

	Annual Costs		Life Cycle Costs (based on 35 year period)	
	Current Total Estimate	Previous Total Estimate	Current Total Estimate	Previous Total Estimate
Storage Operations	TBD	TBD	TBD	TBD
Utilities	TBD	TBD	TBD	TBD
<u>Maintenance &amp; Repair</u>	TBD	TBD	TBD	TBD
<b>Total</b>	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>

#### 5. D&D Information

There is no new area being constructed in this construction project.

The location of this construction project is an environmental management closure site and, therefore, is exempt from the "one-for-one" requirement.

#### 6. Acquisition Approach

To complete this project safely and in the most cost effective manner, DOE will direct the existing plateau remediation prime contractor to perform and manage this work. This approach makes the best use of site expertise and efficiently uses the existing contract. Continuity of design will be ensured by making a provision in the new plateau clean-up contract for assignment of the scope, regardless of the timing of a contract turnover.

The plateau remediation contractor organization will serve as the Design Authority responsible for establishing the design requirements and ensuring that design output documents accurately reflect the design basis. The Design Authority is responsible for design control and ultimate technical adequacy of the design process. These responsibilities are applicable whether the process is conducted fully in-house, partially contracted to outside organizations, or fully contracted to outside organizations. The Design Authority will carefully control and monitor each design tier to ensure the design inputs, design constraints, design analysis and calculations, and design requirements are identified, accurate, complete, and documented.

Subcontracts will be competitively awarded by the plateau remediation contractor for multiple work scopes (e.g., pad construction, Waste Encapsulation and Storage Facility modifications) to provide best value to the government. Various subcontractors will be used for support services such as technology development, permitting, and safety documentation. Subcontracting strategies for these services are to be determined based on the circumstances and work scope of each critical decision.

## River Protection

### Overview

The Office of River Protection will manage the cleanup of radioactive and chemical waste resulting from the Manhattan Project and Cold War activities. The mission of the Department's Office of River Protection is to retrieve waste from the past production of nuclear materials stored in the underground tank farms at the Hanford Site, treat waste to standards that are protective of human health and the environment, prepare waste for permanent disposal, close the tanks, and decommission the treatment facilities.

The Hanford Site was established during World War II to produce plutonium for the nation's nuclear weapons. The Hanford mission is now primarily site cleanup and environmental restoration. The 586-square-mile Hanford Site is located along the Columbia River in southeastern Washington State and is home to the world's first plutonium production complex. Beginning with the Manhattan Project and throughout the Cold War, Hanford played a pivotal role in providing nuclear materials for the nation's defense program. However, more than 40 years of plutonium production also yielded a challenging nuclear waste legacy—approximately 56,000,000 gallons of radioactive and chemical waste stored in 177 underground tanks (grouped into tank farms), 17 of which have completed waste retrieval and are transitioning to closure, located on Hanford's Central Plateau, 7 miles from the Columbia River. Hanford tanks contain a complex and diverse mix of radioactive and chemical waste in the form of sludge, salts and liquids, necessitating a variety of unique waste retrieval and treatment capabilities. While the radioactive nature of the waste—with 176 million curies—requires remote-operated equipment and shielded facilities for the high-level waste, the uncertainty and diversity of the physical and chemical properties of the 56,000,000 gallons of waste make the mission uniquely complex.

The Department is working to construct and operate the treatment facilities and infrastructure to safely immobilize and dispose of Hanford's tank waste. As planned, the Waste Treatment and Immobilization Plant at Hanford will include five facilities: (1) Analytical Laboratory; (2) Balance of Facilities; (3) Low-Activity Waste Facility; (4) High-Level Waste Facility; and (5) Pretreatment Facility. The construction of additional facilities to support the operation of plant is also planned. The original plan required waste to be processed through the Pretreatment Facility, where it would be separated into a low-activity waste stream to be vitrified in the Low-Activity Waste Facility and a high-level waste stream to be vitrified in the High-Level Waste Facility. The Analytical Laboratory and Balance of Facilities support these vitrification activities. Since significant technical issues are being resolved for the Pretreatment Facility, the Department is pursuing a strategy to focus on completion of the Low-Activity Waste Facility, Balance of Facilities and Analytical Laboratory, in addition to the work necessary to feed low-activity waste directly to the Low-Activity Waste Facility (instead of routing waste through the Pretreatment Facility – an approach called Direct Feed Low Activity Waste) to meet regulatory and legal milestones.

Pursuing the Direct Feed Low Activity Waste strategy allows DOE to address the most mobile tank waste (liquid) in the near term. As part of this approach, DOE identified the need to construct the Effluent Management Facility to manage the high volume of water generated while retrieving and treating low-activity waste for disposal. . As originally envisioned, this capability was going to be located in the Pretreatment Facility; however, with the restructuring of the project into one with a phased startup, this capability is needed prior to the completion of construction for the Pretreatment Facility, which has necessitated the construction of EMF under a different but existing control point 01-D-416A-D. The direct cost portion of EMF is estimated to be approximately \$371 million with planned completion in 3Q 2021. To commence the immobilization of waste as soon as practicable without waiting for completion of the Pretreatment and High-Level Waste facilities, the Department is pursuing a two-phased pretreatment strategy. A pretreatment capability using tank-side cesium removal equipment to provide initial feed by December 2023, per the 2016 Amended Consent Decree, and design of the Low-Activity Waste Pretreatment System to provide the low-activity waste stream to the Low-Activity Waste Facility for vitrification.

The cost of direct maintenance and repair activities at the Office of River Protection is estimated to be \$79,298,000.

## Highlights of the FY 2019 Budget Request

The Office of River Protection's FY 2019 budget request represents planned efforts for continued progress toward important cleanup required by the Consent Decree and Tri-Party Agreement. The Office of River Protection budget request is designed to maintain safe operations of the tank farms to protect workers, the public and environment; meet regulatory commitments; and enable the development and maintenance of infrastructure necessary to enable waste treatment operations.

The FY 2019 request includes funding for two line-item projects: 1) 01-D-416, the Waste Treatment and Immobilization Plant (\$690,000,000) and 2) 15-D-409, the Low Activity Waste Pretreatment System (\$56,053,000). The mission of the Waste Treatment and Immobilization Plant project is to construct a treatment facility to blend waste from the tank farms with molten glass and pour it into stainless steel canisters suitable for long-term storage of high-level waste and disposal of low-level waste. Along with the Low Activity Waste Pretreatment System, the Department is pursuing a complementary pretreatment technique using tank-side cesium removal equipment to provide initial feed to support hot startup of the Low Activity Waste facility by December 31, 2023, per the 2016 Amended Consent Decree.

## Regulatory Framework

The U. S. Department of Energy, the U. S. Environmental Protection Agency, and the State of Washington Department of Ecology signed a comprehensive cleanup and compliance agreement on May 15, 1989. This agreement, the Hanford Federal Facility Agreement and Consent Order, or Tri-Party Agreement, is an agreement for achieving compliance with the Comprehensive Environmental Response, Compensation, and Liability Act remedial action provisions and with the Resource Conservation and Recovery Act treatment, storage, and disposal unit regulations and corrective action provisions, subject to DOE's Atomic Energy Act authority. It is a framework for implementing many of the environmental regulations that apply to Hanford. More specifically, the Tri-Party Agreement includes but is not limited to: (1) cleanup commitments, and (2) enforceable milestones to achieve regulatory compliance and remediation.

In addition, the Office of River Protection's activities must also comply with a federal court Consent Decree that addresses designated Waste Treatment and Immobilization Plant construction and startup activities and retrieval of specified single-shell tanks. This decree was entered into court on October 25, 2010 in the case of State of Washington and Oregon v. United States Department of Energy, No. 08-5085 (E.D. Wash.). DOE provided notice to the states over time that serious risk had arisen that DOE may be unable to meet several Consent Decree milestones. Although DOE and the Washington State Department of Ecology attempted both informal and formal dispute resolution negotiations, these attempts were unsuccessful. After lengthy contested litigation, the Court issued an Amended Consent Decree on March 11, 2016; the Court issued a Second Amended Consent Decree on April 12, 2016, after the parties agreed to modify certain provisions of the Amended Consent Decree.

On December 5, 2016, DOE notified the State that a serious risk has arisen that DOE may be unable to meet Interim Waste Retrieval Milestones B-2 and B-3 of the Amended Consent Decree. DOE's ability to achieve these milestones has been adversely impacted by the expanded and extended use by the workforce of supplied air within all tank farms because of alleged exposures to chemical vapors; this has significantly reduced tank farms worker efficiencies by 30 to 70 percent and slowed work activities in the tank farms. In separate filings, the Washington State Attorney General, and an activist group, Hanford Challenge, along with the United Association of Local Pipefitters and Steamfitters No. 598 also filed suit against DOE and its tank farm contractor, Washington River Protection Solutions, LLC. over vapor concerns. The parties to that litigation are undergoing mediation.

## Contractual Framework

Program planning and management at the Office of River Protection is conducted through the issuance and execution of contracts to large and small businesses. The Office of River Protection develops near- and long-term planning approaches in order to develop contract strategies and program/project plans at a more detailed level. Selected contractors then execute these plans to complete cleanup in accordance with the terms of the contracts.



The Office of River Protection is currently in the acquisition process to solicit and award a follow-on contract for the safe operation of nuclear facilities associated with high-level tank waste storage, treatment and disposal. Specific activities include: management and maintenance of 177 high-level waste tanks, tank waste retrieval, construction of the Low-Activity Waste Pretreatment System, delivery of feed and operations of the Waste Treatment Plant in the Direct Feed Low-Activity Waste configuration. The Waste Treatment Plant operations includes the integrated operation of multiple facilities including the Low-Activity Waste Facility, Analytical Laboratory, Effluent Management Facility, and Balance of Facility (supporting buildings and utilities).

Current contracts at the site include:

- Bechtel National, Inc., for coordinating the construction of Hanford's Waste Treatment and Immobilization Plant for the period 12/11/00 - 08/31/2023 (interim date). It is a cost-plus-award-fee completion contract.
- Washington River Protection Solutions, LLC, for safely managing the 56 million gallons of radioactive tank waste until it is prepared for disposal. The contract covers the period from 05/29/08 - 09/30/13, with option period one 10/1/13 - 09/30/16 and option period two 10/1/16 - 09/30/18. The Department has exercised both option periods. It is a cost-plus-award-fee term contract.
- Wastren Advantage, Incorporated to provide analytical testing and services required to operate the 222-S Laboratory that is responsible for the analysis of highly radioactive waste samples in support of all the Hanford projects. The estimated period of performance for the contract is 9/25/2015 – 9/24/2020, consisting of one 2-year base period and three 1-year option periods. It is a fixed price award fee contract.

### **Strategic Management**

To maximize near-term risk reduction and leverage Waste Treatment and Immobilization Plant facilities as they are completed, the Department is implementing a strategy to complete the Waste Treatment and Immobilization Plant in phases. DOE is currently advancing the completion of the design, procurement and construction of the Low-Activity Waste Facility, along with Balance of Facilities and Analytical Laboratory necessary for the Direct Feed Low Activity Waste approach. DOE expects construction of these facilities to be physically complete, with the exception of the Effluent Management Facility, during FY 2018 with startup and commissioning activities continuing.

The operations costs of the Low-Activity Waste Facility, the Analytical Laboratory, and the majority of the Balance of Facilities are captured in a new control element that began in FY 2016. The element captures activities supporting operations of Low-Activity Waste Facility, the Analytical Laboratory and the Balance of Facilities post-project completion (Critical Decision-4).

The first phase of Waste Treatment and Immobilization Plant operations for the direct feed of the Low-Activity Waste Facility will vitrify low-activity tank wastes. Work will continue to define long lead consumables and spare parts required to continue operations upon completion of hot commissioning. Once defined and taking into account the lead time, acquisitions and storage of long lead consumables and spare parts will be initiated. The remaining Waste Treatment and Immobilization Plant facilities, the High-Level Waste Facility and the Pretreatment Facility, will be isolated from the operational facilities and will continue preservation maintenance activities.

**River Protection  
Funding (\$K)**

	<b>FY 2017 Enacted</b>	<b>FY 2018 Annualized CR*</b>	<b>FY 2019 Request</b>	<b>FY 2019 Request vs FY 2017 Enacted</b>
<b>Defense Environmental Cleanup</b>				
<b>Office of River Protection</b>				
<b>Tank Farm Activities</b>				
ORP-0014 / Radioactive Liquid Tank Waste Stabilization and Disposition	806,965	801,485	733,513	-73,452
<b>Waste Treatment and Immobilization Plant</b>				
ORP-0060 / Major Construction-Waste Treatment Plant	690,000	685,314	690,000	0
ORP-0070 / Waste Treatment Plant Operations	3,000	2,980	15,000	+12,000
<b>Subtotal, Waste Treatment and Immobilization Plant</b>	<b>693,000</b>	<b>688,294</b>	<b>705,000</b>	<b>+12,000</b>
<b>Total, Office of River Protection</b>	<b>1,499,965</b>	<b>1,489,779</b>	<b>1,438,513</b>	<b>-61,452</b>

\*A full-year 2018 appropriation for this account was not enacted at the time the budget was prepared; therefore, the budget assumes this account is operating under the Continuing Appropriations Act, 2018 (Division D of P.L. 115-56, as amended). The amounts included for 2018 reflect the annualized level provided by the continuing resolution. (These amounts are shown only at the Congressional control level and above; below that level, a dash (—) is shown).

**River Protection**  
**Explanation of Major Changes (\$K)**

<b>FY 2019 Request vs  FY 2017 Enacted</b>
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**Defense Environmental Cleanup**

**Office of River Protection**

**Tank Farm Activities**

**ORP-0014 / Radioactive Liquid Tank Waste Stabilization and Disposition**

- The decrease reflects the reduction in cost of the design activities for the Low Activity Waste Pretreatment System, as the Department pursues a two-phased pretreatment strategy involving a complementary pretreatment technique using a tank-side cesium removal system to provide initial feed to support hot start-up by December 31, 2023, per the 2016 Amended Consent Decree, and an optimized facility with significantly higher cesium loading pretreatment capability for more efficient operations to deliver long-term Low Activity Waste vitrification feed.

-73,452

**Waste Treatment and Immobilization Plant**

**ORP-0060 / Major Construction-Waste Treatment Plant**

- No change. Project continues to progress from construction to startup and commissioning for facilities supporting the immobilization of low-activity waste.

0

**ORP-0070 / Waste Treatment Plant Operations**

- The increase reflects the procurement of long lead consumables and spare parts required to support continued operation of the Waste Treatment and Immobilization Plant's Low-Activity Waste Facility, Analytical Laboratory, and Balance of Facilities following completion of hot commissioning activities.

+12,000

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**Total, River Protection**

**-61,452**

**Radioactive Liquid Tank Waste Stabilization and Disposition (ORP-0014)**

**Overview**

This PBS can be found within the Defense Environmental Cleanup appropriation.

This project includes activities required to stabilize approximately 56,000,000 gallons of radioactive waste stored underground in 177 tanks, including retrieval, treatment, and disposal. Up to 67 tanks are assumed to have leaked a total of about 1,000,000 gallons of waste into the soil. Ultimately, the majority of the waste must be processed to a form suitable for disposal.

This PBS includes planning, design, and construction of the Low-Activity Waste Pretreatment System project as well as a pretreatment technique using tank-side cesium removal equipment to provide initial feed to support the start-up by December 31, 2023, per the 2016 Amended Consent Decree. The Low-Activity Waste Pretreatment System will remove cesium to produce a low-activity waste feed stream which meets the waste acceptance criteria of the Waste Treatment and Immobilization Plant Low-Activity Waste Facility.

This project also includes General Plant Projects as well as direct maintenance and repair that are applicable to these areas.

**Radioactive Liquid Tank Waste Stabilization and Disposition (PBS: ORP-0014)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$806,965	\$733,513	-\$73,452
<ul style="list-style-type: none"> <li>Maintained Tank Farms in a safe and compliant manner.</li> <li>Continued 222-S Laboratory operations.</li> <li>Continued 242-A Evaporator campaigns.</li> <li>Continue 242-A Evaporator operations and maintenance.</li> <li>Continued Effluent Treatment Facility operations and upgrades.</li> <li>Conducted Single-Shell/Double-Shell Tank Integrity assessments.</li> <li>Continued tank farms preventive/corrective</li> </ul>	<ul style="list-style-type: none"> <li>Maintain Tank Farms in a safe and compliant manner.</li> <li>Continue 222-S Laboratory operations.</li> <li>Continue 242-A Evaporator campaigns.</li> <li>Continue 242-A Evaporator operations and maintenance.</li> <li>Continue Effluent Treatment Facility operations and upgrades.</li> <li>Conduct Single-Shell/Double-Shell Tank Integrity assessments.</li> <li>Continue tank farms preventive/corrective</li> </ul>	<ul style="list-style-type: none"> <li>The decrease reflects the reduction in cost of the design activities for the Low Activity Waste Pretreatment System, as the Department pursues a two-phased pretreatment strategy involving a complementary pretreatment technique using a tank-side cesium removal system to provide initial feed to support hot start-up by December 31, 2023, per the 2016 Amended Consent Decree, and an optimized facility with significantly higher cesium</li> </ul>

- maintenance activities.
- Continued activities for the Hanford Tank Vapor Assessment Report recommendations.
  - Completed retrieval of Double-Shell Tank AY-102.
  - Initiated construction activities of Single-Shell Tank in A/AX Farm.
  - Continued upgrades to Double-Shell Tank AP-107 to support feed to Low-Activity Waste Pretreatment System.
  - Completed Low-Activity Waste Pretreatment System Preliminary Design to a design maturity of 60%.
  - Completed Low-Activity Waste Pretreatment System engineering scale integrated testing.
  - Submitted Low-Activity Waste Pretreatment System permit modification requests to Washington State Department of Ecology

- maintenance activities.
- Continue retrieval of Single-Shell Tanks in A/AX Farm.
  - Continue upgrades to Double-Shell Tank AP-107 to support feed to Low-Activity Waste Pretreatment System.
  - Perform preparations for retrieval of Single-Shell Tanks in B and T Farms.
  - Continue Vapor Mitigation Strategies.
  - Continue design, permitting activities and procurements for tank side cesium removal equipment.
  - Complete Low Activity Waste Pretreatment System design.
  - Start long lead procurements.
  - Continue development of all permits required to initiate construction of the Low-Activity Waste Pretreatment System.
  - Complete site preparation for the Low-Activity Pretreatment System.

loading pretreatment capability for more efficient operations to deliver long-term Low Activity Waste vitrification feed.

**Major Construction-Waste Treatment Plant (PBS: ORP-0060)**

**Overview**

This PBS can be found within the Defense Environmental Cleanup appropriation.

The Waste Treatment and Immobilization Plant is critical to the completion of the Hanford tank waste program; it will provide the primary treatment capability to immobilize the radioactive tank waste at the Hanford Site. As presently planned, the Waste Treatment and Immobilization Plant complex will involve construction of five major facility complexes: Pretreatment Facility, High-Level Waste Facility, Low-Activity Waste Facility, Analytical Laboratory, and the Balance of Facilities. The Pretreatment Facility will separate the radioactive tank waste into low-activity and high-level fractions. The high-level fraction will be transferred to the High-Level Waste Facility for immobilization, ready for storage. The high-level vitrified waste form would be placed in storage. A significant portion of the low-activity waste fraction will be immobilized in the Low-Activity Waste Facility; DOE has not decided on the supplemental treatment technology to be used to immobilize the remaining low-level waste not treated in the Low Activity Waste Facility. The Analytical Laboratory will provide real-time analytical support for plant operations. The Balance of Facilities includes office facilities, chemical storage, site utilities, and infrastructure.

**Major Construction-Waste Treatment Plant (PBS: ORP-0060)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$690,000	\$690,000	\$0

**Low-Activity Waste Facility –**

Design Activities:

- Issued design completion lists for various systems including; Instrument Air System , Non-Radioactive Liquid Waste Disposal , Primary Offgas Process Sys 1 , Secondary Offgas/Vessel Vent Process
- Issued C1V thru C5V Phase 2B system design description
- Submitted Documented Safety Analysis to DOE for review/comment
- Provided Engineering Support for Documented Safety Analysis Development

Procurement Activities:

- Completed controls and instrumentation procurement

Construction Activities:

- Fire Detection - Completed fire alarm system test plan and testing
- Completed Electrical Ground Cable – All Elevation
- Low-Activity Waste - Melter #1 readied for startup
- Low-Activity Waste - Melter #2 readied for Startup
- Roofing and Siding - Subcontract completed
- Insulation - Heat Trace - Subcontract completed
- Fire Detection - Subcontract completed

Startup Activities:

- Continued procedure development and revisions

**Analytical Laboratory and Balance of Facilities –**

Design Activities:

- Analytical Laboratory:
  - o Developed the Technical Safety

**Low-Activity Waste Facility –**

Engineering Design Activities:

- Update documents for various systems including Low and Medium Voltage Electrical Systems, Melter Process System, C2 and C5 Ventilation, Chilled Water System, Plant Cooling Water System
- Continue engineering support to construction, Engineering & Nuclear Safety, and commissioning
- Support of the Documented Safety Analysis development

Procurement Activities:

- Deliver Shop and Maintenance Equipment
- Deliver Programmable Protection System Remote Alarms
- Deliver Programmable Protection System Hardware for the preliminary documented safety analysis
- Deliver Secondary Offgas Vessel Vent, Melter Feed Process Restriction Orifice and Offgas Vacuum Breaker

Construction Activities:

- Complete Special Protective Coatings Install Stack Discharge Instrumentation (post construction)
- Install Stack Discharge Monitoring Panels, Racks and Enclosures Elevation plus 48 feet
- Install Shop & Maintenance Equipment
- Install Programmable Protection System Racks
- Install Uninterruptible Power Electrical System Batteries Elevation plus 28 feet
- Install Scheduled Q Cable for Programmable Protection System and Uninterruptible Power Electrical System (Post Construction)

- No change. Project continues to progress from construction to startup and commissioning for facilities supporting the immobilization of low-activity waste.

- Requirements Document
  - o Prepared and issued DSA Update 1
- Balance Of Facilities:
  - o Issued Design Completion List Support for the Steam Plant Facility Low Voltage Electrical System
  - o Issued Design Completion List Support for the Steam Plant Facility Process Control System
  - o Issued Design Completion List Support for the Steam Plant Facility Communications Electrical System
  - o Issued Area Design Completion List Support for the Fuel Oil Facility

Procurement Activities:

- Analytical Laboratory:
  - o Completed Controls and Instrument Procurement
- Balance of Facilities:
  - o Received pressure relief valves
  - o Completed procurement

Construction Activities:

- Analytical Laboratory:
  - o Fire protection
- Balance of Facilities:
  - o Completed Construction of the Glass Former Storage
  - o Completed Construction of the Steam Plant Facility
  - o Completed Construction of the Chiller Compressor Plant
  - o Completed Construction of the Water Treatment Building

Startup Activities:

- Analytical Laboratory:
  - o Continued procedure development

Complete)

- Install Nitrogen Purge System for Shield Windows (All Elevations)

Startup Activities:

- Continue Component Testing on various Systems including C3 Ventilation, Melter Equipment Handling System, Fire Detection and Alarm System, Plant Cooling Water System
- Continue Support for Construction Turnover to Startup on Various Systems
- Continue Procedure Development

Commissioning Activities:

- Continue to Develop System Procedures
- Perform Initial Calibrations
- Develop and Conduct Training

**Balance of Facilities/Direct Feed Low-Activity Waste/Effluent Management Facility –**

Engineering Design Activities:

- Complete Effluent Management Facility Major System Design
- Complete Steam Software Design (including Communications Electrical, High Pressure Steam, Process Control, Ammonia Reagent) for Effluent Management Facility
- Complete Water Systems Integrated Control Network Software Design for Effluent Management Facility
- Complete Evaporator Integrated Control Network Software Design for Effluent Management Facility
- Perform Integrated Control Network Software Test for Effluent Management Facility – Steam and Condensate Systems,– Water Systems, and Evaporator Systems

Construction Activities:



and revisions

- Balance of Facilities:
  - Completed Electrical Distribution System Testing on Medium Voltage Electrical System (Site Energization)

#### **High-Level Waste Facility –**

Design Activities:

- Authorization for High-Level Waste procurement and construction consistent with the resolution of technical issues

Procurement Activities:

- Delivered RLD-VSL-0008 vessel (Plant Wash)

Construction Activities

- Completed civil build-out of walls at the 58' elevations and slabs at the plus 58' elevation

#### **Pretreatment Facility –**

Design Activities:

- Issued final pulse jet mixer control recommendation study
- Continued full scale vessel testing in the 16-foot vessel for design confirmation
- Finalized localized corrosion design basis
- Finalized the basis of design for the standard high solids vessel
- Updated the design concept study reflecting Pretreatment Facility optimization

Procurement Activities:

- Continued management of purchase orders still in suspension

Construction Activities:

- Continued preservation maintenance activities

- Begin turnover of Effluent Management Facility systems for startup testing
- Provide support to system startup testing
- Install HDPE Coated and Insulated Pipe
- Continue installation of Effluent Management Facility electrical commodities
- Continue installation of Embedded Conduit, Conduit & Tray, and Electrical Tie-Ins
- Complete Effluent Management Facility roof installation
- Install Platforms - Steel & Grating C3 and C5 Areas
- Perform Hydrotest of Effluent Management Facility piping
- Complete installation of major Effluent Management Facility tanks and equipment
- Backfill to Final Finish Grade

Startup Activities

- Support Construction Turnover to Startup – Effluent Management Facility systems, Glass Former Storage, and Anhydrous Ammonia Facility
- Component Testing – Glass Former Facility, Anhydrous Ammonia Facility, and Effluent Management Facility systems
- Draft, Review & Approve Test Procedures for - Glass Former Facility, Anhydrous Ammonia Facility, and Effluent Management Facility systems
- Startup System Testing for Glass Former Facility, Anhydrous Ammonia Facility, and Effluent Management Facility systems

Commissioning Activities

- Continue Operations Training
- Continue Facility Operations
- Continue Maintenance Training

- Continue Operation Support
- Continue Operations Procedures

**Analytical Laboratory –**

Engineering Activities:

- Finalize design for analytical equipment installation
- Engineering Support to Construction

Construction Activities:

- Provide support to system startup testing
- Install system isolations and modifications to support Direct Feed Low-Activity Waste

Startup Activities

- Startup System Turnover and Prep for Testing for C2, C3 & C5 Ventilation Systems
- Startup Component & System Testing - Autosampling System, Radioactive Liquid Waste Disposal System, Stack Discharge Monitoring System, Chilled Water System, Plant Service Air System, Demineralized Water System, Low Pressure Steam System, C1 Ventilation System

Commissioning

- Continue Procedures Development
- Continue Training Management & Program Support
- Continue Operations Training
- Continue Initial Calibrations
- Continue Preservation Maintenance
- Continue Maintenance Training
- Continue Preventative Maintenance and Corrective Maintenance

**High-Level Waste Facility (HLW) –**

Design Activities:

- Continue configuration management of design and procurement documents

Construction Activities:

- Continue facility preservation and maintenance activities

**Pretreatment Facility –**

Design Activities:

- Continue configuration management of design and procurement documents
- Complete any residual technical issue resolution

Construction Activities:

- Continue facility preservation and maintenance activities
-

**Waste Treatment Plant Operations (PBS: ORP-0070)**

**Overview**

This PBS can be found within the Defense Environmental Cleanup appropriation.

This PBS provides for the activities that are outside of the line item 01-D-416, Waste Treatment and Immobilization Plant, but are required to support the treatment of tank wastes in the plant including the implementation of the strategy of the Direct Feed Low-Activity Waste approach. This is the first phase of the Waste Treatment and Immobilization Plant operations. Includes the operational scope for the Low-Activity Waste Facility, the Analytical Laboratory, and Balance of Facilities starting with hot commissioning but after project completion (Critical Decision -4) for those facilities.

This PBS also includes the procurement of necessary spare parts and consumable commodities necessary to support operations.

**Waste Treatment Plant Operations (PBS: ORP-0070)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$3,000	\$15,000	+\$12,000
<ul style="list-style-type: none"> <li>Initiated Commissioning activities that are not currently included in the line item 01-D-416, Waste Treatment and Immobilization Plant, such as the procurement of parts, training, etc.</li> </ul>	<ul style="list-style-type: none"> <li>Continue commissioning activities that are not included in the line item 01-D-416, Waste Treatment and Immobilization Plant, such as the procurement of long lead consumables, spare parts, and facility transition planning, etc.</li> </ul>	<ul style="list-style-type: none"> <li>The increase reflects the procurement of long lead consumables and spare parts required to support continued operation of the Waste Treatment and Immobilization Plant's Low-Activity Waste Facility, Analytical Laboratory, and Balance of Facilities following completion of hot commissioning activities.</li> </ul>

Office of River Protection  
Capital Summary (\$K)

	Total	Prior Years	FY 2017 Enacted	FY 2019 Request	FY 2019 Request vs FY 2017 Enacted
<b>Capital Operating Expenses Summary (including (Major Items of Equipment (MIE))</b>					
Capital Equipment > \$500K (including MIE)	0	0	0	0	0
Plant Projects (GPP and IGPP) (<\$10M)	19,990	0	3,173	16,817	+13,644
<b>Total, Capital Operating Expenses</b>	<b>19,990</b>	<b>0</b>	<b>3,173</b>	<b>16,817</b>	<b>+13,644</b>
<b>Capital Equipment &gt; \$500K (including MIE)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Total, Capital Equipment (including MIE)</b>	<b>19,990</b>	<b>0</b>	<b>3,173</b>	<b>16,817</b>	<b>+13,644</b>
<b>Plant Projects (GPP and IGPP) (Total Estimated Cost (TEC) &lt;\$10M)</b>					
<u>River Protection</u>					
222-SL, 222SA Facility Replacement	3,337	0	0	3,337	+3,337
Install Exhausters in SY Farm	0	0	0	0	0
Design and Construct 222-S Archive Storage Facility	5,406	0	2,100	3,306	+1,206
Design and Construct 222-S Ancillary Equipment Addition	5,847	0	1,073	4,774	+3,701
Interim Barrier Installation (SX North)	5,400	0	0	5,400	+5,400
<b>Total, River Protection</b>	<b>19,990</b>	<b>0</b>	<b>3,173</b>	<b>16,817</b>	<b>+13,644</b>
<b>Total, Plant Projects (GPP and IGPP) (Total Estimated (TEC) &lt;\$10M)</b>	<b>19,990</b>	<b>0</b>	<b>3,173</b>	<b>16,817</b>	<b>+13,644</b>
<b>Total, Capital Summary</b>	<b>19,990</b>	<b>0</b>	<b>3,173</b>	<b>16,817</b>	<b>+13,644</b>

**Office of River Protection  
Construction Projects Summary (\$K)**

	<b>Total</b>	<b>Prior Years</b>	<b>FY 2017 Enacted</b>	<b>FY 2019 Request</b>	<b>FY 2019 Request vs FY 2017 Enacted</b>
<b>01-D-416, Waste Treatment and Immobilization Plant, Hanford WA</b>					
<i>01-D-16A-D WTP Subprojects A-D</i>					
Total Estimate Cost (TEC)	TBD	6,969,563	593,000	675,000	+82,000
Other Project Costs (OPC)	0	0	0	0	0
<i>01-D-16E Pretreatment Facility</i>					
Total Estimate Cost (TEC)	TBD	3,585,050	97,000	15,000	-82,000
Other Project Costs (OPC)	0	0	0	0	0
<b>Total Estimate Cost (TEC)</b>	<b>TBD</b>	<b>10,554,613</b>	<b>690,000</b>	<b>690,000</b>	<b>0</b>
<b>Other Project Costs (OPC)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Total Project Cost (TPC) 01-D-416</b>	<b>TBD</b>	<b>10,554,613</b>	<b>690,000</b>	<b>690,000</b>	<b>0</b>
<b>15-D-409, Low Activity Waste Pretreatment System (Hanford) (ORP-0014)</b>					
Total Estimate Cost (TEC)	TBD	98,000	73,000	56,053	-16,947
Other Project Costs (OPC)	TBD	10,057	200	0	-200
<b>Total Project Cost (TPC) 15-D-409</b>	<b>TBD</b>	<b>108,057</b>	<b>73,200</b>	<b>56,053</b>	<b>-17,147</b>

**01-D-416, Waste Treatment and Immobilization Plant  
Hanford, WA  
Project is for Construction**

**1. Summary, Significant Changes, and Schedule and Cost History**

**Summary**

The FY 2019 budget request for the Waste Treatment and Immobilization Plant is \$690,000,000.

Since significant technical issues are being resolved for the Pretreatment Facility, the Department is pursuing a strategy to focus on completion of the Low-Activity Waste Facility, Balance of Facilities, and Analytical Laboratory.

In 2013, DOE established the strategic framework for addressing the risks and challenges to completing the ORP mission as soon as practicable, which included an alternate approach to immobilizing the tank waste as soon as practicable through directly feeding low-activity waste, without waiting for completion of work to resolve the technical issues associated with the Pretreatment and High Level Waste Facilities.

On December 15, 2016, the Deputy Secretary approved the Direct Feed Low-Activity Waste approach, contract modification and Project Execution Plan, with hot operations (Critical Decision 4a) to commence not later than August 31, 2023. Subsequent to the approval the contract was modified to reflect the focus on Direct Feed Low-Activity Waste scope. The current strategy is to complete the rebaseline effort in phases, first to support Direct Feed Low-Activity Waste, and second to rebaseline the High-Level Waste and Pretreatment Facilities in the future. Upon completion of the rebaseline effort this construction project data sheet will be formally revised and submitted to Congress.

The Department continues construction, start-up testing and commissioning of the Low-Activity Waste Facility, Analytical Laboratory and Balance of Facilities. For the High-Level Waste and Pretreatment Facilities the Department continues limited activities in a manner that ensures the preservation and maintenance of the facilities, and associated equipment, components, and material to facilitate successful future ramp-up of design, procurement and construction activities. The Department remains focused on meeting the milestones contained in the Court's March 16, 2016, Amended Consent Decree, particularly the near-term December 31, 2023, Low-Activity Waste facility hot commissioning complete milestone.

**Significant Changes**

This project was initiated in FY 2001. This Construction Project Data Sheet is an update of the FY 2018 Construction Project Data Sheet.

The most recent Department of Energy Order 413.3B approved Critical Decision is Critical Decision -3 which was approved on April 21, 2003.

A Federal Project Director has been assigned to this project.

Because of the technical, safety, quality, management, and issues the Department has identified that the completion of the Waste Treatment and Immobilization Plant Project will exceed the currently approved Total Project Cost and the project completion date. As a result, this data sheet represents the forecasted funding needs for FY 2019 subsequent funding year needs are yet to be determined.

**Critical Milestone History**

	Fiscal Quarter or Date						
	CD-0	CD-1	CD-2	Final Design Complete	CD-3	D&D Complete	CD-4
FY 2001	SEP 1995	SEP 1996	AUG 1998	4Q FY2005	OCT 2001	N/A	1Q FY2007
FY 2002	SEP 1995	SEP 1996	4Q FY1998	4Q FY2005	MAY 2002	N/A	1Q FY2007
FY 2003	SEP 1995	SEP 1996	4Q FY1998	4Q FY2005	MAY 2002	N/A	1Q FY2007
FY 2004	SEP 1995	SEP 1996	4Q FY1998	4Q FY2005	MAY 2002	N/A	1Q FY2007
FY 2003	SEP 1995	SEP 1996	04/21/2003	4Q FY2005	04/21/2003	N/A	3Q FY2008
Congressional Notification							
FY 2005	SEP 1995	SEP 1996	04/21/2003	4Q FY2005	04/21/2003	N/A	3Q FY2008
FY 2004	SEP 1995	SEP 1996	04/21/2003	4Q FY2005	04/21/2003	N/A	3Q FY2008
Reprogramming							
FY 2006	SEP 1995	SEP 1996	04/21/2003	4Q FY2007	04/21/2003	N/A	3Q FY2008
FY 2007	SEP 1995	SEP 1996	04/21/2003	4Q FY2007	04/21/2003	N/A	3Q FY2008
FY 2008	SEP 1995	SEP 1996	04/21/2003	4Q FY2010	04/21/2003	N/A	2Q FY2017
FY 2009	SEP 1995	SEP 1996	04/21/2003	4Q FY2013	04/21/2003	N/A	1Q FY2020
FY 2010	SEP 1995	SEP 1996	04/21/2003	1Q FY2016	04/21/2003	N/A	1Q FY2020
FY 2011	SEP 1995	SEP 1996	04/21/2003	1Q FY2016	04/21/2003	N/A	1Q FY2020
FY 2012	SEP 1995	SEP 1996	04/21/2003	1Q FY2016	04/21/2003	N/A	1Q FY2020
FY 2013	SEP 1995	SEP 1996	04/21/2003	1Q FY2016	04/21/2003	N/A	1Q FY2020
FY 2014	SEP 1995	SEP 1996	04/21/2003	1Q FY2016	04/21/2003	N/A	1Q FY2020
FY 2013	SEP 1995	SEP 1996	04/21/2003	1Q FY 2016	04/21/2003	N/A	1Q FY 2020
Reprogramming							
FY 2015	SEP 1995	SEP 1996	04/21/2003	1Q FY2016	04/21/2003	N/A	1Q FY2020
FY 2016	SEP 1995	SEP 1996	04/21/2003	1Q FY2016	04/21/2003	N/A	TBD
FY 2017	SEP 1995	SEP 1996	04/21/2003	1Q FY2016	04/21/2003	N/A	TBD
FY 2018	SEP 1995	SEP 1996	04/21/2003	TBD	04/21/2003	N/A	TBD
FY 2019	SEP 1995	SEP 1996	04/21/2003	TBD	04/21/2003	N/A	TBD

**CD-0** – Approve Mission Need

**Conceptual Design Complete** – Actual date the conceptual design was completed (if applicable)

**CD-1** – Approve Alternative Selection and Cost Range

**CD-2** – Approve Performance Baseline

**Final Design Complete** – Estimated/Actual date the project design will be/was completed

**CD-3** – Approve Start of Construction

**D&D Complete** – Completion of D&D work

**CD-4** – Approve Start of Operations or Project Completion

**PB** – Indicates the Performance Baseline



**Project Cost History**

(Dollars in Thousands)

	TEC, Design	TEC, Construction	TEC, Total	OPC Except D&D	OPC, D&D	OPC, Total	Total Project Cost
FY 2001	0	5,466,000	5,466,000	7,022,000	0	7,022,000	12,488,000
FY 2002	0	4,350,000	4,350,000	0	0	0	4,350,000
FY 2003	0	4,350,000	4,350,000	0	0	0	4,350,000
FY 2004	0	4,350,000	4,350,000	0	0	0	4,350,000
FY 2003 Cong. Notification	0	5,781,000	5,781,000	0	0	0	5,781,000
FY 2005	0	5,781,000	5,781,000	0	0	0	5,781,000
FY 2006	0	5,781,000	5,781,000	0	0	0	5,781,000
FY 2007	0	5,781,000	5,781,000	0	0	0	5,781,000
FY 2008	0	12,263,000	12,263,000	0	0	0	12,263,000
FY 2009	0	12,263,000	12,263,000	0	0	0	12,263,000
FY 2010	0	12,263,000	12,263,000	0	0	0	12,263,000
FY 2011	0	12,263,000	12,263,000	0	0	0	12,263,000
FY 2012	0	12,263,000	12,263,000	0	0	0	12,263,000
FY 2013	0	12,263,000	12,263,000	0	0	0	12,263,000
FY 2014	0	12,263,000	12,263,000	0	0	0	12,263,000
FY 2013	0	12,263,000	12,263,000	0	0	0	12,263,000
Reprogramming							
FY 2015	0	12,263,000	12,263,000	0	0	0	12,263,000
FY 2016	0	12,263,000	12,263,000	0	0	0	12,263,000
FY 2017	0	12,263,000	12,263,000	0	0	0	12,263,000
FY 2018	0	12,263,000	12,263,000	0	0	0	12,263,000
FY 2019	0	TBD	TBD	0	0	0	TBD

The FY 2001 Budget Request presented the contract value using a privatization approach for this project. The contract included design, construction, and commissioning (at a Total Estimated Cost of \$5,466,000,000), and ten years of initial operations for a Total Project Cost of \$12,488,000,000. In May 2000, the Secretary of Energy terminated the privatization contract, because of the dramatic cost increase submitted by the contractor to complete the project.

In December 2002, the Department awarded a Cost-Plus Incentive-Fee contract estimated at \$4,350,000,000 to design, construct and commission the Waste Treatment and Immobilization Plant. In April 2003, a contract modification was negotiated with the principal change of increasing the through-put capacity of the Pretreatment and High-Level Waste Facilities, with the goal of pretreating all retrieved waste during the 40 year life of the facility, immobilizing all high-level fraction and at least 40 percent of the low-activity fraction. The Department approved a Performance Baseline for this scope with a Total Project Cost of \$5,781,000,000. In December 2006, due to over-optimistic cost estimates, and seismic and technical issues, the Department approved a new Performance Baseline with a revised Total Project Cost of \$12,263,000,000.

On December 15, 2016, the Deputy Secretary approved the Direct Feed Low-Activity Waste approach, contract modification and Project Execution Plan, with operations to commence not later than August 31, 2023, was approved by the Deputy Secretary. The current strategy is to complete the rebaseline effort in phases, first to support Direct Feed Low-Activity Waste, and second to rebaseline the High-Level Waste and Pretreatment Facilities in the future. Upon completion of the rebaseline effort this construction project data sheet will be formally revised and submitted to Congress.

## **2. Project Scope and Justification**

### **Scope**

The Waste Treatment and Immobilization Plant covers 65 acres and includes three major nuclear facilities - Pretreatment Facility, High-Level Waste Facility, and Low-Activity Waste Facility - along with an Analytical Laboratory and supporting buildings and utilities collectively known as the Balance of Facilities. The Low-Activity Waste Facility will immobilize, through vitrification, a substantial portion of the low-activity fraction. The Department has adopted a strategy to provide direct feed to the Low Activity Waste Facility to support hot start-up by the 2016 Amended Consent Decree milestone date of December 31, 2023.

As currently designed, the Pretreatment Facility will accomplish the separation of the wastes into low activity and high activity waste fractions. The High-Level Waste Facility will immobilize, through vitrification, the high-level fraction. The Waste Treatment and Immobilization Plant Key Project Performance Parameters for the Low-Activity Waste facility are a minimum treatment capacity of 18 metric tons of glass per day and the High-Level Waste facility are a minimum treatment capacity of 3.6 metric tons per day (average daily throughput for both facilities). The Analytical Laboratory Facility will provide the necessary sample analysis needed throughout the processing facilities. The Balance of Facilities includes the plant infrastructure and support facilities (steam plant, electrical switch yards, chiller plant, etc.).

### **Justification**

The Waste Treatment and Immobilization Plant is the cornerstone of the Office of River Protection mission to treat for disposition the radioactive waste contained in underground storage tanks at the Hanford Site in southeastern Washington State. Approximately 56,000,000 gallons of waste containing approximately 240,000 metric tons of processed chemicals and approximately 176,000,000 curies of radionuclides are currently stored in 177 tanks (retrieval has been completed in seventeen tanks). These wastes are in the form of liquids, slurries, saltcake, and sludge, and are the result of more than four decades, starting in 1944, of reactor operations and plutonium production for national defense.

The Department's Waste Treatment and Immobilization Plant project is to design, build, and commission the waste treatment facilities. The Waste Treatment and Immobilization Plant is a significant engineering and construction challenge. Through a process known as vitrification, a portion of Hanford's tank waste volume will be transformed into a sturdy, durable form by blending the waste with molten glass and pouring it into stainless steel canisters. In that form, the waste will remain stable and highly resistant to environmental degradation while its radioactivity decays.

The Waste Treatment and Immobilization Plant contractor will complete process and facility design; perform procurement and construction; conduct acceptance testing; select and integrate a subcontractor into the project team to provide the necessary operating and commissioning capability; and conduct all required environmental, safety, quality, and health activities.

When operating, the Waste Treatment and Immobilization Plant will pretreat tank waste through separation into a high-level fraction and a low-activity fraction. Both fractions will be immobilized. The immobilized high-level fraction will be temporarily stored on the Hanford site. The vitrified low-activity fraction will be placed in a disposal facility on the Hanford Site.

At this time while the project is focused on delivery of the Direct Feed Low Activity Waste capability, limited activities for High Level Waste and Pretreatment Facilities will continue, including preservation and maintenance activities focusing on, but not limited to, management of assets, appropriate storage, configuration control, and necessary record keeping (to include quality assurance information).

The project is being conducted in accordance with the project management requirements in DOE Order 413.3B, Program and Project Management for the Acquisition of Capital Assets.

### Key Performance Parameters

The Threshold Key Performance Parameters, represent the acceptable performance that the project must achieve. Achievement of the Thresholds Key Performance Parameters will be a prerequisite for approval of CD-4, Project Completion. The Objective Key Performance Parameters represent the desired project performance.

<b>Performance Measure</b>	<b>Threshold</b>	<b>Objective</b>
LAW Pretreatment	2,244 MT sodium per year	
HLW Pretreatment	735 MT as delivered solids per year	
Liquid Waste EMF Efficiency	3.1 Volume Reduction	
LAW Vitrification	18 MT glass per day	
HLW Vitrification	3.6 MT glass per day	

### 01-D-16A-C, Low-Activity Waste Facility, Analytical Laboratory, Balance of Facilities

#### Scope and Justification

The Low-Activity Waste Facility will immobilize, through vitrification, a substantial portion of the low-activity fraction. The Key Project Performance Parameter for the Low-Activity Waste Facility is a minimum treatment capacity of 18-metric tons of glass per day (average daily throughput). The Analytical Laboratory will provide the necessary sample analysis needed throughout waste processing. The Balance of Facilities includes the plant infrastructure and support facilities (steam plant, electrical switch yards, chiller plant, etc.). The Waste Treatment and Immobilization Plant contractor will complete process and facility design; perform procurement and construction; conduct acceptance testing; select and integrate a subcontractor into the project team to provide the necessary operating and commissioning capability; and conduct all required environmental, safety, quality, and health activities.

The Department has focused the Waste Treatment and Immobilization Plant effort to accelerate construction completion and commissioning of three facilities, Low Activity Waste, Analytical Laboratory and Balance of Facilities, to meet the Revised Consent Decree requirement to begin operations by December of 2023 through a direct feed Low Activity Waste processing approach. The waste feed for low activity waste processing will be provided for these facilities initially by a tank-side cesium removal capability. Thereafter, feed will be supplied by the Low Activity Waste Pretreatment System facility being procured by line item project 15-D-409.

DOE has identified the need to construct the Effluent Management Facility (EMF) to manage the high volume of water that is generated through the processing of low-activity waste and to create double-shell tank space while treating low-activity waste for disposal. As originally envisioned, this capability was going to be located in the Pretreatment Facility; however, with the restructuring of the project into one with a phased startup, this capability is needed prior to the completion of construction for the Pretreatment Facility, which has necessitated the construction of EMF under a different but existing control point 01-D-416A-C. The direct cost portion of EMF is estimated to be approximately \$371 million with planned completion in 3Q 2021.

### 01-D-16D, High-Level Waste Facility

#### Scope and Justification

The High-Level Waste Facility will immobilize, through vitrification, the high-level fraction of the tank waste. The Key Project Performance Parameter for the High-Level Waste facility is a minimum of 3.6 metric tons of glass per day (average daily throughput). The Waste Treatment and Immobilization Plant contractor will complete process and facility design; perform procurement and construction; conduct acceptance testing; perform start up and commissioning activities; and conduct all required environmental, safety, quality, and health activities.

01-D-16E, Pretreatment Facility

Scope and Justification

The Pretreatment Facility will separate radioactive tank waste into high-activity waste and low-activity waste fractions and transfer the segregated waste to the High-Level Waste Facility and to the Low-Activity Waste Facility. The main pretreatment processes include filtration to separate the high curie solids from the low activity liquids and an ion exchange system to remove cesium from the tank waste. The Waste Treatment and Immobilization Plant contractor will complete process and facility design; perform procurement and construction; conduct acceptance testing; perform start up and commissioning activities; and conduct all required environmental, safety, quality, and health activities.

**3. Project Cost and Schedule**

Financial Schedule

(Dollars in Thousands)

WTP Total			01-D-16A-C, Low-Activity Waste Facility, Analytical Laboratory, Balance of Facilities, High-Level Waste Facility			01-D-16D, High-Level Waste Facility			01-D-16E, Pretreatment Facility		
Approps	Obligations	Costs	Approps	Obligations	Costs	Approps	Obligations	Costs	Approps	Obligations	Costs

Total Estimated Cost (TEC) /  
Total Project Cost (TPC)

Prior Years	9,864,613	9,864,613	9,594,331	3,956,977	3,956,977	3,861,545	2,407,856	2,407,856	2,344,991	3,500,050	3,500,050	3,387,795
FY 2016 <sup>a</sup>	690,000	690,000	741,615	520,264	520,264	549,439	74,736	74,736	75,040	95,000	95,000	117,136
FY 2017 <sup>a</sup>	690,000	690,000	801,997	562,274	562,274	630,523	30,726	30,726	60,899	97,000	97,000	110,575
FY 2018 <sup>a</sup>	690,000	690,000	690,000	630,000	630,000	630,000	25,000	25,000	25,000	35,000	35,000	35,000
FY 2019	690,000	690,000	690,000	650,000	655,000	655,000	20,000	20,000	20,000	15,000	15,000	15,000
Outyears	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Grand Total	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD

a) Costs updated to reflect actual expenditures for FY 2016 and FY 2017 and projected costs for FY 2018.

**Details of Project Cost Estimate**

(Budget Authority in Thousands of Dollars)

WTP Total			01-D-16A-C, Low-Activity Waste Facility, Analytical Laboratory, Balance of Facilities			01-D-16D, High-Level Waste Facility			01-D-16E, Pretreatment Facility		
Current Total Estimate	Previous Total Estimate	Original Validated Baseline	Current Total Estimate	Previous Total Estimate	Original Validated Baseline	Current Total Estimate	Previous Total Estimate	Original Validated Baseline	Current Total Estimate	Previous Total Estimate	Original Validated Baseline

Total Estimated Cost (TEC) /  
Total Project Cost (TPC)

Construction												
Engineering/Design	TBD	2,547,977	1,475,000	TBD	785,881	N/A	TBD	700,141	N/A	TBD	1,061,954	N/A
Equipment/Procurement <sup>a</sup>	TBD	2,380,748	1,125,000	TBD	675,051	N/A	TBD	670,539	N/A	TBD	1,035,158	N/A
Facility Construction <sup>b</sup>	TBD	3,720,637	2,155,000	TBD	1,241,195	N/A	TBD	913,568	N/A	TBD	1,565,874	N/A
Commissioning <sup>c</sup>	TBD	1,409,428	876,000	TBD	718,454	N/A	TBD	275,217	N/A	TBD	415,757	N/A
Technical Support/Transition <sup>d</sup>	TBD	185,000	50,000	TBD	56,292	N/A	TBD	42,332	N/A	TBD	86,376	N/A
Contingency/Fee <sup>e</sup>	TBD	2,019,210	100,000	TBD	414,765	N/A	TBD	570,100	N/A	TBD	1,034,346	N/A
<b>Total, Total Project Cost</b>	<b>TBD</b>	<b>12,263,000</b>	<b>5,781,000</b>	<b>TBD</b>	<b>3,891,638</b>	<b>N/A</b>	<b>TBD</b>	<b>3,171,897</b>	<b>N/A</b>	<b>TBD</b>	<b>5,199,465</b>	<b>N/A</b>

<sup>a)</sup> Equipment/Procurement dollars represent costs of plant equipment, bulk plant material, and acquisition services.

<sup>b)</sup> Facility Construction dollars represent construction costs through system turnover.

<sup>c)</sup> Commissioning dollars represent the cost of Start-up and Cold Commissioning.

<sup>d)</sup> Technical Support/Transition represents the cost of Federal Assurance oversight support to the Federal Project Director and project transition costs.

<sup>e)</sup> Contingency/Fee dollars represent the Fee and DOE Project Contingency.

**Direct Feed Low Activity Waste/LBL Planning Profile**

(Dollars in Thousands)	Prior Years	FY18	FY19	Outyears	Total
Engineering	1,453,000	81,000	64,000	TBD	TBD
Procurement	824,000	109,000	45,000	TBD	TBD
Construction	2,089,000	158,000	135,000	TBD	TBD
Commissioning	324,000	271,000	361,000	TBD	TBD
ORP Technical Support	115,000	24,000	20,000	TBD	TBD
Contingency and Fee	151,000	42,000	76,000	TBD	TBD
<b>DFLAW/LBL Total Project Cost (TPC)</b>	<b>4,956,000</b>	<b>685,000</b>	<b>701,000</b>	TBD	TBD
<b>Total Funding</b>	<b>5,101,000</b>	<b>630,000</b>	<b>655,000</b>	TBD	TBD

Note:

For fiscal years 2018 and 2019 DFLAW TPC is higher than proposed funding request because carryover funds will be used to fund TPC.

**Schedule of Appropriation Requests**

(Dollars in Thousands)

Request Year	Type	Prior Years	FY 2018	FY 2019	Outyears	Total
FY 2016	TEC/TPC	10,760,585	--	--	1,502,415	12,263,000
FY 2017	TEC/TPC	10,755,585	--	--	1,507,415	12,263,000
FY 2018	TEC/TPC	11,244,613	690,000		328,387	12,263,000
FY 2019	TEC/TPC	11,244,613	690,000	690,000	TBD	TBD

<sup>a</sup>This data sheet reflects Direct Feed Low Activity Waste processing to be accomplished in the following facilities: the Low Activity Waste, Analytical Laboratory, Effluent Management Facility, and Balance of Facilities.

**4. Related Operations and Maintenance Funding Requirements**

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	TBD
Expected Useful Life (number of years)	40
Expected Future Start of D&D of this capital asset (fiscal quarter)	TBD

Related Funding Requirements

(Budget Authority in Millions of Dollars)

	Annual Costs		Life Cycle Costs	
	Previous Total Estimate	Current Total Estimate	Previous Total Estimate	Current Total Estimate
Operations and Maintenance	TBD	TBD	TBD	TBD

Operations will start after the project is completed. These costs are included in PBS ORP-0070, Waste Treatment and Immobilization Plant, and are therefore not included in this Project Data Sheet.

**5. D&D Information**

This project is not replacing existing facilities.

The location of this construction project is an environmental management closure site and, therefore, is exempt from the "one-for-one" requirement.

**6. Acquisition Approach**

The project is being executed in accordance with the project management requirements in DOE Order 413.3B, Program and Project Management for the Acquisition of Capital Assets. The following critical decisions were approved after the December 2000 award:

- Critical Decision - 3A: Approved Limited Construction - October 2001
- Critical Decision - 3B: Approved Preliminary Construction - May 2002
- Critical Decision - 3C: Approved Full Construction - April 2003
- Approval of Revised Cost and Schedule Baseline - December 2006

**Environmental Management/  
River Protection/01-D-416 Waste  
Treatment and Immobilization Plant,  
Hanford, WA**

The following actions are planned for the future:

- Critical Decision 4a: Approve Start of Initial Operations (hot commissioning) for Direct Feed Low Activity Waste – TBD
- Start of Hot Operations Direct Feed Low Activity Waste – TBD

The final Critical Decision-4 and 'Final Design Complete' dates for High-Level Waste and the Pretreatment Facilities will be set at an indeterminate future date.



**15-D-409, Low-Activity Waste Pretreatment System  
Hanford, Richland, Washington (ORP-0014)  
Project is for Design and Construction**

**1. Summary, Significant Changes and Schedule and Cost History**

Summary

The FY 2019 Request for the Low-Activity Waste Pretreatment System is \$56,053,000. Critical Decision 1 was approved on May 19, 2015, with a preliminary cost range of \$220,000,000 to \$470,000,000 and Critical Decision 4 schedule range of January 2021 to May 2025. Critical Decision 2 approval is projected for late in FY 2019 and a project baseline will be established at that time.

Significant Changes

This Construction Project Data Sheet is an update of the FY 2018 Construction Project Data Sheet and does not include a new start for budget year FY 2019.

A Federal Project Director has been assigned to the project.

**Critical Milestone History**

	Fiscal Quarter of Date							
	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	D&D Complete	CD-4
FY 2015	2QFY2014		TBD	TBD	TBD	TBD	N/A	TBD
FY 2016	3/17/2014	2Q 2015	2Q 2015	TBD	TBD	TBD	N/A	TBD
FY 2017	3/17/2014	1/15/2015	5/19/2015	TBD	TBD	TBD	N/A	TBD
FY 2018	3/17/2014	1/15/2015	5/19/2015	TBD	TBD	TBD	N/A	TBD
FY 2019	3/17/2014	1/15/2015	5/19/2015	4Q FY2019	TBD	TBD	N/A	TBD

**CD-0** – Approve Mission Need

**Conceptual Design Complete** – Estimated date the conceptual design will be completed

**CD-1** – Approve Alternative Selection and Cost Range

**CD-3a** – Long Lead Procurement and Site Preparation

**CD-2** – Approve Performance Baseline

**Final Design Complete** – Estimated date the project design will be completed

**CD-3** – Approve Start of Construction

**D&D Complete** – Completion of D&D work

**CD-4** – Approve Start of Operations or Project Completion

Note: The Critical Decision dates are only estimates.

	Long Lead Procurement CD-3a	Approve Performance Baseline CD-2
FY 2018	2Q FY2018	4Q FY2018
FY 2019	TBD	4Q FY2019

The above schedule dates are only estimates and are consistent with the high end of the schedule range.

**Environmental Management/  
River Protection/15-D-409  
Low Activity Waste  
Pretreatment System, Hanford**

**Project Cost History**

(Dollars in Thousands)

	TEC, Design	TEC, Construction	TEC, Total	OPC Except D&D	OPC, D&D	OPC, Total	TPC
FY 2015	60,000	TBD	TBD	TBD	N/A	TBD	TBD
FY 2016	TBD	TBD	TBD	TBD	N/A	TBD	TBD
FY 2017	TBD	TBD	TBD	TBD	N/A	TBD	TBD
FY 2018	TBD	TBD	TBD	TBD	N/A	TBD	TBD
FY 2019	TBD	TBD	TBD	TBD	N/A	TBD	TBD

Note: No construction, except for approved long lead procurement and site preparation, will be performed until the project design is complete and Critical Decision-3 has been approved.

**2. Project Scope and Justification**

Scope

This project will design and build a Low-Activity Waste Pretreatment System to treat tank waste and to produce a low-activity waste feed stream that meets the waste acceptance criteria of the Waste Treatment and Immobilization Plant Low-Activity Waste Facility. Operation of the Low-Activity Waste Pretreatment System and the Low Activity Waste Facility will reduce environmental risk by immobilizing tank farm liquids, freeing up approximately 6,300,000 gallons of Double-Shell tank space, allowing additional Single-Shell tanks to be retrieved and reduce start-up risks of the Waste Treatment and Immobilization Plant.

The Low Activity Waste Pretreatment System uses ion exchange vessels to remove radioactive cesium to produce a low-activity waste feed stream. The system will be designed with the throughput to provide sufficient feed to operate the two large Low-Activity Waste Facility melters at full capacity.

Justification

The Waste Treatment and Immobilization Plant Low-Activity Waste Facility remains on schedule to meet interim milestones in the Amended Consent Decree, *State of Washington v. Dept. of Energy*, Case No. 2:08-CV-5085-RMP (March 11, 2016). Under the Amended Consent Decree, interim milestone D-00A-09, the Low-Activity Waste Facility must complete hot commissioning by December 31, 2023 – meaning “the point at which the LAW facility has demonstrated its ability to produce immobilized low-activity waste glass of acceptable quality.” Provision of a Low-Activity Waste Pretreatment System capability is required to provide low-activity waste feed to the Low-Activity Waste Facility in advance of the startup of the Pretreatment Facility.

Operation of the Low-Activity Waste Pretreatment System along with Low-Activity Waste Facility also mitigates Waste Treatment and Immobilization Plant startup and commissioning risks, provides operational experience that can be applied to Pretreatment and High-Level Waste Facilities, and potentially accelerates overall low-activity waste immobilization through additional low-activity waste feed to both the Low-Activity Waste Facility and other potential supplemental low-activity waste immobilization facilities. Based on an estimated ten years of operations, where the Low-Activity Waste Pretreatment System is the waste feed capability to the Low-Activity Waste Facility until the larger Pretreatment Facility begins operations, it is expected that 9,600 metric tons of tank waste sodium (15 percent of the Tank Farms sodium inventory) will be immobilized, reducing environmental risk and freeing up approximately 6,300,000 gallons of double-shell tank space, which can then be used to support waste retrievals from the older single-shell tanks to the newer and safer double-shell tanks.

The project is being conducted in accordance with project management requirements in DOE Order 413.3B, *Program and Project Management for the Acquisition of Capital Assets*.

Key Performance Parameters (KPPs)

The Threshold Key Performance Parameters represent the acceptable performance that the project must achieve. Achievement of the Threshold Key Performance Parameters will be a prerequisite for approval of CD-4, Project Completion. The Objective KPPs represent the desired project performance.

Performance Measure	Threshold						
Facility throughput	Capacity to support WTP LAW vitrification operations at 30 MT of glass per day, instantaneous rate.						
WTP LAW vitrification Waste Acceptance Criteria	Performance for conceptual design defined by CCN 155899, "Early LAW Waste Receipt Criteria Revision," April 8, 2008. Note: this performance parameter will be documented in 24590-WTP-ICD-MG-01-030, <i>ICD-30 – Interface Control Document for Direct LAW Feed</i> , prior to CD-2						
Solids removal	<p>LAWPS shall be capable of removing undissolved (entrained) solids from tank supernatant waste. Strontium-90 and TRU shall be limited in the feed to WTP as specified below.</p> <table border="1"> <thead> <tr> <th>Radionuclide</th> <th>Maximum Radionuclide Concentration in Treated LAW, Ci/gmol Sodium</th> </tr> </thead> <tbody> <tr> <td>Strontium-90</td> <td>1.12E-03</td> </tr> <tr> <td>TRU<sup>a</sup></td> <td>1.30E-05</td> </tr> </tbody> </table> <p><sup>a</sup> TRU is defined as alpha-emitting radionuclides with an atomic number greater than 92, with half-life greater than 20 years (HNF-EP-0063, <i>Hanford Site Solid Waste Acceptance Criteria</i>).</p>	Radionuclide	Maximum Radionuclide Concentration in Treated LAW, Ci/gmol Sodium	Strontium-90	1.12E-03	TRU <sup>a</sup>	1.30E-05
Radionuclide	Maximum Radionuclide Concentration in Treated LAW, Ci/gmol Sodium						
Strontium-90	1.12E-03						
TRU <sup>a</sup>	1.30E-05						
Cesium removal	The cesium-137 concentration in immobilized LAW must be < 0.3 Ci/m <sup>3</sup> to meet DOE M 435.1-1, <i>Radioactive Waste Management Manual</i> , requirements for near surface disposal. The maximum cesium-137 concentration in the feed from LAWPS to WTP must be less than or equal to 1.68 x 10 <sup>-5</sup> Ci/gmol sodium, per CCN 155899.						
Environmental compliance	Comply with all applicable environmental regulations. For example, WAC 173-303, "Dangerous Waste Regulations," a subsection of which drives secondary containment for waste containing systems (e.g., encased waste transfer lines) and leak detection in secondary containment.						

Performance Measure	Threshold
Facility flexibility	LAWPS Facility layout accommodates expansion (e.g., IX cells can be added adjacent to the CFF vault); vault walls are large and can accommodate additional penetrations.

### 3. Financial Schedule

(Dollars in Thousands)

Appropriations	Obligations	Costs
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#### Total Estimated Cost (TEC)

##### Design

FY 2015	N/A	N/A	6,947
FY 2016	N/A	N/A	42,000
FY 2017	N/A	N/A	58,146
FY 2018	N/A	N/A	93,000
FY 2019	N/A	N/A	56,053
<b>Total, Design</b>	<b>N/A</b>	<b>N/A</b>	<b>TBD</b>

##### Construction

FY 2017	N/A	N/A	0
FY2018	N/A	N/A	0
FY 2019	N/A	N/A	TBD
Outyears	N/A	N/A	TBD
<b>Total, Construction</b>	<b>N/A</b>	<b>N/A</b>	<b>TBD</b>

##### TEC

FY 2015	23,000	23,000	6,947
FY 2016	75,000	75,000	42,000
FY 2017	73,000	73,000	58,146
FY 2018	93,000	93,000	93,000
FY 2019	56,053	56,053	56,053
Outyears	TBD	TBD	TBD
<b>Total, TEC</b>	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>

#### Other Project Cost (OPC)

##### OPC

FY 2014	4,397	4,397	4,397
FY 2015	5,278	5,278	5,278
FY 2016	382	382	382
FY 2017	600	600	600
FY 2018	200	200	200
FY 2019	0	0	0
Outyears	TBD	TBD	TBD
<b>Total, OPC</b>	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>

#### Total Project Cost (TPC)

FY 2014	4,397	4,397	4,397
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**Environmental Management/  
River Protection/15-D-409  
Low Activity Waste  
Pretreatment System, Hanford**

FY 2015	28,278	28,278	12,225
FY 2016	75,382	75,382	42,382
FY 2017	73,600	73,600	58,146
FY 2018	93,000	93,000	93,000
FY 2019	56,053	56,053	56,053
Outyears	TBD	TBD	TBD
Total, TPC	TBD	TBD	TBD

**Details of Project Cost Estimate**

(Dollars in Thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design			
Design	TBD	TBD	N/A
Contingency	TBD	TBD	N/A
Total, Design	TBD	TBD	N/A
Construction			
Building & Site Work	TBD	TBD	N/A
Contingency	TBD	TBD	N/A
Total Construction	TBD	TBD	N/A
Total, TEC	TBD	TBD	N/A
Contingency, TEC	TBD	TBD	N/A
Other Project Cost (OPC)			
OPC except D&D			
Conceptual Planning	TBD	TBD	N/A
Conceptual Design	TBD	TBD	N/A
Office of Project Management Oversight & Assessments Reviews	TBD	TBD	N/A
Other, OPC	TBD	TBD	N/A
Total, OPC except for D&D	TBD	TBD	N/A
Total, OPC	TBD	TBD	N/A
Contingency, OPC	TBD	TBD	N/A
Total, Total Project Cost	TBD	TBD	N/A
Total, Contingency	TBD	TBD	N/A

**Schedule of Appropriation Requests**

Request		Prior Years	FY 2016	FY 2017	FY 2018	FY 2019	Outyears	Total
FY 2015	TEC	23,000	0	0	0	0	0	TBD
	OPC	9,675	0	0	0	0	0	TBD
	TPC	32,675	0	0	0	0	0	TBD
FY 2016	TEC	23,000	75,000	0	0	0	TBD	TBD
	OPC	9,675	382	0	0	0	TBD	TBD
	TPC	32,675	75,382	0	0	0	TBD	TBD
FY 2017	TEC	23,000	75,000	73,000	0	0	TBD	TBD
	OPC	9,675	382	600	0	0	TBD	TBD
	TPC	32,675	75,382	73,600	0	0	TBD	TBD
FY 2018	TEC	23,000	75,000	73,000	93,000		TBD	TBD
	OPC	9,675	382	600	0		TBD	TBD
	TPC	32,675	75,382	73,600	93,000	TBD	TBD	TBD
FY 2019	TEC	23,000	75,000	73,000	93,000	56,053	TBD	TBD
	OPC	9,675	382	600	0	0	TBD	TBD
	TPC	32,675	75,382	73,600	93,000	56,053	TBD	TBD

**4. Related Operations and Maintenance Funding Requirements**

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	TBD
Expected Useful Life (number of years)	40
Expected Future Start of D&D of this Capital Asset (fiscal quarter)	TBD

Related Funding Requirements  
(Budget Authority in Millions of Dollars)

(Dollars in Thousands)

Annual Costs		Life Cycle Costs	
Current Total Estimate	Previous Total Estimate	Current Total Estimate	Previous Total Estimate
TBD	TBD	TBD	TBD

Operations and Maintenance

**9. D&D Information**

This project is providing new capability and is not replacing a current capability.

The location of this construction project is an environmental management closure site and, therefore, is exempt from the "one-for one" requirement.

## **10. Acquisition Approach**

An Acquisition Strategy for completion of the design and construction phase of this project was approved as part of Critical Decision -1. The Acquisition Strategy includes alternatives such as having the Tank Farm Contractor subcontract for construction services or DOE could directly contract with a construction firm or DOE could contract with another entity.

Subsequent to Critical Decision -1, the Assistant Secretary for Environmental Management endorsed the Acquisition Plan selected option where the Tank Farms prime contractor will subcontract for construction services.





## Savannah River

### Overview

The Savannah River Site will support the Department of Energy to meet the cleanup challenges of the nation's Manhattan Project and Cold War legacy responsibilities. This support has been demonstrated through the Site's successful removal of legacy transuranic waste, and high level radioactive liquid waste removal and stabilization with subsequent closure of eight high-level waste tanks. The Savannah River Site Office of Environmental Management mission includes safely storing, treating, and disposing of a variety of radioactive and hazardous waste streams, cleaning up the environment, deactivating and decommissioning unneeded facilities, stabilization and immobilization of high-level waste, and the secure storage of foreign and domestic nuclear materials including spent (used) nuclear fuel and plutonium. The end-state of the Savannah River Site will be the elimination or minimization of nuclear materials, spent (used) nuclear fuel, plutonium, and waste through safe stabilization, treatment, and/or disposition. All EM-owned facilities will be decommissioned once work scope is complete. Inactive waste units will be remediated and contaminated groundwater will either be remediated or be under remediation. Units where residual materials are left in place will be under institutional controls comprised of access restrictions and land use controls, inspections, maintenance, monitoring, and remedial measures/corrective action(s), as appropriate.

EM also has stewardship responsibilities for the Savannah River National Laboratory, which is a Government-owned, contractor operated facility to apply unique and specialized capabilities to assist our Nation in mitigating the hazards associate with the Cold War legacy waste; sustaining and improving our Nation's nuclear security; and advancing our Nation's ability to provide an optimal energy future. The Savannah River National Laboratory applies its expertise and applied technology capabilities to assist sites across the DOE complex in meeting cleanup requirements.

Direct maintenance and repair at the Savannah River Site in FY 2019 is estimated to be \$188,564,000.

The Savannah River Operations Office plans to purchase the following vehicle in FY 2019: 1 Ladder Fire Truck.

### Highlights of the FY 2019 Budget Request

The Nuclear Material Stabilization and Disposition Program will maintain and operate H-Canyon/HB-Line in FY 2019 to disposition spent (used) nuclear fuel, per Section 3137 of the National Defense Authorization Act for Fiscal Year 2001 (Public Law 106-398) and as amended by Section 3115 of the National Defense Authorization Act for Fiscal Year 2004 (Public Law 108-136). In FY 2019, the Department will continue activities to down blend and package plutonium for disposal at the Waste Isolation Pilot Plant in Carlsbad, New Mexico.

Due to the interdependency of activities, the Spent Nuclear Fuel Stabilization and Disposition Program has been merged into the Nuclear Material Stabilization and Disposition Program and will maintain L Basin according to its documented safety analysis, as well as continue to support foreign and domestic research reactor spent (used) nuclear fuel.

The Solid Waste Stabilization and Disposition Program will continue to store, treat and dispose of transuranic, low-level, mixed low-level, hazardous, and sanitary waste, as well as pollution prevention, waste minimization, waste certification, and other waste management support functions.

The Liquid Waste Program will achieve additional risk reduction through canister production at the Defense Waste Processing Facility and disposition of treated salt waste in Saltstone Disposal Units. The FY 2019 request includes funding for three line-item construction projects: Salt Waste Processing Facility (\$65,000,000), Saltstone Disposal Unit #7 (\$44,025,000) and Saltstone Disposal Units #8 and #9 (\$44,450,000).

The mission of the Salt Waste Processing Facility project is to construct a large capacity facility to separate the highly radioactive component from the salt waste resulting from reprocessing and other radioactive liquids generated by nuclear materials production operations at the Savannah River Site. The \$65,000,000 requested for the Salt Waste Processing Facility supports other project costs such as startup, testing, and cold commissioning. The Salt Waste Processing Facility is

**Environmental Management/**

**Savannah River**

expected to begin treating radioactive salt waste in FY 2019. Operation of this facility will significantly increase salt treatment capacity thus enabling increased risk reduction by removing and treating the liquid waste currently in underground storage tanks. The mission of the Saltstone Disposal Unit #7 project is to construct a cylindrical reinforced concrete tank designed to contain approximately 30,000,000 gallons of Saltstone grout which is the waste from the disposition of the decontaminated salt solution resulting from salt waste processing. The \$44,025,000 requested for the Saltstone Disposal Unit #7 includes \$41,243,000 for design and construction activities and \$2,782,000 for other project costs. The mission of the Saltstone Disposal Units #8 and #9 project is to construct two cylindrical reinforced concrete tanks designed to contain approximately 30,000,000 gallons of Saltstone grout each. The \$44,450,000 requested for the Saltstone Disposal Units #8 and #9 project includes \$37,450,000 for the Total Estimated Cost (design and construction activities) and \$7,000,000 for other project costs.

The Soil and Water Remediation Program will continue to remediate Savannah River Site contaminated soils, groundwater, streams (and associated wetlands), and waste sites, governed through enforceable regulatory milestones and commitments. This includes completion of remediation of ash from the D-Area Ash Project and construction of a geosynthetic cap over the existing ash basins and moving to the next set of priorities that the Site and Regulators negotiated and right-sized into the annual three-year Federal Facility Agreement.

The Savannah River Community and Regulatory Support Program will support the Citizens Advisory Board, provide support to the States of South Carolina and Georgia for emergency management activities, and support South Carolina Department of Health and Environmental Control and the Environmental Protection Agency oversight and implementation of the Federal Facility Agreement.

The Safeguards and Security Program will continue to protect nuclear materials, sensitive weapon and nuclear material production technology, equipment, information facilities, and support the Savannah River Site remediation and cleanup programs through overall site access security and protection of personnel and government property as part of EM's overall landlord responsibilities for the 310 square mile nuclear reservation. The FY 2019 request includes cyber security scope to protect government information and technology systems in support of the missions executed at the Site within the existing Safeguards and Security PBS SR-0020 structure.

## **Infrastructure**

EM manages a portfolio of facilities and infrastructure needed for its mission, some of which are degraded to a level that puts them at risk for supporting missions. Although many of EM's facilities and infrastructure are intended to be shut down and demolished at some point in the future, EM has been participating in Department-wide efforts to assess its infrastructure and identify investments. EM will make investments in infrastructure to reduce the consequences of failures that will impact the reliability of our safety systems, waste processing and disposal, tank closure, and other cleanup systems.

The FY 2019 request will continue to support the replacement of the firewater supply system in A-Area and includes a line-item construction project, the Emergency Operations Center Replacement (\$4,759,000). The Emergency Operations Center Replacement project will replace an existing Emergency Operations Center that is in poor condition and past its design life. Within the \$4,759,000 requested for this project, \$1,259,000 is for initiation of design activities and \$3,500,000 for other project costs.

## **FY 2018 and 2019 Key Milestones/Outlook**

- (October 2017) Complete bulk waste removal efforts for Tank 15H
- (October 2017) Submit P-Area Groundwater Operable Unit (NBN) Revision 0 Removal Site Evaluation Report/Engineering Evaluation/Cost Analysis
- (November 2017) Federal Facility Agreement, Appendix E for Fiscal Year 2018
- (December 2017) Submit Fifth Five-year Remedy Review Report for Savannah River Site Operable Units with Operating Equipment

- (February 2018) Submit D-Area Ash Basin (488-1D) Early Action Statement of Basis/Proposed Plan in Support of D Area Operable Unit
- (February 2018) Submit D-Area Ash Basin (488-2D) Early Action Statement of Basis/Proposed Plan in Support of D Area Operable Unit
- (February 2018) Submit D-Area Ash Basin (489-D) Early Action Statement of Basis/Proposed Plan in Support of D Area Operable Unit
- (February 2018) Issue Fifth Five-Year Remedy Review Report for Savannah River Operable Units with Compacted Clay Cover Systems
- (February 2018) Issue Fifth Five-Year Remedy Review Report for Savannah River Site Operable Units with Geosynthetic or Stabilization/Solidification Cover Systems
- (February 2018) Initiate Fourth Phase II Field Start Savannah River and Floodplain Swamp Integrator Operable Unit
- (March 2018) Submit G-Area Oil Seepage Basin Resource Conservation and Recovery Act Facility Investigation/Remedial Investigation Report and Baseline Risk Assessment and Corrective Measures Study/Feasibility Study Report
- (May 2018) Submit C-Area Groundwater Operable Unit (including 108-3C) Corrective Measures Study/Feasibility Report
- (September 2018) Initiate Removal Action Wetland Area at Dunbarton Bay in support of Steel Creek Integrator Operable Unit
- (November 2018) Federal Facility Agreement Appendix E for Fiscal Year 2019
- (February 2019) Mechanical Completion of Field Work D-Area Ash Basin (488-1D)
- (June 2019) Submit D-Area Ash Basin (488-1D) Rev.0 Record of Decision
- (June 2019) Submit D-Area Ash Basin (488-2D) Rev.0 Record of Decision
- (June 2019) Submit D-Area Ash Basin (488-4D) Rev. 0 Record of Decision
- (June 2019) Submit D-Area Coal Pile Runoff Basin (489-D) Rev.0 Record of Decision
- (June 2019) Issue Record of Decision (ROD) for D-Area Operable Unit (includes 10 sub-units with 10 associated milestones)
- (July 2019) Submit Revision 0 Land Use Control Implementation Plan - D Area Operable Units (10 milestones)
- (July 2019) Initiate Sixth Phase II Field Start Steel Creek Integrator Operable Unit
- (September 2019) Issue Record of Decision G-Area Oil Seepage Basin (761-13G)
- (September 2019) Complete Operational Closure of 2 High Level Waste Tanks
- (September 2019) Complete Bulk Waste Removal Efforts for 1 Tank

### **Regulatory Framework**

The DOE-Savannah River Operations Office and its contractors will continue to work proactively with the South Carolina Department of Health and Environmental Control, the Environmental Protection Agency-Region 4, the Nuclear Regulatory Commission, the Defense Nuclear Facilities Safety Board, and stakeholders to facilitate the accomplishment of the environmental cleanup and risk reduction objectives at Savannah River Site. There are several key agreements and enacted legislation to facilitate cleanup of the Site:

- The Federal Facility Agreement for the Savannah River Site
- Resource Conservation and Recovery Act Permits
- South Carolina Industrial and Wastewater Permits
- Public Law 107-107, Section 3155, Disposition of Surplus Defense Plutonium at the Savannah River Site, Aiken, South Carolina
- Section 3137 of the National Defense Authorization Act for Fiscal Year 2001 (Public Law 106-398) as amended by Section 3115, of the National Defense Authorization Act for Fiscal Year 2004 (Public Law 108-136)
- The Savannah River Site Treatment Plan in accordance Section 3021(b) of the Resource Conservation and Recovery Act as added by the Federal Facility Compliance Act
- FY 2005 Saltstone Disposal Facility Industrial Solid Waste Landfill Permit
- Section 3116 of the Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005
- Nuclear Cooperation Agreements
- Dispute Resolution Agreement South Carolina Department of Health and Environmental Control Fiscal Year 2017

## Contractual Framework

Program planning and management at the Savannah River Site is conducted through the issuance and execution of contracts to large and small businesses. DOE - Savannah River develops near- and long-term planning approaches in order to develop contract strategies and program/project plans at a more detailed level. Selected contractors then execute these plans to complete cleanup on schedule. Current contracts at the Savannah River Site include:

- Savannah River Nuclear Solutions LLC: Contract is a Management and Operating contract for management and operation of the infrastructure, nuclear materials facilities, the Savannah River National Laboratory, soil and water remediation, and deactivation and decommissioning work at the Savannah River Site. The contract covers the period August 1, 2008 - July 31, 2013, with options through July 31, 2018. DOE-Savannah River has exercised all options through July 31, 2018. This contract is a cost-plus-award-fee contract. The follow-on acquisition for these services is currently in the acquisition planning phase.
- Savannah River Remediation LLC: Contract covers liquid radioactive waste storage, treatment, stabilization, and disposition and cleaning and closing of the liquid radioactive waste storage tanks at the site for the period July 1, 2009, to June 30, 2015 with a two-year option - July 1, 2015, to June 30, 2017. In addition to exercising the 2-year option, DOE invoked the contract clause cited in FAR 52-217-8, Option to Extend Services, providing an additional 11-month extension to continue the current work through May 31, 2018 while awaiting award of the follow-on liquid waste operations contract. This contract is a cost-plus-award-fee contract. The follow-on contract award was announced in the fall of 2017; however, protests have been filed.
- Centerra Group, LLC: Contract covers the guard services at the Savannah River Site for the period of performance from October 08, 2009, to October 07, 2014, with option period one from October 08, 2014, to October 07, 2017, and option period 2 from October 08, 2017, to October 07, 2019. The Department has exercised both options. It is a cost plus award fee contract. The follow-on acquisition for these services is currently in the acquisition planning phase.
- Parsons Government Services, Inc.: Contract covers design, construction, commissioning, and the first year of operations of the Salt Waste Processing Facility. The contract was awarded on September 17, 2002 and covers the period through September 30, 2020. Construction was declared complete on May 26, 2016; completion of commissioning and start of radioactive operations is targeted for December 2018. This contract is a cost-plus-incentive-fee contract.
- Ameresco Federal Solutions: Contract is for the construction and operation of the Biomass Cogeneration Facility and Heating Plant. This delivery order is for the period May 15, 2009 - April 14, 2031. Ameresco will operate and maintain all constructed facilities until Delivery Order completion. It is a third-party financed Energy Savings Performance contract to produce steam and electricity in support of site missions.

## Strategic Management

The Savannah River Site cleanup strategy is to eliminate or minimize nuclear materials, spent (used) nuclear fuel, plutonium, and waste through safe stabilization, treatment, and/or disposition. The goal is also to reduce costs of continuing operations, surveillance and maintenance, decommissioning facilities, and remediating groundwater and contaminated soils consistent with regulatory agreements. DOE's completion strategy provides a comprehensive risk-based approach to the legacy cleanup project, such as dispositioning of radioactive liquid waste through vitrification of high activity component at the Defense Waste Processing Facility, use of existing Savannah River Site facilities to receive, store, and disposition aluminum-clad spent (used) nuclear fuel, and decommissioning of all facilities not identified for continuing missions.

The Site's land and facility footprint has been steadily reduced through execution of the Site's cleanup strategy. The objective of soils and groundwater cleanup and facility decommissioning is to achieve an end state with risk levels compatible with future non-residential use of the Savannah River Site.

The following present the highest risks to timely achievement of the program's strategic goals:

- Commissioning and startup for the Salt Waste Processing Facility.
- Repairing of the 3H Evaporator Pot for Liquid Waste operations.
- Maintaining and operating deteriorating facilities.

Savannah River  
Funding (\$K)

	FY 2017 Enacted	FY 2018 Annualized CR*	FY 2019 Request	FY 2019 Request vs FY 2017 Enacted
<b>Defense Environmental Cleanup</b>				
<b>Savannah River Site</b>				
<b>Environmental Cleanup</b>				
SR-0013 / Solid Waste Stabilization and Disposition	0	0	42,145	+42,145
SR-0030 / Soil and Water Remediation	0	0	83,110	+83,110
SR-0041 / Surveillance, Maintenance, and Deactivation	0	0	25,815	+25,815
SR-0042 / Infrastructure and Land Management	0	0	16,294	+16,294
<b>Subtotal, Environmental Cleanup</b>	<b>0</b>	<b>0</b>	<b>167,364</b>	<b>+167,364</b>
<b>Nuclear Material Management</b>				
SR-0011C / NM Stabilization and Disposition	0	0	351,331	+351,331
<b>Radioactive Liquid Tank Waste Stabilization and Disposition</b>				
SR-0014C / Radioactive Liquid Tank Waste Stabilization and Disposition-2035	773,200	767,950	949,379	+176,179
<b>Savannah River Risk Management Operations</b>				
SR-0011C / NM Stabilization and Disposition	278,444	276,553	0	-278,444
SR-0012 / SNF Stabilization and Disposition	41,407	41,126	0	-41,407
SR-0013 / Solid Waste Stabilization and Disposition	59,085	58,684	0	-59,085
SR-0030 / Soil and Water Remediation	70,044	69,568	0	-70,044
<b>Subtotal, Savannah River Risk Management Operations</b>	<b>448,980</b>	<b>445,931</b>	<b>0</b>	<b>-448,980</b>
<b>SR Community and Regulatory Support</b>				
SR-0100 / Savannah River Community and Regulatory Support	11,249	11,173	4,749	-6,500
<b>Total, Savannah River Site</b>	<b>1,233,429</b>	<b>1,225,054</b>	<b>1,472,823</b>	<b>+239,394</b>
<b>Safeguards and Security</b>				
SR-0020 / Safeguards and Security	136,000	135,076	183,357	+47,357
<b>Total, Defense Environmental Cleanup</b>	<b>1,369,429</b>	<b>1,360,130</b>	<b>1,656,180</b>	<b>+286,751</b>

The FY 2019 budget is requesting the establishment of two new Congressional control points within the Savannah River site in order to segregate work that supports the National Nuclear Security Administration from the existing EM mission activities.

The funding table below provides a comparable display of the impacted activities and a comparable display will be continued throughout this budget chapter to aid in budget review.

**Savannah River  
Funding (\$K)**

	<b>FY 2017 Enacted</b>	<b>FY 2018 Annualized CR*</b>	<b>FY 2019 Request</b>	<b>FY 2019 Request vs FY 2017 Enacted</b>
<b>Defense Environmental Cleanup</b>				
<b>Savannah River Site</b>				
<b>Environmental Cleanup</b>				
SR-0013 / Solid Waste Stabilization and Disposition	59,085	58,684	42,145	-16,940
SR-0030 / Soil and Water Remediation	70,044	69,568	83,110	+13,066
SR-0041 / Surveillance, Maintenance, and Deactivation	0	0	25,815	+25,815
SR-0042 / Infrastructure and Land Management	0	0	16,294	+16,294
<b>Subtotal, Environmental Cleanup</b>	<b>129,129</b>	<b>128,252</b>	<b>167,364</b>	<b>+38,235</b>
<b>Nuclear Material Management</b>				
SR-0012 / SNF Stabilization and Disposition	41,407	41,126	0	-41,407
SR-0011C / NM Stabilization and Disposition	278,444	276,553	351,331	+72,887
<b>Subtotal, Nuclear Material Management</b>	<b>319,851</b>	<b>317,679</b>	<b>351,331</b>	<b>+31,480</b>
<b>Radioactive Liquid Tank Waste Stabilization and Disposition</b>				
SR-0014C / Radioactive Liquid Tank Waste Stabilization and Disposition-2035	773,200	767,950	949,379	+176,179
<b>SR Community and Regulatory Support</b>				
SR-0100 / Savannah River Community and Regulatory Support	11,249	11,173	4,749	-6,500
<b>Total, Savannah River Site</b>	<b>1,233,429</b>	<b>1,225,054</b>	<b>1,472,823</b>	<b>+239,394</b>
<b>Safeguards and Security</b>				
SR-0020 / Safeguards and Security	136,000	135,076	183,357	+47,357
<b>Total, Defense Environmental Cleanup</b>	<b>1,369,429</b>	<b>1,360,130</b>	<b>1,656,180</b>	<b>+286,751</b>

\*A full-year 2018 appropriation for this account was not enacted at the time the budget was prepared; therefore, the budget assumes this account is operating under the Continuing Appropriations Act, 2018 (Division D of P.L. 115-56, as amended). The amounts included for 2018 reflect the annualized level provided by the continuing resolution. (These amounts are shown only at the Congressional control level and above; below that level, a dash (—) is shown).

**Savannah River  
Explanation of Major Changes (\$K)**

<b>FY 2019 Request vs FY 2017 Enacted</b>
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**Defense Environmental Cleanup**

**Savannah River Site**

**Environmental Cleanup**

**SR-0013 / Solid Waste Stabilization and Disposition**

- The decrease reflects the transfer of work scope to newly-created PBS SR-0042, Infrastructure and Land Management (-\$16,294). -16,940

**SR-0030 / Soil and Water Remediation**

- The increase is attributed to: 1) an increase in Soil and Water Remediation Program due to escalation including pro rata share of support costs (+\$3,561), 2) an increase for next phase of regulatory projects from Federal Facility Agreement (+\$11,647) and 3) a higher contribution to the site Legacy Pension and Post-Retirement Benefits payment (+\$4,999). This increase is offset by the ramping down of the D-Area Ash Project (-\$7,141) +13,066

**SR-0041 / Surveillance, Maintenance, and Deactivation**

- The increase reflects the reorganization of nuclear materials scope and the transfer of the non-operation scope to this newly established PBS SR-0041. This increase includes the support of continued surveillance and maintenance of the F-Area Complex Facilities (F Canyon, FB-Line, and 235-F) as well as the Receiving Basin for Off-site Fuels Facility and continued activities to reduce the risk to personnel and the environment by reducing residual Plutonium-238 contamination in the F-Area Materials Storage Facility (235-F). +25,815

**SR-0042 / Infrastructure and Land Management**

- The increase reflects the transfer of the general site infrastructure and land management scope to this newly established PBS SR-0042. This increase includes the support of the A-Area Firewater Supply Project, the Emergency Operations Center Replacement project, operation of the United States Forest Service at Savannah River to manage approximately 170,000 acres of onsite natural resources, and operation of the Savannah River Ecology Laboratory to conduct field and laboratory research onsite enhancing the understanding of the environment and contributing to environmental stewardship. +16,294

**Nuclear Material Management**

**SR-0011C / NM Stabilization and Disposition**

- The increase reflects the merging of scope from PBS SR-0012, Spent Nuclear Fuel Stabilization and Disposition, into this PBS (+\$41,407) which is offset by the transfer of work scope to newly-created PBS SR- +72,887



0041, Surveillance, Maintenance, and Deactivation (-\$25,815). The additional increase reflects the resumption of spent (used) nuclear fuel processing (\$10,695); increased surveillance and maintenance cost and infrastructure life extension activities for H-Area including the exhaust tunnel repairs (+\$21,737); and a higher contribution to the site Legacy Pension and Post-Retirement Benefits payment (+\$24,863).

**SR-0012 / SNF Stabilization and Disposition**

- The decrease reflects the merging of PBS SR-0012, Spent Nuclear Fuel Stabilization and Disposition into PBS SR-0011C, Nuclear Material Stabilization and Disposition.

-41,407

**Radioactive Liquid Tank Waste Stabilization and Disposition**

**SR-0014C / Radioactive Liquid Tank Waste Stabilization and Disposition-2035**

- This increase is attributed to:
  - 1) Support of the Salt Waste Processing Facility to ensure reliability and ability of operations to support production rates (+\$75,400);
  - 2) Increase in Saltstone Production Facility operations to support Salt Waste Processing Facility production rates (+\$3,900);
  - 3) Operation of Tank Closure Cesium Removal unit on a second older-style tank in H-Tank Farm and initiate procurement for a second Tank Closure Cesium Removal unit for use in F-Tank Farm (2016 Salt Waste Dispute Resolution Agreement with South Carolina Department of Health and Environmental Control) (+\$14,582);
  - 4) Procurement of plugs supporting Canister double stacking operations (+\$3,380);
  - 5) Preparation for waste removal in multiple tanks supporting feed batch to Salt Waste Processing Facility and Defense Waste Processing Facility (+\$45,924);
  - 6) Initiate waste removal preparation activities on two additional older-style (+\$11,240);
  - 7) Continue heel removal in Tank 15 in preparation for tank closure (+\$12,879);
  - 8) Ramp up of construction on the Saltstone Disposal Unit #7 (+\$36,907);
  - 9) Completion of design and start of construction of Saltstone Disposal Units #8 and #9 (+\$44,450);
  - 10) Increased contribution to the site Legacy Pension and Post-Retirement Benefits Plan (+\$33,773).
  - 11) This increase is offset by the transition of the Salt Waste Processing Facility project from startup and cold commissioning to operations (-\$95,000) and the completion of Saltstone Disposal Unit #6 (-\$11,256).

+176,179

**SR Community and Regulatory Support**

**SR-0100 / Savannah River Community and Regulatory Support**

- The decrease reflects the cessation of support for Payment-in-Lieu-of-Taxes to Aiken, Allendale, and Barnwell counties.

-6,500

<b>FY 2019 Request vs FY 2017 Enacted</b>
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**Safeguards and Security**

**SR-0020 / Safeguards and Security**

- The increase is attributed to: 1) the inclusion of Cyber Security activities within this PBS SR-0020, Safeguards and Security (+\$23,190), 2) increase in safeguards and security program activities (+\$18,544), and 3) higher contribution to the site Legacy Pension and Post-Retirement Benefits payment (+\$5,623). +47,357

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<b>Total, Savannah River</b>	<b>+286,751</b>
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## Solid Waste Stabilization and Disposition (PBS: SR-0013)

### Overview

This PBS can be found within the Defense Environmental Cleanup appropriation.

The scope of this PBS supports storage, treatment and disposal functions for transuranic, low-level, mixed low-level, hazardous, and sanitary waste, as well as pollution prevention, waste minimization, waste certification, and other waste management support functions. In addition, this project covers surveillance and maintenance for the Consolidated Incinerator Facility.

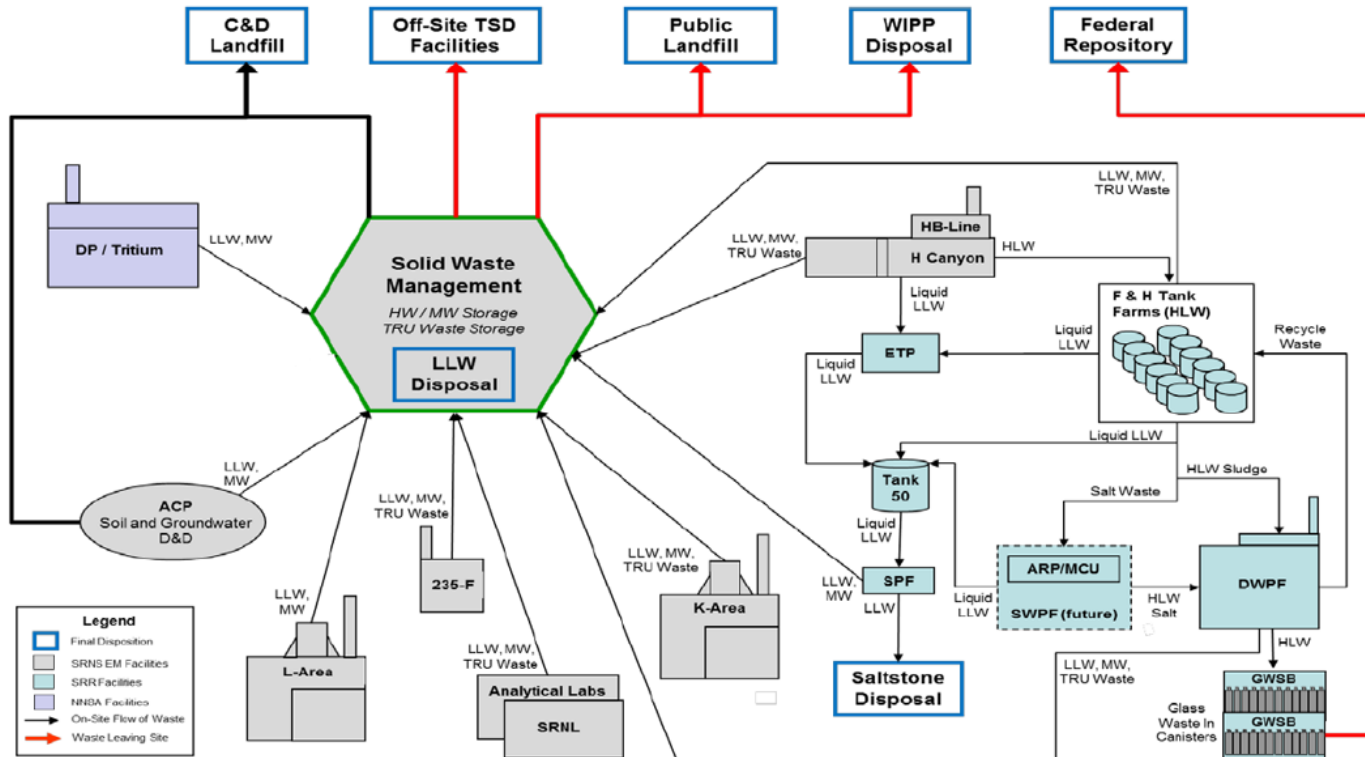
This PBS also includes direct maintenance and repair that are applicable to these areas.

The Solid Waste Management program is responsible for the disposition of the Savannah River Sites' solid wastes, which include sanitary, construction and demolition, hazardous, low-level and mixed low-level radioactive and transuranic wastes. Sanitary waste is household-like waste that is recycled or disposed at the Three Rivers Landfill. Construction and demolition wastes are generated by construction activities onsite and are disposed in a South Carolina Department of Health and Environmental Control-permitted landfill located onsite. Low Level Waste is any radioactive waste not classified as high level or transuranic waste. Examples include slightly contaminated soil, deactivation and decommissioning debris, protective clothing, job-control waste, equipment, tools, filters, rags and papers. This type of radioactive waste is disposed onsite in engineered facilities. Mixed Low Level Waste is waste that is both radioactive and hazardous. This type of waste is subject to regulations governing both waste types. Mixed Low Level Waste requires treating prior to disposal at a commercial disposal facility or a federal disposal facility at the Nevada National Security Site. Transuranic waste is contaminated with radioactive isotopes having decay rates and activities exceeding defined levels, contains man-made elements that are heavier than uranium and decay slowly, thus requiring thousands of years of isolation. Transuranic waste can include equipment, protective clothing and tools used in the production and management of these radionuclides. The inventory of transuranic waste is packaged, characterized/certified and shipped to the Waste Isolation Pilot Plant for disposal.

The Solid Waste Management program is responsible for the disposal of the legacy waste as well as the newly generated waste. The Site generates approximately 5,000 cubic meters of low-level waste annually. As of January 2017, no legacy low-level waste was in storage. The Site generates approximately 30 cubic meters of hazardous and mixed low-level waste annually. As of January 2017, no legacy hazard or mixed low-level waste is in storage. For transuranic waste, the Site generates approximately 30 cubic meters per year. Savannah River Site has, as of January 2017, 750 cubic meters of transuranic waste in storage. Over 100 shipments to the Waste Isolation Pilot Plant will be required to dispose of the transuranic waste in storage.

DOE waste generator sites fund their respective site characterization activities such as visual examination, real time radiography, nondestructive assay, dose to curie conversion, and flammable gas analysis. PBS Central Characterization Project (CB-0081) funds certification of waste characterization activities of legacy transuranic waste at Savannah River Site, Oak Ridge National Laboratory, Lawrence Livermore National Laboratory, and Los Alamos National Laboratory, whereas the Idaho National Laboratory funds its waste characterization certification. Transportation certification is funded by PBS Central Characterization Project (CB-0081).

# Waste Flows



**Solid Waste Stabilization and Disposition (PBS: SR-0013)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$59,085	\$42,145	-\$16,940
<p><u>Solid Waste Management Program (\$36,838)</u></p> <ul style="list-style-type: none"> <li>Maintained Solid Waste management facilities to support site operation, including the construction debris landfill.</li> <li>Supported treatment/storage/disposal of up to 6,500 m<sup>3</sup> of newly generated low-level waste.</li> <li>Supported treatment/storage/disposal of up to 50 m<sup>3</sup> of mixed low-level waste.</li> <li>Supported treatment/storage/disposal of up to 10 m<sup>3</sup> of hazardous waste.</li> <li>Supported treatment/storage/disposal of sanitary waste.</li> <li>Continued closure of legacy transuranic-waste pads under Federal and State regulations.</li> <li>Provided site-wide services and landlord support functions for day-to-day operations. Site-wide and Landlord Support services were prorated across the PBSs.</li> </ul> <p><u>General Site Infrastructure (\$7,093)</u></p> <ul style="list-style-type: none"> <li>Performed general Site functions that included maintenance of Site's roads, bridges, and dams.</li> </ul> <p><u>Land Management (\$7,675)</u></p> <ul style="list-style-type: none"> <li>Performed general Site functions that included land management activities to sustain natural resources.</li> </ul> <p><u>Legacy Pension and Post-Retirement Benefits at Employee Retirement Income Security Act Minimum (\$7,479)</u></p> <ul style="list-style-type: none"> <li>Contributed to the site Legacy Pension and Post-Retirement Benefits payment.</li> </ul>	<p><u>Solid Waste Management Program (\$34,492)</u></p> <ul style="list-style-type: none"> <li>Maintain Solid Waste management facilities to support site operation, including the construction debris landfill.</li> <li>Support treatment/storage/disposal of up to 7,103 m<sup>3</sup> of newly generated low-level waste.</li> <li>Support treatment/storage/disposal of up to 57 m<sup>3</sup> of mixed low-level waste.</li> <li>Support treatment/storage/disposal of up to 52 m<sup>3</sup> of hazardous waste.</li> <li>Support treatment/storage/disposal of sanitary waste.</li> </ul> <p><u>Legacy Pension and Post-Retirement Benefits at Employee Retirement Income Security Act Minimum (\$7,653)</u></p> <ul style="list-style-type: none"> <li>Contribute to the site Legacy Pension and Post-Retirement Benefits payment.</li> </ul>	<ul style="list-style-type: none"> <li>The decrease reflects the transfer of work scope to newly-created PBS SR-0042, Infrastructure and Land Management (-\$16,294).</li> </ul>

## Soil and Water Remediation (PBS: SR-0030)

### Overview

This PBS can be found within the Defense Environmental Cleanup appropriation.

The scope of this PBS includes remediation of the Savannah River Site contaminated soils, groundwater, streams (and associated wetlands) and waste sites which are governed through enforceable regulatory milestones and commitments in accordance with Resource Conservation and Recovery Act and other Permits; Comprehensive Environmental Response, Compensation, and Liability Act; and the Federal Facility Agreement to reduce risk and to protect groundwater aquifers and surface waters from the spread of contamination by addressing sources of contamination using an Area Completion Approach.

This PBS also includes direct maintenance and repair that are applicable to these areas.

### Soil and Water Remediation

The Soil and Water Remediation program includes the operation and maintenance of seven active soil and groundwater remedial systems, and the monitoring of 29 passive (natural attenuation) regulatory required soil and groundwater remedial systems to contain contaminant plumes within the Savannah River Site boundary, and to protect human health and the environment. Also included is the continuing post-closure and post-Record of Decision care, and surveillance and maintenance at 68 closed waste units (approximately 900 acres) and at 63 surplus facilities to prevent deterioration, environmental releases, or structural failure. The program also monitors, performs analysis and reports on over 2,000 groundwater wells (approximately 4,300 sampling activities) and 5 major streams, the Savannah River Floodplain Swamp and the Savannah River to demonstrate effectiveness of remedial systems.

### D Area Ash Project

Following the shut down and deactivation of the D-Area Powerhouse, the continued operations of the 488-1D and 488-2D Ash Basins, the 488-D and 488-4D Ash Landfills, and the 489-D Coal Pile Runoff Basin were no longer required. These will be closed in accordance with Comprehensive Environmental Response, Compensation, and Liability Act requirements, and South Carolina Solid Waste Landfill and Industrial Wastewater Treatment permit requirements. The closure will include the use of a geo-synthetic cover for 488-4D and the majority of 488-1D. The 488-2D Basin, the remaining portion of 488-1D Basin and Coal Pile Runoff Basin will serve as runoff basins. This will meet the negotiated agreements with the South Carolina Department of Health and Environmental Control and U.S. Environmental Protection Agency identified in the Federal Facility Agreement and state regulations for industrial waste water treatment and solid waste landfills.

### Federal Facility Agreement

The FY 2019 Request also supports the next phase of regulatory projects from the rolling three year commitments in the Federal Facility Agreement that is agreed to by the Department and the Regulators.

### Area Completion

An integral part of the cleanup mission is the decommissioning of facilities constructed in support of nuclear materials production. This work was initially performed under PBS SR-0040C, Nuclear Facility Decontamination and Decommissioning - 2035, but has been combined with the work scope in PBS SR-0030, Soil and Water Remediation.

Cleanup and decommissioning will continue until all areas at the Savannah River Site are completed. Units at which waste is left are placed under post-closure care with institutional controls including access and land use restrictions, inspections, maintenance, long-term monitoring and reporting. Groundwater corrective actions and effectiveness monitoring are performed as appropriate.

This PBS also includes direct maintenance and repair that are applicable to these areas.

**Soil and Water Remediation (PBS: SR-0030)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
<b>\$70,044</b>	<b>\$83,110</b>	<b>+\$13,066</b>
<p><u>Soil and Water Remediation (\$51,074)</u></p> <ul style="list-style-type: none"> <li>Achieved compliance with over 41 enforceable Federal Facility Agreement (Resource Conservation and Recovery Act/ Comprehensive Environmental Response, Compensation, and Liability Act) milestones and Resource Conservation and Recovery Act permit commitments.</li> <li>Operated and maintained 37 regulatory- required soil and groundwater remedial systems (8 active &amp; 29 passive) to protect groundwater aquifers, site streams, and the Savannah River.</li> <li>Conducted post-closure and post-Record of Decision care and surveillance and maintenance at 68 closed waste units (approximately 900 acres) to prevent deterioration and environmental releases.</li> <li>Monitored, performed analysis and reported on over 2,000 groundwater wells and 5 major streams, the Savannah River Floodplain Swamp, and the Savannah River to demonstrate effectiveness of remedial systems.</li> <li>Performed surveillance and maintenance of Area</li> </ul>	<p><u>Soil and Water Remediation (\$54,635)</u></p> <ul style="list-style-type: none"> <li>Achieve compliance with over 52 enforceable Federal Facility Agreement (Resource Conservation and Recovery Act/ Comprehensive Environmental Response, Compensation, and Liability Act) milestones and Resource Conservation and Recovery Act permit commitments.</li> <li>Operate and maintain 36 regulatory-required soil and groundwater remedial systems (7 active &amp; 29 passive) to protect groundwater aquifers, site streams, and the Savannah River.</li> <li>Conduct post-closure and post-Record of Decision care and surveillance and maintenance at 68 closed waste units (approximately 900 acres) to prevent deterioration, and environmental releases.</li> <li>Monitor, perform analysis and report on over 2,000 groundwater wells and 5 major streams, the Savannah River Floodplain Swamp, and the Savannah River to demonstrate effectiveness of remedial systems.</li> <li>Perform surveillance and maintenance of Area</li> </ul>	<ul style="list-style-type: none"> <li>The increase is attributed to: 1) an increase in Soil and Water Remediation Program due to escalation including pro rata share of support costs (+\$3,561), 2) an increase for next phase of regulatory projects from Federal Facility Agreement (+\$11,647) and 3) a higher contribution to the site Legacy Pension and Post-Retirement Benefits payment (+\$4,999). This increase is offset by the ramping down of the D-Area Ash Project (-\$7,141)</li> </ul>

Completion Projects inactive facilities to maintain safe and stable facility conditions.

- Provided site-wide services and landlord support functions for day-to-day operations. Site-wide and Landlord Support services were prorated across the PBSs.

D-Area Ash Project (\$10,104)

- Continued remediation activities at the D-Area Ash Basins.

Legacy Pension and Post-Retirement Benefits at Employee Retirement Income Security Act Minimum (\$8,866)

- Contributed to the site Legacy Pension and Post-Retirement Benefits payment.

Completion Projects' inactive facilities to maintain safe and stable facility conditions.

D-Area Ash Project (\$2,963)

- Complete closure of D-Area ash basins, remaining from operation of the deactivated, closed powerhouse in accordance with Comprehensive Environmental Response, Compensation, and Liability Act requirements, and South Carolina Solid Waste Landfill and Industrial Wastewater Treatment permit requirements.

Next Phase of Regulatory Projects from Federal Facility Agreement (\$11,647)

- Continue C Area groundwater remediation.
- Legacy Pension and Post-Retirement Benefits at Employee Retirement Income Security Act Minimum (\$13,865)
- Contribute to the site Legacy Pension and Post-Retirement Benefits payment.



## Surveillance, Maintenance and Deactivation (PBS: SR-0041)

### Overview

This PBS can be found within the Defense Environmental Cleanup appropriation.

This PBS covers scope for the surveillance and maintenance of non-operating nuclear facilities (F-Area Complex Facilities, as well as the Receiving Basin for Off-Site Fuels Facility), disposition of source term holdup within the F-Area Materials Storage Facility (235-F), and future deactivation of nuclear facilities currently operating at the Savannah River Site.

### F-Area Complex

The F-Area Complex encompasses 235-F, 221-F, F Canyon, F B-Line, 292-F, 292-1F, 292-2F, 284-10F, 254-13F. As in H-Area, the F-Area Complex is comprised of the F Canyon building including the FB-Line, large storage tanks used to hold various chemical solutions, industrial support facilities, administrative building, high efficiency filter facility, and supporting utilities including water, steam, electricity, industrial air, conditioned air, underground transfer piping, and sanitary waste. Like the H Canyon, the F Canyon was also built in the 1950s and is approximately the same size as H-Canyon (1,028 feet long, 122 feet wide and 71 feet tall). The FB-Line is located on top of the F Canyon.

This PBS supports all general area maintenance, as well as emergency preparedness, firewater, utilities, lighting, building and grounds maintenance. Surveillance and maintenance activities for the F Area Complex include maintaining an operating staff to meet staffing levels identified to maintain the safety envelop; maintaining and operating facility ventilation, electrical, fire alarm pull stations, and air monitoring systems; maintaining operator qualifications to include continuing training and emergency response plans; maintaining compliance with the Site Fire Protection, Nuclear Criticality Safety, Configuration Control, Radiation Protection, Quality Assurance, Equipment Maintenance, Chemical Control, Radioactive and Hazardous Materials Shipping/Receiving, Work Control, Waste Management, Environmental Compliance, and Industrial Hygiene Programs; maintaining safety basis documents and operating procedures (including compliance with Documented Safety Analysis); conducting preventive maintenance and corrective maintenance on equipment required to maintain the safety posture of facilities in a deactivated state; performing critical infrastructure to maintain the safety envelop; and performing periodic entries into FB-Line requiring detailed planning and hazards analysis by engineering, operations, and radiological protection due to the nature of radiological contamination by alpha particles.

### Receiving Basin for Offsite Fuels Facility

The mission of the Receiving Basin for Off-Site Fuels Facility was to store aluminum-based spent (used) nuclear fuel from research reactors worldwide in support of the Department of Energy's take back policy regarding United States origin enriched uranium. Built in the early 1960s, the Receiving Basin for Off-Site Fuels Facility is a 139-foot wide by 148-foot long steel frame structure that houses water-filled basins for cask unloading, and spent (used) nuclear fuel repackaging and storage. The building includes the basin areas, a control room, and an attached facility for water filtration and deionization. The basin area consists of two storage basins, three working basins (for cropping, bundling, inspection, and interim storage), a cask loading/unloading basin, and a cask decontamination pit. The basins vary in area and depth with an unloading basin depth from 29 to 45 feet.

A project was initiated in 1997 to de-inventory the Receiving Basin for Off-Site Fuels Facility by transferring the spent (used) nuclear fuel to L-Basin. This effort was completed in 2006 with the complete de-inventory and shutdown of the Receiving Basin for Off-Site Fuels Facility.

The Receiving Basin for Offsite Fuels surveillance and maintenance activities includes periodic rounds, inspections, and maintenance to ensure the facility does not pose risk to the environment, site workers, or the general public; activities needed to maintain the facility in accordance with safety basis requirements; maintenance of operating procedures, continued operator training, and support for housekeeping and safety initiatives to comply with Department of Labor, Office of Occupational Safety and Health Administration requirements; and activities necessary for cost-effective management, planning, and oversight.

Building 235-F

Building 235-F at the Savannah River Site was part of the original construction in the early 1950s. The facility is a blast-resistant, windowless, two-story, reinforced concrete structure about 222 feet long, 109 feet wide, and 28 feet high located in F Area near the F Canyon.

The Defense Nuclear Facility Safety Board issued Recommendation 2012-1 to take action to remove and/or immobilize the residual contamination within Building 235-F because of the potential dose consequences to collocated workers and the environment in the event of a seismically induced full facility fire. Building 235-F at the Savannah River Site (SRS) houses several partially deactivated processing lines including the Plutonium Fuel Form (PuFF) facility, Actinide Billet Line, Plutonium Experimental Facility, and the old metallography lab glovebox. To ensure protection of on-site and off-site personnel from radiation exposure in the event of a seismically induced fire, the implementation plan includes the following: controlling transient combustibles, restoration of services to the cells and gloveboxes, removing fixed combustibles, improving fire detection, minimizing ignition sources, and removing the Plutonium 238 material from the cells and gloveboxes that creates the risk.

**Surveillance, Maintenance, and Deactivation (PBS: SR-0041)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$0	\$25,815	+\$25,815
<ul style="list-style-type: none"> <li>The scope of work was included within PBS SR-0011C NM Stabilization and Disposition - No activities.</li> </ul>	<p><u>Facility Surveillance and Maintenance (\$16,261)</u></p> <ul style="list-style-type: none"> <li>Continue surveillance and maintenance of the F-Area Complex Facilities (F Canyon, FB-Line, and 235-F) as well as the Receiving Basin for Off-Site Fuels Facility.</li> </ul> <p><u>Building 235-F Risk Reduction (\$5,980)</u></p> <ul style="list-style-type: none"> <li>Perform 235-F risk reduction activities per Defense Nuclear Safety Board Implementation Plan to reduce risk to personnel and the environment by reducing residual Plutonium 238.</li> </ul> <p><u>Legacy Pension and Post-Retirement Benefits at Employee Retirement Income Security Act Minimum</u></p>	<ul style="list-style-type: none"> <li>The increase reflects the reorganization of nuclear materials scope and the transfer of the non-operation scope to this newly established PBS SR-0041. This increase includes the support of continued surveillance and maintenance of the F-Area Complex Facilities (F Canyon, FB-Line, and 235-F) as well as the Receiving Basin for Off-site Fuels Facility and continued activities to reduce the risk to personnel and the environment by reducing residual Plutonium-238 contamination in the F-Area</li> </ul>

(\$3,574)

- Contribute to Legacy Pension and Post-Retirement Benefits payment.

Materials Storage Facility (235-F).

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## Infrastructure and Land Management (PBS: SR-0042)

### Overview

This PBS can be found within the Defense Environmental Cleanup appropriation.

The scope of this PBS supports general Site functions including land management activities to sustain natural resources and maintenance of Site's roads, bridges, and dams. Also covered in the scope of this PBS is general site infrastructure projects. The scope of this PBS will continue in support of all other Savannah River PBSs and will not conclude until after completion of all area closures.

### General Site Infrastructure

This PBS supports the capital investment in the general site infrastructure which is defined as that infrastructure which is non-program specific. The type of infrastructure includes utilities that connect to the various areas onsite; transportation systems between the various areas; communications systems connecting the various areas; health, safety, and environmental systems that serve the entire site, and emergency operations services.

The deteriorating infrastructure has increasingly resulted in reduced operational capability and higher repair or replacement costs. As a result, cannibalization of parts, costly piecemeal maintenance, temporary modifications, and in some cases work-arounds have been performed in order to sustain functional performance of many facilities, equipment and systems. These practices have resulted in an excessive, expensive and inefficient utilization of resources and increased the cost of future capital infrastructure investment.

The A-Area Firewater Supply Project replaces the 1950's vintage non-National Fire Protection Association code compliant fire water supply system whose pumps do not meet flow requirements and storage tank has deficiencies that required urgent repairs in 2016 to maintain structural integrity. A National Fire Protection Association code compliant fire water supply system is critical for the safety and operations of critical site facilities, which includes the Savannah River National Laboratory, Emergency Operations Center, Ecology Laboratory, equipment calibration shops, Site Security facilities (to include badging office), key Site communications buildings, and numerous support and administrative facilities housing over 2000 persons. The project will provide a fire water supply system compliant with National Fire Protection Association codes, site engineering standards, and meet the Savannah River National Laboratory Documented Safety Analysis and Technical Safety Requirements.

The Emergency Operations Center Replacement Projects relocates the primary and secondary Savannah River Site Operations Center (site dispatch and communications center), the Emergency Operations Center (command and support center), and the Alternate Savannah River Site Operations Center from their current locations. The Savannah River Site Operations Center and Emergency Operations Center are located in the basement of Building 703-A which is past its design life, is on the Savannah River Site Decommissioning and Demolition list, and will be turned over for closure once the Centers are relocated. Both the Savannah River Site Operations Center and the Emergency Operations Center have mold and mildew issues which have affected the wellbeing of some employees. Asbestos has also been found throughout the facility and the facility is experiencing multiple utility failures due to the deterioration of the utilities and water intrusion from a leaking roof.

### Land Management

The scope of this PBS also supports other governmental organizations which supply natural resource services to the Savannah River Site. The relationship of the following governmental organizations to the Site is through DOE direct contracts. The Federal Energy Regulatory Commission inspects all of the onsite earthen dams,

which were built to create cooling water reservoirs for the former five reactors. The South Carolina Institute of Archaeology and Anthropology performs archeology assessment for the Savannah River Site. The Natural Resources Conservation Services supports the management of the natural resources.

Through an Interagency Agreement with the Savannah River Site Operations Office, the United States Forest Service, Savannah River manages approximately 170,000 acres of onsite natural resources. This includes:

- Managing 65,000 acres for red-cockaded woodpecker habitat. The Forest Service aided in the growth of the endangered red-cockaded woodpecker population, which started with four birds in 1986 and now stands at approximately 330.
- Completing over 20,000 acres of prescribed burns annually. Prescribed burns help reduce accumulations of forest fuel, improve the forestland health, manage habitats of threatened and endangered species, and restore native environments for trees such as the longleaf pine.
- Reintroducing native plants to enhance the restoration of the native savanna.
- Controlling non-native invasive plants and animals, such as feral hogs.
- Improving watershed conditions through restoring vegetation in old borrow pits and spoil piles, stabilizing stream channels, and restoring Carolina Bays and wetlands in swamp areas on the Savannah River Site.
- Partnering with the DOE, Savannah River Site contractors, and national conservation programs to host the annual Wounded Warrior/Mobility Impaired Ultimate Turkey Hunt and the Wounded Warrior/Mobility Impaired Fishing Challenge.
- Maintaining the Savannah River Site's secondary roads, boundary, and wellness trails.
- Managing the Site timber assets.

Through a Cooperative Agreement with the Savannah River Site, the Savannah River Ecology Laboratory operated by the University of Georgia conducts an interdisciplinary program of field and laboratory research onsite to enhance the understanding of the environment by acquiring and communicating knowledge that contributes to sound environmental stewardship, and to provide the public with an independent evaluation of the ecological effects of Savannah River Site operations on the environment. The Savannah River Ecology Laboratory was established in 1951 by the Atomic Energy Commission which had concerns about the environmental impacts resulting from construction of the Savannah River Site and its operations.

**Infrastructure and Land Management (PBS: SR-0042)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
<b>\$0</b>	<b>\$16,294</b>	<b>+\$16,294</b>
<ul style="list-style-type: none"> <li>The scope of work was included within PBS SR-0013 Solid Waste Management - No activities.</li> </ul>	<p><u>General Site Infrastructure (\$1,861)</u></p> <ul style="list-style-type: none"> <li>Continue the A-Area Firewater Supply Project which supports the replacement of fire water supply system to the Savannah River National Laboratory, current Emergency Operations Center location, and Savannah River Ecology Laboratory (operated and maintained by the University of Georgia).</li> </ul> <p><u>Emergency Operations Center Replacement Project (\$4,759)</u></p> <ul style="list-style-type: none"> <li>Continue the design of the Emergency Operations Center Replacement project. This project will relocate the primary and secondary Savannah River Site Operations Center (site dispatch and communications center), the Emergency Operations Center (command and support center), and the Alternate Savannah River Site Operations Center from their current locations.</li> <li>Support other project activities including preparation of project plans and analyses, Critical Decision approval preparation, and project management.</li> </ul> <p><u>Land Management (\$9,275)</u></p> <ul style="list-style-type: none"> <li>Manage 65,000 acres for red-cockaded woodpecker habitat. The Forest Service aided in the growth of the endangered red-cockaded woodpecker population which started with four birds in 1986 and now stands at approximately 330.</li> </ul>	<ul style="list-style-type: none"> <li>The increase reflects the transfer of the general site infrastructure and land management scope to this newly established PBS SR-0042. This increase includes the support of the A-Area Firewater Supply Project, the Emergency Operations Center Replacement project, operation of the United States Forest Service at Savannah River to manage approximately 170,000 acres of onsite natural resources, and operation of the Savannah River Ecology Laboratory to conduct field and laboratory research onsite enhancing the understanding of the environment and contributing to environmental stewardship.</li> </ul>

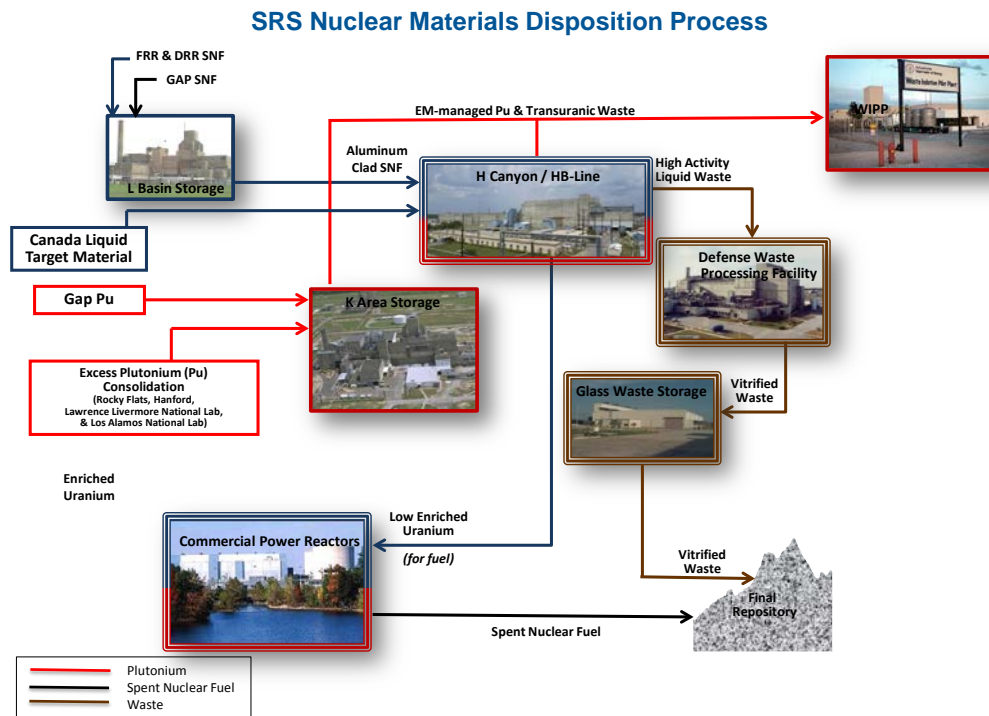
- Complete over 20,000 acres of prescribed forest fire burns annually. Prescribed burns help reduce accumulations of forest fuel, improve the forestland health, manage habitats of threatened and endangered species, and restore native environments for trees such as the longleaf pine.
  - Reintroduce native plants to enhance the restoration of the native savanna.
  - Control non-native invasive plants and animals, such as feral hogs.
  - Improve watershed conditions through the restoration of vegetation in old borrow pits and spoil piles, the stabilization of stream channels, and the restoration of Carolina Bays and wetlands in swamp areas on the Savannah River Site.
  - Partner with the Department of Energy, Savannah River Site contractors, and national conservation programs to host the annual Wounded Warrior/Mobility Impaired Ultimate Turkey Hunt and the Wounded Warrior/Mobility Impaired Fishing Challenge.
  - Maintain the Savannah River Site's secondary roads, boundary, and wellness trails.
  - Manage the Site timber assets.
- Legacy Pension and Post-Retirement Benefits at Employee Retirement Income Security Act Minimum (\$399)
- Contribute to the site Legacy Pension and Post-Retirement Benefits payment.
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## NM Stabilization and Disposition (PBS: SR-0011C)

### Overview

This PBS can be found within the Defense Environmental Cleanup appropriation.

This PBS includes the management and disposition of nuclear materials and spent (used) nuclear fuel, primarily located in H-, K-, and L- Areas at the Savannah River Site. The H-Area facilities continue to stabilize and disposition legacy EM-owned nuclear materials through the operation of H Canyon and HB-Line with Analytical Laboratories and the Savannah River National Laboratory support. Programmatic and physical support activities related to safe receipt, inventory, management, and disposition of special nuclear materials residing in K-Area and disposition of spent (used) fuel residing in L-Area Basin will continue. The end-state will be accomplished when the capabilities of the facilities are no longer needed (all remaining materials have been dispositioned), and when the facilities have been deactivated and turned over for final disposition.





## H-Area

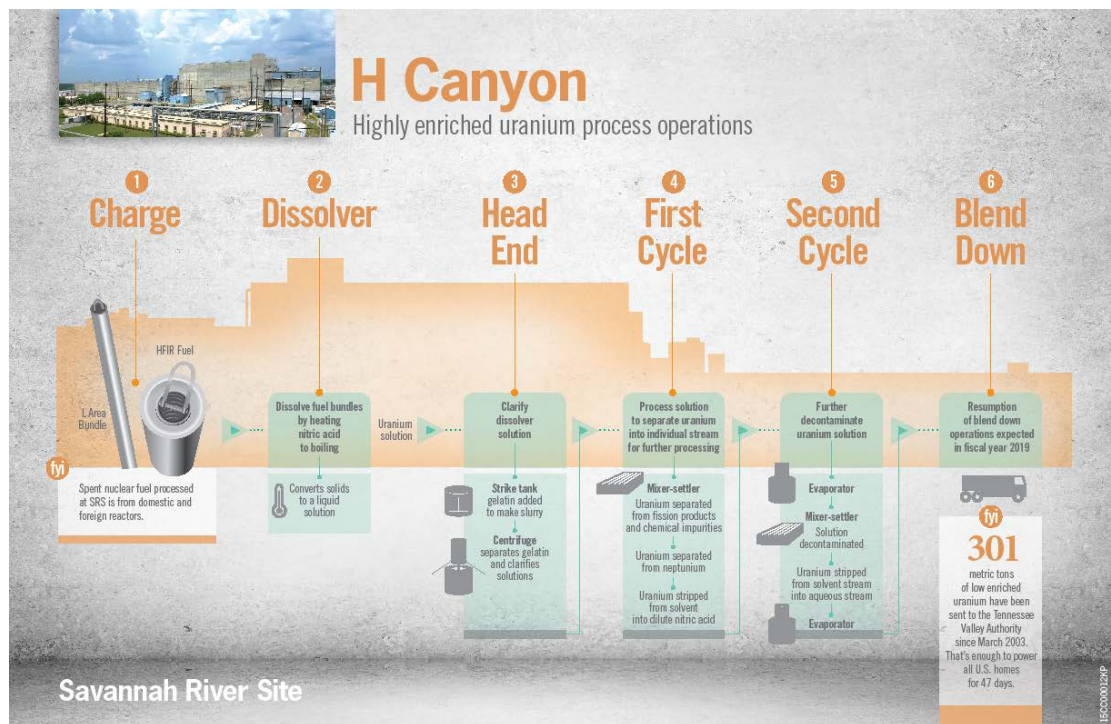
The H-Area supports the DOE Enriched Uranium and Plutonium Disposition programs by reducing the quantity of fissile materials in storage throughout the United States. This supports environmental cleanup and nuclear nonproliferation efforts, and a smaller, safer, more secure and less expensive nuclear weapons complex. The current Plutonium Disposition mission includes disposition of excess material from across the DOE complex and other materials returned to the United States through the Gap Removal program. H-Area is comprised of the H Canyon building including the HB-Line, large storage tanks containing various chemical solutions, industrial support facilities, administrative building, high efficiency filter facility, and supporting utilities including water, steam, electricity, industrial air, conditioned air, underground transfer piping, and sanitary waste.

H Canyon, constructed in the early 1950s, has been in continuous operation since 1955 (over 60 years). It is 1,028 feet long, 122 feet wide and 71 feet tall, with several levels to accommodate the various stages of material stabilization, including control rooms to monitor overall equipment and operating processes, equipment and piping gallery for solution transport, storage, and disposition. Due to high levels of radiation, work in the canyon (including maintenance) is remotely performed by overhead bridge cranes. The HB-Line is located on top of H Canyon and was built in the early 1980s to support the nation's deep space exploration program and to recover legacy materials stored in H Canyon. HB Line is a shielded glovebox processing facility which allows hands on activities on a small scale compared to H Canyon operations and contains three process lines.

H Canyon, the lone remaining hardened, chemical separation facility remaining in the United States of America is integral to DOE's efforts to minimize and eliminate nuclear materials through safe transmutation of the material, allowing removal and separation of specific isotopes for reuse or proper disposition while making the material non-proliferative in nature. Many activities rely on the facility's unique capabilities including the plutonium disposition program for conversion of plutonium metal to oxide, and the spent (used) nuclear fuel stabilization and disposition program for processing of spent (used) nuclear fuel for reuse of uranium while alleviating capacity constraints in L-Basin.

The current mission for the H Canyon two dissolvers is shifting from processing both uranium and plutonium to processing uranium only. The dissolver used for plutonium processing is being replaced and will be used for processing Material Test Reactor type Spent Nuclear Fuel, while the current uranium dissolver will be configured for processing High Flux Isotope Reactor spent (used) fuels. High Flux Isotope Reactor processing is scheduled to begin in the second quarter of FY 2018, while the second dissolver replacement and startup is scheduled to complete in FY 2018. The downstream unit operations for uranium separation from the spent (used) nuclear fuel dissolution are fully operational. Currently, 1000 Material Test Reactor bundles and 200 High Flux Isotope Reactor cores awaiting processing in H Canyon for uranium separation. H Canyon will also be receiving liquid Canadian Highly Enriched Uranium target residue material in approximately 100 Legal Weight Truck casks between FY 2017 and FY 2019. The uranium from the spent (used) nuclear fuel processing will be combined with the target residue material receipts and purified through H Canyon to make the uranium acceptable for blending down to low enriched uranium. The resultant low enriched uranium will become part of the DOE/Tennessee Valley Authority Interagency Agreement for commercial power reactor fuel. This material represents only a small quantity of the spent (used) nuclear fuel inventory at the Savannah River Site.

HB-Line is a shielded glovebox processing facility which allows hands-on activities on a small quantity scale compared to H Canyon operations. HB-Line will continue processing the existing plutonium solutions within the facility, creating oxides for disposition. The resultant plutonium oxide material will be returned to K-Area for continued interim storage until a final disposition path is confirmed.



### K-Area

K-Area provides for the handling and interim storage of excess plutonium and other special nuclear materials as well as fulfills the U.S. commitment to international nonproliferation efforts in a safe and environmentally sound manner. The K-Area Material Storage Facility, built in the 1950s, was one of the five production reactors at the Savannah River Site and was repurposed at the end of the Cold War to be the DOE Complex consolidated storage location for stabilized non-pit plutonium materials declared surplus to the nation's defense needs pending a final disposition. The facility also receives and stores plutonium from foreign countries to support the National Nuclear Security Administration's Nuclear Nonproliferation Initiative and serves as an International Atomic Energy Agency control protocol facility for plutonium oxide. It is DOE's only Category 1 special nuclear materials storage facility designated for interim safe storage of plutonium and highly enriched uranium. It currently has a capacity for approximately 8,500 drums of special nuclear materials. In FY 2016, the capability to down blend, dilution through blending with an inert material, and package approximately 6 metric tons of plutonium was established. The final disposition path for this material after down blend is the Waste Isolation Pilot Plant in Carlsbad, New Mexico.

### L-Area

L-Area provides for the wet storage of spent (used) nuclear fuel. The L Reactor was one of the five production reactor areas at Savannah River Site. In 1996 the disassembly basin of L Reactor (an underwater storage facility), referred to as L Basin, was repurposed to safely handle and securely store spent (used) nuclear fuel originating from Atomic Energy Commission and DOE activities, as well as spent (used) nuclear fuel originating from foreign and domestic research reactors pending

disposition. These fuel receipts support the U.S. government’s policy on minimizing highly enriched uranium around the world and programmatic missions of the Office of Nuclear Energy, Office of Science, and the National Nuclear Security Administration. All spent (used) nuclear fuel activities at Savannah River are conducted in a single area and the spent (used) nuclear fuel storage is consolidated in the L-Area Basin.

L Basin has concrete walls 2½ to 7 feet thick and holds approximately 3,500,000 gallons of water with pool depths of 17 to 50 feet. All spent (used) fuel assemblies have low enough radioactivity, or are “cool” enough, to be safely stored without an active basin water cooling system. The basin water provides shielding to protect workers from radiation. Racks were installed in the L Basin to store the spent (used) nuclear fuel in a vertical position.

L Basin has the capacity to receive, bundle, and store Material Test Reactor type fuels (3,650 bundle positions) and High Flux Isotope Reactor fuels (120 full cores) supporting the National Nuclear Security Administration nonproliferation program, Office of Nuclear Energy's domestic research program, along with the Office of Science's research programs. As of August 2017, L Basin is approximately 84 percent full for Material Test Reactor type fuel storage, and 100 percent full for High Flux Isotope Reactor fuels.

The end-state will be accomplished when all remaining Savannah River Site inventories of spent (used) nuclear fuel have been disposed and/or placed in approved long-term storage, and when spent (used) nuclear fuel facilities have been deactivated and turned over for final disposition.

Heavy Water

This PBS also includes the safe storage and eventual disposition of legacy heavy water remaining from production activities. The heavy water is currently stored in L-, K-, and C- Areas.

**NM Stabilization and Disposition (PBS: SR-0011C)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
<b>\$278,444</b>	<b>\$351,331</b>	<b>+\$72,887</b>
<ul style="list-style-type: none"> <li>• Provided site-wide services and landlord support functions for day-to-day operations. Site-wide and Landlord Support services are prorated across the PBSs.</li> </ul> <p><u>Surveillance and Maintenance– H-Area (\$163,963)</u></p> <ul style="list-style-type: none"> <li>• Operated H Canyon in a safe and secure manner.</li> <li>• Continued to receive Gap plutonium from foreign countries in support of the National Nuclear Security Administration’s</li> </ul>	<p><u>Surveillance and Maintenance– H-Area (\$179,612)</u></p> <ul style="list-style-type: none"> <li>• Operate H Canyon in a safe and secure manner.</li> <li>• Continue to receive Gap plutonium from foreign countries in support of the National Nuclear Security Administration’s nonproliferation program.</li> <li>• Perform infrastructure life extension activities including the exhaust tunnel repairs.</li> </ul> <p><u>Surveillance and Maintenance – K-Area (\$57,528)</u></p>	<ul style="list-style-type: none"> <li>• The increase reflects the merging of scope from PBS SR-0012, Spent Nuclear Fuel Stabilization and Disposition, into this PBS (+\$41,407) which is offset by the transfer of work scope to newly-created PBS SR-0041, Surveillance, Maintenance, and Deactivation (-\$25,815). The additional increase reflects the resumption of spent (used) nuclear fuel processing (\$10,695); increased surveillance and maintenance cost and</li> </ul>

nonproliferation program.

Surveillance and Maintenance – K-Area (\$50,391)

- Maintained K-Area to safely and securely store special nuclear material.
- Performed required 3013 destructive examinations in K Area in accordance with documented safety analysis.

Surveillance and Maintenance – F-Area (\$23,937)

- Continued surveillance and maintenance of the F-Area Complex Facilities (F Canyon, FB-Line, and 235-F) as well as the Receiving Basin for Off-Site Fuels Facility.
- Performed Building 235-F risk reduction activities per Defense Nuclear Safety Board Implementation Plan to reduce risk to personnel and the environment by reducing residual Plutonium 238.

Disposition of Spent (Used) Nuclear Fuel Through H-Canyon (\$9,490)

- Shipped EM-owned spent nuclear fuel to H-Canyon for disposition.
- Processed EM-owned aluminum-clad spent nuclear fuel in accordance with the Amended Record of Decision.
- Completed preparations to process High Flux Isotope Reactor spent nuclear fuel.
- Dissolved Spent (Used) Nuclear Fuel, extracted Highly Enriched Uranium, purified using the solvent extraction cycles in H Canyon, blended to a Low Enriched Uranium solution and provided to the Tennessee Valley Authority.
- Continued receipt and processing of sample return material from onsite laboratories.
- Process spent nuclear fuel in coordination with receipt and processing of Canadian liquid material (funded by Canada)

- Maintain K-Area to safely and securely store special nuclear material.
- Perform critical maintenance on facility perimeter intrusion system.

Surveillance and Maintenance – L-Area (\$45,323)

- Provide safe storage for EM-owned spent (used) nuclear fuel in L-Area Basin.
- Perform critical maintenance on facility perimeter intrusion system.
- Perform surveillance and maintenance of legacy heavy water to ensure safe storage.

Disposition of Spent (Used) Nuclear Fuel Through H-Canyon (\$10,695)

- Increment above H-Canyon / HB-Line Surveillance and Maintenance costs (above) to disposition fuel and create space in L-Basin for planned shipments.
- Process spent nuclear fuel in coordination with receipt and processing of Canadian liquid material (funded by Canada)

Foreign and Domestic Fuel Receipts (\$2,647)

- Continue to support foreign and domestic research reactor spent (used) nuclear fuel.

Legacy Pension and Post-Retirement Benefits at Employee Retirement Income Security Act Minimum (\$55,526)

- Contribute to the site Legacy Pension and Post-Retirement Benefits payment.

infrastructure life extension activities for H-Area including the exhaust tunnel repairs (+\$21,737); and a higher contribution to the site Legacy Pension and Post-Retirement Benefits payment (+\$24,863).

Legacy Pension and Post-Retirement Benefits at  
Employee Retirement Income Security Act Minimum  
(\$30,663)

- Contributed to the site Legacy Pension and Post-Retirement Benefits payment.
-

**SNF Stabilization and Disposition (PBS: SR-0012)**

**Overview**

This PBS can be found within the Defense Environmental Cleanup appropriation.

This PBS covers spent nuclear fuel originating from Atomic Energy Commission and DOE activities, and spent nuclear fuel originating in both foreign and domestic research reactors being transferred to the Savannah River Site for safe, secure storage pending disposition. These fuel receipts support the United States of America’s policy on minimizing highly enriched uranium around the world, especially programmatic missions of the Office of Nuclear Energy, Office of Science, and National Nuclear Security Administration. All spent nuclear fuel activities at Savannah River are conducted in a single area and consolidated for storage in L-Area Basin. This PBS also includes safe storage and eventual disposition of legacy heavy water remaining from production activities currently stored in L-Area, K-Area, and C-Area.

Beginning in FY 2018, scope of work for Spent Nuclear Fuel Stabilization and Disposition is included within Nuclear Materials Stabilization and Disposition (SR-0011C).

**SNF Stabilization and Disposition (PBS: SR-0012)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$41,407	\$0	-\$41,407
<ul style="list-style-type: none"> <li>• Provided site-wide services and landlord support functions for day-to-day operations. Site-wide and Landlord Support services were prorated across the PBSs.</li> <li>• Provided safe, secure storage for spent (used) nuclear fuel in L-Area.</li> <li>• Continued safe, secure storage of heavy water in L, K, and C areas.</li> <li>• Conducted surveillance and maintenance activities of facilities, grounds, and instrumentation.</li> <li>• Supported receipt of planned foreign and domestic research reactor spent (used) nuclear fuel.</li> </ul>	<ul style="list-style-type: none"> <li>• PBS merged with PBS SR-0011C NM Stabilization and Disposition – No activities.</li> </ul>	<ul style="list-style-type: none"> <li>• The decrease reflects the merging of PBS SR-0012, Spent Nuclear Fuel Stabilization and Disposition into PBS SR-0011C, Nuclear Material Stabilization and Disposition.</li> </ul>

- Shipped spent (used) nuclear fuel to H Canyon for disposition per H Canyon processing scheduling.  
Legacy Pension and Post-Retirement Benefits at Employee Retirement Income Security Act Minimum (\$4,582)
  - Contributed to the site Legacy Pension and Post-Retirement Benefits payment.
-

## Radioactive Liquid Tank Waste Stabilization and Disposition (PBS: SR-0014C)

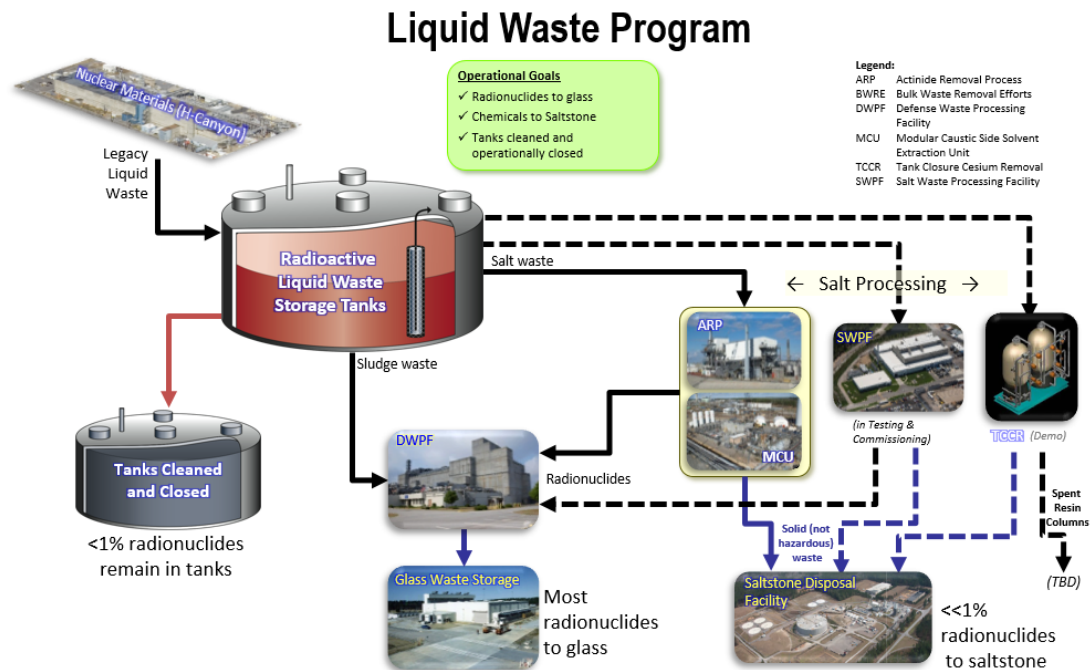
### Overview

This PBS can be found within the Defense Environmental Cleanup appropriation.

This PBS supports the mission of the liquid waste program at the Savannah River Site to safely and efficiently treat, stabilize, and dispose of approximately 35,000,000 gallons of legacy liquid radioactive waste containing approximately 261,000,000 curies currently stored in 43 underground storage tanks (as of March 1, 2017).

The Liquid Waste Program has reduced risk so far by:

- Producing 4,155 canisters with 61,100,000 curies immobilized in glass through the Defense Waste Processing Facility;
- Processing 5,900,000 gallons of salt waste through the Actinide Removal Process and Modular Caustic Side Solvent Extraction Unit;
- Disposing over 10,400,000 gallons of low-activity waste in the Saltstone Disposal Units; and
- Emptying, cleaning, grouting, and removing from service 8 non-compliant high-level waste storage tanks, as required by the enforceable commitments in the Federal Facility Agreement.





### Liquid Waste Operations

Since the Savannah River Site became operational, the separation of fissionable nuclear material from irradiated targets and fuels in the F and H Canyons resulted in the generation of over 160,000,000 gallons of radioactive waste. As of December 2017, approximately 35,000,000 gallons of radioactive waste are currently stored onsite in large underground waste storage tanks at the Savannah River Site. Most of the tank waste inventory is a complex mixture of chemical and radioactive waste generated during the acid-side separation of special nuclear materials and enriched uranium from irradiated targets and spent (used) fuel. Eight waste storage tanks have been closed to date. The remaining 43 waste storage tanks located in two separate locations—H-Tank Farm (27 tanks) and F-Tank Farm (16 tanks)—were placed into operation between 1954 and 1986.

The Savannah River Site plans to continue reducing the volume of tank waste using waste processing activities such as preparing tanks for waste removal by installing necessary equipment and infrastructure; removing, pre-treating, and batching remaining radioactive sludge and salt waste; vitrifying sludge and high curie/high actinide radioactive component in the salt waste at the Defense Waste Processing Facility into canisters and then storing the canisters in glass waste storage buildings; treating and disposing of low-level waste (decontaminated salt solution coming from salt waste processing) as saltstone; evaporating liquids to ensure storage tank space is available to receive additional legacy waste from ongoing nuclear material stabilization then treating and discharging evaporator overheads through the Effluent Treatment Facility; emptying and permanently closing in place, all liquid radioactive waste storage tanks and support systems. These actions ensure risks to the environment and human health and safety from tank waste operations are eliminated or reduced to acceptable levels.

The use of evaporation has assisted in reducing the current volume of waste to about 35,000,000 gallons. The Savannah River Site evaporators are a major factor in the treatment of liquid waste. There are currently two evaporators onsite—2H and 3H Evaporators are found in H-Area and began operations in 1982 and 2000, respectively. The evaporators reduce the volume of the salty liquid waste such that space within storage tanks is available for continuing liquid waste operations. This supports cleaning and closure of the tanks, as well as other missions. The evaporators boil the salty waste water, causing the water to separate from the waste. The separation of the water from the waste reduces the waste volume to about 25-30 percent of the original volume.

The Department started operating the Defense Waste Processing Facility in March 1996 to vitrify (convert) the high-level radioactive liquid waste into a stable solid glass form suitable for long-term storage and eventual off-site disposal. This reduces the risks associated with the continued storage of liquid waste at the Savannah River Site and prepares the waste for final disposal in a federal repository. As of the end of FY 2017, the Defense Waste Processing Facility has produced 4,155 canisters immobilizing 61,100,000 curies in glass. It is projected that the Defense Waste Processing Facility will produce, in total, approximately 8,170 canisters to immobilize all of the radioactive liquid waste store in the waste tanks. Each canister is moved, one at a time, from the Defense Waste Processing Facility by a specially designed shielded vehicle to one of two glass waste storage buildings adjacent to the facility. At the storage buildings, each canister is lowered into an underground reinforced concrete vault. The Savannah River Site has the capacity to safely store about 6,844 canisters, which includes double stacking in Glass Waste Storage Building 1.

Closure activities for the tanks begin several years before the actual operational closing of the tanks. The bulk of the radioactive waste must be removed for treatment and stabilization using Savannah River Site processing facilities. This process is known as Bulk Waste Removal Efforts. Sludge is removed from the tank and transferred to a feed preparation tank, ensuring sludge waste is continuously available for treatment at the Defense Waste Processing Facility. Following completion of bulk waste removal in a tank, the complex closure activities begin with removal of the remaining heel waste material using either mechanical or chemical cleaning methods to the extent practical, in accordance with requirements and closure plans established with the South Carolina Department of Health and Environmental Control and the Environmental Protection Agency. The final closure activity begins with workers pouring specially formulated grout (a cement-like substance) into the tanks. This special grout stabilizes the tank and is used to impede the leaching and migration of any waste residuals remaining in the tank. Over the course of several weeks, the tanks are filled with grout and tank top penetrations are sealed.

### Salt Waste Processing

The ability to safely process the salt component of waste stored in underground storage tanks at the Savannah River Site is a crucial prerequisite for completing liquid radioactive waste disposal, as salt waste constitutes 93% of the 35,000,000 gallons of liquid radioactive waste stored in the tank farms. The waste inventory requires dissolution with water to allow transfer from tanks to processing facilities and to meet processing parameters. It is expected that the salt waste inventory of about 32,500,000 gallons will become at least 110,000,000 gallons of salt solution requiring treatment and processing. In order to relieve tank space shortages and assure vitrification of the high-activity liquid waste to continue uninterrupted, the Actinide Removal Process and Modular Caustic Side Solvent Extraction Unit began operation in April 2008. The Actinide Removal Process and Modular Caustic Side Solvent Extraction Unit facilities provide an interim processing capability to remove and treat salt waste from the tank farms. After the Salt Waste Processing Facility begins operations (i.e., processing of radioactive salt waste), the Actinide Removal Process and Modular Caustic Side Solvent Extraction Unit will be taken offline, shut down, drained and flushed awaiting decontamination and decommissioning that will be performed under PBS-0030.

The Salt Waste Processing Facility construction was completed in May 2016. Operation of the Salt Waste Processing Facility will safely separate the waste into two streams - a relatively small amount of high-activity radioactive waste and a large amount of low-activity radioactive waste. The Facility was designed and constructed utilizing the same treatment technology used in the Actinide Removal Process and Modular Caustic Side Solvent Extraction Unit. Nominal capacity of the Salt Waste Processing Facility will be 6,000,000 to 9,000,000 gallons per year. Processing salt waste through the Salt Waste Processing Facility is needed to disposition the majority of the waste stored in the tank farms (about 110 million gallons after dissolution), while maintaining adequate tank space required to optimize Defense Waste Processing Facility operations. It will also ensure that the site reduces delays in meeting its Federal Facilities Agreement commitments for waste removal, closure of non-compliant tanks, and the Site Treatment Plan milestone.

In 2018, the Liquid Tank Waste Stabilization and Disposition program needs to complete all tie-in work and process modifications between liquid waste operating facilities and the Salt Waste Processing Facility. This is required to ensure proper integration to support the Salt Waste Processing Facility startup on schedule and to support greatly increased salt processing rates. The program also needs to prepare tanks for waste removal to feed Salt Waste Processing Facility and Defense Waste Processing Facility and build Saltstone Disposal Units on schedule to dispose of the decontaminated salt solution produced by the Salt Waste Processing Facility. These actions are required to minimize delay in meeting the Federal Facility Agreement milestone of removing waste and closing the old-style tanks by 2022 and the Site Treatment Plan milestone of processing waste out of all tanks by 2028.

### Saltstone Disposal

The Saltstone Production Facility began operations in 1990. Decontaminated salt solution from salt processing is sent to the Saltstone Production Facility, where it is treated, stabilized and permanently disposed of by mixing the salt solution with cement, ash and furnace slag forming a "grout." The grout is poured into above-ground, cylindrical concrete tanks called Saltstone Disposal Units where it solidifies into saltstone, a non-hazardous waste form.

A new design is being utilized for the Saltstone Disposal Units #6 through #9. 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. The construction of Saltstone Disposal Unit #6 was completed in the third quarter of FY 2017. Once the new unit is filled, it will be capped with an engineered cover consisting of several layers of impermeable materials, isolating it from the environment (which will be performed under PBS SR-0030).

The scope of this PBS includes the design, construction, and operation of the Saltstone Disposal Units for the final and permanent disposal in a saltstone waste form of the decontaminated salt solution (low-level waste) resulting from the salt waste processing. The Saltstone Disposal Units are critical in meeting the South Carolina Department of Health and Environmental Control *Dispute Resolution Agreement for Alleged Violations of Class 3 Industrial Solid Waste Landfill Permit Facility*,

minimizing delays in meeting Federal Facility Agreement commitments for removing waste and closing tanks as well as processing all liquid waste by 2028, as mandated in the Site Treatment Plan. The Saltstone Disposal Units will provide the benefits of lower disposal costs for decontaminated salt solutions, with the grout itself providing primary containment of the waste, while the walls, floor, and roof of the Saltstone Disposal Units are providing secondary containment.

Regulatory Compliance

The Liquid Tank Waste Stabilization and Disposition program at the SRS has three major Regulatory drivers that dictate the program execution schedule:

- The Federal Facility Agreement between DOE, the Environmental Protection Agency, and the South Carolina Department of Health and Environmental Control, which requires waste removal from, and closure of, old-style (i.e. non-compliant) liquid radioactive waste tanks on an approved schedule, with the last tank closed by September 30, 2022.
- Savannah River Site’s Site Treatment Plan between DOE-Savannah River and the South Carolina Department of Health and Environmental Control that requires processing of all radioactive liquid waste by September 30, 2028.
- South Carolina Department of Health and Environmental Control’s *Dispute Resolution Agreement for Alleged Violations of Class 3 Industrial Solid Waste Landfill Permit Facility* that requires processing of 36,750,000 gallons of liquid salt solution between FY 2016 and FY 2022.

**Radioactive Liquid Tank Waste Stabilization and Disposition-2035 (PBS: SR-0014C)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
<b>\$773,200</b>	<b>\$949,379</b>	<b>+\$176,179</b>
<p><u>Liquid Waste Operations (\$497,551)</u></p> <ul style="list-style-type: none"> <li>• Provided site-wide services and landlord support functions for day-to-day operations. Site-wide and landlord support services are pro-rated across the PBSs.</li> <li>• Maintained Tank Farms, including evaporators and Defense Waste Processing Facility, in a safe configuration, staffed and ready for operations.</li> <li>• Initiated repair of the 3H evaporator.</li> <li>• Continued modification of existing storage spaces (300 spaces) and movement of additional 300 completed double stacking of 200 canisters for canister double stacking effort in Glass Waste Storage Building #1 to increase interim storage capacity for vitrified high-level waste canisters.</li> </ul>	<p><u>Liquid Waste Operations (\$569,949)</u></p> <ul style="list-style-type: none"> <li>• Provide site-wide services and landlord support functions for day-to-day operations. Site-wide and landlord support services are pro-rated across the PBSs.</li> <li>• Maintain Tank Farms, including evaporators, melters, and Defense Waste Processing Facility, in a safe configuration, staffed and ready for operations.</li> <li>• Modify spaces of additional 300 canisters for double stacking effort in Glass Waste Storage Building #1 and purchase an additional 148 plugs.</li> <li>• Operate Effluent Treatment Facility at planned rate.</li> <li>• Perform Tank Farm operation activities, including</li> </ul>	<ul style="list-style-type: none"> <li>• This increase is attributed to:               <ol style="list-style-type: none"> <li>1) Support of the Salt Waste Processing Facility to ensure reliability and ability of operations to support production rates (+\$75,400);</li> <li>2) Increase in Saltstone Production Facility operations to support Salt Waste Processing Facility production rates (+\$3,900);</li> <li>3) Operation of Tank Closure Cesium Removal unit on a second older-style tank in H-Tank Farm and initiate procurement for a second Tank Closure Cesium Removal unit for use in F-Tank Farm (2016 Salt Waste Dispute Resolution Agreement with South Carolina Department of Health and Environmental Control) (+\$14,582);</li> </ol> </li> </ul>

- Operated Effluent Treatment Facility at planned rate.
- Initiated replacement of failed Melter #2 and the installation of Melter #3 in the Defense Waste Processing Facility. (Liquid Waste Program entered into a system-wide outage in February 2017 to support both the Melter 3 installation and the sheet pile outage scheduled to begin in March 2017, in preparation for the Salt Waste Processing Facility tie-in outage).
- Performed Tank Farm operation activities, including waste transfers and removals.
- Operated the Defense Waste Processing Facility to produce 52 canisters of vitrified high level waste (facility entered outage in February 2017 to replace Melter #2).
- Maintained liquid tank waste system operational to process 300,000 gallons of H Canyon waste.

Salt Waste Processing (\$177,508)

- Supported planned commissioning and testing activities for Salt Waste Processing Facility.
- Perform initial tie-ins with the Salt Waste Processing Facility and continued integration work (H-Tank Farm blend and feed tanks, East and West transfer lines, Defense Waste Processing Facility and Saltstone modifications) to support startup of the Salt Waste Processing Facility.
- Processed 397,000 gallons of salt solution through the Actinide Removal Process and Modular Caustic Side Solvent Extraction Unit (Liquid Waste Program entered into a system-wide outage in February 2017).

Saltstone Disposal (\$15,947)

- Completed Saltstone Disposal Unit #6 project to support decontaminated salt solution disposal

waste transfers and removals.

- Continue preparation of Sludge Batch 10 needed in FY 2020 to feed Defense Waste Processing Facility.
- Complete preparation of Tank 26 and initiate sludge removal to support Sludge Batch 10 ready in FY 2020.
- Operate Defense Waste Processing Facility to produce 135 to 175 canisters of vitrified high level waste.
- Maintain liquid tank waste system, operational to process 300,000 gallons of H Canyon waste.
- Initiate preparation of Tanks 34 and 35 for Sludge Batches.

Salt Waste Processing (\$168,059)

- Support the Salt Waste Processing Facility start-up.
- Process 200,000 gallons of salt solution through Actinide Removal Process and Modular Caustic Side Solvent Extraction Unit and Tank Closure Cesium Removal prior to Salt Waste Processing Facility startup.
- Complete Liquid Waste/Salt Waste Processing Facility integration tie-ins (H Tank Farm blend and feed tanks, East and West transfer lines, Defense Waste Processing Facility and Saltstone modifications) to support startup of the Salt Waste Processing Facility.
- Continue Tank 3 salt dissolution needed for salt batches to feed the Salt Waste Processing Facility.
- Continue preparation of Tanks 27 and 44 and initiate preparation of Tank 31 for salt dissolution needed for salt batches to feed the Salt Waste Processing Facility.
- Continue the East Hill utilities upgrade to remove

- 4) Procurement of plugs supporting Canister double stacking operations (+\$3,380);
  - 5) Preparation for waste removal in multiple tanks supporting feed batch to Salt Waste Processing Facility and Defense Waste Processing Facility (+\$45,924);
  - 6) Initiate waste removal preparation activities on two additional older-style (+\$11,240);
  - 7) Continue heel removal in Tank 15 in preparation for tank closure (+\$12,879);
  - 8) Ramp up of construction on the Saltstone Disposal Unit #7 (+\$36,907);
  - 9) Completion of design and start of construction of Saltstone Disposal Units #8 and #9 (+\$44,450);
  - 10) Increased contribution to the site Legacy Pension and Post-Retirement Benefits Plan (+\$33,773).
- This increase is offset by the transition of the Salt Waste Processing Facility project from startup and cold commissioning to operations (-\$95,000) and the completion of Saltstone Disposal Unit #6 (-\$11,256).

resulting from salt waste treatment and processing.

- Initiated Saltstone Disposal Unit #7 design for site preparation, cell construction and balance of plant, and initiate long-lead procurement for cell construction.

Regulatory Commitments (\$14,945)

- Continued preparation for the Tank Closure Cesium Removal demonstration in Tank 10 in H-Tank Farm to study feasibility of potentially using “at-tank” treatment technology to expedite waste removal.
- Continued preparation of Tank 10 for bulk waste removal to meet the Federal Facility Agreement milestone for Bulk Waste Removal Efforts of August 31, 2018 (approved schedule extension).
- Initiated preparation of Tanks 3 9 to provide feed for Salt Waste Processing Facility and Tank Closure Cesium Removal effort.
- Completed Bulk Waste Removal Efforts in Tank 15 (met the October 31, 2017 Federal Facility Agreement milestone). Initiated heel removal in Tank 15.

Legacy pension and Post-Retirement Benefits at ERISA Minimum (\$67,249)

- Contributed to the site Legacy Pension and Post-Retirement Benefits payment.

temporary modifications and continue work on transfer systems, processing tanks ventilation and critical spare parts to support Salt Waste Processing Facility planned operations.

Saltstone Disposal (\$88,475)

- Continue Saltstone Disposal Unit 7 cell construction and balance of plant.
- Complete Saltstone Disposal Units 8/9 design and initiate construction.
- Support Saltstone Production Facility operations to support Salt Waste Processing Facility production rates.

Regulatory Commitments (\$21,874)

- Complete feasibility study and report for the Tank Closure Cesium Removal demonstration in Tank 10 in H-Tank Farm.
- Complete preparation of Tank 9 and initiate preparation of Tanks 2, and 14 to minimize delay in meeting Federal Facility Agreement bulk waste removal efforts milestones and also provide feed for Salt Waste Processing Facility and Tank Closure Cesium Removal effort.
- Continue Tank 15 heel removal.
- Initiate procurement of Tank Closure Cesium Removal Unit #2.

Legacy pension and Post-Retirement Benefits at ERISA Minimum (\$101,022)

- Contribute to the site Legacy Pension and Post-Retirement Benefits payment.

**Savannah River Community and Regulatory Support (PBS SR-0100)**

**Overview**

This PBS can be found within the Defense Environmental Cleanup appropriation.

The scope of this PBS is to provide support to enable the Savannah River Site to perform its missions and cleanup objectives. Activities include support to the Citizens Advisory Board (includes facilitators, technical advisors, meeting rooms, and other expenses); support to the States of South Carolina and Georgia for emergency management activities; and support to the South Carolina Department of Health and Environmental Control, and the Environmental Protection Agency for oversight and implementation of the Federal Facility Agreement.

The scope of this PBS also supports geological surveys and natural resource management, and DOE lease agreements (including those with the U.S. Army Corps of Engineers).

**Savannah River Community and Regulatory Support (PBS: SR-0100)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$11,249	\$4,749	-\$6,500
<ul style="list-style-type: none"> <li>Supported Payments-in-Lieu-of-Taxes to Aiken, Allendale, and Barnwell counties. (\$6,960)</li> <li>Provided support to South Carolina Department of Natural Resources for technical expertise in the conduct of geological surveys and natural resource management. (\$130)</li> <li>Provided support to South Carolina Department of Health and Environmental Control for oversight of environmental monitoring, Federal Facility Agreement, Agreement in Principle, and Site Treatment Plan. (\$3,086)</li> <li>Provided support for Georgia and South Carolina Emergency Management Support. (\$417)</li> </ul>	<ul style="list-style-type: none"> <li>Provide support to South Carolina Department of Natural Resources for technical expertise in the conduct of geological surveys and natural resource management (\$137).</li> <li>Provide support to South Carolina Department of Health and Environmental Control for oversight of environmental monitoring, Federal Facility Agreement, Agreement in Principle, and Site Treatment Plan (\$3,246).</li> <li>Provide support to Georgia and South Carolina Emergency Management Support (\$438).</li> <li>Support Interagency Agreement for the Environmental Protection Agency, Region 4</li> </ul>	<ul style="list-style-type: none"> <li>The decrease reflects the cessation of support for Payment-in-Lieu-of-Taxes to Aiken, Allendale, and Barnwell counties.</li> </ul>

- Supported Interagency Agreement for EPA Region 4 oversight of the Federal Facility Agreement. (\$286)
  - Supported the Site Specific Advisory Board (SR Citizen’s Advisory Board). (\$354)
  - Supported DOE Lease Agreements including the US Army Corps of Engineers. (\$16)
  - oversight of the Federal Facility Agreement (\$286).
  - Provide support to the Site Specific Advisory Board (Savannah River Citizen’s Advisory Board) (\$372).
  - Support DOE lease agreements, including those with the U.S. Army Corps of Engineers (\$17).
  - Support Workforce Opportunities in Regional Careers grant (\$355).
-

## Safeguards and Security (PBS: SR-0020)

### Overview

This PBS can be found within the Defense Environmental Cleanup appropriation.

This PBS funds the Safeguards and Security Program, which provides security support services for the 310 square-mile Savannah River Site, and the Cyber Security Program, which protects the networks, computers, programs and data within the Savannah River Site from attack, damage or unauthorized access.

#### Safeguards and Security Program

The scope of the Safeguards and Security Program provides total security services, including access control, property protection, law enforcement, criminal investigations, traffic control, canine explosives and drug detection, aviation support, river patrol, alarm equipment monitoring, and a Special Response Team.

This PBS provides for a trained protective force 24 hours a day seven days a week to perform the various necessary activities to protect Government property and the employees who work onsite.

The scope covered under this PBS will continue until DOE's mission at the Savannah River Site is complete.

These activities include:

- Control access to the General Site by operating perimeter barricades controlling personnel and vehicular access/egress, operating and maintaining special vehicle inspection equipment, and providing vendor/visitor escort requirements.
- Staff security posts and patrol designated areas within the 198,000 plus acres comprising the Savannah River Site.
- Protect Special Nuclear Material and vital facilities against unauthorized access, theft, loss of custody, or destruction of components for nuclear weapons; and espionage.
- Protect classified matter classified matter or Governmental property from loss or theft.
- Protect against other hostile acts that may cause impacts on national security, or on the health and safety of employees, the public or the environment.
- Enforce the law and conduct criminal investigations.
- Operate alarm-monitoring centers. Monitor critical Savannah River Site facilities security alarm systems and dispatch response personnel for alarm assessment.
- Coordinate and provide security for the transport of nuclear material.
- Maintain a Special Response Team available at all times capable of resolving incidents that require force options that exceed the capabilities of Security Police personnel and/or existing physical security systems. Special Response Team personnel shall be ready to execute both defensive and offensive operations.
- Maintain tactical, explosive, and chemical/biological response teams to effectively respond to bomb or explosive incidents onsite and offsite. Have on staff a full-time Explosive Ordnance Disposal Technician.
- Provide aviation operations to include Federal Aviation Administration certified pilots and aircraft maintenance personnel necessary to effectively maintain and operate the two DOE helicopters. The primary mission of the aviation operations is to provide rapid transportation for the Special Response Team. Additional responsibilities include providing an airborne intelligence gathering/relay station, escort/response vehicle, routine patrol of the general site and law enforcement support.



- Provide canine operations. Provide care for DOE-supplied canines, which are trained and qualified in explosives detection and narcotics detection. Ensure that all assigned canine teams are certified annually by the United States Police Canine Association and pass annual Odor Recognition Proficiency Tests.
- Protect all on-site nuclear material movement. Responsible for operating shipment vehicles for classified offsite shipments. and
- Maintain a professional training staff to provide basic and specialized security training, physical conditioning, weapons training and qualification, and area-specific field training. Facilities include classrooms, rifle and pistol ranges, multi-media learning laboratory, and specialized outdoor training sites. The security forces must train and maintain certifications and qualifications in security force competencies.

This scope of this PBS also supports the issuance and maintenance of the personnel badging program, issuing badges to over 11,000 onsite federal and contractor personnel as well as all site visitors.

Cyber Security Program

The Cyber Security Program at the Savannah River Site protects government information and technology systems in support of DOE missions executed at the Site.

**Safeguards and Security (PBS: SR-0020)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
<b>\$136,000</b>	<b>\$183,357</b>	<b>+\$47,357</b>
<p><u>Safeguards and Security Program (\$132,557)</u></p> <ul style="list-style-type: none"> <li>• Provided site-wide security services for day-to-day operations.</li> <li>• Operated and maintained the materials control and accountability program for special nuclear material.</li> <li>• Maintained appropriate uniformed protective force personnel to assure the security of special nuclear materials, facilities, and other site assets.</li> <li>• Operated and maintained physical security protection systems.</li> <li>• Ensured protection of classified and unclassified computer security.</li> <li>• Executed information and operational security</li> </ul>	<p><u>Safeguards and Security Program (\$151,101)</u></p> <ul style="list-style-type: none"> <li>• Supports required security force and resources necessary to guard and safely maintain Special Nuclear Material in accordance with DOE policy.</li> <li>• Ensures appropriate levels of protection for DOE-SR facilities against theft or diversion of Special Nuclear Materials.</li> <li>• Prevents acts of radiological, chemical and biological sabotage.</li> <li>• Prevents theft or loss of classified matter and government property.</li> <li>• Prevents other hostile acts that may cause unacceptable impacts to national security, the health and safety of employees, the public or the environment.</li> </ul>	<ul style="list-style-type: none"> <li>• The increase is attributed to: 1) the inclusion of Cyber Security activities within this PBS SR-0020, Safeguards and Security (+\$23,190), 2) increase in safeguards and security program activities (+\$18,544), and 3) higher contribution to the site Legacy Pension and Post-Retirement Benefits payment (+\$5,623).</li> </ul>

measures, base cyber security program and newly identified initiatives, personnel security and program management for the Savannah River Operations Office.

- Resumed activities for planned transfer of the remaining consolidated Environmental Management material assess area to National Nuclear Security Administration control.

Legacy Pension and Post-Retirement Benefits at Employee Retirement Income Security Act Minimum (\$3,443)

- Contributed to the site Legacy Pension and Post-Retirement Benefits payment.

- Support infrastructure maintenance and upgrades.

Cyber Security (\$23,190)

- Protects government information and technology systems in support of DOE missions executed at the Site.
- Maintains the Savannah River Cyber Security capability in accordance with DOE Order 205.1B and emerging DOE cyber requirements.
- Support identification, assessment and protection of mission critical information and information systems according to current threat vectors and risk posture.

Legacy Pension and Post-Retirement Benefits at Employee Retirement Income Security Act Minimum (\$9,066)

- Contribute to the site Legacy Pension and Post-Retirement Benefits payment.

**Savannah River National Laboratory Crosscut**  
(Dollars in Thousands)

<b>Savannah River National Laboratory</b>	<b>FY 2017 Enacted</b>	<b>FY 2019 Request<sup>1</sup></b>	<b>FY 2019 Request vs FY 2017 Enacted</b>
Environmental Management			
Defense Environmental Cleanup			
Direct Funding -			
Savannah River	104,000	110,760	6,670
EM Headquarters	18,250	16,000	(2,250)
Office of River Protection	18,000	13,000	(5,000)
Paducah / Portsmouth	950	1,100	150
Carlsbad	1,500	1,000	(500)
Oak Ridge	500	1,000	500
Richland	1,500	2,100	600
Los Alamos National Laboratory	150	300	150
Idaho	60	1,200	1,140
<b>Total</b>	<b>144,910</b>	<b>146,460</b>	<b>1,550</b>

<sup>1</sup> Numbers are estimates only.

The Savannah River National Laboratory executes approximately \$250,000,000 per year supporting EM, other DOE organizations such as the National Nuclear Security Administration, and outside entities such as the Federal Bureau of Investigation. The FY 2019 numbers noted above are estimates based on executed FY 2017 work scope.

Specifically, for the Savannah River Site, the Savannah River National Laboratory provides support for environmental remediation and risk reduction; development of processes to remediate high- and low-level wastes; technical oversight of test programs; the conduct of studies and development of mitigation strategies to address deleterious effects on materials used in environmental waste processes; technical advice and technology development to address soil and groundwater radiological and chemical contamination; flowsheet development for spent (used) fuel processing; and technology development for all aspects of nuclear materials management. For National Nuclear Security Administration and other federal agencies, the laboratory provides key technical and planning input crucial to national security. Specifically for National Nuclear Security Administration's nuclear deterrent mission, Savannah River National Laboratory is responsible for Tritium Research and Development, Gas Transfer Research and Development, stockpile stewardship and tritium sustainment.

In addition to the direct support for the Office of Environmental Management at the Savannah River Site, the Savannah River National Laboratory also supports DOE Headquarters and other Environmental Management sites (Hanford, Paducah, Carlsbad, Oak Ridge, Los Alamos, and Idaho).

The physical scope of Savannah River National Laboratory facilities includes more than 50 major research and support structures and facilities, including commercially-leased facilities supporting research activities. The majority of Savannah River National Laboratory's facilities are located within the 39-acre Laboratory Technical Area in

A-Area near the north boundary of Savannah River Site. The Laboratory facilities are comprised of facilities designated as Nuclear Hazard Category II and III, Radiological, Chemical Hazard, Other Industrial facilities, and office space. All these facilities comprise approximately 860,000 gross square feet of laboratory, work, and office space, including over 200,000 gross square feet of radiologically controlled laboratory and process space. Most of the major infrastructure supporting these facilities is deteriorated and in need of restoration or replacement.

**Activities Supported by Savannah River National Laboratory Funding**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
<b><u>Savannah River</u></b>		
\$104,000	\$110,760	+\$6,760
<p><b>NM Stabilization and Disposition (PBS: SR-0011C)</b></p> <ul style="list-style-type: none"> <li>Plutonium Surveillance Program – destructive and non-destructive characterization of 3013 canisters to determine national standards are being met</li> <li>Used fuel evaluations</li> <li>Nuclear materials packaging development and documentation</li> <li>Analytical support for baseline operations and technical development for NM processing</li> <li>Developed and demonstrated flowsheets to enable Savannah River Site canyon processing</li> </ul>	<ul style="list-style-type: none"> <li>Develop and demonstrate flowsheets to enable Savannah River Site canyon processing.</li> <li>Flowsheet development and alternatives evaluations for tank waste program.</li> <li>Develop and deploy Soil and Groundwater remediation technologies</li> <li>Used fuel evaluations.</li> <li>Plutonium Surveillance Program – destructive and non-destructive characterization of 3013 canisters to determine national standards are being met.</li> <li>General operational facility support including material characterization, statistical analyses, equipment troubleshooting, evaluation of chemical processing issues, etc.</li> <li>Support for 235-F deactivation and assessment activities.</li> <li>Tank waste technology development including means to separate the high activity radionuclides in order to</li> </ul>	<ul style="list-style-type: none"> <li>Projected increase reflects support for waste disposal activities; low-level waste performance assessment; statistical support and analyses for the materials control and accountability program; and additional effort to support process enhancement activities associated with integration and startup of Salt Waste Processing Facility into the Liquid Waste mission.</li> </ul>
<p><b>Surveillance, Maintenance, and Deactivation (PBS: SR-0041)</b></p> <ul style="list-style-type: none"> <li>Supported 235-F deactivation and assessment activities</li> </ul>		
<p><b>Solid Waste Stabilization and Disposition (PBS: SR-0013)</b></p>		

- Supported waste certification program
- Supported waste disposal activities

**Radioactive Liquid Tank Waste Stabilization and Disposition (PBS: SR-0014C)**

- Flowsheet development and alternatives evaluations
- General operational facility support including material characterization, statistical analyses, equipment troubleshooting, evaluation of chemical processing issues, etc.
- Tank waste technology development including means to separate the high activity radionuclides in order to disposition the high-level waste along with various unit operations such as filtering, grouting, retrieval etc.
- Waste characterization including sludge and salt characterization to support facility operations and tank closure analysis
- Waste qualification and demonstration
- Waste form development
- Mixing studies including modeling and testing in order to demonstrate waste tanks and processing tanks are adequately mixed
- Developed and executed life extension and surveillance programs for Tank Farms
- Startup support to Salt Waste Processing Facility

**Safeguards and Security (PBS: SR-0020)**

- Provided statistical support and analyses for the materials control and accountability program for special nuclear material.

disposition the high-level waste along with various unit operations such as filtering, grouting, retrieval, etc.

- Nuclear materials packaging development and documentation.
- Waste characterization including sludge and salt characterization to support facility operations and tank closure analysis.
- Waste qualification and demonstration.
- Waste form development.
- Mixing studies including modeling and testing in order to demonstrate waste tanks and processing tanks are adequately mixed.
- Analytical support for operations and technical development for Nuclear Materials processing.
- Support waste certification program.
- Support waste disposal activities.
- Revise low-level waste performance assessment activities.
- Develop and execute life extension and surveillance programs for Tank Farms.
- Startup support to Salt Waste Processing Facility.
- Provide statistical support and analyses for the materials control and accountability program for special nuclear material.

**Soil and Water Remediation (PBS: SR-0030)**

- Developed and deployed Soil and Groundwater remediation technologies

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**EM Headquarters**

**\$18,250**

- Nuclear Materials Packaging development and certifications
- Support to Headquarters on revisions to DOE Order 435.1 and in support of the International Atomic Energy Agency (IAEA)
- Technical studies for Headquarters including independent technical reviews, Technology Readiness Assessments, etc.
- Long-term performance/durability studies of high- and low-level Waste Forms
- Development and deployment of soil and groundwater remediation strategies and monitoring approaches
- Development of Deactivation & Decommissioning facility assessment and in situ decommissioning tools
- Flowsheet Development – definition and testing of flowsheets for the processing of high-level waste including specific focused programs for troublesome components
- Independent review and strategic development of remediation approaches at Legacy Management sites
- Coordinated Minority Serving Institutions Partnership Program (MSIPP)
- Developed and verified protectiveness levels of alternative waste forms for management of nuclear materials (EM-managed Plutonium)

**\$16,000**

- Nuclear Materials Packaging development and certifications.
- Support to Headquarters on revisions to DOE Order 435.1 and in support of the International Atomic Energy Agency.
- Technical studies for Headquarters including independent technical reviews, Technology Readiness Assessments, etc.
- Long-term performance/durability studies of high- and low-level waste forms.
- Development and deployment of soil and groundwater remediation strategies and monitoring approaches.
- Development of deactivation & decommissioning facility assessment and in-situ decommissioning tools.
- Flowsheet Development – definition and testing of flowsheets for the processing of high-level waste including specific focused programs for troublesome components
- Independent review and strategic development of remediation approaches at Legacy Management sites.
- Coordinate Minority Serving Institutions Partnership grants.
- Develop and verify protectiveness levels of alternative waste forms for management of nuclear materials (EM-managed Plutonium).

**-\$2,250**

- Projected decrease reflects reduced supports for the Technology Development and Deployment program with focus areas of robotics, testbed management, management of Technetium, and direct disposal options.

**Office of River Protection**

**\$18,000**

- Developed strategies for staging and preparing waste to meet facility acceptance criteria
- Waste form development & qualification – formulation of grouts and glass and the development of strategies to demonstrate compliance
- Mixing and sampling studies of tanks in the Tank Farm and Waste Treatment Plant to ensure adequate mixing of waste prior to and during processing of waste
- Flowsheet Development and evaluation – definition and testing of flowsheets, operating parameters, etc. for the processing of high-level waste
- Studies and testing to support technical issue resolution for Waste Treatment & Immobilization Plant facilities
- Provided representation on tank integrity panel and provide consultation on materials corrosion and compatibility
- Tank Farm safety basis technical issue resolution (vapors)
- Supported startup testing for Direct Feed Low Activity Waste
- Provided leadership of the technical flowsheet ownership for the Hanford Mission
- Consultation and technical support to the development of performance assessments and strategies for Tank Closure

**\$13,000**

- Waste form development & qualification – formulation of grouts and glass and the development of strategies to demonstrate compliance.
- Mixing and sampling studies of tanks in the Tank Farm and Waste Treatment Plant to ensure adequate mixing of waste prior to and during processing of waste.
- Flowsheet Development and evaluation – definition and testing of flowsheets, operating parameters, etc. for the processing of high-level waste.
- Develop strategies for staging and preparing waste to meet facility acceptance criteria.
- Provide representation on tank integrity panel and provide consultation on materials corrosion and compatibility.
- Tank Farm safety basis technical issue resolution (vapors).
- Support for startup testing for Direct Feed Low Activity Waste.
- Development of alternative treatment methods and flowsheets to reduce the life cycle for the Hanford Mission.
- Consultation and technical support to the development of performance assessments and strategies for Tank Closure.
- Development of sludge retrieval and tank farm sampling technologies to reduce water load and minimize worker exposure.

**-\$5,000**

- Projected decrease reflects reduced support for strategies for staging and preparing waste, and technical resolution activities for the Waste Treatment & Immobilization Plant project.

**Paducah / Portsmouth**

**\$950**

- Deployed models and technologies for remediation and closure

**\$1,100**

- Deploy models and technologies for remediation and closure.

**+\$150**

- Projected increase reflects a transition in scope from technical review and assessment to modeling and

- |  |  |   |
|--|--|---|
| <ul style="list-style-type: none"> <li>• Deactivation &amp; Decommissioning technology development and deployment</li> <li>• Developed site specific hazard and risk profiles to enhance work planning. Improves appropriate selection of tools, techniques and work force training. Also includes stakeholder engagement.</li> <li>• Supported resolution of subsurface contamination issues</li> <li>• Participated in developing material recovery (Nickel) worksheets during the Deactivation &amp; Decommissioning of cascades</li> </ul> | <ul style="list-style-type: none"> <li>• Deactivation &amp; decommissioning technology development and deployment.</li> <li>• Develop site specific hazard and risk profiles to enhance work planning, such as improving appropriate selection of tools, techniques and work force training. It also includes stakeholder engagement.</li> <li>• Support resolution of subsurface contamination issues.</li> <li>• Participate in developing material recovery (Nickel) worksheets during the deactivation &amp; decommissioning of cascades.</li> </ul> | <p>technology development and deployment focusing on groundwater remediation, solid waste disposal options, nuclear material holdup measurements, and development and application of virtual reality tools.</p> |
|--|--|---|

**Carlsbad**

**\$1,500**

**\$1,000**

**-\$500**

- |  |   |  |
|--|---|--|
| <ul style="list-style-type: none"> <li>• Provided remote inspection and robotics applications</li> <li>• Supported re-start of Waste Isolation Pilot Plant including assessments of modified procedures and protocols</li> </ul> | <ul style="list-style-type: none"> <li>• Provide remote inspection and robotics applications.</li> <li>• Support operations of Waste Isolation Pilot Plant including assessments of modified procedures and protocols.</li> <li>• Provide engineering and chemistry support for waste packaging and storage.</li> </ul> | <ul style="list-style-type: none"> <li>• Projected decrease reflects reduced support for engineering and chemistry support for waste packaging and storage.</li> </ul> |
|--|---|--|

**Oak Ridge**

**\$500**

**\$1,000**

**+\$500**

- |   |   |  |
|---|---|--|
| <ul style="list-style-type: none"> <li>• Deployed waste remediation technologies</li> </ul> | <ul style="list-style-type: none"> <li>• Deploy waste remediation technologies.</li> <li>• Provide engineering consultation and support for EM waste treatment missions.</li> </ul> | <ul style="list-style-type: none"> <li>• Projected Increase reflects support for engineering consultation and support for waste treatment missions.</li> </ul> |
|---|---|--|

**Richland**

**\$1,500**

**\$2,100**

**+\$600**

- |  |  |   |
|--|--|---|
| <ul style="list-style-type: none"> <li>• Member of the DOE Low-Level Waste Disposal Facility Federal Review Group (LFRG) review team for the Environmental Restoration Disposal Facility (ERDF)</li> </ul> | <ul style="list-style-type: none"> <li>• Member of the DOE Low-Level Waste Disposal Facility Federal Review Group for the Environmental Restoration Disposal Facility Performance Assessment.</li> </ul> | <ul style="list-style-type: none"> <li>• Projected increase reflects additional support for technology development and deployment for deactivation &amp; decommissioning, in-situ groundwater management, and closure; support for development</li> </ul> |
|--|--|---|



- Performance Assessment (PA)
- Materials consultation
- Deactivation & Decommissioning technology development and deployment
- Developed enhanced characterization approaches for facility maintenance and planning for Deactivation & Decommissioning.
- Implemented enhanced approaches to in-situ groundwater management
- Provided planning input to management and remediation of Inactive Miscellaneous Underground Storage Tank (IMUST) program including regulatory framework for accelerated closure.

- Materials consultation.
- Deactivation & decommissioning technology development and deployment.
- Develop enhanced characterization approaches for facility maintenance and planning for deactivation & decommissioning.
- Implement enhanced approaches to in-situ groundwater management.
- Provide planning input to management and remediation of Inactive Miscellaneous Underground Storage Tank program, including regulatory framework for accelerated closure.

and evaluation of models for remediation decisions, as well as deployment of deactivation & decommissioning technologies; and support for engagement and discussions with stakeholders.

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**Los Alamos National Laboratory**

**\$150**

- Nuclear materials packaging studies
- Technical assistance for groundwater remediation
- Technical consultation to new Los Alamos National Laboratory EM Office

**\$300**

- Nuclear materials packaging studies.
- Technical assistance for groundwater remediation.
- Technical consultation to new Los Alamos National Laboratory EM Office.

**+\$150**

- Projected increase reflects support for transuranic drum disposition, and assistance with groundwater issues.

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**Idaho National Laboratory**

**\$60**

- Nuclear Materials Packaging Studies

**\$1,200**

- Nuclear Materials Packaging Studies.
- Provide technical support to the Integrated Waste Treatment Unit facility in treatment of the Sodium Bearing Waste.
- Support for disposition of other waste streams and nuclear materials

**+\$1,140**

- Projected increase reflects support for the startup and operation of the Integrated Waste Treatment Unit facility for treatment of the Sodium Bearing Waste and disposition plans for other waste streams; support for the performance assessments and compliance plans for on-site waste disposition and handling.
-

**Savannah River  
Capital Summary (\$K)**

	<b>Total</b>	<b>Prior Years</b>	<b>FY 2017 Enacted</b>	<b>FY 2019 Request</b>	<b>FY 2019 Request vs FY 2017 Enacted</b>
<b>Capital Operating Expenses Summary (including (Major Items of Equipment (MIE))</b>					
Capital Asset Projects > \$10M	0	0	0	0	0
Plant Projects (GPP and IGPP) (<\$10M)	11,895	0	3,965	3,965	0
<b>Total, Capital Operating Expenses</b>	<b>11,895</b>	<b>0</b>	<b>3,965</b>	<b>3,965</b>	<b>0</b>
<b>Capital Asset Projects &gt; \$10M</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Total, Capital Asset Projects &gt; \$10M</b>	<b>11,895</b>	<b>0</b>	<b>3,965</b>	<b>3,965</b>	<b>0</b>
<b>Plant Projects (GPP and IGPP) (Total Project Cost (TPC) &lt;\$10M)</b>					
SRNL IGPPs <sup>a</sup>	7,930	0	3,965	0	-3,965
Relocate Glass Apparatus Fabrication Laboratory to C-Wing, 735-A	975	0	0	975	+975
Renovate Laboratory C-159/163, 773-A	1,250	0	0	1,250	+1,250
Renovate Laboratory C-130, 773-A	950	0	0	950	+950
Upgrade SRNL Limited Area Public Address System	365	0	0	365	+365
Renovate Laboratory C-155 Hood and Gloveboxes, 773-A	425	0	0	425	+425
<b>Total, Savannah River</b>	<b>11,895</b>	<b>0</b>	<b>3,965</b>	<b>3,965</b>	<b>0</b>
<b>Total, Plant Projects (GPP and IGPP) (Total Project Cost (TPC) &lt;\$10M)</b>	<b>11,895</b>	<b>0</b>	<b>3,965</b>	<b>3,965</b>	<b>0</b>
<b>Total, Capital Summary</b>	<b>11,895</b>	<b>0</b>	<b>3,965</b>	<b>3,965</b>	<b>0</b>

<sup>a</sup>Projects and allocation of the \$3,965,000 request are preliminary. Final FY 2019 projects will reflect emerging or identified risks.

**Savannah River  
Construction Summary (\$K)**

	Total	Prior Years	FY 2017 Enacted	FY 2019 Request	FY 2019 Request vs FY 2017 Enacted
<b>05-D-405, Salt Waste Processing Facility, Aiken, SC</b>					
Total Estimate Cost (TEC)	1,611,117	1,598,117	13,000	0	-13,000
Other Project Costs (OPC)	710,883	189,988	147,000	65,000	-82,000
<b>Total Project Cost (TPC) 05-D-405</b>	<b>2,322,000</b>	<b>1,788,105</b>	<b>160,000</b>	<b>65,000</b>	<b>-95,000</b>
<b>17-D-402, Saltstone Disposal Unit #7, SR (SR-0014C)</b>					
Total Estimate Cost (TEC)	TBD	0	5,500	41,243	+35,743
Other Project Costs (OPC)	TBD	1,201	1,618	2,782	-1,164
<b>Total Project Cost (TPC) 17-D-401</b>	<b>TBD</b>	<b>1,201</b>	<b>7,118</b>	<b>44,025</b>	<b>+34,579</b>
<b>18-D-401, Saltstone Disposal Unit #8 and #9, SR (SR-0014C)</b>					
Total Estimate Cost (TEC)	TBD	0	0	37,450	+37,450
Other Project Costs (OPC)	TBD	0	0	7,000	+7,000
<b>Total Project Cost (TPC) 18-D-401</b>	<b>TBD</b>	<b>0</b>	<b>0</b>	<b>44,450</b>	<b>+44,450</b>
<b>18-D-402, Emergency Operations Center Replacement, SR (SR-0042)</b>					
Total Estimate Cost (TEC)	TBD	0	0	1,259	+1,259
Other Project Costs (OPC)	TBD	0	0	3,500	+3,500
<b>Total Project Cost (TPC) 18-D-402</b>	<b>TBD</b>	<b>0</b>	<b>0</b>	<b>4,759</b>	<b>+4,759</b>



**05-D-405, Salt Waste Processing Facility  
Savannah River Site, Aiken, South Carolina  
Project is for Construction Only (SR-0014C)**

## **1. Summary, Significant Changes, and Schedule and Cost History**

### **Summary**

The FY 2019 Request for the Salt Waste Processing Facility project is \$65,000,000.

The Deputy Secretary of Energy (the Chief Executive for Project Management, formerly the Secretarial Acquisition Executive) approved a Baseline Change Proposal establishing a new Total Project Cost of \$2,322,000,000 and the Critical Decision-4 (CD-4) date of January 31, 2021.

### **Significant Changes**

This Project Data Sheet is an update of the FY 2018 Congressional Project Data Sheet and does not include a new start for the budget year. FY 2019 is a transitional year from commissioning to operations for the project. As such, the requests for FY 2019, FY 2020, and FY 2021 have been adjusted to reflect a need of \$65,000,000 in FY 2019 in support of the planned FY 2019 start-up date; accordingly, FY 2020 and FY 2021 have been adjusted to maintain the current project baseline.

The Department of Energy (DOE) and its contractor initiated negotiations for the final phases of the project, including construction complete and commissioning, to determine the new contract value, subsequent revised Total Project Cost, and completion date change. The contract has been restructured to a Cost-Plus-Incentive Fee, plus cost cap arrangement for construction to go target cost of \$530,000,000, as of January 1, 2013. The cost cap includes construction and commissioning support during construction. The estimated cost for the commissioning phase has also increased and will be completed on a cost-reimbursable basis.

The project requires additional funding due to the delay in the receipt of the 10 large vessels which impacted both project cost and schedule. This delay contributed to a significant cost overrun. Construction Complete has been re-negotiated and the Contract Modification has been signed. Commissioning (within the scope of this project), and One Year of Operations and Six Months Support (outside the scope of this project) will remain as-is in the contract. Commissioning (Other Project Cost Funds) cost increases were driven primarily by escalation due to the construction delays and incorporation of lessons learned from other DOE Commissioning Projects (e.g., Integrated Waste Treatment Unit at Idaho). The extended time realized drove increased staffing levels and longer durations for Commissioning activities (increase from 11 months to 29 months). The Department's internal review process, including preparation of an independent government cost estimate and performance of an external independent review, determined that the increases in duration were appropriate.

In the FY 2014 Omnibus Appropriations Bill, Congress appropriated all funding for the Total Project Cost of Project 05-D-405 Salt Waste Processing Facility within the construction line-item account. In prior years, the construction line-item account only contained appropriations for the Total Estimated Cost portion of the project. The Other Project Cost portion was included within PBS SR-0014C, Radioactive Liquid Tank Waste Stabilization and Disposition. In FY 2015, this project requested \$135,000,000 for the Total Project Cost control point. In the FY 2015 Omnibus Appropriations Bill, Congress appropriated all funding for the Total Project Cost of Project 05-D-405 Salt Waste Processing Facility within the construction line-item account.

**Critical Milestone History**

(fiscal quarter or date)

	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	D&D Complete	CD-4
FY 2005	06/25/2001		4Q FY 2004	4Q FY 2005	4Q FY 2005	4Q FY 2005	N/A	4Q FY 2008
FY 2006	06/25/2001		4Q FY 2004	3Q FY 2006	3Q FY 2006	3Q FY 2006	N/A	4Q FY 2009
FY 2007	06/25/2001		4Q FY 2004	3Q FY 2007	1Q FY 2008	3Q FY 2007	N/A	1Q FY 2011
FY 2008	06/25/2001		4Q FY 2004	3Q FY 2007	1Q FY 2008	3Q FY 2007	N/A	1Q FY 2011
FY 2007 Notification	06/25/2001		4Q FY 2004	4Q FY 2007	4Q FY 2008	4Q FY 2008	N/A	1Q FY 2014
FY 2009	06/25/2001		4Q FY 2004	4Q FY 2007	4Q FY 2008	4Q FY 2008	N/A	1Q FY 2014
FY 2008 Reprogramming	06/25/2001		4Q FY 2004	4Q FY 2007	4Q FY 2008	1Q FY 2009	N/A	1Q FY 2014
FY 2010	06/25/2001		4Q FY 2004	4Q FY 2007	4Q FY 2008	1Q FY 2009	N/A	1Q FY 2016
FY 2011	06/25/2001		4Q FY 2004	4Q FY 2007	4Q FY 2008	1Q FY 2009	N/A	1Q FY 2016
FY 2012	06/25/2001		4Q FY 2004	4Q FY 2007	4Q FY 2008	1Q FY 2009	N/A	1Q FY 2016
FY 2013	06/25/2001		4Q FY 2004	4Q FY 2007	4Q FY 2008	1Q FY 2009	N/A	1Q FY 2016
FY 2012 Reprogramming	06/25/2001		4Q FY 2004	4Q FY 2007	4Q FY 2008	1Q FY 2009	N/A	1Q FY 2016
FY 2014	06/25/2001		4Q FY 2004	4Q FY 2007	4Q FY 2008	1Q FY 2009	N/A	TBD
FY 2013 Reprogramming	06/25/2001		4Q FY 2004	4Q FY 2007	4Q FY 2008	1Q FY 2009	N/A	TBD
FY 2015	06/25/2001		4Q FY 2004	4Q FY 2007	4Q FY 2008	1Q FY 2009	N/A	TBD
FY 2014 Notification	06/25/2001		4Q FY 2004	4Q FY 2007	4Q FY 2008	1Q FY 2009	N/A	2Q FY 2021
FY 2016	06/25/2001		4Q FY 2004	4Q FY 2007	4Q FY 2008	1Q FY 2009	N/A	2Q FY 2021
FY 2015 Reprogramming	06/25/2001		4Q FY 2004	4Q FY 2007	4Q FY 2008	1Q FY 2009	N/A	2Q FY 2021
FY 2017	06/25/2001		4Q FY 2004	4Q FY 2007	4Q FY 2008	1Q FY 2009	N/A	2Q FY 2021
FY 2018	06/25/2001		4Q FY 2004	4Q FY 2007	4Q FY 2008	1Q FY 2009	N/A	2Q FY 2021
FY 2019	06/25/2001		4Q FY 2004	4Q FY 2007	4Q FY 2008	1Q FY 2009	N/A	2Q FY 2021

**CD-0** – Approve Mission Need

**Conceptual Design Complete** – Actual date the conceptual design was completed (if applicable)

**CD-1** – Approve Alternative Selection and Cost Range

**CD-2** – Approve Project Performance Baseline

**Final Design Complete** – Estimated/Actual date the project design will be/was completed

**CD-3** – Approve Start of Construction

**D&D Complete** – Completion of D&D work (see Section 9)

**CD-4** – Approve Start of Operations or Project Completion

**PB** – Indicates the Performance Baseline

(Fiscal Quarter or Date)

	Performance Baseline Validation	CD-2/3A	CD-3B	CD-3	CD-4
FY 2005	N/A	N/A	N/A	N/A	N/A
FY 2006	N/A	N/A	N/A	N/A	N/A
FY 2007	N/A	N/A	N/A	N/A	N/A

**Environmental Management/  
Savannah River/05-D-405 Salt Waste  
Processing Facility**

FY 2008	N/A	N/A	N/A	N/A	N/A
FY 2007 Notification	4Q 2007	4Q 2007	2Q2008	N/A	N/A
FY 2009	4Q 2007	4Q 2007	3Q2008	N/A	N/A
FY 2008 Reprogramming	4Q 2007	4Q 2007	4Q 2008	N/A	N/A
FY 2010	4Q 2007	4Q 2007	4Q 2008	1Q 2009	N/A
FY 2010	4Q 2007	4Q 2007	4Q 2008	1Q 2009	N/A
FY 2012	4Q 2007	4Q 2007	4Q 2008	1Q 2009	N/A
FY 2013	4Q 2007	4Q 2007	4Q 2008	1Q 2009	N/A
FY 2012 Reprogramming	4Q 2007	4Q 2007	4Q 2008	1Q 2009	N/A
FY 2014	4Q 2007	4Q 2007	4Q 2008	1Q 2009	N/A
FY 2013 Reprogramming	4Q 2007	4Q 2007	4Q 2008	1Q 2009	N/A
FY 2015	4Q 2007	4Q 2007	4Q 2008	1Q 2009	N/A
FY 2014 Notification	4Q 2014	4Q 2007	4Q 2008	1Q 2009	2Q 2021
FY 2016	4Q 2014	4Q 2007	4Q 2008	1Q 2009	2Q 2021
FY 2015 Reprogramming	4Q 2014	4Q 2007	4Q 2008	1Q 2009	2Q 2021
FY 2017	4Q 2014	4Q 2007	4Q 2008	1Q 2009	2Q 2021
FY 2018	4Q 2014	4Q 2007	4Q 2008	1Q 2009	2Q 2021
FY 2019	4Q 2014	4Q 2007	4Q 2008	1Q 2009	2Q 2021

CD-2/3A - Site Preparation, Early Construction and Long Lead Procurement  
CD-3B - Early Construction and Long Lead Procurement

**Project Cost History**

(Dollars in Thousands)

	TEC, Design	TEC, Construction	TEC, Total	OPC Except D&D	OPC, D&D	OPC, Total	TPC
FY 2005	TBD	TBD	TBD or N/A	TBD	N/A	TBD or N/A	TBD or N/A
FY 2006	78,917	252,014	330,931	107,207	0	107,207	438,138
FY 2007	228,600	331,000	559,600	120,400	0	120,400	680,000
FY 2008	228,705	497,199	725,904	173,433	0	173,433	899,337
FY 2007 Notification	228,797	497,199	725,996	173,341	0	173,341	899,337
FY 2009	228,705	497,199	725,904	173,433	0	173,433	899,337
FY 2008 Reprogramming	243,705	482,199	725,904	173,433	0	173,433	899,337
FY 2010	243,705	895,151	1,138,856	200,692	0	200,692	1,339,548
FY 2011	243,705	895,151	1,138,856	200,692	0	200,692	1,339,548
FY 2012	243,705	895,151	1,138,856	200,692	0	200,692	1,339,548
FY 2013	243,705	895,151	1,138,856	200,692	0	200,692	1,339,548
FY 2012 Reprogramming	243,705	929,457	1,173,162	166,386	0	166,386	1,339,548
FY 2014	243,705	929,457	1,173,162	166,386	0	166,386	1,339,548
FY 2013 Reprogramming	243,705	1,071,417	1,315,122	166,386		166,386	1,481,508
FY 2015	243,705	1,178,417	1,422,122	171,983	0	171,983	1,594,105

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(Dollars in Thousands)

	TEC, Design	TEC, Construction	TEC, Total	OPC Except D&D	OPC, D&D	OPC, Total	TPC
FY 2014 Notification	243,705	1,367,412	1,611,117	710,883	0	710,883	2,322,000
FY 2016	243,705	1,367,412	1,611,117	710,883	0	710,883	2,322,000
FY 2015 Reprogramming	238,905	1,372,212	1,611,117	710,883	0	710,883	2,322,000
FY 2017	238,905	1,372,212	1,611,117	710,883	0	710,883	2,322,000
FY 2018	238,905	1,372,212	1,611,117	710,883	0	710,883	2,322,000
FY 2019	238,905	1,372,212	1,611,117	710,883	0	710,883	2,322,000

## 2. Project Scope and Justification

### Scope

This project scope includes construction of a facility to treat large quantities of waste from reprocessing and other liquids generated by nuclear materials production operations at the Savannah River Site. Approximately 37,000,000 gallons of this waste is being stored on an interim basis in 45 underground waste storage tanks. Of the 37,000,000 gallons, approximately 3,000,000 gallons are sludge waste and approximately 34,000,000 gallons are salt waste, consisting of 16,500,000 gallons of solid salt cake and 17,500,000 gallons of salt supernate. Continued, long-term storage of this liquid waste in underground tanks poses an environmental risk. Waste volumes are subject to change because the supernate is evaporated to reduce its volume, sludge is being removed for processing and vitrification, and new waste is being transferred to the radioactive liquid waste tanks. In addition, water required for salt cake removal from the tanks and processing is presently expected to result in approximately 84 million gallons of salt and supernate solution to be processed.

This project scope includes design, construction, and cold commissioning of the Salt Waste Processing Facility to safely separate the high-activity fraction from the low-activity fraction of the radioactive liquid salt waste stored in underground tanks at the Savannah River Site. The Department has selected Caustic-Side Solvent Extraction as the preferred technology for separation of radioactive cesium from the salt wastes. Salt Waste Processing Facility processing also includes a separation step to remove strontium, uranium, plutonium, and neptunium from the waste by sorption onto granular monosodium titanate followed by filtration.

### Justification

To comply with state and Federal regulatory agreements, all non-compliant storage waste tanks must be empty by 2028. The Department built the Defense Waste Processing Facility to vitrify high-level radioactive liquid waste into a stable form and store it for eventual disposal in a geologic repository. The ability to safely process the salt component of the radioactive liquid waste stored in underground storage tanks at the Savannah River Site is a crucial prerequisite for completing radioactive liquid waste disposal. Without a suitable method for salt management, the Department would not be able to place the radioactive liquid waste in a configuration acceptable for safe disposal.

The Salt Waste Processing Facility presently has a waste processing nameplate capacity of a nominal 7,300,000 gallons per year. The Salt Waste Processing Facility will consist of all buildings, equipment, and services required to provide a fully functioning facility for processing salt waste. The Salt Waste Processing Facility will contain necessary process areas, service areas, chemical storage areas, and administrative areas. The process building will contain shielded processing cells and chemical processing equipment. In-cell tanks and components will be of a closed-cell design for ease of maintenance, replacement, and later decommissioning. The operating area will contain chemical feed pumps and tanks, hot and cold laboratories for testing samples, electrical and mechanical equipment areas, truck unloading area, and maintenance and decontamination areas. The chemical storage area will be located near the process building and will contain chemical storage tanks. Service and administrative spaces will be sized as required to accommodate the process facility.

A formal technical and programmatic risk assessment has been performed. The risk assessment concluded that the technical and programmatic risks are manageable.

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The Savannah River Site Federal Facilities Agreement and Site Treatment Plan require production of (on average) 200 high level waste canisters per year at the Defense Waste Processing Facility. In order to minimize total canister production and avoid future shutdowns or slowdowns of the Defense Waste Processing Facility, a coupled feed (both sludge and salt) must be established and maintained. At this time, the Salt Waste Processing Facility is on the critical path for establishing the coupled feed.

In response to Defense Nuclear Facilities Safety Board concerns about the impacts of potential accidents involving radiological materials, the DOE Savannah River Operations Office directed on November 23, 2005, development of an Enhanced Preliminary Design that implemented a Performance Category 3 confinement approach.

In May 2007, development of a bottom-up cost estimate was completed to support the Critical Decision -2 package and further adjusted based on comments received from an External Independent Review, which resulted in a project cost estimate of \$899,337,000 which is a \$220,000,000 increase over an earlier rough order of magnitude estimate. The primary drivers for this increase were increased technical requirements resulting from the implementation of National Quality Assurance Standard 1 in lieu of International Standards Organization Standard 9001, resolution of structural/geotechnical issues, and additional Performance Category 3 requirements not identified during the initial rough order of magnitude estimate process. In addition, changes in how the project interpreted guidance on classification of Operating Funds as either Other Project Costs or Operating Costs accounted for approximately \$53,000,000 of the \$220,000,000 increase.

Early in the execution of Critical Decision -2/3A activities, design issues surrounding inability to secure sufficient critical design resources began to impact completion of design activities. This situation was further exacerbated by the volatility of the market, which began affecting the Critical Decision -3A procurements. Mitigation strategies were developed to deal with these issues. The revised Critical Decision -3 baseline was developed using the 90 percent design drawings, which estimated additional material and associated labor to install, and incorporated the cost of realized risk of material cost increases and design delays. The resulting baseline total project cost was \$1,339,548,586, an increase of \$440,211,586 over the Critical Decision -2 baseline estimate.

The cost and schedule confidence levels established at Critical Decision -3 in 2009 were a cost of \$1,339,548,586 at a 95 percent confidence level and a completion date of October 2015, which included 126 weeks of schedule contingency at an 80 percent confidence level.

Since 2009, the project experienced significant delays as a result of the procurement and delivery of American Society of Mechanical Engineers process vessels and other Nuclear Quality Assurance-1 vendor performance issues related to engineered equipment. Despite significant involvement by the DOE Federal Project Director, Integrated Project Team, and Senior DOE leadership, these issues adversely impacted the cost and completion dates for construction completion and facility commissioning. This increase also reflects additional cost contingency at the 95% confidence level. The revised project costs are based on the project's independently validated baseline updated to reflect completion of Critical Decision -4, as established in accordance with the DOE Order 413.3B on project management.

The major elements of the cost increase are as follows:

- Construction
- Commissioning
- Other Project Costs

Construction costs increased as a result of cost and schedule impacts from delay in receipt of Large American Society of Mechanical Engineers Vessels as well as impacts from other NQA-1 procurements. In addition to the direct impacts from the two year schedule slip associated with the tank delay, inefficiencies while awaiting tank delivery caused a cumulative impact of nearly four years, from the January 2013 construction completion date established at Critical Decision -3 to the negotiated completion date of December 2016 represented in this baseline change. The cost increase reflects the additional periods of performance and associated overhead costs and level of effort expenses during that extended period. This increase has been approved in connection with contractual discussions with the Contractor in 2013 to establish a more appropriate contract structure, imposed a cost cap on construction, and was codified via Contract Modification 116 in June

2013. It is important to note that establishing a cost cap provided the Department with more contractual control of the construction work scope and transferred the risk associated with cost overruns from the Department to the contractor.

Commissioning increased as a result of escalation due to the construction delays and incorporation of lessons learned from other DOE Commissioning Projects (i.e., Integrated Waste Treatment Unit). This drove increased staffing levels and longer durations for Commissioning activities (increase from 11 months to 29 months).

Other Project Costs; which includes the Contractor Fee, Contingency/Management Reserve, and DOE/Management & Operations Contractor support, were increased. The increase in DOE/ Management & Operations Contractor support is due to the extended schedule and is based on actual costs to date projected to the end of the project. Because the schedule is extended from 2015 to 2021, this will require additional years of DOE/ Management & Operations Contractor support. The Contractor Fee has been reduced.

The total contingency increase recognizes uncertainties associated with commissioning, includes 26 months of schedule contingency, and includes the project management reserve. Under the cost reimbursable contract structure for commissioning, the Federal Project Director will manage and control all management reserve, as well as contingency. The contingency costs were informed by a DOE Risk Analysis and confirmed by the External Independent Review.

The project is being conducted in accordance with the project management requirements in DOE Order 413.3B, Program and Project Management for the Acquisition of Capital Assets.

Key Performance Parameters

The Threshold Key Performance Parameters, represent the acceptable performance that the project must achieve. Achievement of the Threshold Key Performance Parameters will be a prerequisite for approval of Critical Decision -4, Project Completion. The Objective Key Performance Parameters represent the desired project performance.

Performance Measure	Threshold	Objective
Process throughput rate	Demonstrate the ability to process at a throughput rate of 7,300,000 gallons /year.	
Waste Products Production	Demonstrate the ability to produce waste products that are within the established limits of the Waste Acceptance Criteria and/or Documented Safety Analysis of the receiving facilities (i.e., Defense Waste Processing Facility and Saltstone Production Facility).	
Cold Commissioning	Successful Cold Commissioning – The following tests will be conducted during Cold Commissioning to validate compliance: <ul style="list-style-type: none"> <li>a. Chemical Sampling to Assess Product Compliance.</li> <li>b. Peak Throughput Performance Testing.</li> <li>c. Other Cold Commissioning Performance Testing (off-normal conditions, non-routine operations, maintenance, and environmental testing).</li> </ul>	

### 3. Project Cost and Schedule

(Dollars in Thousands)

#### Financial Schedule

Budget Authority (Appropriations)	Obligations	Costs
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Total Estimated Cost (TEC)

#### **Design**

FY 2003	N/A	N/A	0
FY 2004	N/A	N/A	11,539
FY 2005	N/A	N/A	30,204
FY 2006	N/A	N/A	48,195
FY 2007	N/A	N/A	75,600
FY 2008 <sup>e</sup>	N/A	N/A	53,063
FY 2009	N/A	N/A	16,588
FY 2010	N/A	N/A	3,716
Total, Design	238,905	238,905	238,905

#### **Construction**

FY 2005	N/A	N/A	0
FY 2006	N/A	N/A	0
FY 2007	N/A	N/A	1,907
FY 2008 <sup>e</sup>	N/A	N/A	68,440
FY 2009	N/A	N/A	93,367
FY 2010	N/A	N/A	151,743
FY 2011	N/A	N/A	227,296
FY 2012 <sup>b</sup>	N/A	N/A	197,479
FY 2013 <sup>c</sup>	N/A	N/A	148,911
FY 2014	N/A	N/A	144,671
FY 2015	N/A	N/A	156,728
FY 2016	N/A	N/A	132,866
FY 2017	N/A	N/A	48,804
Total, Construction	1,372,212	1,372,212	1,372,212

#### **TEC**

FY 2003	4,842	4,842	0
FY 2004	51,198	51,198	11,539
FY 2005	29,261	29,261	30,204
FY 2006	35,485	35,485	48,195

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	Budget Authority (Appropriations)	Obligations	Costs
FY 2007	104,296	104,296	77,507
FY 2008 <sup>e</sup>	97,109	97,109	121,503
FY 2009	155,524	155,524	109,955
FY 2010	234,118	234,118	155,459
FY 2011	234,403	234,403	227,296
FY 2012 <sup>b</sup>	204,377	204,377	197,479
FY 2013 <sup>c</sup>	72,509	72,509	148,911
FY 2014	N/A	N/A	144,671
FY 2015	N/A	N/A	156,728
FY 2016	N/A	N/A	132,866
FY 2017	N/A	N/A	48,804
Total, TEC	N/A	N/A	1,611,117

## Other Project Cost (OPC)

**OPC**

FY 2006	22,447	22,447	22,447
FY 2007	9,048	9,048	9,048
FY 2008	9,715	9,715	7,715
FY 2009	13,133	13,133	9,729
FY 2010	25,202	25,202	12,672
FY 2011	23,475	23,475	8,618
FY 2012 <sup>b</sup>	0	0	8,044
FY 2013	7,963	7,963	17,052
FY 2014 <sup>e</sup>	N/A	N/A	18,125
FY 2015 <sup>e</sup>	N/A	N/A	37,540
FY 2016	N/A	N/A	66,857
FY 2017	N/A	N/A	102,253
FY 2018	N/A	N/A	136,608
FY 2019	N/A	N/A	149,242
FY 2020	N/A	N/A	85,000
FY 2021	N/A	N/A	19,933
Total, OPC	N/A	N/A	710,883

(Dollars in Thousands)

	Budget Authority (Appropriations)	Obligations	Costs
<b>Total Project Cost (TPC)</b>			
FY 2003	4,842	4,842	0
FY 2004	51,198	51,198	11,539
FY 2005	29,261	29,261	30,204
FY 2006	57,932	57,932	70,642
FY 2007	113,344	113,344	86,555
FY 2008 <sup>ae</sup>	106,824	106,824	129,218
FY 2009	168,657	168,657	119,684
FY 2010	259,320	259,320	168,131
FY 2011	257,878	257,878	235,914
FY 2012 <sup>b</sup>	204,377	204,377	205,523
FY 2013 <sup>c</sup>	80,472	80,472	165,963
FY 2014	125,000	125,000	162,796
FY 2015	135,000	135,000	194,268
FY 2016	194,000	194,000	199,723
FY 2017	160,000	160,000	151,057
FY 2018	150,000	150,000	136,608
FY 2019 <sup>f</sup>	65,000	65,000	149,242
FY 2020 <sup>f</sup>	125,000	125,000	85,000
FY 2021 <sup>f</sup>	33,895	33,895	19,933
Total, TPC <sup>d</sup>	2,322,000	2,322,000	2,322,000

<sup>a</sup>Includes a Congressional Reprogramming of \$15,000,000 from the construction project (05-D-405) to Project Engineering and Design (03-D-414).

<sup>b</sup>FY 2012 includes a reduction in OPC funds and a corresponding increase in Total Estimated Cost funds of \$34,305,510.

<sup>c</sup>FY 2013 reflects a reprogramming resulting in a reduction in Total Estimate Cost funds of \$83,888,565 as a result of funding under an annualized continuing resolution.

<sup>d</sup>Beginning in FY 2014, the OPC was appropriated from the construction line-item account. Prior to FY 2014, the OPC was appropriated within PBS SR-0014C, Radioactive Liquid Tank Waste Stabilization and Disposition.

<sup>e</sup>FY 2008 includes a Congressional Reprogramming request to realign \$4,800,000 from the Project Engineering and Design (03-D-414) to the Salt Waste Processing Facility construction project (05-D-404). No change in the Total Project Cost of \$2,322,000,000.

<sup>f</sup>FY 2019 is a transitional year from commissioning to operations for the project. As such, the requests for FY 2019, FY 2020, and FY 2021 have been adjusted to reflect a need of \$65 million in FY 2019 in support of the planned December 2018 start-up date; accordingly, FY 2020 and FY 2021 have been adjusted to maintain the current project baseline.

(Dollars in Thousands)

**Details of Project Cost Estimate**

## Total Estimated Cost (TEC)

## Design

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Design	238,905	243,705	206,705
Contingency	0	0	37,000
<b>Total, Design</b>	<b>238,905</b>	<b>243,705</b>	<b>243,705</b>

## Construction

Site Preparation	27,263	27,263	27,263
Equipment	171,893	171,893	89,508
Other Construction	1,137,056	1,132,256	316,428
Contingency	36,000	36,000	49,000
<b>Total, Construction</b>	<b>1,372,212</b>	<b>1,367,412</b>	<b>482,199</b>

## Total, TEC

Total, TEC	1,611,117	1,611,117	725,904
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Contingency, TEC	36,000	36,000	86,000
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## Other Project Cost (OPC)

## OPC except D&amp;D

Conceptual Planning	0	0	0
Conceptual Design	14,133	14,133	14,445
Start-Up	257,750	257,750	96,940
Contingency	300,100	300,100	22,000
Other OPC	138,900	138,900	40,048
<b>Total, OPC except D&amp;D</b>	<b>710,883</b>	<b>710,883</b>	<b>173,433</b>

## Total, OPC

Total, OPC	710,883	710,883	173,433
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Contingency, OPC	300,100	300,100	22,000
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## Total, TPC

Total, TPC	2,322,000	2,322,000	899,337
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Total, Contingency	336,100	336,100	108,000
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**Schedule of Appropriation Requests**

Request		Prior Years	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	Out-years	Total
FY 2004	TEC	69,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	69,000
	OPC	11,967	N/A	N/A	N/A	N/A	N/A	N/A	N/A	11,967
	TPC	80,967	N/A	N/A	N/A	N/A	N/A	N/A	N/A	80,967
FY 2005	TEC	69,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	69,000
	OPC	11,967	N/A	N/A	N/A	N/A	N/A	N/A	N/A	11,967
	TPC	80,967	N/A	N/A	N/A	N/A	N/A	N/A	N/A	80,967

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<b>FY 2006</b>	TEC	336,040	0	0	0	0	0	0	0	336,040
	OPC	103,960	0	0	0	0	0	0	0	103,960
	TPC	440,000	0	0	0	0	0	0	0	440,000
<b>FY 2007 Performance Baseline</b>	TEC	559,600	0	0	0	0	0	0	0	559,600
	OPC	120,400	0	0	0	0	0	0	0	120,400
	TPC	680,000	0	0	0	0	0	0	0	680,000
<b>FY 2008</b>	TEC	559,600	0	0	0	0	0	0	0	559,600
	OPC	120,400	0	0	0	0	0	0	0	120,400
	TPC	680,000	0	0	0	0	0	0	0	680,000
<b>FY 2007 Congressional Notification</b>	TEC	725,996	0	0	0	0	0	0	0	725,996
	OPC	170,286	3,055	0	0	0	0	0	0	173,341
	TPC	896,282	3,055	0	0	0	0	0	0	899,337
<b>FY 2009</b>	TEC	725,904	0	0	0	0	0	0	0	725,904
	OPC	170,286	3,147	0	0	0	0	0	0	173,433
	TPC	896,190	3,147	0	0	0	0	0	0	899,337
<b>FY 2010</b>	TEC	1,138,856	0	0	0	0	0	0	0	1,138,856
	OPC	200,692	0	0	0	0	0	0	0	200,692
	TPC	1,339,548	0	0	0	0	0	0	0	1,339,548
<b>FY 2011</b>	TEC	1,138,856	0	0	0	0	0	0	0	1,138,856
	OPC	195,289	5,403	0	0	0	0	0	0	200,692
	TPC	1,334,145	5,403	0	0	0	0	0	0	1,339,548
<b>FY 2012</b>	TEC	1,173,162	0	0	0	0	0	0	0	1,173,162
	OPC	160,983	5,403	0	0	0	0	0	0	166,386
	TPC	1,334,145	5,403	0	0	0	0	0	0	1,339,548
<b>FY 2013</b>	TEC	1,223,162	0	0	0	0	0	0	0	1,223,162
	OPC	110,983	5,403	0	0	0	0	0	0	116,386
	TPC	1,334,145	5,403	0	0	0	0	0	0	1,339,548
<b>FY 2012 Reprogramming</b>	TEC	1,223,162	0	0	0	0	0	0	0	1,223,162
	OPC	110,983	5,403	0	0	0	0	0	0	116,386
	TPC	1,334,145	5,403	0	0	0	0	0	0	1,339,548

<b>FY 2014</b>	TEC	1,321,725	92,000	0	0	0	0	0	0	1,413,725
	OPC	160,983	5,403	0	0	0	0	0	0	166,386
	TPC	1,482,708	97,403	0	0	0	0	0	0	1,580,111
<b>FY 2013 Reprogramming</b>	TEC	1,223,122	92,000	0	0	0	0	0	0	1,315,122
	OPC	160,983	5,403	0	0	0	0	0	0	166,386
	TPC	1,384,105	97,403	0	0	0	0	0	0	1,481,508
<b>FY 2015</b>	TEC	1,223,122	92,000	107,000	0	0	0	0	0	1,422,122
	OPC	110,983	33,000	28,000	0	0	0	0	0	171,983
	TPC	1,334,105	125,000	135,000	0	0	0	0	0	1,594,105
<b>FY 2014 Notification</b>	TEC	1,223,122	92,000	107,000	134,000	54,995	0	0	0	1,611,117
	OPC	110,983	33,000	28,000	60,000	105,000	150,000	140,000	83,900	710,883
	TPC	1,334,105	125,000	135,000	194,000	159,995	150,000	140,000	83,900	2,322,000
<b>FY 2016</b>	TEC	1,223,122	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1,611,117
	OPC	110,983	N/A	N/A	N/A	N/A	N/A	N/A	N/A	710,883
	TPC	1,334,105	125,000	135,000	194,000	159,995	150,000	140,000	83,900	2,322,000
<b>FY 2015 Reprogramming</b>	TEC	1,223,122	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1,611,117
	OPC	110,983	N/A	N/A	N/A	N/A	N/A	N/A	N/A	710,883
	TPC	1,334,105	125,000	135,000	194,000	159,995	150,000	140,000	83,900	2,322,000
<b>FY 2017</b>	TEC	1,223,122	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1,611,117
	OPC	110,983	N/A	N/A	N/A	N/A	N/A	N/A	N/A	710,883
	TPC	1,334,105	125,000	135,000	194,000	160,000	150,000	140,000	83,895	2,322,000
<b>FY 2018</b>	TEC	1,223,122	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1,611,117
	OPC	110,983	N/A	N/A	N/A	N/A	N/A	N/A	N/A	710,883
	TPC	1,334,105	125,000	135,000	194,000	160,000	150,000	140,000	83,895	2,322,000
<b>FY 2019</b>	TEC	1,223,122	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1,611,117
	OPC	110,983	N/A	N/A	N/A	N/A	N/A	N/A	N/A	70,883
	TPC	1,334,105	125,000	135,000	194,000	160,000	150,000	65,000	158,895	2,322,000

#### 4. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	2Q21
Expected Useful Life (number of years)	17
Expected Future Start of D&D	N/A

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Related Funding requirements  
(Budget Authority in Thousands of Dollars)

	Annual Costs		Life Cycle Costs	
	Current Total Estimate	Previous Total Estimate	Current Total Estimate	Previous Total Estimate
Operations	72,649	63,443	1,235,033	1,083,957
Maintenance	12,351	10,785	209,967	184,273
<b>Total, Operations &amp; Maintenance</b>	<b>85,000</b>	<b>74,228</b>	<b>1,445,000</b>	<b>1,268,230</b>

**5. D&D Information**

The new area being constructed in this project is not replacing existing facilities. As part of the EM cleanup efforts, sites have established unique projects to perform Decontamination and Decommissioning. An estimated 2,108,087 square feet of buildings will have been removed from the Savannah River Sites inventory from Fiscal Year 2002 through Fiscal Year 2011. The square footage of this project will be offset against the Savannah River Site Decontamination and Decommissioning program's banked excess.

The location of this construction project is an environmental management closure site and, therefore, is exempt from the "one-for-one" requirement.

**6. Acquisition Approach**

The project acquisition strategy included the use of two separate contractors to perform conceptual design, which reduced project risk. Both contractors were awarded contracts in September 2002 and identified and managed technical and program risks through completion of conceptual design. Following completion of conceptual design, the Department selected one of the two contractors in January 2004 to perform preliminary and final design, construction, commissioning, and one year of operations. Design services were obtained through a competed contract with an Engineering, Procurement, and Construction contractor.

The contract has been restructured to a Cost-Plus-Incentive Fee, plus cost cap arrangement for construction to go target cost of \$530,000,000, as of January 1, 2013. The cost cap includes construction and commissioning support during construction.



**17-D-402, Saltstone Disposal Unit #7  
Savannah River Site, Aiken, SC (SR-0014C)  
Project is for Design and Construction**

**1. Summary, Significant Changes, and Schedule and Cost History**

**Summary**

The FY 2019 Request for the Saltstone Disposal Unit #7 project is \$41,243,000.

The most recent DOE Order 413.3B approved Critical Decision is -1, which was approved on May 4, 2017, with a preliminary cost range of \$110,000,000 to \$170,000,000 and Critical Decision -4 of first quarter of October 2022.

**Significant Changes**

This Construction Project Data Sheet is an update of the FY 2018 Construction Project Data Sheet and does not include a new start for the budget year.

In accordance with DOE Order 413.3B, the Federal Project Director has been assigned.

The preliminary critical decision strategy for site preparation (Critical Decision -3A) will give the project greater flexibility in sequencing construction activities. To facilitate a streamlined approach, Approval of the Project Performance Baseline (Critical Decision -2) and Approve Start of Construction (Critical Decision -3) will be combined.

Lessons learned from the successful completion of Saltstone Disposal Unit #6 will be incorporated into Saltstone Disposal Unit #7.

**Critical Milestone History**

(Fiscal Quarter or Date)

	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	D&D Complete	CD-4
FY 2017	2QFY2016	TBD	TBD	TBD	TBD	TBD	TBD	TBD
FY 2018	02/19/2016		3QFY2017	1QFY2018		1QFY2018	N/A	TBD
FY 2019	02/19/2016		05/04/2017	2QFY2018		2QFY2018	N/A	TBD

**CD-0** – Approve Mission Need

**Conceptual Design Complete** – Actual date the conceptual design was completed (if applicable)

**CD-1** – Approve Design Scope and Project Cost and Schedule Ranges

**CD-2** – Approve Project Performance Baseline

**CD-3** – Approve Start of Construction

**Final Design Complete** – Estimated/Actual date the project design will be /was completed

**D&D Complete** – Completion of D&D work (see Section 9)

**CD-4** – Approve Start of Operations or Project Closeout

**PB** – Indicates the Performance Baseline

(Fiscal Quarter or Date)

	Performance Baseline Validation	CD-3A		
FY 2017	TBD	TBD		
FY 2018	1QFY2018	4QFY2017		
FY 2019	2QFY2018	10/16/2017		

Note: Schedules are only estimates and are consistent with the high end of the schedule range.

**Project Cost History**

(Dollars in Thousands)

	TEC, Design	TEC, Construction	TEC, Total	OPC Except D&D	OPC, D&D	OPC, Total	TPC
FY 2017	TBD	TBD	TBD	TBD	TBD	TBD	TBD
FY 2018	TBD	TBD	TBD	TBD	TBD	TBD	TBD
FY 2019	TBD	TBD	TBD	TBD	TBD	TBD	TBD

**2. Project Scope and Justification**

**Scope**

The Saltstone Disposal Unit #7 is the next in a series of projects that contain and disposition decontaminated salt solution (in the form of Saltstone grout) generated by the treatment of liquid nuclear waste at the Savannah River Site. Saltstone Disposal Unit 7 project will construct a 375 feet in diameter, 43 feet high, 32,000,000 gallon cylindrical large tank disposal cell based on American Water Works Association design. This will include all infrastructure necessary to accept Saltstone grout produced by the Saltstone Production facility with sufficient capacity to meet the estimated production rates identified in the Savannah River Site ‘Liquid Waste System Plan.’

The Saltstone Disposal Units are required to provide the primary containment of Saltstone grout with sufficient capacity to support site closure goals and salt waste projections identified in the Liquid Waste System Plan. The mission need addressed by this project is critical for the final disposition of the decontaminated salt solution that is produced by the liquid waste system and without which the commitments made in the Federal Facilities Agreement with the State of South Carolina and the Environmental Protection Agency cannot be achieved.

**Justification**

Built in the 1980s, the Z-Area Saltstone Facility applies a process that immobilizes low-level radioactive salt solution waste in grout. Dry materials are unloaded from dry bulk pneumatic trailers and conveyed to storage silos. The dry solids (fly ash, slag, and cement), are then discharged from the silos, weighed, and blended to produce a premix dry feed. Salt solution which is received from H-Area Waste Tank 50 through the Inter-area Transfer System through the Salt Feed Tank and premix are proportionally measured and fed to a mixer in the 210-Z process room to produce a Saltstone grout, which is pumped to the disposal units for permanent disposal. The grout hardens to form Saltstone that is a leach-resistant, non-hazardous solid waste form as defined by South Carolina Department of Health and Environmental Control regulations. The combination of the monolithic non-hazardous solid Saltstone waste form, concrete vault cell, and closure cap system controls migration of chemical and radioactive constituents to the environment. The Saltstone Disposal Unit projects have been initiated to provide landfill capacity for receipt of Low Activity Treated Waste grout. The need for the Saltstone Disposal Unit is driven by the Savannah River Site Liquid Waste Disposition Program Plan to accomplish cleanup objectives. Saltstone Disposal Unit projects provide the benefits of lower disposal cost for decontaminated salt solutions. The grout itself provides primary containment of the waste, and the walls, floor, and roof of the Disposal Units provide secondary containment. Saltstone Disposal Unit will be constructed in coordination with salt processing production rates.

The need date for all Saltstone Disposal Units is recorded in the Savannah River Site Liquid Waste System Plan, Revision 20. This plan documents the strategy of dispositioning the liquid waste in the Savannah River Site tank farm and meeting the Federal Facility Agreement for tank closure. It is a living document that is routinely updated to account for any changes that may affect the liquid waste system (e.g., funding fluctuations, changes in technology, facility availability, etc.).

The project contingency is based upon previous experience and risks associated with the successful construction of Saltstone Disposal Unit #6, which adapted a commercial reinforced concrete tank to a nuclear grade low level waste disposal cell.

The project is being conducted in accordance with the project management requirements in DOE Order 413.3B, Program and Project Management for the Acquisition of Capital Assets.

### Key Performance Parameters

The Threshold Key Performance Parameters, represent the acceptable performance that the project must achieve. Achievement of the Threshold Key Performance Parameters will be a prerequisite for approval of Critical Decision -4, Project Completion. The Objective Key Performance Parameters represent the desired project performance.

Performance Measure	Threshold	Objective
Capacity	Provide saltstone grout containment capacity of no less than 30,000,000 gallons.	
Throughput	Provide infrastructure capable of delivering saltstone grout at 100 gallons per minute minimum.	
Leak Detection	Install a leak detection system in accordance with the Z-Area Industrial Solid Waste Landfill Permit requirements.	

### 3. Project Cost and Schedule

#### Financial Schedule

(Dollars in Thousands)

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
FY 2017	N/A	N/A	4,500
FY 2018	N/A	N/A	4,471
Total, Design	N/A	N/A	8,971
Construction			
FY 2017	N/A	N/A	1,000
FY 2018	N/A	N/A	35,529
FY 2019	N/A	N/A	41,243
Outyears	N/A	N/A	TBD
Total, Construction	N/A	N/A	TBD
TEC			
FY 2017	5,500	5,500	5,500
FY 2018	40,000	40,000	40,000
FY 2019	41,243	41,243	41,243
Outyears	TBD	TBD	TBD
Total, TEC	TBD	TBD	TBD
OPC			
FY 2016	1,201	1,201	1,201

(Dollars in Thousands)

	Budget Authority (Appropriations)	Obligations	Costs
FY 2017	1,618	1,618	1,618
FY 2018	4,000	4,000	4,000
FY 2019	2,782	2,782	2,782
Outyears	TBD	TBD	TBD
Total, OPC	TBD	TBD	TBD
Total Project Cost (TPC)			
FY 2016	1,201	1,201	1,201
FY 2017	7,118	7,118	7,118
FY 2018	44,000	44,000	44,000
FY 2019	44,025	44,025	44,025
Outyears	TBD	TBD	TBD
Total, TPC	TBD	TBD	TBD

Note: Site preparation will be completed via Critical Decision -3A. This will facilitate the early start of construction to support the programmatic need date.

### Details of Project Cost Estimate

(Dollars in Thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design			
Design	7,671	TBD	N/A
Contingency	1,300	TBD	N/A
Total, Design	8,971	TBD	N/A
Construction			
Site Preparation	TBD	TBD	N/A
Equipment	TBD	TBD	N/A
Other Construction	TBD	TBD	N/A
Contingency	TBD	TBD	N/A
Total, Construction	TBD	TBD	N/A
Total, TEC	TBD	TBD	N/A
Contingency, TEC	TBD	TBD	N/A
Other Project Cost (OPC)			
OPC except D&D	TBD	TBD	N/A
Conceptual Planning	TBD	TBD	N/A
Conceptual Design	TBD	TBD	N/A
Start-up	TBD	TBD	N/A
Contingency	TBD	TBD	N/A
Other OPC	TBD	TBD	N/A
Total, OPC except D&D	TBD	TBD	N/A

**Environmental Management/  
Savannah River/17-D-402 Saltstone  
Disposal Unit #7**

(Dollars in Thousands)

Current Total Estimate	Previous Total Estimate	Original Validated Baseline
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Total, OPC	TBD	TBD	N/A
Total, Contingency	TBD	TBD	N/A
Total, TPC	TBD	TBD	N/A
Total, Contingency	TBD	TBD	N/A

**Schedule of Appropriation Requests**

Request		Prior Years	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Outyears	Total
FY 2017	TEC	0	0	9,729					TBD	TBD
	OPC	0	2,000	2,957					TBD	TBD
	TPC	0	2,000	12,686					TBD	TBD
FY 2018	TEC	0	0	5,500	40,000				TBD	TBD
	OPC	0	1,201	1,618	4,000				TBD	TBD
	TPC	0	1,201	7,118	44,000				TBD	TBD
FY 2019	TEC	0	0	5,500	40,000	41,243			TBD	TBD
	OPC	0	1,201	1,618	4,000	2,782			TBD	TBD
	TPC	0	1,201	7,118	44,000	44,025			TBD	TBD

**4. Related Operations and Maintenance Funding Requirements**

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	1QFY2022
Expected Useful Life (number of years)	3-5
Expected Future Start of D&D	N/A

## Related Funding Requirements

(Dollars in Thousands)

	Annual Costs		Life Cycle Costs	
	Current Total Estimate	Previous Total Estimate	Current Total Estimate	Previous Total Estimate
Operations	TBD	TBD	TBD	TBD
Maintenance	TBD	TBD	TBD	TBD
Total, Operations & Maintenance	TBD	TBD	TBD	TBD

**5. D&D Information**

Project licensed by the State of South Carolina as a landfill. D&D is not applicable for this project.

The new area being constructed in this project is not replacing existing facilities.

The location of this construction project is an environmental management closure site and, therefore, is exempt from the "one-for-one" requirement.

**Environmental Management/  
Savannah River/17-D-402 Saltstone  
Disposal Unit #7**

## **6. Acquisition Approach**

The overall Acquisition approach was included in the Request for Proposals for the upcoming Liquid Waste Contract rebid. The liquid waste Prime Contractor will be used to create the design, provide engineering and project management support, or other services required to execute the project. This project will be designed and constructed consistent with the successful execution of the Saltstone Disposal Unit #6 project, incorporating best practices and lessons learned.



**18-D-401, Saltstone Disposal Units #8 and #9  
Savannah River Site, Aiken, SC (SR-0014C)  
Project is for Design and Construction**

**1. Summary, Significant Changes, and Schedule and Cost History**

**Summary**

The FY 2019 Request for the Saltstone Disposal Units #8 and #9 project is \$37,450,000.

The most recent DOE Order 413.3B approved Critical Decision is Critical Decision -1, which was approved on December 11, 2017, with a preliminary cost range of \$225,000,000 to \$350,000,000 and Critical Decision -4 of July 2025.

**Significant Changes**

This Construction Project Data Sheet an update of the FY 2018 Congressional Construction Project Data Sheet and does not include a new start for the budget year.

Site, Cell and Balance of Plant design will start with receipt of design funding in FY 2018.

In accordance with DOE Order 413.3B, the Federal Project Director will be assigned prior to Critical Decision -1.

Saltstone Disposal Units #8 and #9 will be designed and constructed based on successful completion of Saltstone Disposal Unit #6, and incorporation of Lessons Learned. To facilitate a streamlined approach, approval of Approve Project Performance Baseline (Critical Decision -2) and Approve Start of Construction (Critical Decision -3) will be combined. Saltstone Disposal Units #8 and #9 will be designed and constructed as close to parallel as feasible to take advantage of efficiencies in mobilization and use of resources.

**Critical Milestone History**

(Fiscal Quarter or Date)

	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	D&D Complete	CD-4
FY 2018	3/17/2017		4QFY2017	TBD		TBD	N/A	TBD
FY 2019	3/17/2017		12/11/2017	TBD		TBD	N/A	TBD

**CD-0** – Approve Mission Need

**Conceptual Design Complete** – Actual date the conceptual design was completed (if applicable)

**CD-1** – Approve Design Scope and Project Cost and Schedule Ranges

**CD-2** – Approve Project Performance Baseline

**CD-3** – Approve Start of Construction

**Final Design Complete** – Estimated/Actual date the project design will be /was completed

**D&D Complete** – Completion of D&D work (see Section 9)

**CD-4** – Approve Start of Operations or Project Closeout

**PB** – Indicates the Performance Baseline

**Project Cost History**

(Dollars in Thousands)

	TEC, Design	TEC, Construction	TEC, Total	OPC Except D&D	OPC, D&D	OPC, Total	TPC
FY 2018	TBD	TBD	TBD	TBD	N/A	TBD	TBD
FY 2019	TBD	TBD	TBD	TBD	N/A	TBD	TBD

**2. Project Scope and Justification**

**Scope**

The Saltstone Disposal Units #8 and #9 are the next in a series of projects that contain and disposition decontaminated salt solution (in the form of Saltstone grout) generated by the treatment of liquid nuclear waste at the Savannah River Site. Saltstone Disposal Units #8 and #9 project will construct two (2) 375 feet in diameter, 43 feet high, 32,000,000 gallon cylindrical large tank disposal cells based on American Water Works Association design. This will include all infrastructure necessary to accept Saltstone grout produced by the Saltstone Production facility with sufficient capacity to meet the estimated production rates identified in the Savannah River Site ‘Liquid Waste System Plan.’

The Saltstone Disposal Units are required to provide the primary containment of Saltstone grout with sufficient capacity to support site closure goals and salt waste projections identified in the Liquid Waste System Plan. The mission need addressed by this project is critical for the final disposition of the decontaminated salt solution that is produced by the liquid waste system and without which the commitments made in the Federal Facilities Agreement with the State of South Carolina and the Environmental Protection Agency cannot be achieved.

**Justification**

Built in the 1980s, the Z-Area Saltstone Facility applies a process that immobilizes low-level radioactive salt solution waste in grout. Dry materials are unloaded from dry bulk pneumatic trailers and conveyed to storage silos. The dry solids (fly ash, slag, and cement), are then discharged from the silos, weighed, and blended to produce a premix dry feed. Salt solution which is received from H-Area Waste Tank 50 through the Inter-area Transfer System through the Salt Feed Tank and premix are proportionally measured and fed to a mixer in the 210-Z process room to produce a Saltstone grout, which is pumped to the disposal units for permanent disposal. The grout hardens to form Saltstone that is a leach-resistant, non-hazardous solid waste form as defined by South Carolina Department of Health and Environmental Control regulations. The combination of the monolithic non-hazardous solid Saltstone waste form, concrete vault cell, and closure cap system controls migration of chemical and radioactive constituents to the environment. The Saltstone Disposal Unit projects have been initiated to provide landfill capacity for receipt of Low Activity Treated Waste grout. The need for the Saltstone Disposal Unit is driven by the Savannah River Site Liquid Waste Disposition Program Plan to accomplish cleanup objectives. Saltstone Disposal Unit projects provide the benefits of lower disposal cost for decontaminated salt solutions. The grout itself provides primary containment of the waste, and the walls, floor, and roof of the Disposal Units provide secondary containment. Saltstone Disposal Unit will be constructed in coordination with salt processing production rates.

The need date for all Saltstone Disposal Units is recorded in the Savannah River Site Liquid Waste System Plan, Revision 20. This plan documents the strategy of dispositioning the liquid waste in the Savannah River Site tank farm and meeting the Federal Facility Agreement for tank closure. It is a living document that is routinely updated to account for any changes that may affect the liquid waste system (e.g., funding fluctuations, changes in technology, facility availability, etc.).

The project contingency is based upon previous experience and risks associated with the successful construction of Saltstone Disposal Unit #6, which adapted a commercial reinforced concrete tank to a nuclear grade low level waste disposal cell.

The project is being conducted in accordance with the project management requirements in DOE Order 413.3B, Program and Project Management for the Acquisition of Capital Assets.

**Key Performance Parameters**

The Threshold Key Performance Parameters, represent the acceptable performance that the project must achieve. Achievement of the Threshold Key Performance Parameters will be a prerequisite for approval of Critical Decision -4, Project Completion. The Objective Key Performance Parameters represent the desired project performance.

Performance Measure	Threshold	Objective
KPPs to be developed		

**3. Project Cost and Schedule**

**Financial Schedule**

(Dollars in Thousands)

Budget Authority (Appropriations)	Obligations	Costs
--------------------------------------	-------------	-------

Total Estimated Cost (TEC)

Design

FY 2018	N/A	N/A	500
FY 2019	N/A	N/A	8,750
Total, Design	N/A	N/A	9,250

Construction

FY 2019	N/A	N/A	28,700
Outyears	N/A	N/A	TBD
Total, Construction	N/A	N/A	TBD

TEC

FY 2018	500	500	500
FY 2019	37,450	37,450	37,450
Outyears	TBD	TBD	TBD
Total, TEC	TBD	TBD	TBD

(Dollars in Thousands)

Other Project Costs (OPC)	Budget Authority (Appropriations)	Obligations	Costs
OPC			
FY 2018	500	500	500
FY 2019	7,000	7,000	7,000
Outyears	TBD	TBD	TBD
Total, OPC	TBD	TBD	TBD
Total Project Cost (TPC)			
FY 2018	1,000	1,000	1,000
FY 2019	44,450	44,450	44,450
Outyears	TBD	TBD	TBD
Total, TPC	TBD	TBD	TBD

**Details of Project Cost Estimate**

(Dollars in Thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design			
Design	TBD	TBD	N/A
Contingency	TBD	TBD	N/A
Total, Design	TBD	TBD	N/A
Construction			
Site Preparation	N/A	N/A	N/A
Equipment	N/A	N/A	N/A
Other Construction	TBD	TBD	N/A
Contingency	TBD	TBD	N/A
Total, Construction	TBD	TBD	N/A
Total, TEC	TBD	TBD	N/A
Contingency, TEC	TBD	TBD	N/A
Other Project Cost (OPC)			
OPC except D&D			
Conceptual Planning	TBD	TBD	N/A
Conceptual Design	TBD	TBD	N/A
Start-up	TBD	TBD	N/A
Contingency	TBD	TBD	N/A
Other OPC	TBD	TBD	N/A
Total, OPC except D&D	TBD	TBD	N/A

(Dollars in Thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total, OPC	TBD	TBD	N/A
Total, Contingency	TBD	TBD	N/A
Total, TPC	TBD	TBD	N/A
Total, Contingency	TBD	TBD	N/A

**Schedule of Appropriation Requests**

Request	Prior Years	FY 2018	FY 2019	FY 2020	FY 2021	Outyears	Total
FY 2018	TEC	0	500			TBD	TBD
	OPC	0	500			TBD	TBD
	TPC	0	1,000			TBD	TBD
FY 2019	TEC	0	500	37,450		TBD	TBD
	OPC	0	500	7,000		TBD	TBD
	TPC	0	1,000	44,450		TBD	TBD

**4. Related Operations and Maintenance Funding Requirements**

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	2QFY2024
Expected Useful Life (number of years) (per Saltstone Disposal Unit)	3-5
Expected Future Start of D&D	N/A

Related Funding Requirements

(Dollars in Thousands)

COST ESTIMATED PER SALTSTONE DISPOSAL UNIT	Annual Costs		Life Cycle Costs	
	Current Total Estimate	Previous Total Estimate	Current Total Estimate	Previous Total Estimate
Operations	TBD	TBD	TBD	TBD
Maintenance	TBD	TBD	TBD	TBD
Total, Operations & Maintenance	TBD	TBD	TBD	TBD

**5. D&D Information**

Project licensed by the State of South Carolina as a landfill. D&D is not applicable for this project.

The new area being constructed in this project is not replacing existing facilities.

The location of this construction project is an environmental management closure site and, therefore, is exempt from the "one-for-one" requirement.

## **6. Acquisition Approach**

Currently, the approach assumes that the liquid waste Prime Contractor will be used to create the design, provide engineering and project management support, or other services required to execute the project. This approach will be reevaluated prior to Critical Decision -2. This project will be designed and constructed consistent with the successful execution of the Saltstone Disposal Unit #6 and #7 projects, incorporating best practices and lessons learned.

**18-D-402, Emergency Operations Center Replacement  
Savannah River Site, Aiken, South Carolina  
Project is for Design and Construction (SR-0042)**

**1. Summary, Significant Changes and Schedule and Cost History**

**Summary**

The FY 2019 Request for Emergency Operations Center Replacement is \$1,259,000.

The most recent DOE O 413.3B approved Critical Decision is -0, which was approved on January 5, 2017 with a preliminary cost range of \$30,000,000 to \$81,000,000 and Critical Decision -4 range of FY 2020 to FY 2022.

**Significant Changes**

This Construction Project Data Sheet is an update of the FY 2018 Congressional Budget Request and does not include a new start for the budget year.

A Federal Project Director has not been assigned to this project. However, the Savannah River Site Manager and Program Manager have approved this Construction Project Data Sheet.

**Critical Milestone History**

(Fiscal Quarter or Date)

	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	D&D Complete	CD-4
FY 2018	01/05/2017	3Q FY2018	4Q FY2018	TBD	TBD	TBD	N/A	TBD
FY 2019	01/05/2017	3Q FY2018	4Q FY2018	TBD	TBD	TBD	N/A	TBD

Note: Schedules are only estimates and are consistent with the high end of the schedule range.

**CD-0** – Approve Mission Need

**Conceptual Design Complete** – Actual date the conceptual design was completed (if applicable)

**CD-1** – Approve Design Scope and Project Cost and Schedule Ranges

**CD-2** – Approve Project Performance Baseline

**CD-3** – Approve Start of Construction

**Final Design Complete** – Estimated/Actual date the project design will be /was completed

**D&D Complete** – Completion of D&D work (see Section 9)

**CD-4** – Approve Start of Operations or Project Closeout

**PB** – Indicates the Performance Baseline

**Project Cost History**

(Dollars in Thousands)

	TEC, Design	TEC, Construction	TEC, Total	OPC Except D&D	OPC, D&D	OPC, Total	TPC
FY 2018	TBD	TBD	TBD	TBD	N/A	TBD	TBD
FY 2019	TBD	TBD	TBD	TBD	N/A	TBD	TBD

Note: No construction, excluding for approved long-lead procurement and site preparation, will be performed until the project performance baseline has been validated and Critical Decision -3 has been approved.

## 2. Project Scope and Justification

### Scope

The scope of this project is to design and construct modern, code-compliant emergency management facilities necessary to respond to possible emergency event scenarios. The primary and alternate Savannah River Site Operations Center facilities require a maximum 10,000 square feet each, and the Emergency Operations Center requires an additional maximum 15,000 square feet of space to accommodate approximately 120 people during peak emergency operations.

The primary and alternate Savannah River Site Operations Center facilities and the Emergency Operations Center will be relocated from their current locations.

### Justification

Savannah River Site currently maintains a marginally habitable primary Savannah River Site Operations Center and Emergency Operations Center in the basement of Building 703-A, a building that is past its useful life and on the Site's Decontamination and Decommissioning list. Once the new facilities are relocated, the building will be turned over for closure.

Because Building 703-A is on the Decontamination and Decommissioning list, the facility is only minimally supported and is riddled with mold and mildew causing some employees to become sick and removed from their post. Asbestos is found throughout the facility, much of which has been roped off and vacated. The facility has experienced several failures related to water intrusion in the below ground facilities and has ongoing utility failures due to the age of the utilities and the high cost of replacement. The entire facility must continue to be heated and cooled to reduce the mold and mildew growth, making the cost of replacing a Heating Ventilation and Air Conditioning unit for a facility of this size with only 20% occupancy prohibitive. For the safety of the employees that work in these facilities, it is imperative they be moved to a safer environment.

The risk of losing functionality in the primary and/or alternate facilities is high, the consequence of which would cause the Site to be in a minimal (essential personnel only) state of operations for an undetermined amount of time until the facilities could be returned to acceptable functionality.

DOE Order 151.1D requires the Site to maintain an emergency command and communications/dispatch center at all times, as well as equivalent alternate facilities for each. More extensive requirements are identified in National Fire Prevention Association 1221, *Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems*, and National Fire Prevention Association 72, *National Fire Alarm and Signaling Code*. The Savannah River Site Operations Center facilities, primary and alternate, are not in compliance with the requirements of National Fire Prevention Association 1221 including the location of the primary facility in a basement. In order to bring the facilities into compliance, all facilities must be relocated from their current locations.

The project is being conducted in accordance with the project management requirements in DOE O 413.3B, Program and Project Management for the Acquisition of Capital Assets.

### **Key Performance Parameters**

The Threshold Key Performance Parameters, represent the acceptable performance that the project must achieve. Achievement of the Threshold Key Performance Parameters will be a prerequisite for approval of Critical Decision -4, Project Completion. The Objective Key Performance Parameters represent the desired project performance.

Performance Measure	Threshold	Objective
KPPs to be developed		



### 3. Project Cost and Schedule

#### Financial Schedule

(Dollars in Thousands)

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
<b>Design</b>			
FY 2018	N/A	N/A	500
FY 2019	N/A	N/A	1,259
Outyears	N/A	N/A	TBD
Total, Design	N/A	N/A	TBD
<b>Construction</b>			
Outyears	N/A	N/A	TBD
Total, Construction	N/A	N/A	TBD
<b>TEC</b>			
FY 2018	500	500	500
FY 2019	1,259	1,259	1,259
Outyears	TBD	TBD	TBD
Total, TEC	TBD	TBD	TBD
<b>OPC</b>			
FY 2017	500	500	500
FY 2018	500	500	500
FY 2019	3,500	3,500	3,500
Outyears	TBD	TBD	TBD
Total, OPC	TBD	TBD	TBD
<b>Total Project Cost (TPC)</b>			
FY 2017	500	500	500
FY 2018	1,000	1,000	1,000
FY 2019	4,759	4,759	4,759
Outyears	TBD	TBD	TBD
Total, TPC	TBD	TBD	TBD

Note: Funds for long-lead equipment may be requested prior to project baseline validation if approved by the Acquisition Executive.

**Details of Project Cost Estimate**

(Dollars in Thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design			
Design	TBD	TBD	N/A
Contingency	TBD	TBD	N/A
Total, Design	TBD	TBD	N/A
Construction			
Site Preparation	TBD	TBD	N/A
Equipment	TBD	TBD	N/A
Other Construction	TBD	TBD	N/A
Contingency	TBD	TBD	N/A
Total, Construction	TBD	TBD	N/A
Total, TEC	TBD	TBD	
Contingency, TEC	TBD	TBD	N/A
Other Project Cost (OPC)			
OPC except D&D			
Conceptual Planning	TBD	TBD	N/A
Conceptual Design	TBD	TBD	N/A
Start-Up	TBD	TBD	N/A
Contingency	TBD	TBD	N/A
Other OPC	TBD	TBD	N/A
Total, OPC except D&D	TBD	TBD	N/A
Total, OPC	TBD	TBD	
Contingency, OPC	TBD	TBD	N/A
Total, TPC	TBD	TBD	N/A
Total, Contingency	TBD	TBD	N/A

**Schedule of Appropriation Requests**

(Dollars in Thousands)

Request	Type	Prior Years	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Outyears	Total
FY 2018	TEC	0	0	500				TBD	TBD
	OPC	0	500	500				TBD	TBD
	TPC	0	500	1,000				TBD	TBD
FY 2019	TEC	0	0	500	1,259			TBD	TBD
	OPC	0	500	500	3,500			TBD	TBD
	TPC	0	500	1,000	4,759			TBD	TBD

**4. Related Operations and Maintenance Funding Requirements**

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	TBD
Expected Useful Life (number of years)	TBD
Expected Future Start of D&D	N/A

Related Funding Requirements

(Dollars in Thousands)

	Annual Costs		Life Cycle Costs	
	Current Total Estimate	Previous Total Estimate	Current Total Estimate	Previous Total Estimate
Operations	TBD	TBD	TBD	TBD
Maintenance	TBD	TBD	TBD	TBD
Total, Operations & Maintenance	TBD	TBD	TBD	TBD

**5. D&D Information**

The new area being constructed in this project is replacing existing facilities; however, the costs of decommissioning and decontamination of the facilities that are being replaced are not included in the costs of this construction project.

The current facility that houses the Savannah River Site Operations Center and Emergency Operations Center, Building 703-A, is approximately 250,000 square feet. Once the Savannah River Site Operations Center and Emergency Operations Center are relocated, Building 703-A will be available for decommissioning and decontamination.

The location of this construction project is an environmental management closure site and, therefore, is exempt from the "one-for-one" requirement.

**6. Acquisition Approach**

The overall acquisition approach has not been determined. A cost-benefit analysis will be conducted to determine whether the design and/or construction of these facilities will be delegated to a subcontractor. The Management and Operating contractor and/or the US Army Corps of Engineers may be used to create the design, provide project management support, or other services required to execute the project scope.

**Environmental Management/  
Savannah River/18-D-402 Emergency  
Operations Center**



## Lawrence Livermore National Laboratory

### Overview

Lawrence Livermore National Laboratory is a National Nuclear Security Administration multi-disciplinary research and development center focusing on weapons development and stewardship and homeland security. Cleanup of the Lawrence Livermore National Laboratory Main Site led to the final disposition of legacy waste inventories and the build-out of the Lawrence Livermore National Laboratory Livermore Site Environmental Restoration Project. The Lawrence Livermore National Laboratory Hazardous Waste Management Program and Long-Term Stewardship associated with the Lawrence Livermore National Laboratory Main Site Environmental Restoration Project transferred from EM to the National Nuclear Security Administration under Long-Term Stewardship at the end of FY 2006.

Lawrence Livermore National Laboratory Site 300 is a remote experimental testing facility where the Department conducts research, development, and testing of high explosives and integrated non-nuclear weapons components. The site was placed on the U.S. Environmental Protection Agency's National Priority List in 1990 due to legacy contamination from past operations. Remedial action selection and build-out is complete for Operable Units 1 through 8, with the exception of perchlorate groundwater contamination at Building 850 (which is part of Operable Unit 5). The responsibility for Long-Term Stewardship for the implemented cleanup remedies in Operable Units 1-8 has been transferred to the National Nuclear Security Administration. The remaining perchlorate contamination in Building 850 groundwater and characterization and/or remedy selection and implementation for Building 865 and Building 812/Operable Unit 9 is the responsibility of EM. Upon completion of characterization and/or remedy selection and implementation for perchlorate contamination in Building 850 groundwater and for Building 865, these areas will be incorporated into Operable Units 5 and 8, respectively, and responsibility will be transferred to the National Nuclear Security Administration. Within the nine Operable Units, there are 73 contaminant release sites at Site 300, of which 69 have been completed.

Twenty-one groundwater and soil vapor extraction and treatment facilities at Lawrence Livermore National Laboratory Site 300 have been constructed and are operational. The remaining perchlorate contamination in Building 850/Operable Unit 5 groundwater and characterization and/or remedy selection and implementation for soil and groundwater for Building 865/Operable Unit 8 and Building 812/Operable Unit 9 are currently scheduled for completion by the end of FY 2028. Other activities associated with this cleanup work at Lawrence Livermore National Laboratory Site 300 are support for site investigations, hydrogeologic studies, and stakeholder liaisons; and payment of state grants.

The remaining EM investigations and actions at Lawrence Livermore National Laboratory Site 300 are required by the Lawrence Livermore National Laboratory Site 300 Federal Facility Agreement; the Comprehensive Environmental Response, Compensation and Liability Act; and the National Contingency Plan. The Federal Facility Agreement describes remedial investigations and action requirements and establishes a procedural framework for developing, implementing, and monitoring appropriate remedial actions. The Comprehensive Environmental Response, Compensation and Liability Act and the National Contingency Plan provide the federal statutory and regulatory requirements for cleanup of legacy contamination.

The benefits of completing the remaining EM restoration work at Lawrence Livermore National Laboratory Site 300 include the overall reduction of potential human health and ecological risk by focusing on contaminant plumes and sources that are the greatest contributors to risk. The overall goal is to ensure that risks to the public and workers are controlled, followed by work to cleanup soil and groundwater using a risk-based methodology.

### Highlights of the FY 2019 Budget Request

The majority of activities scheduled for FY 2019 are in support of the development of remedial solutions for contamination at Building 812, Building 850, and Building 865.

## **FY 2018 - FY 2019 Key Milestones/Outlook**

- (June 2018) Finalize the Focused Remedial Investigation/Feasibility Study for perchlorate contamination at Building 850
- (September 2018) Evaluate additional characterization data obtained at Building 812 and provide information to the regulators to support characterization completion concurrences.
- (March 2019) Finalize the Remedial Investigation/Feasibility Study for Building 865.
- (September 2019) Initiate Proposed Plan for remedies at Building 865 (soil and groundwater contamination) and Building 850 (perchlorate groundwater contamination).

## **Regulatory Framework**

- Federal Facility Agreement with the U.S. Environmental Protection Agency and two State of California Regulatory Agencies (1992)
- Comprehensive Environmental Response, Compensation and Liability Act

## **Contractual Framework**

The current contract with Lawrence Livermore National Security, Limited Liability Company, for the operation of Lawrence Livermore National Laboratory is a Management and Operating contract under the management and oversight of the National Nuclear Security Administration. The current contract began in 2007 with a seven-year base and up to 13 one-year award terms. Program planning and management at Lawrence Livermore National Laboratory is conducted through the issuance and execution of subcontracts to large and small businesses. Lawrence Livermore National Laboratory utilizes near- and long-term planning approaches in order to develop contract strategies and program/project plans at a more detailed level. Selected subcontractors then execute these plans to support the Site 300 cleanup project.

EM work is typically executed through work authorizations under the National Nuclear Security Administration's Management and Operating contract, with cleanup work typically performed by Lawrence Livermore National Security and its subcontractors.

## **Strategic Management**

Position the Department of Energy to meet the challenges of the nation's Manhattan Project and Cold War legacy responsibilities:

- Prevent contamination of water supply wells and associated risk to human health and loss of beneficial uses of groundwater.
- Prevent exposure of onsite workers to contaminants and reduce the current unacceptable risk.
- Control and prevent further offsite plume migration.
- Reduce contaminant concentration and mass in the vadose zone and groundwater.
- Control contaminant sources.

The following factors could have significant impacts on individual projects and may impact the overall cleanup scope, schedule, and cost. Potential impacts are as follows:

- The U.S. Environmental Protection Agency and the State of California Water Board regulators for the Site 300 project have been performing in-depth reviews of previously addressed areas and revisiting past cleanup decisions.
- The major uncertainty is the remediation of the depleted uranium contaminated soil at the Building 812 Firing Table (Operable Unit 9).
- The challenges of the project include the excavation of soil from very steep terrain, large volumes of soil to be remediated, and potential impacts to endangered species habitat and surface water drainage ways in the area during excavation and remediation.

**Lawrence Livermore National Laboratory  
Funding (\$K)**

FY 2017 Enacted	FY 2018 Annualized CR*	FY 2019 Request	FY 2019 Request vs FY 2017 Enacted
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**Defense Environmental Cleanup**

**NNSA Sites**

**Lawrence Livermore National Laboratory**

VL-FOO-0013B-D / Solid Waste Stabilization and Disposition Support -

Lawrence Livermore National Laboratory (Defense)

249

247

529

+280

VL-LLNL-0031 / Soil and Water Remediation-Lawrence Livermore

National Laboratory - Site 300

1,147

1,140

1,175

+28

**Subtotal, Lawrence Livermore National Laboratory**

**1,396**

**1,387**

**1,704**

**+308**

\*A full-year 2018 appropriation for this account was not enacted at the time the budget was prepared; therefore, the budget assumes this account is operating under the Continuing Appropriations Act, 2018 (Division D of P.L. 115-56, as amended). The amounts included for 2018 reflect the annualized level provided by the continuing resolution. (These amounts are shown only at the Congressional control level and above; below that level, a dash (—) is shown).

**Lawrence Livermore National Laboratory  
Explanation of Major Changes (\$K)**

<b>FY 2019 Request vs FY 2017 Enacted</b>
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**Defense Environmental Cleanup**

**NNSA Sites**

**Lawrence Livermore National Laboratory**

**VL-FOO-0013B-D / Solid Waste Stabilization and Disposition Support - Lawrence Livermore National Laboratory (Defense)**

- Reflects increase in cost of oversight grant with California Regional Water Quality Board. +280

**VL-LLNL-0031 / Soil and Water Remediation-Lawrence Livermore National Laboratory - Site 300**

- Supports completion of the Remedial Investigation/Feasibility Study for Building 865 and initiation of the Proposed Plan for remedies at Building 865 and Building 850. +28

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<b>Total, Lawrence Livermore National Laboratory</b>	<b>+308</b>
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**Solid Waste Stabilization and Disposition Support (PBS:VL-FOO-0013B-D)**

**Overview**

This PBS is within the Defense Environmental Cleanup appropriation.

The activities in this PBS support the EM cleanup activities at Site 300 that will be completed with build out for perchlorate in groundwater at the Building 850 firing table in Operable Unit 5; remedy selection and/or build out at Building 865 in Operable Unit 8; and remediation of contaminated soil and build out of the remedy for remediation of groundwater at the Building 812 Firing Table in Operable Unit 9. Activities performed in this project will continue to provide funding for:

- Grants to the State of California Regional Water Quality Control Board and the California Department of Toxic Substances Control to provide Comprehensive Environmental Response, Compensation, and Liability Act oversight. This funding is mandated by the Federal Facility Agreement signed by DOE, the U.S. Environmental Protection Agency, and the State of California.
- Site investigations, hydrogeologic studies, regulatory review, and stakeholder liaisons are also managed within this project through wide applicability of these restoration activities. This project will end when the EM environmental restoration activities at Site 300 (as described above) are completed, and the areas turned over to the National Nuclear Security Administration under Long-Term Stewardship currently projected for FY 2020.

**Solid Waste Stabilization and Disposition Support - Lawrence Livermore National Laboratory (Defense) (PBS: VL-FOO-0013B-D)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$249	\$529	+\$280
<ul style="list-style-type: none"> <li>• Provided grants to the State of California Regional Water Quality Control Board and the California Department of Toxic Substances Control to support Comprehensive Environmental Response, Compensation, and Liability Act oversight. This funding was mandated by the Federal Facility Agreement signed by DOE, Environmental Protection Agency, and the State of California.</li> </ul>	<ul style="list-style-type: none"> <li>• Provide grants to the State of California Regional Water Quality Control Board and the California Department of Toxic Substances Control to support Comprehensive Environmental Response, Compensation, and Liability Act oversight. This funding is mandated by the Federal Facility Agreement signed by DOE, Environmental Protection Agency, and the State of California. The grants were renewed in 2017 and the increase in funding request reflects the significant increase in grant costs.</li> </ul>	<ul style="list-style-type: none"> <li>• Reflects increase in cost of oversight grant with California Regional Water Quality Board.</li> </ul>

## Soil and Water Remediation (PBS: VL-LLNL-0031)

### Overview

This PBS is within the Defense Environmental Cleanup appropriation.

The remedial actions required by regulatory decision documents will reduce the risks, overall liability, and mortgage at Site 300 associated with the four remaining EM contaminant release sites:

- Release Site 0035: Building 865 (Advanced Test Accelerator)
- Release Site 0038: Building 812 Firing Table (Operable Unit 9)
- Release Site 0040: Building 850 Firing Table Groundwater Project (Building 850 portion of Operable Unit 5)
- Release Site 0049: Building 812 Wastewater Outflow (Operable Unit 9)

Remedial investigation and remedial buildout at the Building 812/Operable Unit 9, Building 865/Operable Unit 8, and for perchlorate in Building 850/Operable Unit 5 groundwater remain the responsibility of EM. When remedial investigations and remedial action selection buildout in these areas are complete, responsibility for the management and funding of Long-Term Stewardship activities required by the Comprehensive Environmental Response Compensation and Liability Act will be transferred from EM to the National Nuclear Security Administration.

Waste characterization at DOE waste generator sites will be funded by their respective site and includes activities such as visual examination, real time radiography, nondestructive assay, dose to curie conversion, and flammable gas analysis. Certification of waste characterization activities of legacy transuranic waste at Savannah River Site, Oak Ridge National Laboratory, Lawrence Livermore National Laboratory, and Los Alamos National Laboratory will be funded by PBS Central Characterization Project (CB-0081), whereas the Idaho National Laboratory funds its waste characterization certification. Transportation certification is funded by PBS Central Characterization Project (CB-0081).

**Soil and Water Remediation-Lawrence Livermore National Laboratory - Site 300 (PBS: VL-LLNL-0031)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$1,147	\$1,175	+\$28
<ul style="list-style-type: none"> <li>Continued Building 812/Operable Unit 9 Gamma Surface Soil Survey.</li> <li>Continued Treatability Study for Enhanced <i>In Situ</i> Bioremediation of Perchlorate in Groundwater at Building 850/Operable Unit 5.</li> </ul>	<ul style="list-style-type: none"> <li>Monitor groundwater to provide an indication of changes in plume size and extent that could impact human health, and provide data to support the Remedial Investigation/Feasibility Study development for the Building 812/Operable Unit 9.</li> <li>Continue progress with risk assessment and fate and transport modeling at Building 812 to identify contaminants of concern and associated risks to support remedial alternative development.</li> <li>Continue the <i>in situ</i> bioremediation treatability study to support remedial alternative screening and selection for perchlorate contamination in Building 850 groundwater.</li> <li>Finalize the Remedial Investigation/Feasibility Study for Building 865.</li> <li>Initiate Proposed Plan for remedies at Building 865 and perchlorate contamination in groundwater at Building 850.</li> </ul>	<ul style="list-style-type: none"> <li>Supports completion of the Remedial Investigation/Feasibility Study for Building 865 and initiation of the Proposed Plan for remedies at Building 865 and Building 850.</li> </ul>



## Los Alamos National Laboratory

### Overview

Since its inception in 1943 as part of the Manhattan Project, the primary mission of the Los Alamos National Laboratory has been nuclear weapons research and development. In achieving this mission, the Laboratory released hazardous and radioactive materials to the environment through outfalls, stack releases, and material disposal areas. In addition, mixed low-level waste and transuranic waste have accumulated and are staged in preparation for off-site disposition to the Waste Isolation Pilot Plant for transuranic waste and other offsite disposal locations for mixed low-level waste.

Since 1989, the Environmental Management program at Los Alamos National Laboratory has comprised activities to address the characterization and cleanup of environmental media (i.e., soil and groundwater); disposition of legacy waste; and decontamination, decommissioning and demolition of process-contaminated facilities at Technical Area-21 (Material Disposal Areas: A, T, U and V) and waste management facilities at Technical Area-54 (Material Disposal Areas: G, H, and L), that allow for characterization and cleanup of Solid Waste Management Units that are co-located in the footprint of the structures. Los Alamos National Laboratory's highest priorities for the cleanup mission are to maintain safety, reduce urgent risk, and move toward compliance with the renegotiated Order on Consent (Consent Order) that was signed on June 24, 2016, by the New Mexico Environment Department and DOE and that outlines required groundwater and soil remediation on site.

In FY 2012, the Department initiated discussions with the State of New Mexico to reprioritize the near-term scheduled activities within the Consent Order based on a risk-based approach. This reprioritization was documented in early 2012 in the Framework Agreement, a document of shared commitment between DOE and the State of New Mexico. Unlike the Consent Order, it is not an enforceable agreement. Inherent in reaching this agreement was the acknowledgement by DOE that the completion date of the Consent Order (December 2015) would not be met. The Framework Agreement contains a milestone to complete disposition of 3,706 cubic meters of above-ground transuranic waste by June 30, 2014. This milestone was not met due to factors associated with the February 2014 events that led to the suspension of the Waste Isolation Pilot Plant operations and the subsequent identification that the breached container contributing to the radiological release which originated from the Los Alamos National Laboratory. This container was from a legacy transuranic waste stream containing unconsolidated nitrate salts and an incompatible absorbent. Prior to the events, significant progress had been made to reduce the risks associated with the above-ground transuranic waste inventory, with only 10 percent of the targeted 3,706 cubic meters remaining on site. The radiological release and the Los Alamos National Laboratory factors that contributed to the breached container have been evaluated in detail by a DOE Accident Investigation Board, an independent national laboratory Technical Assessment Team, and various other internal and external organizations.

Upon discovery that the breached container at the Waste Isolation Pilot Plant originated from Los Alamos, the processing of legacy transuranic waste at Los Alamos National Laboratory was suspended. The New Mexico Environment Department issued an Administrative Order requiring the safe isolation of nitrate salt bearing wastes remaining on site; the activities required to comply with this Order were among the FY 2016 and FY 2017 activities at the site. This Order requires ongoing and continuous monitoring of the waste to ensure its continued safe storage. In December 2014, the New Mexico Environment Department also issued an Administrative Compliance Order assessing fines and penalties associated with self-disclosed Resource Conservation and Recovery Act non-compliances. In addition to assessing fines and penalties, the New Mexico Environment Department required plans for the treatment of nitrate salt bearing waste. Additionally, the Phase II Waste Isolation Pilot Plant Accident Investigation Board Report was issued, supported by the Technical Assessment Team, on April 16, 2015. The Phase II report required the development and implementation of Corrective Action Plans for Los Alamos National Laboratory's transuranic waste disposition program; when fully implemented these actions should preclude the possibility of a release similar to the one that occurred on February 14, 2014, at the Waste Isolation Pilot Plant. Treatability studies and a resumption plan were established as part of FY 2016 operations and treatment of the nitrate salt bearing waste stream began in FY 2017.

The Environmental Management program was temporarily executed by the Los Alamos National Security, LLC, under a short-term bridge contract to the Office of Environmental Management (via the Department of Energy's Environmental Management/

Management Consolidated Business Center). In December 2017, the Department awarded the Los Alamos Legacy Cleanup Contract to Newport News Nuclear BWXT Los Alamos, LLC, a joint venture led by Stoller Newport News Nuclear, part of Huntington Ingalls Industries Technical Solutions division, with partner BWX Technologies, Inc.

### **Highlights of the FY 2019 Budget Request**

In FY 2019, planning for retrieval and repackaging of the below-grade transuranic waste will include the evaluation and recommendation regarding disposition of the 33 remote-handled transuranic waste shafts.

Consistent with the priorities established with the New Mexico Environment Department in the renegotiated Consent Order signed on June 24, 2016, other FY 2019 activities will continue to focus on surface and groundwater management. Investigation and development of corrective measures for remediation of the hexavalent chromium plume continue in Mortandad and Sandia Canyon watersheds, and design of the selected remedies will begin in FY 2019. Execution of New Mexico Environment Department approved groundwater remedies for the high explosives plume in Cañon de Valle (RDX) will continue. Efforts to obtain and implement individual storm water permits and cleanup of several aggregate areas will continue.

The FY 2019 request will support technical discussions with the regulators, additional documentation that may be required, possible public meetings, and other support to obtain the decision of the regulator to allow going forward with remedy projects development in possibly three Material Disposal Areas (A, C, and T).

### **FY 2018 and FY 2019 Key Milestones/Outlook**

- (November 2017) Complete Remediated Nitrate Salt processing
- (September 2018) Un-remediated Nitrate Salt processing
- (September 2018) Complete the final Corrective measures Evaluation Report for RDX
- (September 2018) Complete successful transition of the new contractual acquisition strategy for the environmental clean-up workscope
- (September 2018) Complete Phase 2 Upper Middle Los Alamos clean-up and investigation report and Phase 3 Middle Los Alamos investigation report
- (September 2018) Complete the Documented Safety Analysis for Area-G
- (September 2019) Continue evaluation for the recommendation related to the disposition of 33 shafts remote-handled transuranic waste
- (September 2019) Continue hexavalent chromium contamination plume control interim measure
- (September 2019) Complete the final Corrective Measures Evaluation Report for RDX
- (September 2019) Complete TA-21 West Bay wells and investigation report for delta prime west building footprint
- (September 2019) Complete investigation work plan for pits and trenches at Material Disposal Area-A
- (September 2019) Complete the Radioactive Risk assessment for Area-G

### **Regulatory Framework**

The primary regulatory driver for Environmental Management at Los Alamos National Laboratory has been the Consent Order, which was signed by the New Mexico Environment Department, Los Alamos National Laboratory and DOE on March 1, 2005. The Consent Order provided the primary requirements for the environmental cleanup efforts at Los Alamos National Laboratory and established an enforceable scope and schedule and milestones for corrective actions. As mentioned previously, the Department acknowledged its inability to meet the enforceable milestones contained in the original Consent Order and a renegotiated Consent Order was signed on June 24, 2016. FY 2019 scope will be planned and executed according to the new, renegotiated Consent Order.

Other drivers include the 1995 Federal Facilities Compliance Agreement; Public Law 105-119; 10 Code of Federal Regulations, Part 830; Nuclear Safety Management; a hazardous waste facility permit for storage and treatment; the Federal Facility Compliance Order; the Atomic Energy Act; the Toxic Substances Control Act; the Resource Conservation and Recovery Act; the Clean Air Act; the Settlement Agreement and Stipulated Final Order (Chromium) 2007; the Individual Permit issued by the U. S. Environmental Protection Agency in February 2009 for storm water management at Los Alamos National Laboratory; and the settlement of the Administrative Compliance Order with New Mexico Environment Department.

In an effort to meet the Department's 2014 commitments (regarding removal of above ground waste) in the framework agreement, a decision was made to ship transuranic waste to Waste Control Specialists in Andrews, Texas, for interim storage pending the reopening of the Waste Isolation Pilot Plant. After it was determined that a drum from Los Alamos was the cause of the 2014 radiological event at the Waste Isolation Pilot Plant, shipments were curtailed. This essentially stranded this waste at Waste Control Specialists and the Texas Commission on Environmental Quality has since asked for a plan on the removal of this waste from Waste Control Specialists. The Department's proposed plan is to separate the inventory into waste containers that can be shipped to the Waste Isolation Pilot Plant, and waste containers that will require treatment before being shipped. Seventeen shipments were completed at the end of 2017. After receipt of this plan, the Texas Commission on Environmental Quality required a feasibility study to further evaluate the options for the waste requiring treatment. EM Los Alamos is performing that feasibility study and a draft was provided to the Texas Commission on Environmental Quality December 2017. The Savannah River National Laboratory is conducting an additional evaluation, and an updated draft is expected to be prepared later in 2018. It is expected that the Texas Commission on Environmental Quality may request treatment schedules and plans after the feasibility study.

### **Contractual Framework**

The majority of EM work at Los Alamos was historically executed through work authorizations under the National Nuclear Security Administration's Management-and-Operating contract, with cleanup work typically performed by subcontractors to the Management-and-Operating contractor. However, due to the Secretarial decision to have direct EM oversight of the contractor, the current cleanup contract at Los Alamos National Laboratory is a Federal Acquisition Regulations-based bridge contract with Los Alamos National Security, LLC. The contract performance period is expected to run through the second quarter of FY 2018. In December 2017, the Department awarded the Los Alamos Legacy Cleanup Contract to Newport News Nuclear WXT Los Alamos, LLC, a joint venture led by Stoller Newport News Nuclear as part of Huntington Ingalls Industries Technical Solutions division, with partner BWX Technologies, Inc. The contract is for up to 10 years and three months. That term includes a 90 day transition period followed by five base years, then a three year option to another two year option.

### **Strategic Management**

Position the Department of Energy to meet the challenges of the nation's Manhattan Project and Cold War legacy responsibilities.

The cleanup strategy at the Los Alamos National Laboratory involves the following activities:

- Continued retrieval and disposition of legacy transuranic waste, closure of multiple Resource Conservation and Recovery Act operable units, decommissioning and decontamination of excess facilities at Technical Area-21 and Technical Area-54, and final remedy and site completion at remaining Solid Waste Management Units will drive the critical path for completion of the renegotiated Consent Order between Los Alamos National Laboratory and the regulator.

- Assessments and corrective actions at contaminated sites to reduce unacceptable human health and ecological risks and reduce the inventory of legacy transuranic waste.
- Decontamination, decommissioning, and demolition of process-contaminated facilities at Technical Area-21 and waste management facilities at Technical Area-54 allows for the characterization and cleanup of Solid Waste Management Units that are co-located in the footprint of the structures.

The following factors and assumptions could have significant impacts on individual projects and may impact the overall cleanup scope, schedule, and costs identified:

- In most cases, it is assumed that some form of active treatment for some period of time to address groundwater contaminants will be accepted as the remedy rather than monitored natural attenuation. Current characterization and testing activities indicated that an active remediation process may be implemented for potentially significant durations in several groundwater areas before monitored natural attenuation could be relied on, thus possibly adversely impacting the current completion estimates.
- It is assumed that regulators will approve cleanup levels for individual sites that correspond to the intended land use, thereby leaving in place some contaminants that do not pose unacceptable health and environmental risks.
- It is also assumed that National Environmental Policy Act documents adequately bound the possibility of uncovering additional cultural sites on Los Alamos National Laboratory plateaus without further impacts on project schedules. Additionally, regulators are assumed to approve the necessary permits without the need for public hearings.



**Los Alamos National Laboratory  
Funding (\$K)**

FY 2017 Enacted	FY 2018 Annualized CR*	FY 2019 Request	FY 2019 Request vs FY 2017 Enacted
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**Defense Environmental Cleanup**

**NNSA Sites**

**Los Alamos National Laboratory**

VL-FAO-0101 / Miscellaneous Programs and Agreements in Principle	3,394	3,371	3,394	0
VL-LANL-0013 / Solid Waste Stabilization and Disposition-LANL Legacy	97,240	96,580	66,185	-31,055
VL-LANL-0030 / Soil and Water Remediation-LANL	93,366	92,732	122,050	+28,684
<b>Subtotal, Los Alamos National Laboratory</b>	<b>194,000</b>	<b>192,683</b>	<b>191,629</b>	<b>-2,371</b>

\*A full-year 2018 appropriation for this account was not enacted at the time the budget was prepared; therefore, the budget assumes this account is operating under the Continuing Appropriations Act, 2018 (Division D of P.L. 115-56, as amended). The amounts included for 2018 reflect the annualized level provided by the continuing resolution. (These amounts are shown only at the Congressional control level and above; below that level, a dash (—) is shown).

**Los Alamos National Laboratory  
Explanation of Major Changes (\$K)**

<b>FY 2019 Request vs FY 2017 Enacted</b>
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**Defense Environmental Cleanup**

**Los Alamos**

**EMLA Cleanup Activities**

**VL-LANL-0013 / Solid Waste Stabilization and Disposition-LANL Legacy**

- Decrease reflects completion of investigation work plan for pits and trenches at Material Disposition Area-A. -31,055

**VL-LANL-0030 / Soil and Water Remediation-LANL**

- Increase reflects activities previously included in the decontamination and decommissioning PBS (Nuclear Facility D&D LANL, VL-LANL-0040-D) (Defense) integrated into this PBS, consistent with the integrated campaign approach reflected in the Consent Order renegotiation which was signed June 24, 2016. +28,684

**EMLA Community and Regulatory Support**

**VL-FAO-0101 / Miscellaneous Programs and Agreements in Principle**

- No change. 0

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<b>Total, Los Alamos National Laboratory</b>	<b>-2,371</b>
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**Solid Waste Stabilization and Disposition-LANL Legacy (PBS: VL-LANL-0013)**

**Overview**

This PBS is within the Defense Environmental Cleanup appropriation.

The Solid Waste Stabilization and Disposition PBS, also known as the Legacy Waste Disposition PBS, is comprised of the characterization, treatment, storage, transportation, and ultimate disposition of legacy transuranic and mixed low-level waste generated between 1970 and 1999 at the Los Alamos National Laboratory. The end-state of this project is the safe disposal of legacy waste from Los Alamos National Laboratory.

This PBS scope is integrated with the Soil and Water Remediation PBS (PBS-VL-LANL-0030), which includes compliance activities associated with the New Mexico Environment Department renegotiated Compliance Order on Consent that was signed on June 24, 2016. The other drivers requiring disposition of this waste are DOE Order 435.1, Radioactive Waste Management and the Site Treatment Plan developed under the authority of the 1995 Federal Facility Compliance Agreement between the National Nuclear Security Administration and the Environmental Protection Agency. The Solid Waste Stabilization and Disposition PBS includes disposition of legacy transuranic, mixed, and low-level waste.

**Solid Waste Stabilization and Disposition-LANL Legacy (PBS: VL-LANL-0013)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$97,240	\$66,185	-\$31,055
<ul style="list-style-type: none"> <li>Continued Solid Waste Stabilization and Disposition services and actions to maintain safe storage of stored transuranic inventory (above and below grade), such as safe configuration and within prescribed Material-at-Risk limits.</li> <li>Completed corrective actions necessary to support resumption of operations of processing lines at Waste Characterization Reduction Repackaging Facility, Dome 231, Dome 375 and Building 412.</li> <li>Continued treatment of 60 drums of</li> </ul>	<ul style="list-style-type: none"> <li>Continue Solid Waste Stabilization and Disposition services and actions to maintain safe storage of stored transuranic inventory (above and below grade), such as safe configuration and within prescribed Material-at-Risk limits and compliance with the Resource Conservation and Recovery Act permit.</li> <li>Complete investigation work plan for pits and trenches at Material Disposition Area-A.</li> <li>Continue management and disposition of mixed low-level waste/low-level waste and transuranic waste per regulatory agreement with the State of</li> </ul>	<ul style="list-style-type: none"> <li>Decrease reflects completion of investigation work plan for pits and trenches at Material Disposition Area-A.</li> </ul>

remediated nitrate salt bearing wastes in fulfillment of the Nitrate Salt Bearing Waste Isolation Plan.

- Continued disposition of mixed low-level waste/low-level waste.
- Supported continued staging of a portion of the 3706 transuranic waste inventory at an offsite commercial facility, pending the resumption of operations at the Waste Isolation Pilot Plant.

New Mexico.

- Conduct safe operations of processing lines at Waste Characterization Reduction and Repackaging Facility.
  - Continue evaluation and recommendation on 33 remote-handled transuranic waste shafts.
  - Conduct activities to certify legacy transuranic waste for future shipment to the Waste Isolation Pilot Plant.
  - Support transuranic waste characterization activities such as Visual Examination, Real Time Radiography, Non Destructive Assay, Dose to Curie Conversion, and Flammable Gas Analysis.
  - Certify and characterize treated nitrate salt drums.
-

**Soil and Water Remediation-LANL (PBS: VL-LANL-0030)**

**Overview**

This PBS is within the Defense Environmental Cleanup appropriation.

The Los Alamos National Laboratory Soil and Water Remediation PBS scope includes identification, investigation and remediation of chemical and/or radiological contamination attributable to past Laboratory operations and practices. The remaining scope of the PBS includes characterization, monitoring, and protection of the surface and groundwater at the Laboratory and approximately 860 Potential Release Sites, of the original 2,129, left to be investigated, remediated or closed by evaluation and assessment of human health and ecological risks. Included in the scope for the 860 sites remaining to be addressed are: 1) characterization and final remedy of eight priority material disposal areas which are to follow the Resource Conservation and Recovery Act corrective measures study and implementation process (one of the material disposal areas, at Technical Area-54, is the former and active radioactive waste disposal area for the Laboratory); 2) protection and monitoring of groundwater resources and storm water to ensure protection of drinking water supplies; and 3) remediation of Technical Area-21, including 2 material disposal areas and over 100 Solid Waste Management Units.

Beginning in FY 2018, activities previously included in the PBS for decontamination and decommissioning have been integrated into this PBS, consistent with the integrated, campaign approach reflected in the Consent Order renegotiation. This integration with the remediation addresses the problem of facility demolition exposing otherwise covered contaminants that would unnecessarily expose public receptors to significant hazardous materials until remediation could be effective.

**Soil and Water Remediation-LANL (PBS: VL-LANL-0030)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$93,366	\$122,050	+\$28,684
<ul style="list-style-type: none"> <li>Continued groundwater monitoring and reporting requirements consistent with the Framework Agreement, Consent Order on Compliance, and the Resource Conservation and Recovery Act Operating Permit; installed several monitoring wells under the Consent Order; continued storm-water sampling to protect the regional drinking water supplies, sediment monitoring, mitigation and reporting</li> </ul>	<ul style="list-style-type: none"> <li>Continue groundwater monitoring and reporting requirements consistent with the renegotiated Consent Order on Compliance signed on June 24, 2016, and the Resource Conservation and Recovery Act Operating Permit; install several monitoring wells under the renegotiated Consent Order; continue storm-water sampling to protect the regional drinking water supplies (Los Alamos, Santa Fe, and San Ildefonso Pueblo), sediment</li> </ul>	<ul style="list-style-type: none"> <li>Increase reflects activities previously included in the decontamination and decommissioning PBS (Nuclear Facility D&amp;D LANL, VL-LANL-0040-D) (Defense) integrated into this PBS, consistent with the integrated campaign approach reflected in the Consent Order renegotiation which was signed June 24, 2016.</li> </ul>

requirements consistent with the Individual Permit.

- Continued to provide critical database management and infrastructure support to meet Consent Order requirements.
- Conducted authorization basis surface inspections at several Nuclear Environmental Sites and implemented required changes.
- Completed Townsite cleanup of solid waste management units from the 1940s and 1950s production sites.
- Supported Technical Area-21/Delta Prime Site aggregate area and other aggregate area cleanups.
- Continued activities for Chromium plume investigation and interim measure progression towards a Corrective Measures Evaluation.
- Prepared groundwater Corrective Measures Evaluation report for high explosives plume in Cañon de Valle (RDx).
- Conducted design studies on the Hexavalent Chromium Pump project for remediation of chromium contamination in Mortandad and Sandia canyons and installed infrastructure pipelines and vaults.

monitoring, mitigation and reporting requirements consistent with the Individual Permit.

- Continue to provide critical database management and infrastructure support to meet renegotiated Consent Order requirements.
- Conduct authorization basis surface inspections at several Nuclear Environmental Sites and required repairs.
- Continue planning activities at Individual Permit sites including Los Alamos, Pueblo, Ancho, Chaquehui, Sandia, and Mortandad canyons.
- Continue activities for Chromium plume investigation through modeling and hydrology studies, installation of extraction and injection wells, and interim measure activities progression towards an approved Corrective Measures Evaluation.
- Complete the Radiological Risk assessment for 33 shafts project.
- Initiate planning for TA-21 closure projects.
- Continue activities associated with groundwater investigation for high explosives plume in Cañon de Valle (RDx).
- Install regional monitoring well for Cañon de Valle (RDx).
- Continue decontamination and decommissioning activities for process-contaminated facilities at Technical Area-21 which are co-located in the footprint of the structures.

**Miscellaneous Programs and Agreements in Principle (PBS: VL-FAO-0101)**

**Overview**

This PBS is within the Defense Environmental Cleanup appropriation.

This PBS includes continued community, Tribal, and site wide programs including the Natural Resource Damage Assessment Program at Los Alamos National Laboratory. The pre-assessment screening and the Natural Resource Damage Assessment Plan for the Los Alamos National Laboratory site were completed in FY 2014. The Los Alamos National Laboratory Natural Resource Trustee Council is continuing assessment activities. The Northern New Mexico Citizens Advisory Board is chartered by the DOE as an EM Site-Specific Advisory Board.

**Miscellaneous Programs and Agreements in Principle (PBS: VL-FAO-0101)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$3,394	\$3,394	\$0
<ul style="list-style-type: none"> <li>Supported the Regional Coalition activities.</li> <li>Supported the Natural Resource Damage Assessment including preliminary assessment development and Trustee Council activities.</li> <li>Supported the Los Alamos Pueblo Program to develop and implement environmental monitoring programs for air, soil, and water and establish an independent monitoring program.</li> </ul>	<ul style="list-style-type: none"> <li>Continue the Regional Coalition activities.</li> <li>Continue the Natural Resource Damage Assessment and Trustee Council activities.</li> <li>Continue the Los Alamos Pueblo Program to continue environmental monitoring programs for air, soil, and water and establish an independent monitoring program.</li> <li>Provide for Citizens Advisory Board requirements.</li> </ul>	<ul style="list-style-type: none"> <li>No change.</li> </ul>





## Nevada

### Overview

The Environmental Management (EM) Nevada Program is comprised of soil and groundwater remediation, operation of waste disposal facilities, and community and regulatory support activities. Soil and groundwater remediation activities include assessment and completion of corrective actions for surface and near-surface soil contamination locations and former underground test area locations in accordance with the Federal Facility Agreement and Consent Order. Operation of waste disposal facilities supports the completion of cleanup at sites across the DOE complex. Community and regulatory support activities provide stakeholder and tribal entity support in the State of Nevada for EM activities on the Nevada National Security Site.

The EM Nevada Radioactive Waste Management Complex is an essential asset for the Department of Energy. This one-of-a-kind waste disposal facility is the only federally owned location where low-level radioactive waste, mixed low-level radioactive waste (hazardous and radioactive waste), and classified waste can be disposed from off-site generators. Without this facility, many DOE sites and DOE-related facilities would be unable to remediate legacy nuclear testing and research facilities and dispose of the contaminated materials.

### Highlights of the FY 2019 Budget Request

The EM Nevada Program FY 2019 budget supports continued progress towards risk-informed closure of eight hundred sixty-eight (868) remaining subsurface contaminated groundwater and fifteen (15) contaminated soil and industrial-type sites; continued post-closure monitoring and maintenance; operation of a waste disposal facility that accepts waste from across the DOE complex; continued support for the State of Nevada regulatory oversight of EM activities; environmental and natural resource planning as it pertains to the site; and funding for the low-level waste fee agreement with the State of Nevada.

### FY 2018 and FY 2019 Key Milestones/Outlook

PBS VL-NV-0030:

- (Recurring Annual Milestone) Submit Annual Underground Test Area Post-Closure Report to the State of Nevada.
- (Recurring Annual Milestone) Submit Annual Resource Conservation and Recovery Act Post-Closure Report to the State of Nevada.
- (Recurring Annual Milestone) Submit Annual Tonopah Test Range Post-Closure Report to the State of Nevada.
- (Recurring Annual Milestone) Submit Annual Non-Resource Conservation and Recovery Act Post-Closure Report to the State of Nevada.
- (Recurring Annual Milestone) Submit Annual Underground Test Area Annual Sampling Report to the State of Nevada.
- (January 2018) Submit Corrective Action Unit 576 Miscellaneous Radiological Sites and Debris Corrective Action Plan to the State of Nevada.
- (March 2018) Corrective Action Unit Model Evaluation Pump Test Presentation #1 to the State of Nevada.
- (March 2018) Submit Corrective Action Unit 414 Clean Slate III Corrective Action Plan to the State of Nevada.
- (June 2018) Complete Corrective Action Unit 99 Rainier Mesa Peer Review.
- (September 2018) Submit Corrective Action Unit 413 Clean Slate II Closure Report to the State of Nevada.
- (September 2018) Submit Corrective Action Unit 101/102 Pahute Mesa Phase II Data Completion Presentation #4 to the State of Nevada.
- (March 2019) Submit Corrective Action Unit 576 Miscellaneous Radiological Sites and Debris Closure Report to the State of Nevada.
- (July 2019) Submit Corrective Action Unit 97 Yucca Flat/Climax Mine Model Evaluation New Data Presentation #2 to the State of Nevada.
- (August 2019) Submit Corrective Action Unit 99 Rainier Mesa/Shoshone Mountain Closure Report to the State of Nevada.
- (August 2019) Submit Corrective Action Unit 414 Clean Slate III Closure Report to the State of Nevada.
- (September 2019) Submit Corrective Action Unit 101/102 Pahute Mesa Phase II Data Completion Presentation #5 to the State of Nevada.

PBS VL-NV-0080:

- (September 2018) Continue disposal of low-level waste and mixed low-level waste; continue audits and certification programs; and maintain facilities and documents.
- (September 2019) Continue disposal of low-level waste and mixed low-level waste; continue audits and certification programs; and maintain facilities and documents.

PBS VL-NV-0100:

- (September 2018) Continue funding to the State of Nevada.
- (September 2019) Continue funding to the State of Nevada.

### **Regulatory Framework**

EM Nevada Program work at the Nevada National Security Site and the Nevada Test and Training Range follows all applicable federal level regulations:

- Federal Facility Agreement and Consent Order
- Resource Conservation and Recovery Act
- Safe Drinking Water Act
- Agreements in Principle
- Executive Order 12088
- DOE Order 435.1, Radioactive Waste Management

### **Contractual Framework**

Program planning and management for the EM Program Mission at the Nevada National Security Site is conducted through the issuance and execution of contracts to large and small businesses. The EM Program at the Nevada National Security Site develops near-term and long-term planning approaches in order to develop contract strategies and program/activity plans at a more detailed level. Selected contractors then execute these plans to complete cleanup on schedule.

The current prime National Nuclear Security Administration contract at the Nevada National Security Site is a Management and Operating contract with Mission Support and Test Services, LLC. The contract has a base performance period of 2017 to 2022 with award term options through November 30, 2027. Work Authorizations are placed to cover EM work under the Management and Operating contract. This contract includes the EM-funded operation of the waste disposal facilities and some environmental cleanup scope. The Management and Operating contract transition period ran from August 1, 2017 through November 30, 2017.

The current prime EM contract at the Nevada National Security Site supports environmental characterization and remediation activities and waste acceptance activities across the DOE complex. The current contract with Navarro Research and Engineering, Inc. is managed by EM and was awarded on February 1, 2015, with a transition period of one month (February 2015) and a base period of performance of 7 months (March 1 - September 30, 2015) and 4 option periods (October 1, 2015 – January 31, 2020). All option periods have been exercised.

### **Strategic Management**

The EM Nevada Program positions the Department of Energy to meet the challenges of the nation's Manhattan Project and Cold War legacy responsibilities by:

- Planning and conducting environmental restoration activities in a risk-informed and cost-effective manner in order to complete cleanup of legacy contamination and fulfill legal and regulatory commitments.
- Providing safe, compliant and cost-effective disposal for DOE-generated low-level radioactive waste and mixed low-level radioactive waste streams including classified waste, supporting the reduction in both the Nevada National Security Site contaminated site footprint, as well as the cleanup of other DOE sites' contaminated footprint.

The following activities directly support the Department's mission and goals to enhance nuclear security through environmental efforts:

- Environmental restoration scope addresses surface and shallow subsurface radiological soil contamination on the Nevada National Security Site and the Nevada Test and Training Range. It includes activities required to assess and perform appropriate corrective actions at approximately 900 former underground test locations, approximately 100 surface or near-surface soil contamination locations and more than 1,100 other industrial-type sites. Industrial-type site restorations address facility decontamination and decommissioning, various legacy systems, structures and sites (e.g., septic systems, mud pits, storage tanks, disposal sites), and conventional weapons disposition including unexploded ordnance. Groundwater activities involve geologic and hydrologic characterization, contaminated groundwater transport modeling, and contaminant boundary definition and establishment of a monitoring system to protect against the inadvertent use of contaminated groundwater.
- Waste management scope supports the completion of cleanup at DOE sites across the United States by maintaining the capability to dispose of approximately 1.2 million cubic feet of low-level waste and mixed low-level waste annually. It also supports disposal of waste generated by environmental restoration activities at the Nevada National Security Site.

**Nevada  
Funding (\$K)**

FY 2017 Enacted	FY 2018 Annualized CR*	FY 2019 Request	FY 2019 Request vs FY 2017 Enacted
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**Defense Environmental Cleanup**

**NNSA Sites**

**Nevada**

VL-NV-0030 / Soil and Water Remediation-Nevada	42,187	41,900	32,998	-9,189
VL-NV-0080 / Operate Waste Disposal Facility-Nevada	14,940	14,839	22,398	+7,458
VL-NV-0100 / Nevada Community and Regulatory Support	5,049	5,015	4,740	-309
<b>Subtotal, Nevada</b>	<b>62,176</b>	<b>61,754</b>	<b>60,136</b>	<b>-2,040</b>

\*A full-year 2018 appropriation for this account was not enacted at the time the budget was prepared; therefore, the budget assumes this account is operating under the Continuing Appropriations Act, 2018 (Division D of P.L. 115-56, as amended). The amounts included for 2018 reflect the annualized level provided by the continuing resolution. (These amounts are shown only at the Congressional control level and above; below that level, a dash (—) is shown).

**Nevada**  
**Explanation of Major Changes (\$K)**

<b>FY 2019 Request vs  FY 2017 Enacted</b>
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**Defense Environmental Cleanup**

**NNSA Sites**

**Nevada**

**VL-NV-0030 / Soil and Water Remediation-Nevada**

Groundwater Remediation:

- The reduction in Groundwater Remediation costs is related to scope for Corrective Action Units 97 Yucca Flat/Climax Mine and 99 Rainier Mesa/Shoshone Mountain), moving from a more labor intensive model evaluation phase into a less labor intensive closure phase.

Soil Remediation:

- During FY 2018 both Corrective Action Units 413 Clean Slate II and 414 Clean Slate III are working towards soil remediation and closure, which will result in a reduction in cost. Whereas in FY 2019, only Corrective Action Unit 414 Clean Slates III will be completing soil remediation and closure.

-9,189

**VL-NV-0080 / Operate Waste Disposal Facility-Nevada**

- Increase in cost is associated with the Area 5 Waste Disposal Facility expansion at the NNS and cap construction for the Mixed Low-level Waste Cell #18.

+7,458

**VL-NV-0100 / Nevada Community and Regulatory Support**

- No significant change.

-309

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<b>Total, Nevada</b>	<b>-2,040</b>
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**Soil and Water Remediation-Nevada (PBS: VL-NV-0030)**

**Overview**

This PBS is within the Defense Environmental Cleanup appropriation.

The overall objective of this PBS is to provide for appropriate risk-based remediation of contaminated support facilities and soils, and groundwater modeling on the Nevada National Security Site and the U.S. Air Force's Nevada Test and Training Range surface and subsurface contamination of industrial and soil contaminated sites. The contamination is the result of atmospheric and underground nuclear tests. The cleanup is complex due to the number of sites, nature and extent of contamination, and site size/location. The surface contamination includes approximately 1,100 industrial-type sites and approximately 100 soil contamination sites on the Nevada National Security Site and the Nevada Test and Training Range. The subsurface contamination includes approximately 900 groundwater contamination sites on the Nevada National Security Site. The industrial-type release sites mainly support facilities and structures that were left after conducting aboveground and underground nuclear tests, surface nuclear engine and reactor experiments, and weapons delivery systems.

Currently, activities at over 1,200 contaminated soil, industrial-type and groundwater sites have been completed and activities at approximately 900 other sites are in progress.

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

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$42,187	\$32,998	-\$9,189
Groundwater Remediation: <ul style="list-style-type: none"> <li>Continued progress toward closure of approximately 900 subsurface contaminated groundwater sites.</li> <li>Completed annual post-closure sampling and monitoring for Corrective Action Unit 98 Frenchman Flat.</li> <li>Completed annual data collection and sampling of groundwater Corrective Action Units not closed.</li> <li>Completed Corrective Action Units 101/102</li> </ul>	Groundwater Remediation: <ul style="list-style-type: none"> <li>Complete annual post-closure sampling and monitoring for Corrective Action Unit 98 Frenchman Flat.</li> <li>Complete annual data collection and sampling of groundwater Corrective Action Units not closed.</li> <li>Complete closure for Corrective Action Unit 99 Rainier Mesa/Shoshone Mountain.</li> <li>Complete model evaluation activities for closure for Corrective Action Unit 97 Yucca</li> </ul>	Groundwater Remediation: <ul style="list-style-type: none"> <li>The reduction in Groundwater Remediation costs is related to scope for Corrective Action Units 97 Yucca Flat/Climax Mine and 99 Rainier Mesa/Shoshone Mountain), moving from a more labor intensive model evaluation phase into a less labor intensive closure phase.</li> </ul> Soil Remediation: <ul style="list-style-type: none"> <li>During FY 2018 both Corrective Action Units 413 Clean Slate II and 414 Clean Slate III are</li> </ul>

Pahute Mesa flow and transport model presentations.

- Continued Corrective Action Units 101/102 Pahute Mesa hydrologic and geologic analysis.
- Completed Corrective Action Unit 99 Rainier Mesa Transport Model.
- Completed Corrective Action Unit 97 Yucca Flat Corrective Action Decision Document/Corrective Action Plan.

Soil Remediation:

- Completed closure activities for 18 contaminated soil sites: Corrective Action Unit 568 Area 3 Plutonium Dispersion Sites (which has 14 sites) and Corrective Action Unit 573 Alpha Contaminated Sites (which has 4 sites)
- Completed characterization activities and started closure activities including remedial actions for one contaminated soil site: Corrective Action Unit 413 Clean Slate II.
- Continued characterization activities for 7 contaminated soil sites: Corrective Action Unit 414 Clean Slate III (which has 1 site) and Corrective Action Unit 576 Miscellaneous Radiological Sites & Debris (which has 6 sites).
- Continued air monitoring and studies for soil remediation.

Industrial Sites:

- Conducted mandatory surveillance and maintenance of industrial-type and soil remedial systems to prevent contamination spread.

Flat/Climax Mine.

- Start Closure activities for Corrective Action Unit 97 Yucca Flat/Climax Mine.
- Continue hydrologic and geologic data analysis activities including groundwater flow and transport modeling for Corrective Action Units 101/102 Pahute Mesa.

Soil Remediation:

- Complete soil remediation and closure activities for one contaminated soil site at Corrective Action Unit 414 Clean Slates III.
- Complete closure activities for six contaminated soil sites at Corrective Action Unit 576 Miscellaneous Radiological Sites and Debris.
- Continue air monitoring and studies for soil remediation.

Industrial Sites:

- Continue post-closure monitoring of soils and industrial-type sites.

working towards soil remediation and closure, which will result in a reduction in cost. Whereas in FY 2019, only Corrective Action Unit 414 Clean Slates III will be completing soil remediation and closure.

**Operate Waste Disposal Facility-Nevada (PBS: VL-NV-0080)**

**Overview**

This PBS is within the Defense Environmental Cleanup appropriation.

This PBS provides low-level waste and mixed low-level waste disposal capability to meet the needs of all DOE sites through FY 2030 for waste that requires offsite disposal and in instances where commercial disposal is not available or cost effective. The funding requested in this PBS supports EM's allocated share of annual disposal costs and therefore is dependent upon total waste volumes from all DOE programs. Continuing the practice that began in FY 2009, non-EM programs will fund a share of this activity based on each program's share of the waste disposed at the Nevada National Security Site. The Site maintains the capability to dispose of low-level radioactive waste and mixed low-level radioactive waste (as allowed under permit conditions as administered by the State of Nevada), and dispose of classified material from approved generators throughout the DOE complex. Preservation of this capability is vital to DOE missions because some DOE waste streams cannot be disposed of at the site of generation or at commercial facilities.

**Operate Waste Disposal Facility-Nevada (PBS: VL-NV-0080)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$14,940	\$22,398	+\$7,458
<ul style="list-style-type: none"> <li>Continued developing and maintaining plans, permits, safety basis, and technical and regulatory support for activities such as the Nevada National Security Site Resource Conservation and Recovery Act Part B Permit.</li> <li>Continued audits and waste certification reviews in support of generator programs to ensure compliance with the Nevada National Security Site Waste Acceptance Criteria.</li> <li>Supported cleanup activities across the DOE complex by disposing of approximately 27,000 cubic meters of low-level and mixed low-level radioactive waste from DOE sites and approved generators.</li> </ul>	<ul style="list-style-type: none"> <li>Continue developing and maintaining plans, permits, safety basis, and technical and regulatory support for activities such as the Nevada National Security Site Resource Conservation and Recovery Act Part B Permit and DOE Order 435.1, Radioactive Waste Management.</li> <li>Continue audits and waste certification reviews in support of generator programs to ensure compliance with the Nevada National Security Site Waste Acceptance Criteria.</li> <li>Support cleanup activities across the DOE complex by providing disposal capacity and services for up to 1,200,000 cubic feet of low-</li> </ul>	<ul style="list-style-type: none"> <li>Increase in cost is associated with the Area 5 Waste Disposal Facility expansion at the NNSS and cap construction for the Mixed Low-level Waste Cell #18.</li> </ul>



- Began construction of the new Mixed Low-level Waste Cell #25.
  - level radioactive and mixed low-level radioactive waste.
  - Continue operation of the Resource Conservation and Recovery Act mixed low-level radioactive waste disposal cell.
  - Complete engineered cap construction and closure report for the current mixed low-level waste disposal cell (Cell 18) per the permit with the State of Nevada.
  - Continue facility expansion by constructing an engineered berm and drainage ditches.
-

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

**Overview**

This PBS is within the Defense Environmental Cleanup appropriation.

This PBS provides support for Agreements-in-Principle with two state agencies: the Nevada Division of Emergency Management and the Nevada Division of Environmental Protection. This PBS also includes funding for the following: the annual Federal Facilities Agreement and Consent Order fee; and a grant with the State of Nevada to perform programmatic oversight and environmental and natural resource planning. The Nevada Site Specific Advisory Board is chartered by the DOE as an EM Site-Specific Advisory Board.

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

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$5,049	\$4,740	-\$309
<ul style="list-style-type: none"> <li>• Provided support for State of Nevada regulatory oversight of the Nevada National Security Site.</li> <li>• Provided support for the State of Nevada grant to perform programmatic oversight to carry out environmental and natural resource planning as it pertains to the Site.</li> </ul>	<ul style="list-style-type: none"> <li>• Provide support for State of Nevada regulatory oversight of EM Nevada Program work at the Nevada National Security Site.</li> <li>• 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.</li> <li>• Provide funds for the low-level waste fee agreement.</li> <li>• Provide for Site Specific Advisory Board requirements.</li> </ul>	<ul style="list-style-type: none"> <li>• No significant change.</li> </ul>

## Sandia National Laboratories

### Overview

The Sandia National Laboratories-New Mexico site is adjacent to Albuquerque, New Mexico, on Kirtland Air Force Base. The Sandia National Laboratories-New Mexico Environmental Restoration Operations Project scope includes the remediation of inactive waste disposal and release sites. These sites have known releases of hazardous, radioactive, and mixed waste.

Sandia National Laboratories' approach to Environmental Restoration is to work closely with the New Mexico Environment Department to complete Resource Conservation and Recovery Act corrective actions at the last eight Environmental Restoration sites using cost effective approaches that meet regulatory requirements. The remaining cleanup scope includes three areas with contaminated groundwater in various stages of corrective action that require final remedies; and regulatory closure of five soil release sites that will transfer to the DOE National Nuclear Security Administration landlord. All Environmental Restoration activities are regulated by the 2004 Compliance Order on Consent signed by DOE, the Sandia Corporation and New Mexico Environment Department.

### Highlights of the FY 2019 Budget Request

In FY 2019, Resource Conservation and Recovery Act corrective action activities will continue at the three locations with contaminated groundwater: the Burn Site Groundwater Area of Concern, the Technical Area-V Groundwater Area of Concern, and the Tijeras Arroyo Groundwater Area of Concern. Additional groundwater characterization, which may require the installation of up to six new monitoring wells, may be implemented at the Burn Site Area of Concern. In FY 2019 there may be a public hearing associated with the selection of the final remedy for the Tijeras Arroyo Groundwater Area of Concern. At the Technical Area-V Groundwater Area of Concern, FY 2019 funding supports the Interim Measure/Treatability Study using In-Situ Bioremediation.

### FY 2018 and FY 2019 Key Milestones/Outlook

- (FY 2018) Continue discussions with the New Mexico Environment Department regarding the installation of new monitoring wells (if necessary) at the Burn Site Groundwater Area of Concern.
- (December 2017) Submit Burn Site Aquifer Pumping Test Report that is expected to discuss recommendations for possible additional monitoring wells, to the New Mexico Environment Department. The New Mexico Environment Department selects path forward.
- (February 2018) Submit the Revised and Updated Current Conceptual Model and Corrective Measures Evaluation Report for the Tijeras Arroyo Groundwater Area of Concern to the New Mexico Environment Department in response to a Notice of Disapproval from the Environment Department.
- (June 2018) Submit Pilot Test Report of Interim Measure/Treatability Study Phase 1 Injection at the Technical Area-V Groundwater Area of concern to the New Mexico Environment Department.
- (FY 2019) Support a public hearing associated with the selection of the final remedy for the Tijeras Arroyo Groundwater Area of Concern.
- (November 2018) Complete Interim Measure /Treatability Study Phase 1 injection at the Technical Area-V Groundwater Area of Concern.
- (November 2018 to November 2020) Performance Monitoring, Analysis & Validation at the Technical Area-V Groundwater Area of Concern.

### Regulatory Framework

The regulatory driver for completing this work is the Compliance Order on Consent signed in 2004 by DOE, the Sandia Corporation and the New Mexico Environment Department. As of April 2017, 303 of 314 sites have been approved by the New Mexico Environment Department as being "corrective action complete," including the Mixed Waste Landfill. Three of the remaining 11 sites are considered "deferred active-mission" sites and bring a future cleanup liability.

The remaining eight sites are in various stages of the Resource Conservation and Recovery Act corrective action process. For closure of five soil sites, the required corrective actions and groundwater characterization have been completed, the

### Environmental Management/

Sandia National Laboratory

New Mexico Environment Department has issued Certificates of Completion, and Sandia National Laboratories-New Mexico has completed their portion of the permit modification process for “corrective action complete” regulatory status. A public hearing is expected prior to the transfer of the five soil sites to the National Nuclear Security Administration’s long-term stewardship program.

Three areas of groundwater contamination are being characterized to determine the remedial action to implement. Each of the three areas of groundwater contamination (Burn Site, Tijeras Arroyo and Technical Area-V) have unique hydro-geologic complexity, and all three have contamination levels that are above the maximum contaminant level drinking water standards. There are no near-term risks to receptors. Delivery of final Corrective Measure Evaluation reports for each of the three areas to the New Mexico Environment Department are considered enforceable agreement milestones.

A phased, in-situ bioremediation Treatability Study/Interim Measure has been initiated at the Technical Area-V Groundwater Area of Concern. An updated Corrective Measures Evaluation Report and Current Conceptual Model Report for Tijeras Arroyo Groundwater, recommending monitored natural attenuation, will be submitted to the New Mexico Environment Department in early FY 2018. Up to 8 additional monitoring wells were planned to be installed at Tijeras Arroyo in FY 2018. However, based on an August 16, 2017 meeting with the New Mexico Environment Department, these additional wells are likely unneeded.

A phased characterization program, including an aquifer pumping test, is ongoing at the Burn Site Groundwater Area of Concern. Based on the results of the pumping test, and a verbal recommendation from the New Mexico Environment Department, there is a potential need to install up to six additional monitoring wells, with eight quarters of characterization data/reports. An updated Conceptual Model Report and a Corrective Measures Evaluation Report will be prepared and submitted to move towards formal regulatory closure.

#### **Contractual Framework**

The current Management and Operating contractor at Sandia National Laboratories is the National Technology & Engineering Solutions of Sandia, a wholly owned subsidiary of Honeywell International, Inc. This contract is overseen and managed by the National Nuclear Security Administration.

EM work at Sandia National Laboratories-New Mexico is performed under Work Authorizations against the National Nuclear Security Administration's Management and Operating contract with the National Technology & Engineering Solutions of Sandia.

#### **Strategic Management**

Sandia National Laboratories-New Mexico’s Environmental Restoration Operations mission is to complete all necessary corrective actions at the eight sites; the three groundwater areas of concern, and the regulatory (administrative) closure of five soil release sites. Three additional soil release sites are considered "deferred active-mission" sites.

The status and FY 2018 closure goals are:

- (1) Complete corrective action process for the five soil sites and transition the sites to the National Nuclear Security Administration landlord;
- (2) Burn Site Groundwater Area of Concern – additional discussions with the New Mexico Environment Department are required regarding additional monitoring wells to be installed in the near-term;
- (3) Tijeras Arroyo Groundwater Area of Concern – it is estimated that the New Mexico Environment Department will approve the revised and updated Current Conceptual Model and Corrective Measures Report in FY 2018 and move forward with the Corrective Action Complete regulatory closeout process, including a public hearing in FY 2019; and
- (4) Technical Area-V Groundwater Area of Concern, Phase 1 injection will be completed in FY 2018 as a part of the phased Interim Measure /Treatability Study.

**Sandia Site Office  
Funding (\$K)**

FY 2017 Enacted	FY 2018 Annualized CR*	FY 2019 Request	FY 2019 Request vs FY 2017 Enacted
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**Defense Environmental Cleanup**

**NNSA Sites**

**Sandia National Laboratories**

VL-SN-0030 / Soil and Water Remediation-Sandia

4,130	4,102	2,600	-1,530
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\*A full-year 2018 appropriation for this account was not enacted at the time the budget was prepared; therefore, the budget assumes this account is operating under the Continuing Appropriations Act, 2018 (Division D of P.L. 115-56, as amended). The amounts included for 2018 reflect the annualized level provided by the continuing resolution. (These amounts are shown only at the Congressional control level and above; below that level, a dash (—) is shown).

**Sandia Site Office**  
**Explanation of Major Changes (\$K)**

<b>FY 2019 Request vs FY 2017 Enacted</b>
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**Defense Environmental Cleanup**

**NNSA Sites**

**Sandia National Laboratories**

**VL-SN-0030 / Soil and Water Remediation-Sandia**

- Decrease reflects submission of the Mixed Waste Landfill long-term monitoring and maintenance plan and the Groundwater Well Installation Report; performance of Soil Sites 8/58 and 68 tests; and regulatory approval of Chemical Waste Landfill transference to the Long-Term Stewardship Program.

-1,530

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**Total, Sandia Site Office**

**-1,530**

**Soil and Water Remediation-Sandia (PBS: VL-SN-0030)**

**Overview**

This PBS is within the Defense Environmental Cleanup appropriation.

The Sandia National Laboratories-New Mexico Environmental Restoration Operations mission in FY 2018 is to complete all necessary corrective actions at the five soils sites and the three groundwater areas of concern.

Three groundwater areas are expected to transition to long-term stewardship following completion of characterization/evaluation, remedy selection via public hearing, and implementation of the determined remedy.

**Soil and Water Remediation-Sandia (PBS: VL-SN-0030)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$4,130	\$2,600	-\$1,530
<ul style="list-style-type: none"> <li>Submitted Mixed Waste Landfill Long-term Monitoring and Maintenance Plan to the New Mexico Environmental Department.</li> <li>Submitted Burn Site Groundwater Well Installation Report to New Mexico Environmental Department after completion of fieldwork (four new wells).</li> <li>Submitted Groundwater Well Installation Report on Soil Sites 8/58 and 68 to New Mexico Environmental Department after completion of fieldwork (five new wells).</li> <li>Performed slug tests for Soil Sites 8/58 and 68.</li> </ul>	<ul style="list-style-type: none"> <li>Public hearing for selection of final remedy for Tijeras Arroyo Groundwater.</li> <li>Continue field work implementation of the Interim Measure/Treatability Study at Technical Area-V Groundwater Area, including completion of the Phase 1 injection activities.</li> </ul>	<ul style="list-style-type: none"> <li>Decrease reflects submission of the Mixed Waste Landfill long-term monitoring and maintenance plan and the Groundwater Well Installation Report; performance of Soil Sites 8/58 and 68 tests; and regulatory approval of Chemical Waste Landfill transference to the Long-Term Stewardship Program.</li> </ul>

- Received final regulatory approval on Chemical Waste Landfill and transferred to Long Term Stewardship Program.
  - Commenced Groundwater Characterization at Soil Sites 149 and 154.
-



## Separations Process Research Unit

### Overview

The Separations Process Research Unit site supports cleanup of radioactive and chemical waste resulting from the Manhattan Project and cold war activities.

The Separations Process Research Unit is an inactive pilot plant used to research and develop chemical processes to separate plutonium from other radioactive material and is located at the Knolls Atomic Power Laboratory, Niskayuna, New York. The Separations Process Research Unit operated from 1950 to 1953 and during operations it contaminated nuclear facilities and approximately thirty acres of land where waste containers were managed. Groundwater, immediately adjacent to the nuclear facilities and in an area where containers were once stored, was also contaminated with radioactivity. The scope of the Separations Process Research Unit project is to decontaminate and remove the nuclear facilities (including required sub-grade building foundations and tank vaults), remediate the land areas, and ship the resulting waste to the appropriate off-site disposal facilities, and transfer to the landlord, the Office of Naval Reactors.

The decommissioning contractor, URS Energy and Construction, Inc., commenced open air demolition of Building H2 in late September 2010. During demolition, the contractor, in error, demolished a radioactively contaminated process vessel that should have been removed intact; this action caused an airborne release of radioactive contamination on the work site and adjacent Knolls Atomic Power Laboratory site work areas. The work was paused, the causes of the error identified, and a change in technical approach to the demolition effort was made. Per a U.S. EPA Administrative Order on Consent, DOE required the contractor to install tent enclosures with High Efficiency Particulate Air filtered ventilation systems over Buildings G2 and H2 and to remove as much of the contaminated equipment and concrete as possible within the tent enclosures prior to any further open air demolition.

Since 2010, the contractor has recovered and removed most of the radiological material source term from the buildings. In January 2013, it restarted decommissioning activities, performing work within the enclosures. In late June 2016, the contractor met the conditions in the contract task order to initiate open air demolition in G2 Building and subsequently started demolition. Nearly all the contaminated equipment and piping has been removed and concrete surfaces have been decontaminated to reduce worker exposure and minimize the possibility of risk to the public. The contractor estimates that field work on the G2 and H2 buildings will be completed early FY 2018, followed by Oak Ridge Institute of Science and Education verification sampling, which confirms cleanup standards were met.

The contractor is obligated to complete the entire scope of the cleanup work on the contract, including any activities exceeding the maximum DOE cost. The contractor is currently bearing all of the costs of the work because the costs have exceeded the DOE cost cap. EM has recognized minimal additional costs and has adjusted the contract cost cap accordingly. The settlement of the rest of the costs is currently part of an ongoing mediation case.

### Highlights of the FY 2019 Budget Request

The FY 2019 budget request of \$15,000,000 enables the Separations Process Research Unit site to provide for completion of verification sampling; contractor demobilization and closeout activities associated with returning the land and facilities to the site landlord, Naval Reactors; and initiation of procurement actions to transport and treat Separations Process Research Unit transuranic waste at a select location, return and provide interim storage.

### FY 2018 – FY 2019 Key Milestones/Outlook

- (February 2018) Complete G2 demolition and backfill
- (June 2018) Complete H2 building demolition work
- (June 2018) Complete Slab (H2)/soil remediation
- (June 2018) Complete cleanup of land area (soil)
- (July 2018) Contractor demobilize
- (September 2018) Complete verification sampling with Oak Ridge Institute for Science and Education

### Environmental Management/

- (September 2018) Contractor closeout complete
- (September 2018) Critical Decision-4 package submitted to Headquarters
- (September 2018) Land Transfer to Naval Reactors
- (FY 2019) Initiate procurement for containers for SPRU remote handled and contact handled TRU waste compliant with the Waste Acceptance Criteria for WIPP.
- (FY-2019) Initiate procurement for the re-packaging, transportation, treatment, interim storage and disposition of Separations Process Research Unit transuranic waste.
- (FY2019) Initiate procurement for the cleanup of F-yard and the completion of Mohawk River studies.

### **Regulatory Framework**

An Administrative Order on Consent was issued by the United States Environmental Protection Agency Region 2 in February 2011 for violations of the National Emissions Standards for Hazardous Air Pollutants regulations. This Administrative Order on Consent required that future decontamination and decommissioning activities occur within tent enclosures with ventilation units. The contractor successfully installed tent enclosures with ventilation systems over the structures, and completed activities for removal and shipment of tank sludge wastes, and continues to manage the Hillside Drain System. In 2016-2017, the tent enclosures were removed and open air demolition successfully began.

The Separations Process Research Unit project has generated 24 waste containers that are potential transuranic waste -- 22 of which are mixed Resource Conservation and Recovery Act hazardous waste and are regulated by the New York State Department of Environmental Conservation. The Separations Process Research Unit does not have a permitted storage area for hazardous waste and has requested 30-day extensions for generator storage of the mixed transuranic waste since December 2015. The New York State Department of Environmental Conservation has requested that the Department enter into a consent order to govern storage of the waste prior to eventual off-site disposition. The Department has submitted a draft consent order to the New York State Department of Environmental Conservation. The Consent Order was signed in February 2018. Additionally, SPRU will submit a Resource Conservation Recovery Act Part B application by mid-2018 to the State for continued interim storage of the TRU waste.

### **Contractual Framework**

Program planning and management at the Separations Process Research Unit is conducted through the issuance and execution of contracts to large and small businesses. Separations Process Research Unit develops near-term and long-term planning approaches in order to develop contract strategies and program/project plans at a more detailed level.

The Department has a cost-plus incentive fee task order in place under the Environmental Management Nationwide Indefinite Delivery/Indefinite Quantity Contract, which includes a cost cap which limits the government's liability to complete the task order. This cost cap has been reached requiring the contractor to complete the base work scope at no additional cost to the government. The decommissioning contractor at the Separations Process Research Unit is URS Energy and Construction, Inc., a subsidiary of AECOM. The contractor continues to bear all the costs of the work because the costs have exceeded the DOE cost cap. The task order will end when the contracted scope of work is completed.

Of note, transuranic waste treatment, packaging, certification is the responsibility of DOE and is not part of the contract cost cap.

### **Contractual Framework**

The contract was modified in FY 2012 and included a cost cap above which the contractor is obligated to fund the base contract work. The Department retains responsibility for funding hillside stabilization as a result of tropical storms Irene and Lee. Changes to the contract directed by the Government are funded by the Government. The contractor has exceeded the cost cap and has submitted contract claims. The resolution of contract claims is ongoing through the alternate dispute resolution process.

In October 2012, the contractor submitted a revised baseline which has been implemented by the Department as an interim baseline, pending validation. In January 2013, the contractor began implementation of a slower rate of progress than required by the interim baseline and working to a URS baseline, which has not been shared with or validated by DOE.

The Department will continue to fund portions of the work attributable to government actions, and require the contractor to complete the base work scope at no additional cost to the government.

The strategy for the site includes completion of remaining cleanup activities and continuing support until all EM post-closure administrative activities are completed and the site is transitioned to the Naval Reactors Program for their continued mission.

### **Strategic Management**

The following factors present the strongest challenges to the overall achievement of the Separations Process Research Unit site's strategic goals:

- Currently, transuranic waste is temporarily stored at the Separations Process Research Unit site in outdoor conex boxes and are not compliant with Waste Isolation Pilot Plant requirements for final disposal.
- Compliant containers will be needed prior to transportation off-site for treatment and certification that meet the waste acceptance criteria at WIPP.
- A location to store, treat, package and certify the waste is being identified.

If unable to move transuranic waste off-site before site demobilization in the summer of 2018, the 24 containers will remain at the Separations Process Research Unit and will require EM oversight. If long-term interim storage is anticipated, prior to final disposition at the Waste Isolation Pilot Plant, a facility for long-term interim storage at the site may need to be constructed.

**Separations Process Research Unit  
Funding (\$K)**

FY 2017 Enacted	FY 2018 Annualized CR*	FY 2019 Request	FY 2019 Request vs FY 2017 Enacted
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**Defense Environmental Cleanup**

**NNSA Sites**

**Separations Processing Research Unit**

VL-SPRU-0040 / Nuclear Facility D&D-Separations Process Research  
Unit

3,685	3,660	15,000	+11,315
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\*A full-year 2018 appropriation for this account was not enacted at the time the budget was prepared; therefore, the budget assumes this account is operating under the Continuing Appropriations Act, 2018 (Division D of P.L. 115-56, as amended). The amounts included for 2018 reflect the annualized level provided by the continuing resolution. (These amounts are shown only at the Congressional control level and above; below that level, a dash (—) is shown).

**Separations Process Research Unit  
Explanation of Major Changes (\$K)**

<b>FY 2019 Request vs FY 2017 Enacted</b>
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**Defense Environmental Cleanup**

**NNSA Sites**

**Separations Processing Research Unit**

**VL-SPRU-0040 / Nuclear Facility D&D-Separations Process Research Unit**

- Increase provides for contractor demobilization and closeout activities associated with returning the land and facilities to the site landlord, Naval Reactors. Funding also supports the initiation of procurement actions to transport and treat Separations Process Research Unit transuranic waste, return and provide interim storage.

+11,315

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**Total, Separations Process Research Unit**

**+11,315**

**Nuclear Facility D&D-Separations Process Research Unit (PBS: VL-SPRU-0040)**

**Overview**

This PBS is within the Defense Environmental Cleanup appropriation.

The project objectives are to remove the inactive nuclear facilities and disposition the chemical and radioactive contamination in land areas and return the land and facilities to the Knolls Atomic Power Laboratory for continued mission use by the Naval Reactors Program.

Under the terms of the site contract, the project reached the established cost cap prior to FY 2014. The site contractor will continue to fund activities necessary to complete the planned site cleanup and satisfy the contract scope requirements. DOE will continue to fund portions of the work attributable to Government actions, and require the contractor to complete the base work scope at no additional cost to the Government. The scope also includes transportation, treatment and possible return and interim storage of Separations Process Research Unit transuranic waste.

**Nuclear Facility D&D-Separations Process Research Unit (PBS: VL-SPRU-0040)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$3,685	\$15,000	+\$11,315
<ul style="list-style-type: none"> <li>Project verification sampling by the Oak Ridge Institute of Science and Education prior to Open Air Demolition.</li> </ul>	<ul style="list-style-type: none"> <li>Complete contractor closeout.</li> <li>Submit Critical Decision-4 to Headquarters.</li> <li>Transfer land to Naval Reactors.</li> <li>Initiate procurement actions to transport and treat Separations Process Research Unit transuranic waste, return and provide interim storage.</li> <li>Support the requirements of other transuranic waste management alternatives (repackaging, interim storage, certification and disposition) being considered.</li> </ul>	<ul style="list-style-type: none"> <li>Increase provides for contractor demobilization and closeout activities associated with returning the land and facilities to the site landlord, Naval Reactors. Funding also supports the initiation of procurement actions to transport and treat Separations Process Research Unit transuranic waste, return and provide interim storage.</li> </ul>

## West Valley

### Overview

Cleanup of the West Valley Demonstration Project will support the Department of Energy to meet the challenges of the nation's Manhattan Project and Cold War legacy responsibilities. The West Valley Demonstration Project is responsible for stabilizing and dispositioning low-level waste and transuranic waste and decontaminating and decommissioning of excess facilities, tanks, and equipment.

The West Valley Demonstration Project is being executed at the site of the only commercial nuclear fuel reprocessing facility to have operated in the United States. The Department's principal mission at the site is to satisfy the mandates established by the West Valley Demonstration Project Act of 1980 (Public Law 96-368):

- Solidify the high-level waste in a form suitable for transportation and disposal;
- Develop containers suitable for permanent disposal of the solidified high-level waste;
- Transport, in accordance with applicable law, high-level waste canisters to an appropriate Federal repository for permanent disposal;
- Dispose of low-level waste and transuranic waste produced by high-level waste solidification activities; and
- Decontaminate and decommission tanks and facilities used for solidification of high-level waste, as well as any material and hardware used in connection with the Project, in accordance with Nuclear Regulatory Commission requirements.

In meeting the Department's strategic goal, the Department will work aggressively to reduce the footprint at the West Valley Demonstration Project site. This involves treating, packaging and disposal of low-level and transuranic waste, cleaning up the environment, and removing or deactivating excess facilities.

### Highlights of the FY 2019 Budget Request

The major activities planned for the West Valley Demonstration Project for FY 2019 focus on completing decommissioning of the Main Plant Process Building and beginning demolition; continuing removal of excess ancillary facilities; and beginning off-site Rail Line repair and maintenance.

### FY 2018 and FY 2019 Key Milestones/Outlook

- (July 2018) Vitrification Facility - Demolished to Grade and removed
- (November 2018) Main Plant Process Building – Deactivation Complete
- (November 2018) Main Plant Process Building – Commencement of Demolition
- (February 2019) Chemical Process Cell Waste Storage Area Demo/Removal/Restoration
- (April 2019) Ancillary Areas – Manipulator Repair Shop, Contact Size Reduction Facility, Laundry, Plant Office Demo & Removal
- (September 2019) Waste Water Treatment Facility Demo/Removal/Restoration
- (September 2019) Process, ship and dispose of newly generated mixed low-level waste, meeting requirements as specified in the Site Treatment Plan

### Regulatory Framework

Cleanup and environmental remediation activities at the West Valley Demonstration Project are governed by the following statutes, regulations, and agreements:

- The West Valley Demonstration Project Act (Public Law 96-368) requires the Secretary of Energy to carry out a high-level radioactive waste management project at the Western New York Nuclear Services Center.
- Cooperative Agreement between DOE and New York State Energy Research and Development Authority (1980, amended 1981) provides for the implementation of the West Valley Demonstration Project Act of 1980. It allows DOE use and control of the 165-acre West Valley Demonstration Project premises and facilities for the purposes and duration of the Project.

### Environmental Management/

### West Valley Demonstration Project

- Memorandum of Understanding between DOE and Nuclear Regulatory Commission (1981) identifies roles, responsibilities, terms and conditions regarding the Nuclear Regulatory Commission review and consultation during the course of the Project. In accordance with this Memorandum of Understanding, the Nuclear Regulatory Commission reviewed and issued a Technical Evaluation Report supporting the DOE's submittal of the Decommissioning Plan in February 2010.
- Stipulation of Compromise Settlement agreement (1987) represents the legal compromise reached between the Coalition on West Valley Nuclear Waste and Radioactive Waste Campaign and DOE regarding development of a comprehensive Environmental Impact Statement for the Project and for on-site and off-site disposal of low-level waste.
- Second Supplemental Cooperative Agreement, Supplemental Agreement to the Cooperative Agreement between DOE and the New York State Research and Development Authority Setting Forth Special Provisions for the Identification, Implementation and Management of the Phase I Studies for the Decommissioning and/or Long-Term Stewardship at the West Valley Demonstration Project and Western Nuclear Service Center (dated March 14, 2011).
- Resource Conservation and Recovery Act 3008(h) Administrative Order on Consent (1992) between the United States Environmental Protection Agency, the New York State Department of Environmental Conservation, DOE and New York State Energy Research and Development Authority regarding Resource Conservation and Recovery Act.
- Cooperative Agreement between the Seneca Nation of Indians and the West Valley Demonstration Project (1996) establishes a framework for inter-governmental relationships between the Seneca Nation of Indians and the Department with respect to project activities.
- The *Final Environmental Impact Statement for Decommissioning and/or Long-Term Stewardship* and the associated Record of Decision issued in April 2010. The Record of Decision was "Phased Decision-making" in which the decommissioning will be completed in two phases. Phase 1 activities are expected to take eight to ten years to complete. In addition, during Phase 1, additional site characterization and scientific studies will be conducted to facilitate consensus decision making for the remaining facilities or areas.
- A Phase 2 decision will be made within ten years after the initial Departmental Record of Decision and New York State Energy Research and Development Authority Findings Statement. These decisions would address final closure of the high-level waste tanks, Nuclear Regulatory Commission Licensed Disposal Area, and State Licensed Disposal Area.

### **Contractual Framework**

Program planning and management at the West Valley Demonstration Project is conducted through the issuance and execution of contracts to large and small businesses. The major contracts at the West Valley Demonstration Project include:

- West Valley Demonstration Project CH2M Hill BWXT West Valley, LCC, which has a contract period of performance from August 29, 2011, through an estimated completion date of March 18, 2020. There are no options on this cost plus award fee contract.
- Enviro Compliance Solutions Inc. This task order is executed against a nationwide indefinite delivery/indefinite quantity contract to a small disadvantaged business; it is a nation-wide indefinite delivery/indefinite quantity tripartite task order for Phase 1 Studies between U. S. Department of Energy (DOE), New York State Energy Research and Development Authority and Enviro Compliance Solutions Inc. to implement all study activities for all Potential Areas of Study as determined by DOE and the New York State Energy Research and Development Authority under this time and materials task order.
- Probabilistic Performance Assessment contract was awarded in September 2015 to a small business for a time and materials contract to perform a probabilistic analysis to support Phase 2 decision making for the West Valley Demonstration Project and New York State Energy Research and Development Authority.
- The West Valley Technical Assistance Contract was awarded in the fourth quarter of FY 2015 as an indefinite delivery/indefinite quantity contract from which task orders will be issued on either a time and materials or fixed-price basis. The contractor will provide technical and administrative services in support of the Department's West Valley Demonstration Project location.
- DOE WV and NYSERDA contract was awarded in FY 2017 for development of a Supplemental Environmental Impact Statement to evaluate alternatives for completing DOE's mission at WVDP and bringing the site to closure.



## Strategic Management

The Department has completed the first two mandates of the West Valley Demonstration Project Act—solidification of the liquid high-level waste and development of containers suitable for permanent disposal of the high-level waste. There are currently 275 high-level waste canisters that have been produced that are in safe storage in a cask storage system. The remaining work to be completed by DOE at West Valley includes: (1) storage and shipment of the high-level waste canisters for off-site disposal; (2) disposal of Project-generated low-level waste and transuranic waste; and (3) facility decontamination and decommissioning.

The technical, schedule, and cost elements associated with decommissioning of the West Valley Demonstration Project were considered during development of the Decommissioning and/or Long Term Management Environmental Impact Statement. A Record of Decision was issued in April 2010 outlining the Department's plan for completing its remaining responsibilities. To that end, DOE will continue to focus on low-level and transuranic waste disposition, decontamination and removal of the Main Plant Process Building and the Vitrification Facility, and removal of non-essential facilities. In addition, the Department has installed a permeable treatment wall to mitigate the spread of a ground water plume and has installed a tank and vault drying system to safely manage the high-level waste tanks until their final closure pathway is determined. The Department has relocated the 275 high-level waste canisters that were stored in the Main Plant Process Building (the original reprocessing facility) to a new on-site interim storage facility. The Main Plant Process Building and the Vitrification Facility will be deactivated and demolished consistent with the Environmental Impact Statement Record of Decision.

The following assumptions will impact the overall achievement of the program's strategic goal:

- The Project will be able to disposition higher activity low-level waste off-site, without obstruction, consistent with the 2005 Waste Management Record of Decision.
- Supplemental analyses and amendments to the Record of Decision, as necessary, will allow for off-site disposition of other Project waste.
- The Project's non-defense transuranic waste has been included within the Department's *Final Environmental Impact Statement for the Disposal of Greater-Than-Class C Low-Level Radioactive Waste and Greater-Than-Class-C-Like Waste* that was published in February 2016. Transuranic waste will be packaged and stored until a disposition path is available.

**West Valley Demonstration Project  
Funding (\$K)**

	FY 2017 Enacted	FY 2018 Annualized CR*	FY 2019 Request	FY 2019 Request vs FY 2017 Enacted
<b>Defense Environmental Cleanup</b>				
<b>Safeguards and Security</b>				
OH-WV-0020 / Safeguards and Security-West Valley	3,215	3,193	3,133	-82
<b>Non-Defense Environmental Cleanup</b>				
<b>West Valley Demonstration Project</b>				
OH-WV-0013 / Solid Waste Stabilization and Disposition-West Valley	7,938	7,884	23,980	+16,042
OH-WV-0040 / Nuclear Facility D&D-West Valley	58,475	58,078	36,574	-21,901
<b>Subtotal, West Valley Demonstration Project</b>	<b>66,413</b>	<b>65,962</b>	<b>60,554</b>	<b>-5,859</b>
<b>Total, West Valley Demonstration Project</b>	<b>69,628</b>	<b>69,155</b>	<b>63,687</b>	<b>-5,941</b>

\*A full-year 2018 appropriation for this account was not enacted at the time the budget was prepared; therefore, the budget assumes this account is operating under the Continuing Appropriations Act, 2018 (Division D of P.L. 115-56, as amended). The amounts included for 2018 reflect the annualized level provided by the continuing resolution. (These amounts are shown only at the Congressional control level and above; below that level, a dash (—) is shown).

**West Valley Demonstration Project  
Explanation of Major Changes (\$K)**

<b>FY 2019 Request vs FY 2017 Enacted</b>
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<b>Defense Environmental Cleanup</b>	
<b>Safeguards and Security</b>	
<b>OH-WV-0020 / Safeguards and Security-West Valley</b>	
• No significant change. Cyber activities will be funded within the Safeguards and Security program (PBS OH-WV-0020).	-82
<b>Non-Defense Environmental Cleanup</b>	
<b>West Valley Demonstration Project</b>	
<b>OH-WV-0013 / Solid Waste Stabilization and Disposition-West Valley</b>	
• Increase is due to an increased volume of waste disposition resulting from demolition activities for the Vitrification Facility, Main Process Plant and Ancillary Facilities.	+16,042
<b>OH-WV-0040 / Nuclear Facility D&amp;D-West Valley</b>	
• Decrease is due to completion of demolition in the Main Process Plant and most major infrastructure upgrades for electric, natural gas, communications, water and rail.	-21,901
<hr/>	
<b>Total, West Valley Demonstration Project</b>	<b>-5,941</b>

**Safeguards and Security-West Valley (PBS: OH-WV-0020)**

**Overview**

This PBS can be found within the Defense Environmental Cleanup appropriation.

The Safeguards and Security Program at the West Valley Demonstration Project protects government assets, information, and technology systems to support the cleanup of this spent fuel reprocessing facility. These activities provide for overall site access security and protection of personnel and government property.

This scope will continue until DOE’s mission at the West Valley Demonstration Project is complete. The Cyber Security Program at West Valley Demonstration Project protects government information and technology systems to support the cleanup of this spent fuel reprocessing facility.

**Safeguards and Security-West Valley (PBS: OH-WV-0020)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
<b>\$3,215</b>	<b>\$3,133</b>	<b>-\$82</b>
<ul style="list-style-type: none"> <li>• Provided physical and cyber security by an on-site guard force to ensure the Department’s information resources are identified and protected.</li> <li>• Continued program management to oversee the security program, including training and qualifications for the West Valley Demonstration Project.</li> </ul>	<ul style="list-style-type: none"> <li>• Provide physical and cyber security by an on-site guard force to ensure all DOE information resources are identified and protected at all times.</li> <li>• Continue program management to oversee the security program including training and qualifications for the West Valley Demonstration Project.</li> </ul>	<ul style="list-style-type: none"> <li>• No significant change. Cyber activities will be funded within the Safeguards and Security program (PBS OH-WV-0020).</li> </ul>

**Solid Waste Stabilization and Disposition-West Valley (PBS: OH-WV-0013)**

**Overview**

This PBS is within the Non-Defense Environmental Cleanup appropriation.

The solid waste stabilization and disposition project at the West Valley Demonstration Project involves the waste management activities required to disposition the low-level and transuranic waste produced as a result of high level waste solidification activities. When this project is completed, all West Valley Demonstration Project-generated, low-level waste will have been shipped off-site for disposal, reducing worker and environmental risk at the site. In order to prepare for waste disposition efforts associated with transuranic and other high activity waste, a Remote-Handled Waste Facility has been constructed, which provides the capability to safely characterize, size reduce, package and prepare high activity and transuranic waste for off-site shipment and disposal. Transuranic waste will be packaged and interim stored until a disposition path is available.

**Solid Waste Stabilization and Disposition-West Valley (PBS: OH-WV-0013)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
<b>\$7,938</b>	<b>\$23,980</b>	<b>+\$16,042</b>
<ul style="list-style-type: none"> <li>• Processed, shipped and disposed of legacy mixed low-level waste to be in compliance with the Site Treatment Plan.</li> <li>• Processed, shipped and disposed of legacy and remediation low-level waste.</li> <li>• Size-reduced and packaged remote-handled and contact-handled transuranic waste for onsite storage.</li> <li>• Prepared documentation to support a waste determination for the Concentrator Feed Make-up Tank and the Melter Feed Hold Tank.</li> </ul>	<ul style="list-style-type: none"> <li>• Process, ship and dispose of legacy low-level waste.</li> <li>• Process, ship and dispose of newly generated mixed low-level waste.</li> <li>• Process, ship and dispose of newly generated low-level waste.</li> <li>• Process and store legacy transuranic waste.</li> <li>• Process and store newly generated transuranic waste.</li> </ul>	<ul style="list-style-type: none"> <li>• Increase is due to an increased volume of waste disposition resulting from demolition activities for the Vitrification Facility, Main Process Plant and Ancillary Facilities.</li> </ul>

**Nuclear Facility D&D-West Valley (PBS: OH-WV-0040)**

**Overview**

This PBS is within the Non-Defense Environmental Cleanup appropriation.

The decontamination and decommissioning program at the West Valley Demonstration Project encompasses the facilities, tanks and hardware used during high-level waste solidification efforts. Decontamination and decommissioning activities were subject to a Final Environmental Impact Statement which was completed in January 2010 and a Record of Decision was issued in April 2010. DOE has selected a phased approach for decommissioning activities at the West Valley Demonstration Project. In August 2011, DOE awarded a contract to CH2M Hill-B&W West Valley, LLC to conduct the first phase of decommissioning (Phase I Decommissioning - Facility Disposition) at the West Valley Demonstration Project. The decontamination and decommissioning will be performed consistent with the Nuclear Regulatory Commission criteria per the approved decommissioning plan. The decommissioning plan includes the relocation of 275 high-level waste canisters from the 50-year old Main Plant Process Building to a new on-site interim storage facility, and the removal of the Main Plant Process Building, the Vitrification Facility, and the Water Treatment Lagoons (Waste Management Areas 1 and 2). To support decontamination and decommissioning efforts, safety management and maintenance at the site are in compliance with federal and state statutes, as well as DOE orders and requirements.

**Nuclear Facility D&D-West Valley (PBS: OH-WV-0040)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$58,475	\$36,574	-\$21,901
<ul style="list-style-type: none"> <li>Maintained site services.</li> <li>Continued deactivation of highly contaminated cells in the Main Plant Process Building.</li> <li>Continued removal of excess ancillary facilities.</li> <li>Continued deactivation of Vitrification Facility.</li> </ul>	<ul style="list-style-type: none"> <li>Maintain Site Services.</li> <li>Complete deactivation and begin demolition of the Main Plant Process Building.</li> <li>Continue removal of excess ancillary facilities.</li> <li>Begin off-site rail line repair and maintenance.</li> <li>Maintain the underground storage tanks, the Nuclear Regulatory Commission-Licensed Disposal Area, and the Permeable Treatment Wall.</li> <li>Manage and maintain site infrastructure.</li> <li>Conduct environmental monitoring.</li> </ul>	<ul style="list-style-type: none"> <li>Decrease is due to completion of demolition in the Main Process Plant and most major infrastructure upgrades for electric, natural gas, communications, water and rail.</li> </ul>

## Brookhaven National Laboratory

### Overview

The Office of Environmental Management (EM) is responsible for the transfer, management, cleanup, and ultimate deactivation, decommissioning and demolition of excess contaminated facilities and materials that are no longer required to support DOE's mission.

The High Flux Beam Reactor at the Brookhaven National Laboratory in Upton, New York, was a research reactor that operated from 1965 to 1996 when operations were suspended after tritium from the spent fuel canal was found in groundwater south of the reactor.

This project will remove or otherwise dispose of the Building 705, the High Flux Beam Reactor exhaust stack. The stack was designated as part of the High Flux Beam Reactor complex.

### Regulatory Framework

Brookhaven National Laboratory was added to New York State's list of Inactive Hazardous Waste sites in 1980 and to the federal National Priorities List in 1989. A tri-party Federal Facilities Compliance Agreement, also known as the Interagency Agreement, was subsequently negotiated among the Department, the U.S. Environmental Protection Agency - Region II, and the New York State Department of Environmental Conservation.

In February 2009, the Office of Environmental Management and the U.S. Environmental Protection Agency, Region II signed *the Final Record of Decision for Area of Concern 31, High Flux Beam Reactor, Comprehensive Environmental Response, Compensation and Liability Information System # NY 78900008975*. The High Flux Beam Reactor stack must be removed by FY 2020, per the Record of Decision.

### Program Accomplishments and Status

In April 2000, a Memorandum of Agreement was developed between EM, the Office of Nuclear Energy, and the Office of Science that transferred the management and ownership of the High Flux Beam Reactor to EM for stabilization and decontamination and decommissioning. The Memorandum of Agreement directed that decontamination and decommissioning end-state alternatives for the facility be developed and that planning, engineering, and activities required to achieve the selected end-state be conducted.

In November 2007, the Assistant Secretary for EM approved Critical Decision-2/3 for the High Flux Beam Reactor decontamination and decommissioning. The work scope for the High Flux Beam Reactor project did not include the demolition of the stack at that time.

This 100-meter tall stack was initially constructed to provide an elevated exhaust of the High Flux Beam Reactor primary and secondary cooling air. The stack is no longer needed. Remediation activities include: isolation of utilities (e.g., electrical service), demolition and removal of the stack to the pedestal, final status survey, independent verification survey, packaging, transportation, and disposal of the waste, and restoration of the affected site.

In 2009, the American Recovery and Reinvestment Act provided funds to complete the stack removal. Work was initiated on the stack in 2010 but was suspended later that year prior to demolition due to safety concerns. The demolition effort was terminated in 2011. The Office of Science and EM co-signed the memorandum "Transfer and Realignment of Brookhaven National Laboratory Work Scope from the Office of Environmental Management to the Office of Science" in 2012 which stated that EM will remain responsible for completing the High Flux Beam Reactor stack demolition by FY 2020 as required by the Record of Decision. In 2016, EM submitted a Mission Need Statement and received approval from the Assistant Secretary for Critical Decision-0.

### **Highlights of the FY 2019 Budget Request**

The FY 2019 budget request of \$2,000,000 enables the Department to continue planning activities for the High Flux Beam Reactor stack remediation, which is required by FY 2020.

### **FY 2018 & FY 2019 Key Milestones/Outlook**

Actions to complete the stack remediation (in order to meet the Record of Decision requirements) include the following:

- Remedial Design and Remedial Action Work Plan preparation, review, and approval. Expected to be completed in FY 2018.
- Complete acquisition planning for remediation contract in FY 2019. Establish contract and project management structure.

The FY 2019 budget request is for completion of the following activities:

- Project planning, award of remediation contract and provide contract and project management.

### **Strategic Management**

The Department will continue planning activities for the High Flux Beam Reactor 100-meter stack remediation currently scheduled to be completed no later than 2020.



**Brookhaven National Laboratory  
Funding (\$K)**

FY 2017 Enacted	FY 2018 Annualized CR*	FY 2019 Request	FY 2019 Request vs FY 2017 Enacted
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**Non-Defense Environmental Cleanup**

**Small Sites**

**Brookhaven National Laboratory**

BRNL-0041 / Nuclear Facility D&D-High Flux Beam Reactor	0	0	2,000	+2,000
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\*A full-year 2018 appropriation for this account was not enacted at the time the budget was prepared; therefore, the budget assumes this account is operating under the Continuing Appropriations Act, 2018 (Division D of P.L. 115-56, as amended). The amounts included for 2018 reflect the annualized level provided by the continuing resolution. (These amounts are shown only at the Congressional control level and above; below that level, a dash (—) is shown).

**Brookhaven National Laboratory  
Explanation of Major Changes (\$K)**

<b>FY 2019 Request vs FY 2017 Enacted</b>
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**Non-Defense Environmental Cleanup  
Small Sites**

**Brookhaven National Laboratory**

**BRNL-0041 / Nuclear Facility D&D-High Flux Beam Reactor**

- Increase is for planning activities for the High Flux Beam Reactor stack remediation.

+2,000

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**Total, Brookhaven National Laboratory**

**+2,000**

**Nuclear Facility D&D-High Flux Beam Reactor (PBS: BRNL-0041)**

**Overview**

This PBS is within the Non-Defense Environmental Cleanup appropriation.

This PBS scope includes characterization, demolition, waste disposal, and area remediation/restoration activities of the Brookhaven High Flux Beam Reactor exhaust stack. The demolition of the Brookhaven High Flux Beam Reactor stack will be conducted as a response action under the Comprehensive Environmental Response, Compensation and Liability Act Record of Decision. It is identified as Area of Concern 9 under an Interagency Agreement, which serves as the Federal Facility Agreement between the Department, the United States Environmental Protection Agency, and New York State. A Feasibility Study was prepared to evaluate viable decommissioning alternatives and a Record of Decision was signed in 2009 requiring the completion of the demolition by 2020. DOE will maintain the facility in a safe state until remediation is completed and the surrounding area is verified to meet cleanup levels.

**Nuclear Facility D&D-High Flux Beam Reactor (PBS: BRNL-0041)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$0	\$2,000	+\$2,000
<ul style="list-style-type: none"> <li>Submitted a Mission Need Statement for Critical Decision-0. [Note: On November 16, 2016, EM received approval from its Assistant Secretary for Critical Decision-0.]</li> </ul>	<ul style="list-style-type: none"> <li>Continue planning activities for the High Flux Beam Reactor 100-meter stack remediation.</li> </ul>	<ul style="list-style-type: none"> <li>Increase is for planning activities for the High Flux Beam Reactor stack remediation.</li> </ul>



## Energy Technology Engineering Center

### Overview

Cleanup at the Energy Technology Engineering Center supports the Department's cleanup of radioactive and chemical waste resulting from the Manhattan Project and Cold War activities. Cleanup activities at the Energy Technology Engineering Center involve completion of site characterization; completion of a court-ordered Environmental Impact Statement; deactivation, decommissioning, and demolition of excess facilities; remediation of contaminated groundwater and soil; and disposition of resulting radioactive and hazardous waste.

The Energy Technology Engineering Center is a collection of DOE facilities within Area IV of the Santa Susana Field Laboratory, The Boeing Company is the landowner. The Energy Technology Engineering Center was DOE's laboratory for nuclear and liquid metal research (non-defense). The Energy Technology Engineering Center is surplus to the Department's mission. There are 18 numbered structures remaining, consisting of three radiological facilities, two sodium facilities, and other miscellaneous structures. Current and planned activities at the site involve groundwater characterization and investigation to support development of a Final Environmental Impact Statement; decontamination and decommissioning of the remaining structures; remediation of soil and groundwater contamination; and closure.

The Energy Technology Engineering Center site priorities are driven by several compliance agreements, which drive both the timing and sequence of cleanup priorities as follows:

1. Complete the court-ordered Environmental Impact Statement and issue a Record of Decision.
2. Install final groundwater remedies.
3. Decontaminate and decommission remaining DOE-owned buildings in Area IV, consisting of 18 structures totaling about 75,000 sq. ft.
4. Remediate contaminated soil and groundwater on 472 acres comprising Area IV and the Northern Buffer Zone of the Santa Susana Field Laboratory.
5. Close and return the site to landowner, The Boeing Company.

### Highlights of the FY 2019 Budget Request

The Energy Technology Engineering Center's FY 2019 request will enable the site to continue progress toward completion of cleanup, including initiating decontamination and decommissioning and planning of the soil remediation. The site will complete the required Corrective Measures Study to support its final recommendations regarding groundwater. Additionally, the site will complete the Groundwater Interim Measures for areas that exceed 1000 parts per billion for trichloroethylene. The site will complete planning for the Programmatic Agreement needed to support the requirements of the National Historic Preservation Act. The final language for the Record of Decision will be developed. Planned progress on required cleanup activities may be impacted due to the timing for completion of the Final Environmental Impact Statement and Record of Decision.

### FY 2018 & FY 2019 Key Milestones/Outlook

- (2018) Complete the Final Environmental Impact Statement
- (2018) Complete the groundwater Corrective Measure Study and the Groundwater Interim Measures, as required to be in compliance with the Consent Order with the State of California
- (2018) Initiate decontamination and decommissioning planning of remaining structures and soil remediation
- (2019) Issue the Final Environmental Impact Statement and Record of Decision
- (2019) Submit final groundwater Corrective Measure Implementation plan, in compliance with the Consent Order with the State of California
- (2019) Continue decontamination and decommissioning planning of remaining structures and soil remediation based on the Record of Decision

### Regulatory Framework

#### Environmental Management/

Energy Technology Engineering Center

Regulation of the Energy Technology Engineering Center Closure project is segmented by different regulatory authorities. Prior decontamination and demolition activities of the radiologically contaminated facilities at the Energy Technology Engineering Center were conducted under Atomic Energy Act authority. In May 2007, the U.S. District Court for the Northern District of California directed DOE to complete an Environmental Impact Statement and Record of Decision for Area IV of the Santa Susana Field Laboratory in accordance with the National Environmental Policy Act, and for the State of California to complete an Environmental Impact Report in accordance with the California Environmental Quality Act. A Notice of Intent to prepare an Environmental Impact Statement was published in the Federal Register in May 2008. Since DOE's 2008 Notice of Intent extensive studies of the site for radiological and chemical contamination have been conducted by U.S. EPA and DOE.

The Resource Conservation and Recovery Act groundwater cleanup is regulated by the California Department of Toxic Substance Control consistent with a signed Consent Order issued by the California Department of Toxic Substances Control in August 2007. DOE completed negotiation of an Administrative Order on Consent with the California Department of Toxic Substance Control in December 2010 for all remaining soil characterization and remediation. Neither the cleanup of groundwater or soils will begin until the completion of the Final Environmental Impact Statement and Record of Decision.

The Department published an Amended Notice of Intent to prepare an Environmental Impact Statement in February 2014, and issued the Draft Environmental Impact Statement in January 2017. California issued a Draft Program Environmental Impact Report in September 2017.

#### **Contractual Framework**

North Wind Incorporated is the contractor performing general environmental monitoring, surveillance and maintenance. Under the Firm-Fixed Price contract, there are options for the 18 DOE buildings that will need decontamination and decommissioning, which may be exercised after the Record of Decision determines the scope of work.

CDM is the contractor supporting the development of the National Environmental Policy Act activities.

#### **Strategic Management**

The Department will work to reduce the footprint at the Energy Technology Engineering Center. This involves planning and characterization activities required for cleaning up the environment, and removing or deactivating unneeded facilities.

**Energy Technology Engineering Center  
Funding (\$K)**

FY 2017 Enacted	FY 2018 Annualized CR*	FY 2019 Request	FY 2019 Request vs FY 2017 Enacted
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**Non-Defense Environmental Cleanup**

**Small Sites**

**Energy Technology Engineering Center**

CBC-ETEC-0040 / Nuclear Facility D&D-Energy Technology Engineering  
Center

10,459	10,388	8,038	-2,421
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\*A full-year 2018 appropriation for this account was not enacted at the time the budget was prepared; therefore, the budget assumes this account is operating under the Continuing Appropriations Act, 2018 (Division D of P.L. 115-56, as amended). The amounts included for 2018 reflect the annualized level provided by the continuing resolution. (These amounts are shown only at the Congressional control level and above; below that level, a dash (—) is shown).

**Energy Technology Engineering Center  
Explanation of Major Changes (\$K)**

<b>FY 2019 Request vs FY 2017 Enacted</b>
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**Non-Defense Environmental Cleanup**

**Small Sites**

**Energy Technology Engineering Center**

**CBC-ETEC-0040 / Nuclear Facility D&D-Energy Technology Engineering Center**

- Decrease pending issuance of the Final Environmental Impact Statement and associated Record of Decision, which is planned for completion in FY 2018 and FY 2019, respectively.

-2,421

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**Total, Energy Technology Engineering Center**

**-2,421**



## **Nuclear Facility D&D-Energy Technology Engineering Center (PBS: CBC-ETEC-0040)**

### **Overview**

This PBS is within the Non-Defense Environmental Cleanup appropriation.

The purpose of this PBS scope is to: 1) clean up contaminated release sites; 2) decontaminate, decommission, and demolish radioactively and chemically contaminated facilities for eventual release of the property to The Boeing Company (the site owner); 3) perform remediation of both contaminated groundwater and soil; and 4) remove radioactive and hazardous waste from the site applying (when possible) waste minimization principles such as recycling. Currently, decontamination, decommissioning, and demolition are complete except for the Sodium Pump Test Facility, Building 4024, Hazardous Waste Management Facility, Radioactive Materials Handling Facility complex, and a number of other miscellaneous structures. Soil and groundwater characterization is being performed. The scope of this PBS also includes direct maintenance and repair that are applicable to these areas.

In 2007, DOE received Court-ordered direction to prepare an Environmental Impact Statement regarding the cleanup of the Energy Technology Engineering Center facilities. Additionally, the State of California issued an Administrative Order on Consent in 2007 for groundwater remediation and a Consent Order in 2010 for cleanup of soils to a background level established by the State by 2017. Due to the 2007 Court decision, DOE is unable to conduct further decontamination and decommissioning activities until the completion of an Environmental Impact Statement for Area IV and the Northern Buffer Zone and issuance of the associated Record of Decision. The Final Environmental Impact Statement and the Record of Decision are planned to be completed in FY 2018 and FY 2019, respectively.

The end-state is to complete cleanup for both radiological and chemical contamination, and demolition of remaining structures. The site will then be transferred to The Boeing Company, which owns the land. The completion of the State Environmental Impact Report will impact some of the D&D activities at ETEC.

**Nuclear Facility D&D-Energy Technology Engineering Center (PBS: CBC-ETEC-0040)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
<b>\$10,459</b>	<b>\$8,038</b>	<b>-\$2,421</b>
<ul style="list-style-type: none"> <li>• Performed ongoing program support and landlord services.</li> <li>• Supported Resource Conservation and Recovery Act facility investigation program for groundwater including sampling, analysis, and report preparations.</li> <li>• Published Draft Environmental Impact Statement.</li> <li>• Completed the Chemical Data Summary Report, as required in the 2010 agreement with the State of California.</li> </ul>	<ul style="list-style-type: none"> <li>• Perform ongoing program support and operational services.</li> <li>• Complete and issue the Record of Decision.</li> <li>• Submit the Final groundwater Corrective Measure Implementation plan in compliance with the Consent Order with the State of California.</li> <li>• Continue decontamination and decommissioning planning of remaining structures and soil remediation based on the Record of Decision.</li> </ul>	<ul style="list-style-type: none"> <li>• Decrease pending issuance of the Final Environmental Impact Statement and associated Record of Decision, which is planned for completion in FY 2018 and FY 2019, respectively.</li> </ul>

## Moab

### Overview

The Moab site supports the Department's cleanup of radioactive and chemical waste resulting from the Manhattan Project and cold war activities. In October 2000, the Floyd D. Spence National Defense Authorization Act of 2001 assigned DOE the responsibility to establish a remedial action program and stabilize, dispose of, and control uranium mill tailings and other contaminated material at the Moab uranium ore processing site and associated vicinity properties. The project involves the excavation and transportation of a 16,000,000 ton pile of uranium mill tailings from near the Colorado River at the Moab site, and placement/disposal at an engineered disposal cell constructed at Crescent Junction, Utah. In January 2016, the project reached its midpoint with 8,000,000 tons shipped.

Direct maintenance and repair at the Moab Site is estimated to be \$800,000.

The Moab Site Office plans to purchase the following vehicles in FY 2019: 5 Other Than Road Tractors.

### Highlights of the FY 2019 Budget Request

The FY 2019 request supports safely excavating, transporting, and placing mill tailings from Moab, Utah, to the disposal cell at Crescent Junction, Utah; replacing and maintaining equipment as needed for a safe work environment; and extracting contaminated groundwater and injecting freshwater to protect the Colorado River.

### FY 2018 & FY 2019 Key Milestones/Outlook

- (September 2018) Excavate, transport, and dispose of approximately 450,000 tons of tailings and excavate a portion of the disposal cell.
- (September 2019) Excavate, transport, and dispose of approximately 450,000 tons of tailings.

### Regulatory Framework

Remediation must be performed in accordance with Title I of the Uranium Mill Tailings Radiation Control Act and the cleanup standards established under 40 CFR 192.

### Contractual Framework

The follow-on contract for the Moab Technical Assistance Contract was awarded to S&K Logistics Services on a firm-fixed-price and time-and-materials contract for a five-year period starting in late FY 2017.

### Strategic Management

The Department will work aggressively to address cleanup at the Moab site. This involves the transport of uranium mill tailings away from its current location near the Colorado River and Arches National Park to a DOE disposal facility in Crescent Junction, Utah.

**Moab  
Funding (\$K)**

<b>FY 2017 Enacted</b>	<b>FY 2018 Annualized CR*</b>	<b>FY 2019 Request</b>	<b>FY 2019 Request vs FY 2017 Enacted</b>
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**Non-Defense Environmental Cleanup**

**Small Sites**

**Moab**

CBC-MOAB-0031 / Soil and Water Remediation-Moab

37,884	37,627	34,993	-2,891
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\*A full-year 2018 appropriation for this account was not enacted at the time the budget was prepared; therefore, the budget assumes this account is operating under the Continuing Appropriations Act, 2018 (Division D of P.L. 115-56, as amended). The amounts included for 2018 reflect the annualized level provided by the continuing resolution. (These amounts are shown only at the Congressional control level and above; below that level, a dash (—) is shown).

**Moab**  
**Explanation of Major Changes (\$K)**

<b>FY 2019 Request vs FY 2017 Enacted</b>
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**Non-Defense Environmental Cleanup**

**Small Sites**

**Moab**

**CBC-MOAB-0031 / Soil and Water Remediation-Moab**

- Decrease reflects completion of 2½ of 4 phases of disposal cell excavation. -2,891

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<b>Total, Moab</b>	<b>-2,891</b>
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**Soil and Water Remediation-Moab (PBS: CBC-MOAB-0031)**

**Overview**

This PBS is within the Non-Defense Environmental Cleanup appropriation.

The project scope includes remediating radioactive uranium mill tailings, mill debris, contaminated ground water, and contaminated vicinity properties at the former Atlas Minerals Corporation uranium ore processing site. The Department became responsible for this mission upon enactment of the Floyd D. Spence National Defense Authorization Act of 2001. A Record of Decision issued in September 2005 requires relocation of the mill tailings away from the Colorado River to a DOE-constructed disposal facility near Crescent Junction, Utah, primarily via rail transportation. The site is of particular public interest due to its unique setting on the banks of the Colorado River and its proximity to Arches National Park.

The scope of this PBS also includes direct maintenance and repair that are applicable to these areas.

**Soil and Water Remediation-Moab (PBS: CBC-MOAB-0031)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$37,884	\$34,993	-\$2,891
<ul style="list-style-type: none"> <li>Conducted Moab and Crescent Junction sites operation and maintenance.</li> <li>Operated interim remedial action for contaminated groundwater.</li> <li>Placed tailings into disposal cell.</li> <li>Excavated tailings and transport from millsite to the disposal cell (467,000 tons in FY2017 or 8,820,000 tons cumulative).</li> <li>Performed operations and maintenance of the materials handling system and infrastructure.</li> <li>Completed next phase of disposal cell excavation.</li> </ul>	<ul style="list-style-type: none"> <li>Conduct Moab and Crescent Junction sites operation and maintenance.</li> <li>Operate interim remedial action for contaminated groundwater including extracting 4 million gallons and diverting/injecting 6.5 million gallons of freshwater.</li> <li>Excavate tailings and transport from mill site to the disposal cell (up to 450,000 tons).</li> <li>Perform operations and maintenance of the materials handling system and infrastructure.</li> <li>Place tailings into the disposal cell.</li> <li>Continue equipment maintenance/replacement.</li> </ul>	<ul style="list-style-type: none"> <li>Decrease reflects completion of 2½ of 4 phases of disposal cell excavation.</li> </ul>

## Other Sites

### Overview

In supporting the Department of Energy to meet the challenges of the nation's Manhattan Project and Cold War environmental legacy responsibilities, the Environmental Management (EM) Program manages scope that includes closure and post-closure administrative activities at a number of geographic sites across the nation. Some of the sites described in this section of the budget have continuing EM mission requirements; however, some may have no funding requirements in FY 2019. The sites included in this section are in the final stages of cleanup and closure or have actually transitioned to the post-closure phase. These sites have contributed to the Department's footprint reduction and now only require continuing administrative support until all EM post-closure administrative activities are completed and the site can be fully transitioned to other DOE programs (e.g., Office of Science, Legacy Management, etc.). This account also includes a site/facility for which the Department has no liability or mission requirement, but for which Congress has provided funds.

### Lawrence Berkeley National Laboratory

The Consolidated Appropriations Act Conference Report, 2012 (Public Law 112-331) directed DOE to utilize \$10,000,000 of the Non-Defense Environmental Cleanup funds to "improve health and safety by cleaning up existing contamination and improving the seismic standards of buildings within Department laboratory grounds." In the FY 2013 full-year Continuing Resolution, DOE received \$9,478,000 to support these efforts. In the FY 2014 Omnibus Appropriations Bill, DOE received \$17,786,000 toward this effort. In the FY 2016 Omnibus Appropriations Bill, DOE received an additional \$17,000,000. In the FY 2017 Omnibus Appropriations Bill, DOE received an additional \$9,200,000. DOE will utilize these funds to deactivate, decommission and demolish various facilities in the Old Town area of Lawrence Berkeley National Laboratory and remove associated contaminated soil to fulfill this Congressional mandate. Additional cleanup will be performed in the Old Town area as funds become available. There is no FY 2019 funding being requested.

### Southwest Experimental Fast Oxide Reactor

Congress mandated in the FY 2014 Omnibus Appropriations Act that DOE develop a plan for the decommissioning and decontamination of the University of Arkansas' Southwest Experimental Fast Oxide Reactor and provided \$1,000,000 for this effort. The plan for the cleanup of Southwest Experimental Fast Oxide Reactor was submitted to the Committees on Appropriations of the House and Senate in 2015. DOE spent approximately \$100,000 to develop the plan, which also included a cost estimate for the decommissioning and decontamination of Southwest Experimental Fast Oxide Reactor. In the FY 2016 Omnibus Appropriations Bill, Non-Defense Energy and Water Appropriation, DOE was directed to provide \$9,500,000 to Southwest Experimental Fast Oxide Reactor.

DOE awarded a grant to the University of Arkansas for \$10,500,000 in FY 2016. This included \$9,500,000 (as directed by Congress), approximately \$900,000 (of remaining FY 2014 funds), and \$100,000 (for planning). DOE was directed by Congress to provide \$5,500,000 in FY 2017. The objective of this grant is to allow the University of Arkansas to proceed with the decommissioning and decontamination of Southwest Experimental Fast Oxide Reactor. This grant has supported the completion of Phase II of the decommissioning and decontamination activities and the FY 2017 funds will help transition smoothly to Phase 3A. This facility is owned by the University of Arkansas and the Department has no environmental liability at this facility. There is no FY 2019 funding request for additional efforts.

### EM Consolidated Business Center

The Consolidated Business Center is located in Cincinnati, Ohio, and provides a wide range of activities supporting DOE's national environmental cleanup mission, from financial management and contracting to human resources and information resource management. The Consolidated Business Center also assumed responsibility for administrative closure and post-closure activities at EM defense and non-defense sites, which includes contract closeout, litigation and litigation support within this Other Sites budget. The EM Consolidated Business Center also serves as the lead EM office for new cleanup contract acquisitions needed to support the EM program mission. Closure Sites – Rocky Flats, Fernald, Mound, etc., but also to provide legal/litigation support for all active EMCBC sites, including SPRU, Nevada, West Valley, Moab, ETEC, and EM

**Environmental Management/**

**Other Sites**

work at LBNL, BNL, SLAC, and any other site brought under the EMCBC purview. The Consolidated Business Center also provides oversight of the cleanup efforts ongoing at Lawrence Berkeley National Laboratory, the Moab Uranium Mill Tailings Remedial Action Project, the West Valley Demonstration Project, the Nevada National Security Site, the Separations Process Research Unit, and the Energy Technology Engineering Center.

**Highlights of the FY 2019 Budget Request**

Continue regulatory support of the Fernald Closure Project, the ongoing Rocky Flats Closure Project's legal requirements, and small sites' litigation requirements.

**Strategic Management**

The EM program will conduct closure and post-closure administrative activities at a number of sites across the nation.



**Other Sites  
Funding (\$K)**

	<b>FY 2017 Enacted</b>	<b>FY 2018 Annualized CR*</b>	<b>FY 2019 Request</b>	<b>FY 2019 Request vs FY 2017 Enacted</b>
<b>Defense Environmental Cleanup</b>				
<b>Closure Sites</b>				
<b>Closure Sites Administration</b>				
CBC-0100-EM / Litigation Support	0	0	1,789	+1,789
CBC-0100-FN / CBC Post Closure Administration - Fernald	1,000	993	1,100	+100
CBC-0100-RF / CBC Post Closure Administration - Rocky Flats	8,389	8,332	2,000	-6,389
<b>Subtotal, Closure Sites Administration</b>	<b>9,389</b>	<b>9,325</b>	<b>4,889</b>	<b>-4,500</b>
<b>Non-Defense Environmental Cleanup</b>				
<b>Small Sites</b>				
<b>Lawrence Berkeley National Laboratory</b>				
CBC-LBNL-0040 / Decontamination and Decommissioning-Lawrence Berkeley National Laboratory	9,200	9,138	0	-9,200
<b>Southwest Experimental Fast Oxide Reactor (SEFOR)</b>				
SEFOR / SEFOR	5,500	5,463	0	-5,500
<b>Total, Small Sites</b>	<b>14,700</b>	<b>14,601</b>	<b>0</b>	<b>-14,700</b>
<b>Total, Other Sites</b>	<b>24,089</b>	<b>23,926</b>	<b>4,889</b>	<b>-19,200</b>

\*A full-year 2018 appropriation for this account was not enacted at the time the budget was prepared; therefore, the budget assumes this account is operating under the Continuing Appropriations Act, 2018 (Division D of P.L. 115-56, as amended). The amounts included for 2018 reflect the annualized level provided by the continuing resolution. (These amounts are shown only at the Congressional control level and above; below that level, a dash (—) is shown).

**Other Sites**  
**Explanation of Major Changes (\$K)**

<b>FY 2019 Request vs  FY 2017 Enacted</b>
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**Defense Environmental Cleanup**

**Closure Sites**

**Closure Sites Administration**

**CBC-0100-EM / Litigation Support**

- Increase reflects the requirement to provide litigation support to sites supported by the EM Consolidated Business Center. Costs were previously included in CBC-0100-RF, but with closure of the Cook case are now tracked separately. +1,789

**CBC-0100-FN / CBC Post Closure Administration - Fernald**

- Increase reflects requirements for the Fernald Workers II expert panel and medical monitoring. +100

**CBC-0100-RF / CBC Post Closure Administration - Rocky Flats**

- Decrease reflects reduced litigation support and classification requirements due to the closure of the Cook case. Costs not associated with the Cook case are now tracked under PBS CBC-0100-EM. -6,389

**Non-Defense Environmental Cleanup**

**Small Sites**

**Lawrence Berkeley National Laboratory**

**CBC-LBNL-0040 / Decontamination and Decommissioning-Lawrence Berkeley National Laboratory**

- No funding is requested in FY 2019. -9,200

**Southwest Experimental Fast Oxide Reactor (SEFOR)**

**SEFOR / SEFOR**

- No funding is requested in FY 2019. -5,500

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<b>Total, Other Sites</b>	<b>-19,200</b>
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**Litigation Support (PBS: CBC-0100-EM)**

**Overview**

This PBS is within the Defense Environmental Cleanup appropriation.

The EM Consolidated Business Center has responsibility to provide ongoing litigation support for all sites supported by the Business Center. The scope of this PBS is to provide litigation support related to these sites: Closure Sites – Rocky Flats, Fernald, Mound, etc., but also to provide legal/litigation support for all active EMCBC sites, including SPRU, Nevada, West Valley, Moab, ETEC, and EM work at LBNL, BNL, SLAC, and any other site brought under the EMCBC purview.

**Litigation Support (PBS: CBC-0100-EM)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$0	\$1,789	+\$1,789
<ul style="list-style-type: none"> <li>No activities.</li> </ul>	<ul style="list-style-type: none"> <li>Provide ongoing litigation support to sites supported by the EM Consolidated Business Center.</li> </ul>	<ul style="list-style-type: none"> <li>Increase reflects the requirement to provide litigation support to sites supported by the EM Consolidated Business Center. Costs were previously included in CBC-0100-RF, but with closure of the Cook case are now tracked separately.</li> </ul>

**CBC Post Closure Administration – Fernald (PBS: CBC-0100-FN)**

**Overview**

This PBS is within the Defense Environmental Cleanup appropriation.

This Post-Closure Administration PBS scope includes the Fernald Closure Project post closure administration and litigation support.

**CBC Post Closure Administration - Fernald (PBS: CBC-0100-FN)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$1,000	\$1,100	+\$100
<ul style="list-style-type: none"> <li>• Supported Fernald Workers II class action lawsuit and contract closeout requirements.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Fund the Fernald Workers II class action lawsuit and contract closeout at the Fernald closure site.</li> </ul>	<ul style="list-style-type: none"> <li>• Increase reflects requirements for the Fernald Workers II expert panel and medical monitoring.</li> </ul>

**CBC Post Closure Administration – Rocky Flats (PBS: CBC-0100-RF)**

**Overview**

This PBS is within the Defense Environmental Cleanup appropriation.

The Rocky Flats Closure Project achieved site closure in FY 2006. However, ongoing litigation support will continue until all litigation involving DOE or former Rocky Flats contractors is resolved. The EM Consolidated Business Center has assumed responsibility for the litigation associated with the Rocky Flats Site. The scope of this PBS is to provide site litigation support related to the continuing class actions and other civil litigation activities of former site contractors. This PBS also funds the records management vault and labor for the vault classifiers.

**CBC Post Closure Administration - Rocky Flats (PBS: CBC-0100-RF)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$8,389	\$2,000	-\$6,389
<ul style="list-style-type: none"> <li>Supported Rocky Flats Closure Project’s legal requirements and court orders for the Cook and Stone cases.</li> <li>Supported Rocky Flats records vault lease and records management costs.</li> </ul>	<ul style="list-style-type: none"> <li>Support Rocky Flats Closure Project’s legal requirements.</li> <li>Support Rocky Flats records vault lease and records management costs.</li> <li>Pay/Reimburse Workers’ Compensation claims and support Contract Closeout.</li> </ul>	<ul style="list-style-type: none"> <li>Decrease reflects reduced litigation support and classification requirements due to the closure of the Cook case. Costs not associated with the Cook case are now tracked under PBS CBC-0100-EM.</li> </ul>

**Decontamination and Decommissioning-Lawrence Berkeley National Laboratory (PBS: CBC-LBNL-0040)**

**Overview**

This PBS is within the Non-Defense Environmental Cleanup appropriation.

This PBS includes the deactivation and demolition of various facilities and removal of associated contaminated soil in the Old Town area of the Lawrence Berkeley National Laboratory. Critical Decision 1, Approve Alternative Selection and Cost Range, was approved for the project in October 2013. Critical Decision 2/3, Approve Performance Baseline/Start Construction, for the project was approved in December 2014. Activities include the deactivation and removal of Buildings 5, 16, and 16A and associated slabs, as well as removal of slabs from four former buildings, remediation of adjacent soil and disposition of wastes generated by these activities. Field work began early in calendar year 2015 for these activities and is expected to be completed in calendar year 2017.

**Decontamination and Decommissioning-Lawrence Berkeley National Laboratory (PBS: CBC-LBNL-0040)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$9,200	\$0	-\$9,200
<ul style="list-style-type: none"> <li>Completed Phase I deactivation, and demolition of Buildings 5, 16 and 16A.</li> <li>Completed removal of the Building 5 concrete slab and 95% of the contaminated soil.</li> <li>Began Phase II Pre-Critical Decision -2/3 planning activities for deactivation and demolition of Buildings, 4, 7, 7C, and 14 and remediation of their associated contaminated soil.</li> </ul>	<ul style="list-style-type: none"> <li>No activities planned.</li> </ul>	<ul style="list-style-type: none"> <li>No funding is requested in FY 2019.</li> </ul>

**Southwest Experimental Fast Oxide Reactor – SEFOR (PBS: SEFOR)**

**Overview**

This PBS is within the Non-Defense Environmental Cleanup appropriation.

Congress mandated in the FY 2014 Omnibus Appropriations Act that the Department develop a plan for the decommissioning and decontamination of the Southwest Experimental Fast Oxide Reactor. This facility is not owned by the Department, and the Department has no cleanup liability at the site. The requested plan has been provided to the Committees on Appropriations.

**SEFOR (PBS: SEFOR)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$5,500	\$0	-\$5,500
<ul style="list-style-type: none"> <li>• Provided technical support/assistance to the University of Arkansas for deactivation and decommissioning under Arkansas environmental regulations and standards.</li> </ul>	<ul style="list-style-type: none"> <li>• No activities planned.</li> </ul>	<ul style="list-style-type: none"> <li>• No funding is requested in FY 2019.</li> </ul>





## Excess Facilities

### Overview

The Request includes \$150,000,000 to continue the FY 2018 Budget proposal for a targeted effort to accelerate deactivation and decommissioning of specific high-risk facilities at the Y-12 National Security Complex and the Lawrence Livermore National Laboratory not currently in the Environmental Management programs' inventory to achieve substantial risk reduction within four years. This effort to address excess facilities supports modernization of the nuclear security enterprise.

In its December 2016 Report to Congress, "Plan for Deactivation and Decommissioning of Nonoperational Defense Nuclear Facilities," DOE documented a qualitative assessment of risks posed by excess facilities and defined the scope of the challenge. In response to this risk assessment effort, DOE developed a plan to inspect and evaluate the higher risk process-contaminated excess facilities to determine if conditions had changed since the prior inspection in FY 2008, to update disposition estimates, and to recommend next steps in preparing facilities for disposition. These inspections began in FY 2016. DOE completed the facility inspections at Lawrence Livermore National Laboratory in Livermore, California, and the Y-12 National Security Complex (Y-12) in Oak Ridge, Tennessee, in FY 2016.

### Highlights of the FY 2019 Budget Request

The FY 2019 request includes \$150,000,000 to continue activities initially requested in the FY 2018 Budget. This is a stand-alone effort to accelerate deactivation and decommissioning of high-risk facilities not currently in the EM portfolio at the Y-12 National Security Complex and Lawrence Livermore National Laboratory.

DOE has identified the facilities listed below as the priority facilities to be addressed through this effort because of their risks to workers, the public and the environment, and to better enable modernization of the nuclear weapons complex. Deactivation and decommissioning activities at the selected facilities will be funded upfront rather than incrementally within the request and will be managed efficiently and effectively to ensure accelerated completion. Cost estimates identified below are Rough Order of Magnitude costs and represent the upper end of the -50/+100% range. Refined cost estimates will be developed as project planning and regulatory activities move forward.

Site/Facility	Facility Owner	Rough Order of Magnitude Cost -50/+100%
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**Y-12 National Security Complex**

• Biology Complex which includes seven buildings		
o Biology Building 9207	SC	\$56,100
o 9207 Annex Building 9207-A	SC	\$1,400
o Mammalian Genetics Building 9210	SC	\$14,200
o Pigeon Quarters Building 9743-02	SC	\$900
o Utilities Building 9767-06	SC	\$200
o Utilities Building 9767-07	SC	\$200
o Radiation Source Building 9770-2	SC	\$500
• Alpha-4 Building 9201-4 COLEX Process Equipment	EM	\$15,000
• Beta-4 Classified Tool Storage Facility Building 9720-24	NNSA	\$800
• Development/Offices Building 9213	EM	\$10,000

**Lawrence Livermore National Laboratory**

• Pool Type Reactor Building 280	NNSA	\$52,200
• MARS E-Beam Facility Building 175	NNSA	\$16,000
• Heavy Elements Facility Building 251	NNSA	\$62,000

**Excess Facilities  
Funding (\$K)**

FY 2017 Enacted	FY 2018 Annualized CR*	FY 2019 Request	FY 2019 Request vs FY 2017 Enacted
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**Defense Environmental Cleanup**

**Excess Facilities**

EM-EF-0040 / Excess Facilities	0	0	150,000	+150,000
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\*A full-year 2018 appropriation for this account was not enacted at the time the budget was prepared; therefore, the budget assumes this account is operating under the Continuing Appropriations Act, 2018 (Division D of P.L. 115-56, as amended). The amounts included for 2018 reflect the annualized level provided by the continuing resolution. (These amounts are shown only at the Congressional control level and above; below that level, a dash (—) is shown).

**Excess Facilities**  
**Explanation of Major Changes (\$K)**

<b>FY 2019 Request vs FY 2017 Enacted</b>
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**Defense Environmental Cleanup**

**Excess Facilities**

**EM-EF-0040 / Excess Facilities**

- Increase supports a targeted effort to fund deactivation and decommissioning activities for selected excess high-risk contaminated facilities at the Y-12 National Security Complex and the Lawrence Livermore National Laboratory that are not in the current project inventory of the Environmental Management program. +150,000

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<b>Total, Excess Facilities</b>	<b>+150,000</b>
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**Excess Facilities (PBS: EM-EF-0040)**

**Overview**

This PBS can be found within the Defense Environmental Cleanup appropriation.

Over the past 25 years, EM has completed the deactivation and decommissioning (D&D) of approximately 3,000 facilities previously owned by other DOE Program Offices. In 2008 and 2009, EM reviewed over 300 facilities and found many to be appropriate for transfer to complete deactivation and decommissioning.

The FY 2019 Budget requests \$150,000,000 to continue deactivation and decommissioning of selected high-risk facilities at Y-12 National Security Complex and the Lawrence Livermore National Laboratory to ensure substantial risk reduction within four years. The Y-12 National Security Complex buildings are from the Manhattan Project era and include hazards ranging from extensive radiological and chemical contamination to industrial hygiene issues (i.e., mold, accumulation of rodent/avian excrement, accumulation of water, spalling concrete, inoperable lights, etc.), and extensive degradation of the physical structures. In addition, the mission changes and modifications to these buildings over the years present a challenge due to sparse configuration control and documentation.

The Lawrence Livermore National Laboratory excess facilities have been cleared of excess materials and are generally ready for immediate implementation of final deactivation and decommissioning. The buildings of concern at this site have been assessed by Lawrence Livermore National Laboratory as presenting an imminent risk to mission, workers, the public and the environment. Built between 1952 and 1980 for research activities, the facilities have significant radiological contamination and chemical hazards such as beryllium. In some cases, the facilities may be susceptible to failure in the event of an earthquake.

**Excess Facilities (PBS: EM-EF-0040)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$0	\$150,000	+\$150,000
<ul style="list-style-type: none"> <li>No Activities.</li> </ul>	<ul style="list-style-type: none"> <li>Continue deactivation and decommissioning activities.</li> </ul>	<ul style="list-style-type: none"> <li>Increase supports a targeted effort to fund deactivation and decommissioning activities for selected excess high-risk contaminated facilities at the Y-12 National Security Complex and the Lawrence Livermore National Laboratory that are not in the current project inventory of the Environmental Management program.</li> </ul>

## Mission Support

### Overview

EM's Mission Support activities encompass an array of support functions that support the overall cleanup mission. These activities are typically managed through the Headquarters office(s) since they are supportive of various crosscutting EM and DOE initiatives.

### Policy, Management, and Technical Support

The Headquarters Operations program includes policy, management, and technical support activities to provide management and direction for various crosscutting EM and DOE initiatives. Through this program, EM establishes and implements national and departmental policies, provides focused technical expertise to resolve barriers to site cleanup, and conducts analyses and integrates activities across the DOE complex. This program also includes government-furnished services and items necessary to accelerate site cleanup and risk reduction efforts, assure pathways to disposition waste and materials, conduct transportation, packaging, and emergency preparedness activities, complete necessary policy analyses, support legal claims, support closure assistance activities, and effectively communicate with the public and stakeholders regarding the EM program's activities.

### Strategic Sourcing Initiative

In FY 2012, EM embarked on the Strategic Sourcing Initiative led by the EM Consolidated Business Center in cooperation with NNSA. The Strategic Sourcing Initiative is an effort whereby materials are located and purchased corporately, netting EM economies of scale savings. Tools such as e-Sourcing, Commodity Savings Agreements, and e-Catalog are utilized by contractors to achieve the savings. The savings are calculated monthly by the Supply Chain Management Center (a division of Honeywell in Kansas City), based on spend analytics data pulled from the EM prime contractors. Savings are reported monthly to the prime contractors, the DOE Office of Acquisition Management, EM Headquarters, and the EM Consolidated Business Center. EM's Strategic Sourcing savings goal for FY 2017 was \$38,100,000. This goal was surpassed, achieving a savings of \$81,130,098 for FY 2017. EM's Strategic Sourcing savings goal for FY 2018 is \$45,800,000, 20 percent over the FY 2017 goal.

### Minority Serving Institutions Partnership Program

The Office of Environmental Management recognizes the role of minority serving institutions in filling the workforce pipeline with the next generation of cleanup professionals. To that end, the Minority Serving Institution Partnership Program aims to increase the participation of underrepresented minorities and disadvantaged people in graduate and professional schools and in careers that require post baccalaureate education and training, particularly those that provide the knowledge, skills and abilities needed to accomplish EM's mission of legacy cleanup. The Program is intended to increase employment opportunities of underrepresented minorities and disadvantaged populations through vocational, academic, and experiential learning opportunities from historically Black colleges or universities, Hispanic-serving institutions, Tribal colleges or universities, Alaska Native-serving institutions or a Native Hawaiian-serving institutions, Predominantly Black Institutions, Asian American and Native American Pacific Islander-serving institutions, Native American-serving nontribal institutions, and other minority-serving institutions and non-minority-serving institutions that make up a category of educational establishments (federally recognized Title IV colleges and universities) based on enrollment criteria (typically the percentage of enrolled minorities at a particular school). Because minority serving institutions have a successful track record for placing students with science, technology, engineering, and math (STEM) education in advanced academic programs and in a rewarding career path, the Minority Serving Institutions Partnership Program promotes a cooperative STEM environment, rather than a competitive one, to help influence and steer students into the EM workforce.

## **Working Capital Fund**

The Working Capital Fund is an intra-governmental revolving fund established pursuant to Section 653 of the Department of Energy Organization Act, P.L. 95-91 (August 4, 1977). More recently, Section 1.28 of Delegation Order No. 00-008.00 delegated responsibility for administration of the Working Capital Fund to the Chief Financial Officer. The Working Capital Fund provides a framework for managing certain common administrative services within the Department.

EM's FY 2018 Request within Mission Support provides funds for PBS MS-WCF-0100, Working Capital Fund, for activities such as A-123/internal controls, corporate business systems (Standard Accounting and Reporting System, iBudget, iPortal/Business Intelligence, Funds Distribution System, Oak Ridge Financial Services Center, Strategic Integrated Procurement Enterprise System), copying services, CyberOne, financial statement audits, interagency transfers, mail and transportation, pension studies, project management career development program, printing and graphics, and procurement management. EM's share of other Working Capital Fund expenses are requested in Program Direction (PBS: HQ-PDWCF-0100).

EM is not requesting funds within PBS MS-WCF-0100 in FY 2019 for activities such as A-123/internal controls, corporate business systems (Standard Accounting and Reporting System, iBudget, iPortal/Business Intelligence, Funds Distribution System, Oak Ridge Financial Services Center, Strategic Integrated Procurement Enterprise System), copying services, CyberOne, financial statement audits, interagency transfers, mail and transportation, pension studies, project management career development program, printing and graphics, and procurement management. EM will continue to fund these activities with program dollars.

## **Technology Development and Deployment**

In FY 2019, the Technology Development and Deployment Program will continue to facilitate the use of innovative solutions and state-of-the-art technology to reduce costs, accelerate schedules, and mitigate vulnerabilities with the overall objectives of enhancing worker, operational and environmental safety; improve work performance, productivity and quality; and reduce the government's environmental and financial liability created by defense nuclear weapons development and production. 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.

The FY 2019 budget request is structured to address the need for near-term innovations, mission-enabling technologies, and grand challenges. Near-term innovations represent new technologies and innovative solutions that are needed to address current operational challenges, including emergency response and preparedness. Mission enablers represent new and novel technologies and innovative solutions that allow EM to execute its mission activities safer and smarter. Grand challenges represent mission gaps and uncertainties that have site-wide or program-wide implications, broad applications, and the potential for dramatic reduction to lifecycle costs and schedules, as well as mission liabilities. Recognizing that many mission enabling technologies are commercially available in non-nuclear industry sectors, have been developed by entrepreneurial technologists, and exist in federal agencies to support highly specialized and mission-specific objectives, EM seeks and exploits the transfer of these technologies to support nuclear cleanup. The test bed initiatives will play a key role in demonstrating the functionality, operability and readiness of these technologies for use in nuclear applications.

EM collaborates and partners with technologists in other U.S. executive departments and independent agencies to leverage highly specialized expertise, government assets and facilities, and publically funded programs. Access to non-DOE national laboratories and technology centers, non-DOE federally funded research and development centers, non-DOE testing facilities and proving grounds, as well as university affiliated research centers, greatly increases opportunities for cleanup innovation and enhances cleanup capabilities. EM continues to enter into agreements and arrangements for interagency cooperation and collaboration.

EM's technology portfolio will leverage and harness the expertise, resources, and capabilities of universities and colleges. Academia supports EM in four distinct roles: (1) as an expert-based resource for conducting basic and applied scientific research and for providing engineering solutions; (2) as a pool of recognized subject matter experts to support technical peer reviews and independent technical assessments; (3) as incubators and pipelines for EM's future workforce; and (4) as a resource for third-party independent analysis, testing validation, and verification.

## **Environmental Management/**

### **Mission Support**

### **Mercury Storage Facility**

The Mercury Export Ban Act of 2008 (P.L. 110-414) as amended by the Frank R. Lautenberg Chemical Safety for the 21st Century Act (P.L. 114-182), which banned the export of elemental mercury generated in the United States beginning in 2013, prohibits federal agencies from either selling or distributing mercury, and instructs DOE to provide long-term management and storage for elemental mercury generated within the United States. The Act requires that a storage facility be operational by January 1, 2019. Additionally, DOE's mercury storage operations will be subject to the requirements of the Resource Conservation and Recovery Act. DOE began preparation of an Environmental Impact Statement in May 2009 to identify a location for a long-term elemental mercury management and storage facility. The final Environmental Impact Statement was issued in January 2011. In June 2012, DOE announced its intention to evaluate additional locations near the Waste Isolation Pilot Plant in Carlsbad, New Mexico, in a Supplement to the Environmental Impact Statement. The final Supplement to the Environmental Impact Statement was issued in October 2013. The timing of issuance of a Record of Decision and final decision on site selection has not been determined.

### **Reimbursement and Financial Review of Claims for Uranium and Thorium Licensees**

Pursuant to Title X of the Energy Policy Act of 1992 (Public Law 102-486, as amended) and 10 CFR Part 765, the Title X Uranium and Thorium Reimbursement Program, provides reimbursements to uranium and thorium licensees for the portion of the environmental cleanup costs attributable to nuclear material sold to the federal government during the Cold War Era. Title X authorizes the Department to reimburse eligible costs to Title X licensees. The Department will conduct financial reviews to ensure eligible costs have been submitted to the Department by the Title X licensees.

The intent of Title X is to reimburse eligible costs previously incurred by licensees, and does not relieve licensees of their liability to complete environmental restoration of their former mill sites. Through December 2017, three of the fourteen sites have completed remediation and have transferred their disposal facilities to DOE for long-term stewardship; one of these sites is still eligible for reimbursements. One site, Moab, was transferred to DOE by Public Law 106-398 and is no longer within the Title X program. Ten sites have continuing remediation programs.

**Mission Support  
Funding (\$K)**

	<b>FY 2017 Enacted</b>	<b>FY 2018 Annualized CR*</b>	<b>FY 2019 Request</b>	<b>FY 2019 Request vs FY 2017 Enacted</b>
<b>Defense Environmental Cleanup</b>				
<b>Program Support</b>				
<b>Mission Support</b>				
HQ-MS-0100 / Policy, Management, and Technical Support	6,979	6,932	6,979	0
EM-HBCU-0100 / Minority Serving Institution Partnerships Program	8,000	7,946	6,000	-2,000
<b>Subtotal, Mission Support</b>	<b>14,979</b>	<b>14,878</b>	<b>12,979</b>	<b>-2,000</b>
<b>Innovation and Technology Development</b>				
<b>Mission Support</b>				
HQ-TD-0100 / Technology Development	25,025	24,855	25,000	-25
<b>Total, Defense Environmental Cleanup</b>	<b>40,004</b>	<b>39,733</b>	<b>37,979</b>	<b>-2,025</b>
<b>Uranium Enrichment Decontamination and Decommissioning Fund</b>				
<b>U/Th Reimbursements</b>				
<b>Mission Support</b>				
HQ-UR-0100 / Reimbursements to Uranium/Thorium Licensees	30,000	29,796	30,000	0
<b>Total, Mission Support</b>	<b>70,004</b>	<b>69,529</b>	<b>67,979</b>	<b>-2,025</b>

\*A full-year 2018 appropriation for this account was not enacted at the time the budget was prepared; therefore, the budget assumes this account is operating under the Continuing Appropriations Act, 2018 (Division D of P.L. 115-56, as amended). The amounts included for 2018 reflect the annualized level provided by the continuing resolution. (These amounts are shown only at the Congressional control level and above; below that level, a dash (—) is shown).



**Mission Support**  
**Explanation of Major Changes (\$K)**

<b>FY 2019 Request vs  FY 2017 Enacted</b>
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<b>Defense Environmental Cleanup</b>	
<b>Innovation and Technology Development</b>	
<b>Mission Support</b>	
<b>HQ-TD-0100 / Technology Development</b>	
<ul style="list-style-type: none"> <li>• No significant change.</li> </ul>	-25
<b>Program Support</b>	
<b>EM-HBCU-0100 / Minority Serving Institution Partnerships Program</b>	
<ul style="list-style-type: none"> <li>• Reduction reflects shift to higher priority cleanup activities.</li> </ul>	-2,000
<b>HQ-MS-0100 / Policy, Management, and Technical Support</b>	
<ul style="list-style-type: none"> <li>• No change.</li> </ul>	0
<b>Uranium Enrichment Decontamination and Decommissioning Fund</b>	
<b>U/Th Reimbursements</b>	
<b>HQ-UR-0100 / Reimbursements to Uranium/Thorium Licensees</b>	
<ul style="list-style-type: none"> <li>• No change.</li> </ul>	0
<hr/>	
<b>Total, Mission Support</b>	<b>-2,025</b>

**Policy, Management, and Technical Support (PBS: HQ-MS-0100)**

**Overview**

This PBS can be found within the Defense Environmental Cleanup appropriation.

This PBS scope includes 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. Also, the scope of this PBS includes government-furnished services and items necessary to accelerate site cleanup and risk reduction efforts, assure pathways to disposition waste and materials, conduct transportation, packaging, and emergency preparedness activities, complete necessary policy analyses, support legal claims, support closure assistance activities, and effectively communicate with the public and stakeholders regarding the EM program’s activities.

**Policy, Management, and Technical Support (PBS: HQ-MS-0100)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$6,979	\$6,979	\$0
<ul style="list-style-type: none"> <li>• Provided support for DOE’s Strategic Sources Initiative to purchase commodities through a supply chain framework, which results in cost avoidance on purchases.</li> <li>• Supported for EM’s Traineeship Program that focuses on Subsurface Contaminant Migration and Remediation and Project Management for Nuclear-Hazardous Waste Management Projects.</li> <li>• Provided support for various Secretarial and Departmental initiatives, including the Defense Contracts Audit Agency audits, Government Industry Data Exchange Program and Consolidated Accounting Investment System.</li> <li>• Provided expertise in the areas of safety, health and security, emergency management, quality assurance, nuclear criticality safety, and risk</li> </ul>	<ul style="list-style-type: none"> <li>• Continue support for DOE’s Strategic Sources Initiative to purchase commodities through a supply chain framework, which results in cost avoidance on purchases.</li> <li>• Continue support for various Secretarial and Departmental initiatives, including the Defense Contracts Audit Agency audits, Government Industry Data Exchange Program and Consolidated Accounting Investment System.</li> <li>• Continue to provide expertise in the areas of safety, health and security, emergency management, quality assurance, nuclear criticality safety, and risk management.</li> <li>• Continue to provide support to instill safety awareness by utilizing the National Safety Council to conduct surveys which will indicate whether</li> </ul>	<ul style="list-style-type: none"> <li>• No change.</li> </ul>

management.

- Provided support to instill safety awareness by utilizing the National Safety Council to conduct surveys which will indicate whether and how EM's commitment to safety is working.
  - Provided support to various advisory groups such as the Nuclear Regulatory Commission, National Academy of Sciences and Low-Level Radioactive Waste Forum, to obtain technical assistance and expertise that indirectly supports EM mission objectives.
  - Provided support to packaging and transportation stakeholders outreach grants.
  - Provided rapid response from technical experts or "External/Internal" review teams to address emerging, imminent technical issues impeding site cleanup and closure.
  - Provided technical solution projects designed to reduce near-term technical risks and technical assistance to include site troubleshooting, consulting, scientific or technical problem solving.
  - Performed analysis for long-term elemental mercury management and storage facility.
- and how EM's commitment to safety is working.
  - Continue to provide support to various advisory groups such as the Nuclear Regulatory Commission, National Academy of Sciences and Low-Level Radioactive Waste Forum, to obtain technical assistance and expertise that indirectly supports EM mission objectives.
  - Continue to provide support to packaging and transportation stakeholders outreach grants.
  - Continue to provide rapid response from technical experts or "External/Internal" review teams to address emerging, imminent technical issues impeding site cleanup and closure.
  - Continue to provide technical solution projects designed to reduce near-term technical risks and technical assistance to include site troubleshooting, consulting, scientific or technical problem solving.
  - Continue to perform analysis for long-term elemental mercury management and storage facility.

**Minority Serving Institution Partnership Program (PBS: EM-HBCU-0100)**

**Overview**

This PBS can be found within the Defense Environmental Cleanup appropriation.

The Office of Environmental Management supports the Minority Serving Institution Partnership Program to attract, develop, and retain the technical workforce at its national laboratories and production plants required to execute its mission. The Program supports development of a future-focused workforce whereby improvements are sought in the technical training of the American atomic energy workforce as well as in filling pipeline of the next generation of nuclear cleanup professionals through science, technology, engineering, and mathematics (STEM) education, experiential learning and apprenticeships.

Goals for this partnership include:

- Increase number of Minority Serving Institution students who graduate with STEM degrees relevant to DOE mission areas and have had exposure to career opportunities at DOE sites.
- Strengthen and expand Minority Serving Institution research experience and competitiveness in DOE mission areas of interest.
- Increase visible participation of Minority Serving Institution faculty in DOE technical engagements and activities, such as collaborative research, technical workshops, and competitive processes.
- Target collaborations between accredited Minority Serving Institutions and DOE laboratories and plants that increase scientist-to-scientist interactions, applied research and engineering collaborations and/or implementation of research results, and access of Minority Serving Institutions to DOE facilities.
- Increase number of Minority Serving Institution graduates/postdocs hired into DOE’s technical and scientific workforce.

The Minority Serving Institutional Partnership Program aligns Minority Serving Institutional investments with the departmental mission in order to develop the needed skills and talent for DOE’s technical workforce at the laboratories and production plants, and to enhance the research and education at under-represented colleges and universities.

**Minority Serving Institution Partnerships Program (PBS: EM-HBCU-0100)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$8,000	\$6,000	-\$2,000
<ul style="list-style-type: none"> <li>• Support for the Department’s Minority Serving Institution Partnerships Program to attract, develop, and retain the technical workforce at its national laboratories and production plants required to execute its mission.</li> </ul>	<ul style="list-style-type: none"> <li>• Continue support for the Department’s Minority Serving Institution Partnerships Program to attract, develop, and retain the technical workforce at its national laboratories and production plants required to execute its mission.</li> </ul>	<ul style="list-style-type: none"> <li>• Reduction reflects shift to higher priority cleanup activities.</li> </ul>

## Technology Development and Deployment (PBS: HQ-TD-0100)

### Overview

This program is within the Defense Environmental Cleanup appropriation.

The Technology Development and Deployment Program will continue several mission-enabling activities, including cooperation and collaboration with technologists in other federal agencies, participation on other federal technology programs and interagency, and engagement with interagency coordination groups. EM will continue its engagement with colleges and universities, and cooperation with international partners with common and mutually beneficial interests.

The EM Technology Development and Deployment Program provides the opportunity to reduce the aggregate cleanup cost, complete cleanup sooner and, more importantly, perform work and operate facilities more effectively and in a manner that assures public, worker and environmental safety. New and novel technologies as well as innovative solutions are needed to address the significant challenges associated with the remaining nuclear cleanup work that will span the next five decades. The program encompasses the entire maturation lifecycle of technology which includes transfer of technologies from other nuclear and non-nuclear industry sectors. The program addresses issues related to: (1) radioactive liquid and solid waste treatment, storage and disposal, (2) soil and groundwater remediation, (3) nuclear materials and spent fuel management and disposition, (4) facility deactivation and decommissioning, and (5) public, worker, facility/asset, and environmental safety and security.

The FY 2019 budget addresses strategic investing in fundamental research and seeking high-payoff, game-changing technologies and solutions that are smart and positively impact EM's lifecycle by: (1) reducing costs; (2) accelerating schedules; (3) mitigating mission uncertainties, vulnerabilities, and risks; and (4) minimizing the mortgage associated with long-term, post-closure and post-completion stewardship. High-payoff technologies are aimed at those that are outside the day-to-day program, target big challenges, and could result in breakthroughs. This includes continued pursuit of options to resolve high-payoff areas needing near-term solutions. Current high impact areas are technetium-99 challenge, mercury challenge, EM test beds, and robotics and remote systems to enhanced worker safety. High-payoff technologies address EM's core mission challenges, which are knowledge and technology gaps that must be addressed in order for EM to execute and complete its mission.

The FY 2019 budget request also supports mission-enabling and mission-enhancing technologies, which enable work to be performed safer, with better quality, and more efficiently. Mission-enabling and mission-enhancing technologies are not intended to fully address a core mission challenge; instead, they serve to equip EM with advanced tools. These technologies will improve quality, enhance environmental and facility operations, and reduce the environmental liability of legacy nuclear cleanup. As the state-of-the-art in many other technology areas continue to advance, they offer alternatives or improvements to current baseline technologies. Technology transfer from other sectors and the use of non-nuclear commercially available technologies will also enable mission completion. Generally, mission-enabling and mission-enhancing technologies provide incremental improvements to existing capabilities and processes. Their impact can be significant, particularly when EM's safety and defense-in-depth posture are enhanced, gains are made in performance and productivity, and emergency response and preparedness capabilities are improved. These technologies can also yield high-payoff, game-changing, and disruptive solutions.

In FY 2019, research and development will continue to be critical for addressing the EM cleanup mission, particularly when basic phenomena are not adequately understood or there is a very high level of technical uncertainty. Early-stage applied research may lead to high-pay-off, game-changing, disruptive solutions and may

also provide insight on ways to improve existing environmental processes and facility operations. As such, EM will continue its activities in early-stage applied research as it serves as basis for new technological development, deployment on mission-relevant work, and technology transfer and commercialization.

EM's technology portfolio will leverage and harness the expertise, resources, and capabilities of US universities and colleges. Academia will support EM in four distinct roles: (1) as an expert-based resource for conducting early-stage and applied scientific research and for providing engineering solutions; (2) as a pool of recognized subject matter experts to support technical peer reviews and independent technical assessments; (3) as incubators and pipelines for EM's future workforce; and (4) as a source of independent testing, verification, and confirmatory evaluation. EM will work to improve the technical training of its workforce through Science, Technology, Engineering, and Math (STEM) education, experiential learning, and apprenticeships.

EM will continue to engage U.S. federal technologists and the international technical community to identify cross-cutting technologies and mutual interests in scientific and technological advancements. Collaborating with technologists in other federal agencies, participating on other federal technology programs and initiatives, and leveraging investments of public funds by other federal agencies are cornerstones of the EM mission innovation and technology. EM will continue to enter into agreements and arrangements with its national laboratories, other federal agencies, and international partners to work on innovative solutions to help reduce the government's cleanup liability, accelerate schedules, and mitigate mission vulnerabilities, including strategies to enhance worker safety, health and protection.

### **High-Payoff Technologies**

EM has identified five technology challenge areas that can significantly influence the reduction of the EM lifecycle costs and schedule. The first area is associated with the chemistry and fate of Technetium-99 as it is a key risk driver for the various EM facilities. Understanding the chemistry will lead to advanced options for treatment and remediation. The second is centered on mercury and its associated challenges on environmental remediation and facility decommissioning as well as on the operation of waste processing facilities. The third is vitrification technologies where there are key technology-related opportunities to better enable the disposition of EM's nearly 100-million-gallon inventory of liquid radiochemical waste. The fourth area is a programmatic test bed capability to facilitate the maturation and demonstration of new and promising technologies and processes using EM assets and facilities as well as EM-unique wastes and materials. The final area is focused on enhancing worker safety utilizing technological advancements during the planning and execution of work (EM's science of safety program), particularly in robotics and remote systems where workers are removed from workplace hazards.

### **Mission Enablers**

In FY 2019, EM will continue to develop solutions and technologies that enable work to be performed safer, with better quality, and more efficiently. Mission-enabling and mission-enhancing technologies serve to equip EM with advanced tools. These technologies will improve quality, enhance environmental and facility operations, and reduce the environmental liability of legacy nuclear cleanup. They aim to enhance worker, nuclear, facility, industrial, and environmental safety. As the state-of-the-art in many other technology areas continue to advance, they offer alternatives or improvements to current baseline technologies.

Technology transfer from other sectors and the use of "non-nuclear" commercially available technologies will also continue to enable mission completion. In addition, mission-enabling and mission-enhancing technologies provide incremental improvements to existing capabilities and processes. Their impact can be significant, particularly when EM's safety and defense-in-depth posture are enhanced, gains are made in operational performance and productivity, mitigation of risks are realized, and emergency response and preparedness capabilities are improved. By the nature of their outcome, these technologies can yield high-payoff, game-changing, and disruptive solutions.

**Technology Development (PBS: HQ-TD-0100)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$25,025	\$25,000	-\$25
<ul style="list-style-type: none"> <li>• Near-Term Innovative Solutions:               <ul style="list-style-type: none"> <li>– Continued to investigate alternative disposition pathways and novel technologies for dispositioning high consequence materials such as the Cesium and Strontium waste.</li> <li>– Continued to demonstrate non-elutable resins and alternative filtration techniques for radioactive contaminants.</li> <li>– Continued to evaluate and test remedial technologies for mercury contamination in soils, water, and biota; and technologies and techniques for mercury removal from the waste processing stream.</li> <li>– Continued to investigate the speciation, transformation, and behavior of Technetium-99 in waste process streams and pursue related technologies and solutions that help close uncertainty gaps.</li> <li>– Through the development, deployment, and transfer of technologies and innovative solutions, continued to address new and emerging operational challenges in waste processing, waste retrieval and tank closure, process intensification, aging facility and infrastructure management, and facility deactivation and decommissioning.</li> </ul> </li> <li>• Mission Enabling Technologies/Solutions:               <ul style="list-style-type: none"> <li>– Continued to infuse and integrate robotic solutions technologies for: (1) handling of high-hazard, high-consequence materials and waste, (2) performing worker/operator tasks that are dirty, dull, and dangerous; (3) easing the performance of worker/operator tasks that are physically demanding on or stressful to human body; (4) performing tasks that are beyond human abilities; (5) enhanced emergency response and recovery; (6) improving the safety, quality, efficiency, and productivity of facility operations.</li> <li>– Continued to establish radioactive test bed capability for demonstrating innovative tooling, treatment technologies, and other technical solutions at existing EM nuclear facilities and assets.</li> </ul> </li> </ul>	<p><u>Tank Waste</u></p> <ul style="list-style-type: none"> <li>• Continue projects that support innovations and enhancements in the areas of tank waste and nuclear waste management, soil and groundwater remediation, and deactivation and decommissioning activities.</li> <li>• Continue activities in the areas of Technetium-99, mercury, Cesium-137 and Strontium-90, the creation and operation of test beds, and integration of advanced tooling for enhanced worker safety and productivity, as outlined below:</li> </ul> <p><u>Technetium-99</u></p> <ul style="list-style-type: none"> <li>• Validate technetium-99 mass balance for integrated disposal facility acceptance</li> <li>• Complete development of non-pertechnetate sensor</li> <li>• Develop technetium-99 biogeochemical remediation approaches</li> </ul> <p><u>Mercury</u></p> <ul style="list-style-type: none"> <li>• Complete pre-demolition and demolition assessment for efficacy of debris sorting to segregate mercury-bearing waste</li> <li>• Complete development of caps, reactive liners, and chemical amendments for mercury disposal cells</li> </ul> <p><u>Vitrification</u></p> <ul style="list-style-type: none"> <li>• Continue to improve on glass formulations</li> </ul>	<ul style="list-style-type: none"> <li>• No significant change.</li> </ul>

- Continued to invest in mission-relevant innovations in data acquisition and management, including: non-destructive testing and evaluation; imaging, surveying, mapping, and 3D rendering; data analytics; data mining; and mathematical modeling and computation fluid dynamics.
- Developed and defined risk-informed remediation end points to reduce the need to excavate and dispose of contaminated soil and groundwater.
- Developed new geophysical monitoring tools to assess deep vadose zone contamination distributions and flux to groundwater.
- Developed a test bed for the testing of tools and processes to remove and/or stabilize mercury in the subsurface to prevent flux to receptors.
- Continued identifying and pursuing grand challenges that provide impactful gains in the cleanup mission, particularly those that have the promise for significant cost and schedule reductions in EM’s environmental liability.
- Continued harnessing the expertise, resources, and capabilities of universities and colleges, including Minority Serving Institutions.
- Continued partnering with Office of Nuclear Energy on technology projects.
- Continued entering into agreements with other federal agencies and participated in other federal technology programs and initiatives in order to: leverage advancements in the state-of-the-art; share assets, resources, capabilities; and share expertise and knowledge.

(complex-wide) and optimize processing (Savannah River)

Test Bed: Low Activity Tank Waste Disposition

- Complete test bed for low activity waste at Hanford

Enhanced Worker Safety (Science of Safety)

- Complete test bed to demonstrate robotics at Portsmouth for pipe inspection and other critical decommissioning work activities
- Conduct robotic test bed demonstration at Savannah River Site H-Canyon air exhaust tunnel inspection
- Continue federal agency collaboration to facilitate knowledge and technology transfer

Mission Enablers

- Continue research and technology development in the deployment of state-of-the-art tooling, address persistent challenges in soil and water remediation, and improve the use of the sustainable concrete and grouts



**Uranium/Thorium Reimbursements (PBS: HQ-UR-0100)**

**Overview**

The Office of Environmental Management implements DOE’s statutory responsibilities pursuant to Title X of the Energy Policy Act of 1992, Public Law 102-486, as amended, and 10 CFR Part 765. This Title X Program includes reimbursements to uranium and thorium processing site licensees for the portion of environmental cleanup costs attributable to nuclear material sold to the federal government during the Cold War Era. Title X authorizes the Department to reimburse eligible costs to licensees. The Department will conduct financial reviews to ensure eligible costs have been submitted to the Department by Title X licensees.

The intent of Title X is to reimburse eligible costs previously incurred by licensees, and does not relieve licensees of their liability to complete environmental restoration of their former mill sites. Through December 2017, three of the fourteen sites have completed remediation and have transferred their disposal facilities to DOE for long-term stewardship. One site, Moab, was transferred to DOE by Public Law 106-398 and is no longer within the Title X program. Ten sites have continuing remediation programs.

**Reimbursements to Uranium/Thorium Licensees (PBS: HQ-UR-0100)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$30,000	\$30,000	\$0
<ul style="list-style-type: none"> <li>Continued to 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.</li> <li>Continued to provide payment to licensees of approved but unpaid claims from FY 2016 and prior.</li> </ul>	<ul style="list-style-type: none"> <li>Continue to 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.</li> <li>Continue to provide payment to licensees of approved but unpaid claims from FY 2018 and prior.</li> </ul>	<ul style="list-style-type: none"> <li>No change.</li> </ul>

**Title X of the Energy Policy Act of 1992: Uranium/Thorium Reimbursement Program  
Status of Payments through Fiscal Year 2017 and Estimated Maximum Program Liability**

(Dollars in Thousands)

<u>Licensees</u>	Total Payments FY 1994- FY 2017	Approved but Unpaid Claim Balances After FY 2017 Payments	Maximum Remaining Program Liability Including Estimated Costs in Approved Plans for Subsequent Remedial Action
<b>Uranium</b>			
American Nuclear Corp. Site			
American Nuclear Corporation	820	0	0
State of Wyoming	1,365	45	751
Atlantic Richfield Company <sup>a</sup>	32,306	0	0
Atlas Corporation/Moab Mill Reclamation Trust <sup>a</sup>	9,694	0	0
Cotter Corporation	3,304	106	3,371
Dawn Mining Company	12,087	7,063	7,063
Homestake Mining Company	76,683	7,178	67,568
Pathfinder Mines Corporation	10,789	1	292
Petrotomics Company <sup>a</sup>	2,850	0	0
Rio Algom Mining LLC <sup>b</sup>	46,936	1,145	1,145
Tennessee Valley Authority	17,046	8,084	8,084
Umetco Minerals Corporation-CO	59,802	17,853	30,288
Umetco Minerals Corporation-WY	22,060	3,382	4,807
Western Nuclear, Incorporated	32,978	256	657
<b>Subtotal, Uranium</b>	<b>328,720</b>	<b>45,113</b>	<b>124,026</b>

<u>Licensees</u>	Total Payments FY 1994- FY 2017	Approved but Unpaid Claim Balances After FY 2017 Payments	Maximum Remaining Program Liability Including Estimated Costs in Approved Plans for Subsequent Remedial Action
<b>Thorium</b>			
West Chicago <sup>c</sup>	387,534	7,750	11,773
<b>Subtotal, Thorium</b>	<b>387,534</b>	<b>7,750</b>	<b>11,773</b>
<b>Total, Uranium and Thorium</b>	<b>716,254</b>	<b>52,863</b>	<b>135,799</b>

<sup>a</sup>Reimbursements have been completed to the Atlantic Richfield Company, the licensees of the Moab site, and the Petrotomics Company.

<sup>b</sup> Formerly Quivira Mining Company.

<sup>c</sup>Includes former licensees, Kerr-McGee Chemical Corp. & Tronox, LLC. Effective 2011, the thorium site license was transferred to the West Chicago Environmental Response Trust. The remaining program liability for the thorium site is the total of the remaining reimbursement authority allowed under Title X plus the unpaid claim balance.



**Environmental Management  
Nuclear Materials and Tank Waste  
Performance Measures**

In accordance with the GPRA Modernization Act of 2010, the Department sets targets for, and tracks progress toward, achieving performance goals for each program.

	FY 2017	FY 2018	FY 2019
Performance Goal (Measure)	<b>Depleted and Other Uranium (DU&amp;U) Packaged for Disposition - Increase the cumulative amount of DU&amp;U packaged in a form suitable for disposition</b>		
Target	88,721 metric tons	113,306 metric tons	140,126 metric tons
Result	Not Met - 88,306	TBD	TBD
Endpoint Target	This metric has a life cycle estimate of 837,616 metric tons of DU & U packaged for disposition.		
Performance Goal (Measure)	<b>Enriched Uranium Packaged - Increase the cumulative number of certified containers packaged and ready for long-term storage</b>		
Target	8,016 containers	8,016 containers	8,016 containers
Result	Met – 8,016	TBD	TBD
Endpoint Target	This metric has a life cycle of 8,603 containers ready for long-term storage.		
FY 2019 Note	The target for this metric has not increased from the prior year as work toward increasing the number of certified containers packaged and ready for long-term storage will occur beyond FY 2019.		
Performance Goal (Measure)	<b>High Level Waste Packaged for Final Disposition - Increase the cumulative number of high level waste canisters packaged for disposition.</b>		
Target	4,426 canisters of high level waste	4,476 canisters of high level waste	4,611 canisters of high level waste
Result	Met - 4,426	TBD	TBD
Endpoint Target	This measure has a life cycle estimate of 24,856 canisters packaged for disposition.		
Performance Goal (Measure)	<b>Liquid Waste Eliminated - Increase the cumulative volume of radioactive liquid waste (including other forms such as sludge) eliminated from inventory.</b>		
Target	7,684 thousand gallons	7,867 thousand gallons	8,811 thousand gallons
Result	Not Met – 7,414	TBD	TBD
Endpoint Target	This metric has a life cycle estimate of 102,045 thousands of gallons eliminated from inventory.		
Performance Goal (Measure)	<b>Liquid Waste Tanks Closed - Increase the cumulative number of liquid waste tanks closed.</b>		
Target	15 tanks closed	15 tanks closed	15 Tanks Closed
Result	Met - 15	TBD	TBD
Endpoint Target	This metric has a life cycle estimate of 239 tanks closed.		
FY 2019 Note	The target for this metric has not increased from the prior year as no tank closures are planned in FY 2018 or FY 2019. Progress toward increasing the number of liquid waste tanks closed extends beyond FY 2019.		

	FY 2017	FY 2018	FY 2019
	<b>Spent Nuclear Fuel Packaged for Final Disposition - Increase the cumulative amount of heavy metal mass of spent nuclear fuel packaged and ready for final disposition.</b>		
Target	2,131 metric tons of heavy metal	2,132 metric tons of heavy metal	2,133 metric tons of heavy metal
Result	Met - 2,131	TBD	TBD
Endpoint Target	This metric has a life cycle estimate of 2,452 metric tons of heavy metal mass of spent nuclear fuel packaged and ready for final disposition.		

**Waste Management  
Performance Measures**

In accordance with the GPRA Modernization Act of 2010, the Department sets targets for, and tracks progress toward, achieving performance goals for each program.

	FY 2017	FY 2018	FY 2019
Performance Goal (Measure)	<b>Legacy and Newly Generated LLW and Mixed LLW Disposed - Increase the cumulative amount of legacy and newly generated low-level and mixed low-level waste disposed.</b>		
Target	1,340,981 cubic meters	1,356,517 cubic meters	1,369,695 cubic meters
Result	Exceeded - 1,343,369	TBD	TBD
Endpoint Target	This metric has a life cycle estimate of 1,591,780 cubic meters disposed.		
Performance Goal (Measure)	<b>Transuranic Waste Dispositioned - Increase the cumulative amount of transuranic (TRU) waste (consisting of Remote Handled TRU and Contact Handled TRU) dispositioned.</b>		
Target	103,750 cubic meters	107,456 cubic meters	128,107 cubic meters
Result	Exceeded - 104,068	TBD	TBD
Endpoint Target	This metric has a life cycle estimate of 150,026 cubic meters of TRU waste dispositioned.		

**Site Restoration  
Performance Measures**

In accordance with the GPRA Modernization Act of 2010, the Department sets targets for, and tracks progress toward, achieving performance goals for each program.

	FY 2017	FY 2018	FY 2019
Performance Goal (Measure)	<b>Geographic Sites Completed - Increase the cumulative number of sites completed.</b>		
Target	91 sites	91 sites	91 sites
Result	Met - 91	TBD	TBD
Endpoint Target	This metric has a life cycle estimate of 107 geographic sites completed in their entirety.		
Comment	A site is completed when active remediation has concluded in accordance with the terms and conditions of the sites' cleanup agreements (e.g. Records of Decision and permits). Stewardship or non-EM activities may be ongoing after site completion.		
FY 2019 Note	The target for this metric has not increased from the prior year because there are not sites targeted for completion in FY 2018 or FY 2019 .		

Performance Goal (Measure)	<b>Industrial Facilities Completed - Increase the cumulative number of industrial facilities completed.</b>		
Target	2,162 facilities	2,184 facilities	2,217 facilities
Result	Not Met - 2,157	TBD	TBD
Endpoint Target	This metric has a life cycle estimate of 4,202 facilities completed.		

Performance Goal (Measure)	<b>Nuclear Facilities Completed - Increase the cumulative number of nuclear facilities completed.</b>		
Target	157 facilities	157 facilities	165 facilities
Result	Not Met - 152	TBD	TBD
Endpoint Target	This metric has a life cycle estimate of 487 facilities completed.		

Performance Goal (Measure)	<b>Radioactive Facilities Completed - Increase the cumulative number of radioactive facilities completed.</b>		
Target	577 facilities	579 facilities	591 facilities
Result	Not Met - 571	TBD	TBD
Endpoint Target	This metric has a life cycle estimate of 955 facilities completed.		

Performance Goal (Measure)	<b>Remediation Completed - Increase the cumulative number of release sites remediated.</b>		
Target	8,205 release sites	8,339 release sites	8,427 release sites
Result	Exceeded - 8,258	TBD	TBD
Endpoint Target	This metric has a life cycle estimate of 11,713 release sites remediated.		



## Program Direction

### Overview

Program Direction provides for the Federal workforce responsible for the overall direction and administrative support of the Office of Environmental Management (EM) program, including both Headquarters and field personnel. The EM mission of safe cleanup of the environmental legacy of decades of nuclear weapons production and government-sponsored nuclear energy research is carried out by a workforce composed largely of contractors, although there are a variety of functions that are inherently governmental (e.g., program management, contract administration, budget formulation and execution, and interagency and international coordination) requiring a dedicated Federal workforce.

The role of the Headquarters Federal workforce is to provide leadership, establish and implement policy, conduct analyses, and integrate activities across sites. Increasing standards of accountability for program performance and spending require Headquarters staff to closely analyze budget requests, track expenditures, and compile congressionally mandated and other program plans (e.g., footprint reduction goals). Field personnel are responsible and directly accountable for implementing the EM program within the framework established by Headquarters policy and guidance. In addition, the field is responsible for the day-to-day oversight and project management of the Department's facilities, the facility contractors and other support contractors, as well as construction and test activities supporting EM activities for the Department of Energy (DOE).

### Highlights of the FY 2019 Budget Request

EM maintains a safe and secure posture in the EM complex, while maximizing the investment in cleanup activities. The FY 2019 budget request supports:

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

The Richland Operations Office, Office of River Protection, Savannah River, Idaho, Portsmouth and Paducah, Carlsbad, and Headquarters offices have hired the following series to meet the clean-up mission: Contract Specialists, Recent Graduates (technical students), Cost Estimators, General Engineers, Physical Scientists as well as site-specific new hires such as Tank Farm, environmental compliance, quality assurance, mine safety, and Facility Representative Specialists as a result of scope modifications to maintain safety levels.

In FY 2019, EM will work aggressively to ensure our programs have the appropriate expertise to meet mission requirements in the most efficient and effective manner possible. For example, recent retirements have resulted in a significant loss of program engineering experience. EM leadership recognizes that a skills mix challenge continues to exist. Hiring for experienced and skilled engineers is planned by EM to ensure knowledge transfer from expert to junior engineers.

In the FY 2019 Budget Request, funding for EM's share of the Working Capital Fund is partially funded in Program Direction and the remainder in program dollars. Program Direction funds services such as building occupancy, corporate business systems (only flexible spending account and subsidy for Energy employees' transit), corporate training services, health services, overseas presence, supply, and telecom. Other activities, including A-123/internal controls, copy services, corporate business systems (all segments except flexible spending account and subsidy for Energy employees transit), CyberOne, financial statement audits, interagency transfers, mail and transportation, pension studies, printing and graphics, project management career development program, and procurement management are funded through program dollars, reflecting the close connection between these activities and program activities.

**Funding (\$K)**  
**Program Direction Summary**

	<b>FY 2017 Enacted</b>	<b>FY 2018 Annualized CR*</b>	<b>FY 2019 Request</b>	<b>FY 2019 Request vs FY 2017 Enacted</b>
<b>Headquarters Working Capital Fund</b>				
Other Related Expenses	14,261	14,261	10,548	-3,713
<b>Carlsbad</b>				
Salaries and Benefits	11,545	11,120	11,378	-167
Travel	375	380	380	+5
Other Related Expenses	948	823	975	+27
<b>Total, Carlsbad</b>	<b>12,868</b>	<b>12,323</b>	<b>12,733</b>	<b>-135</b>
<b>Idaho</b>				
Salaries and Benefits	6,474	7,136	7,302	+828
Travel	200	150	150	-50
Support Services	0	63	72	+72
Other Related Expenses	233	274	325	+92
<b>Total, Idaho</b>	<b>6,907</b>	<b>7,623</b>	<b>7,849</b>	<b>+942</b>
<b>Oak Ridge</b>				
Salaries and Benefits	11,326	11,733	12,005	+679
Travel	200	220	220	+20
Support Services	820	584	673	-147
Other Related Expenses	2,208	2,039	2,416	+208
<b>Total, Oak Ridge</b>	<b>14,554</b>	<b>14,576</b>	<b>15,314</b>	<b>+760</b>
<b>Portsmouth/Paducah Project Office</b>				
Salaries and Benefits	9,315	10,630	10,877	+1,562
Travel	375	350	350	-25
Support Services	1,870	980	1,129	-741
Other Related Expenses	1,479	1,176	1,494	+15
<b>Total, Portsmouth/Paducah Project Office</b>	<b>13,039</b>	<b>13,136</b>	<b>13,850</b>	<b>+811</b>

	<b>FY 2017 Enacted</b>	<b>FY 2018 Annualized CR*</b>	<b>FY 2019 Request</b>	<b>FY 2019 Request vs FY 2017 Enacted</b>
<b>Richland</b>				
Salaries and Benefits	34,776	36,341	37,184	+2,408
Travel	370	370	370	0
Support Services	740	784	903	+163
Other Related Expenses	4,778	2,321	4,925	+147
<b>Total, Richland</b>	<b>40,664</b>	<b>39,816</b>	<b>43,382</b>	<b>+2,718</b>
<b>River Protection</b>				
Salaries and Benefits	26,345	27,980	28,629	+2,284
Travel	500	400	400	-100
Support Services	475	980	1,129	+654
Other Related Expenses	4,075	1,960	4,102	+27
<b>Total, River Protection</b>	<b>31,395</b>	<b>31,320</b>	<b>34,260</b>	<b>+2,865</b>
<b>Savannah River</b>				
Salaries and Benefits	39,100	41,776	42,745	+3,645
Travel	500	525	525	+25
Support Services	700	980	1,129	+429
Other Related Expenses	2,837	2,196	2,952	+115
<b>Total, Savannah River</b>	<b>43,137</b>	<b>45,477</b>	<b>47,351</b>	<b>+4,214</b>
<b>Small Sites</b>				
Salaries and Benefits	4,141	4,786	4,897	+756
Travel	100	130	130	+30
Support Services	335	361	415	+80
Other Related Expenses	836	784	929	+93
<b>Total, Small Sites</b>	<b>5,412</b>	<b>6,061</b>	<b>6,371</b>	<b>+959</b>
<b>Nevada Site Office</b>				
Salaries and Benefits	2,235	2,566	2,625	+390
Travel	60	80	80	+20
Support Services	50	39	45	-5
Other Related Expenses	167	125	175	+8
<b>Total, Nevada Site Office</b>	<b>2,512</b>	<b>2,810</b>	<b>2,925</b>	<b>+413</b>

	<b>FY 2017 Enacted</b>	<b>FY 2018 Annualized CR*</b>	<b>FY 2019 Request</b>	<b>FY 2019 Request vs FY 2017 Enacted</b>
<b>Los Alamos Site Office</b>				
Salaries and Benefits	4,781	4,478	4,582	-199
Travel	120	125	125	+5
Support Services	333	235	271	-62
Other Related Expenses	124	157	186	+62
<b>Total, Los Alamos Site Office</b>	<b>5,358</b>	<b>4,995</b>	<b>5,164</b>	<b>-194</b>
<b>Field</b>				
Salaries and Benefits	150,038	158,546	162,224	+12,186
Travel	2,800	2,730	2,730	-70
Support Services	5,323	5,006	5,766	+443
Other Related Expenses	17,685	11,855	18,479	+794
<b>Total, Field</b>	<b>175,846</b>	<b>178,137</b>	<b>189,199</b>	<b>+13,353</b>
<b>Headquarters Operations</b>				
Salaries and Benefits	56,790	51,244	52,423	-4,367
Travel	1,800	1,770	1,770	-30
Support Services	17,372	15,575	17,942	+570
Other Related Expenses	529	1,176	973	+444
<b>Total, Headquarters Operations</b>	<b>76,491</b>	<b>69,765</b>	<b>73,108</b>	<b>-3,383</b>
<b>Consolidated Business Center</b>				
Salaries and Benefits	19,550	20,810	21,293	+1,743
Travel	400	500	500	+100
Support Services	1,835	3,102	3,572	+1,737
Other Related Expenses	1,667	1,505	1,780	+113
<b>Total, Consolidated Business Center</b>	<b>23,452</b>	<b>25,917</b>	<b>27,145</b>	<b>+3,693</b>
<b>Environmental Management</b>				
Salaries and Benefits	226,378	230,600	235,940	+9,562
Travel	5,000	5,000	5,000	0
Support Services	24,530	23,683	27,280	+2,750
Other Related Expenses	34,142	28,797	31,780	-2,362
<b>Total, Environmental Management</b>	<b>290,050</b>	<b>288,080</b>	<b>300,000</b>	<b>+9,950</b>
<b>Full Time Equivalents</b>	<b>1,359</b>	<b>1,400</b>	<b>1,400</b>	<b>+41</b>

**Support Services and Other Related Expenses**

	<b>FY 2017 Enacted</b>	<b>FY 2018 Annualized CR*</b>	<b>FY 2019 Request</b>	<b>FY 2019 Request vs FY 2017 Enacted</b>
<b>Support Services</b>				
Technical Support				
Feasibility of Design Considerations	2,919	2,818	3,254	+335
System Definition	64	62	72	+8
Economic and Environmental Analysis	4,386	4,235	4,884	+498
Test and Evaluation Studies	58	56	65	+7
Surveys or Reviews of Technical Operations	6,829	6,593	7,551	+722
Total, Technical Support	14,256	13,764	15,826	+1,570
Management Support				
Directives Management Studies	1,473	1,422	1,653	+180
Automatic Data Processing	1,403	1,355	1,575	+172
Training and Education	154	148	190	+36
Analysis of DOE Management Processes	590	490	695	+105
Reports and Analyses Management and General Administrative Support	6,654	6,504	7,341	+687
Total, Management Support	10,274	9,919	11,454	+1,180
<b>Total, Support Services</b>	<b>24,530</b>	<b>23,683</b>	<b>27,280</b>	<b>+2,750</b>
<b>Other Related Expenses</b>				
Rent to GSA	6,318	4,619	6,570	+252
Rent to Others	1,343	982	1,397	+54
Communication, Utilities, Misc.	2,508	1,834	2,908	+400
Printing and Reproduction	10	7	10	0
Other Services	5,069	3,706	5,376	+307
Training	1,242	908	1,291	+49
<b>Environmental Management/ Program Direction</b>	<b>487</b>			

	<b>FY 2017 Enacted</b>	<b>FY 2018 Annualized CR*</b>	<b>FY 2019 Request</b>	<b>FY 2019 Request vs FY 2017 Enacted</b>
Purchases from Gov. Accounts	466	341	475	+9
Operation and Maintenance of Equipment	149	109	318	+169
Supplies and Materials	1,071	783	1,114	+43
Equipment	1,705	1,247	1,773	+68
Working Capital Fund	14,261	14,261	10,548	-3,713
<b>Total, Other Related Expenses</b>	<b>34,142</b>	<b>28,797</b>	<b>31,780</b>	<b>-2,362</b>

\*A full-year 2018 appropriation for this account was not enacted at the time the budget was prepared; therefore, the budget assumes this account is operating under the Continuing Appropriations Act, 2018 (Division D of P.L. 115-56, as amended). The amounts included for 2018 reflect the annualized level provided by the continuing resolution. (These amounts are shown only at the Congressional control level and above; below that level, a dash (—) is shown).

**Program Direction (PBS: HQ-PD-0100)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$273,819	\$289,452	+\$15,633
<b>Salaries and Benefits \$226,378</b>	\$235,940	+\$9,562
Supported Federal salaries and benefits for EM's FTE usage of 1,359.	Supports Federal salaries and benefits for EM's planned FTE level of 1,400, including FTEs within EM/Human Capital Management and Performance Shared Service Center.	Reflects increase of 41 Federal employees and increased benefits contributions for 1,400 FTEs.
<b>Travel \$5,000</b>	\$5,000	\$0
Maintained travel level in compliance with Executive Order 13589. EM continued to scrutinize conference sponsorship as well as overall conference attendance to further reduce travel costs.	Includes costs of transportation of persons, subsistence of travelers, incidental travel expenses, as well as funding to support permanent change of duty station in accordance with federal travel regulations. In addition, travel costs associated for detail assignments at EM sites and training and participation at professional conferences.	No change.
<b>Support Services \$24,530</b>	\$27,280	+\$2,750
Supported services in the areas of administrative, procurement and human capital support; technical oversight support; information technology to support new systems; operation and maintenance of equipment; and operation and maintenance of facilities occupied by EM staff.	Support for services in the areas of administrative, procurement and human capital support; technical oversight support; information technology to support modernization of current systems; operation and maintenance of equipment; and operation and maintenance of facilities occupied by EM staff.	Increase reflects inflation and sustains current support services.

<b>Other Related Expenses</b> <b>\$19,881</b>	<b>\$21,232</b>	<b>+\$1,351</b>
Funded items such as training, supplies, and information technology equipment as well as field rent, utilities, communications, building and ground maintenance. EM continued efficiencies for the reintegration of Federal staff to Government-owned facilities.	Funds items such as training, supplies, and information technology equipment as well as field rent, utilities, communications, building and ground maintenance. EM will continue efficiencies for the reintegration of Federal staff to Government-owned facilities.	Increase reflects inflation for field rent, communication and utilities; other services; supplies and materials; and equipment.

**WCF Program Direction (PBS: HQ-PDWCF-0100)**

**Activities and Explanation of Changes**

FY 2017 Enacted	FY 2019 Request	Explanation of Changes FY 2019 Request vs FY 2017 Enacted
\$14,261	\$10,548	-\$3,713
<b>Other Related Expenses</b> <b>\$14,261</b>	<b>\$10,548</b>	<b>-\$3,713</b>
Funded EM's share of the Working Capital Fund in Program Direction's other related expenses for services such as building occupancy, corporate business systems (only flexible spending account and subsidy for Energy employees' transit), corporate training services, health services, overseas presence, supply, and telecommunications.	EM's share of the Working Capital Fund in Program Direction's other related expenses for services such as building occupancy, corporate business systems (only flexible spending account [\$10,000] and subsidy for Energy employees' transit [\$164,000]), corporate training services, health services, overseas presence, supply, and telecommunications.	Supports EM's share of the Working Capital Fund.



**Environmental Management  
Facilities Maintenance and Repair**

The Department's Facilities Maintenance and Repair activities are tied to its programmatic missions, goals, and objectives. The Facilities Maintenance and Repair activities funded by this budget and displayed below are intended to halt asset condition degradation.

**Costs for Direct-Funded Maintenance and Repair (including Deferred Maintenance Reduction) (K)**

	FY 2017 Actual Cost <sup>a</sup>	FY 2019 Planned Cost
Carlsbad	20,582	11,712
Energy Technology Engineering Center	220	0
Idaho National Laboratory	23,664	24,613
Moab	605	800
Oak Ridge	95,439	54,701
Pacific Northwest National Laboratory	0	0
Paducah	24,547	43,225
Portsmouth	50,727	55,288
Richland Operations Office	60,437	78,911
Office of River Protection	75,413	79,298
Savannah River	177,398	188,564
<b>Total, Direct-Funded Maintenance and Repair</b>	<b>529,032</b>	<b>537,112</b>

FY 2017 Actual Costs are based on 4th quarter data.

**Costs for Indirect-Funded Maintenance and Repair (including Deferred Maintenance Reduction)**

	FY 2017 Actual Cost <sup>a</sup>	FY 2019 Planned Cost
Carlsbad	0	0
Energy Technology Engineering Center	0	0
Idaho National Laboratory	0	0
Moab	0	0
Oak Ridge	0	0
Pacific Northwest National Laboratory	5,159	6,841
Paducah	0	0
Portsmouth	32,563	69,331
Richland Operations Office	0	0
Office of River Protection	0	0
Savannah River	47,729	46,164
<b>Total, Indirect-Funded Maintenance and Repair</b>	<b>85,451</b>	<b>122,336</b>

<sup>a</sup>FY 2017 Actual Costs are based on 4th quarter data.

**Environmental Management Research and Development  
Research and Development (\$K)**

	<b>FY 2017 Enacted</b>	<b>FY 2019 Request</b>	<b>FY 2019 Request vs FY 2017 Enacted</b>
Basic	0	0	0
Applied	9,248	9,240	-8
Development	18,777	18,760	-17
Subtotal, R&D	<u>28,025</u>	<u>28,000</u>	<u>-25</u>
Equipment	0	0	0
Construction	0	0	0
<b>Total, R&amp;D</b>	<b>28,025</b>	<b>28,000</b>	<b>-25</b>

**Environmental Management  
Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR)**

	<b>FY 2017 Enacted Transfer</b>	<b>FY 2019 Request Projected Transfer</b>	<b>FY 2019 Request Projected vs FY 2017 Enacted Transfer</b>
Headquarters			
SBIR	801	800	-1
STTR	113	113	0
Oak Ridge			
SBIR	96	96	0
STTR	14	14	0
<b>Total, SBIR</b>	<u><b>897</b></u>	<u><b>896</b></u>	<u><b>-1</b></u>
<b>Total, STTR</b>	<u><b>127</b></u>	<u><b>127</b></u>	<u><b>0</b></u>

Safeguards and Security by Activity (\$K)

	FY 2017 Enacted	FY 2018 Annualized CR*	FY 2019 Request	FY 2019 Request vs FY 2017 Enacted
<b>Carlsbad</b>				
Protective Forces	3,999	3,972	4,271	+272
Physical Security Systems	382	379	692	+310
Security Investigations	87	86	61	-26
Program Management	201	200	264	+63
<b>Subtotal, Carlsbad</b>	<b>4,669</b>	<b>4,637</b>	<b>5,288</b>	<b>+619</b>
Cyber Security	531	528	1,292	+761
<b>Total, Carlsbad</b>	<b>5,200</b>	<b>5,165</b>	<b>6,580</b>	<b>+1,380</b>
<b>Oak Ridge</b>				
Protective Forces	8,526	8,468	7,643	-883
Physical Security Systems	2,087	2,073	1,800	-287
Information Security	787	782	700	-87
Personnel Security	659	655	640	-19
Security Investigations	478	475	283	-195
Material Control and Accountability	453	450	600	+147
Program Management	853	847	277	-576
<b>Subtotal, Oak Ridge</b>	<b>13,843</b>	<b>13,750</b>	<b>11,943</b>	<b>-1,900</b>
Cyber Security	1,657	1,645	2,080	+423
<b>Total, Oak Ridge</b>	<b>15,500</b>	<b>15,395</b>	<b>14,023</b>	<b>-1,477</b>
<b>Paducah</b>				
Protective Forces	5,604	5,566	5,921	+317
Physical Security Systems	742	737	765	+23
Information Security	895	889	925	+30
Personnel Security	592	588	614	+22
Security Investigations	0	0	21	+21
Security Infrastructure/Construction	4,056	4,029	3,954	-102
Program Management	2,160	2,145	1,870	-290
<b>Subtotal, Paducah</b>	<b>14,049</b>	<b>13,954</b>	<b>14,070</b>	<b>+21</b>
Cyber Security	0	0	1,507	+1,507
<b>Total, Paducah</b>	<b>14,049</b>	<b>13,954</b>	<b>15,577</b>	<b>+1,528</b>

	FY 2017 Enacted	FY 2018 Annualized CR*	FY 2019 Request	FY 2019 Request vs FY 2017 Enacted
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**Portsmouth**

Protective Forces	7,859	7,806	8,938	+1,079
Physical Security Systems	1,518	1,508	1,342	-176
Information Security	808	803	768	-40
Personnel Security	719	714	667	-52
Security Investigations	292	290	298	+6
Security Infrastructure/Construction	341	339	556	+215
Program Management	768	763	756	-12
<b>Subtotal, Portsmouth</b>	<b>12,305</b>	<b>12,223</b>	<b>13,325</b>	<b>+1,020</b>
Cyber Security	1,744	1,731	1,753	+9
<b>Total, Portsmouth</b>	<b>14,049</b>	<b>13,954</b>	<b>15,078</b>	<b>+1,029</b>

**Richland**

Protective Forces	50,393	50,051	57,905	+7,512
Physical Security Systems	5,801	5,762	6,120	+319
Information Security	912	906	1,077	+165
Personnel Security	1,635	1,624	2,448	+813
Security Investigations	270	268	272	+2
Material Control and Accountability	1,256	1,247	1,053	-203
Program Management	7,069	7,021	8,033	+964
<b>Subtotal, Richland</b>	<b>67,336</b>	<b>66,879</b>	<b>76,908</b>	<b>+9,572</b>
Cyber Security	6,840	6,793	9,778	+2,938
<b>Total, Richland</b>	<b>74,176</b>	<b>73,672</b>	<b>86,686</b>	<b>+12,510</b>

**Savannah River**

Protective Forces	100,569	99,886	104,231	+3,662
Physical Security Systems	13,868	13,774	25,140	+11,272
Information Security	1,445	1,435	1,534	+89
Personnel Security	6,579	6,534	7,768	+1,189
Security Investigations	0	0	77	+77
Material Control and Accountability	2,399	2,383	3,769	+1,370
Security Infrastructure/Construction	0	0	3,914	+3,914
Program Management	9,061	8,999	10,083	+1,022
Transportation	220	219	195	-25
<b>Subtotal, Savannah River</b>	<b>134,141</b>	<b>133,230</b>	<b>156,711</b>	<b>+22,570</b>
Cyber Security	1,859	1,846	26,646	+24,787

	<b>FY 2017 Enacted</b>	<b>FY 2018 Annualized CR*</b>	<b>FY 2019 Request</b>	<b>FY 2019 Request vs FY 2017 Enacted</b>
<b>Total, Savannah River</b>	<b>136,000</b>	<b>135,076</b>	<b>183,357</b>	<b>+47,357</b>
<b>West Valley Demonstration Project</b>				
Protective Forces	3,215	3,193	2,552	-663
Security Investigations	0	0	4	+4
Program Management	0	0	277	+277
<b>Subtotal, West Valley Demonstration Project</b>	<b>3,215</b>	<b>3,193</b>	<b>2,833</b>	<b>-382</b>
Cyber Security	0	0	300	+300
<b>Total, West Valley Demonstration Project</b>	<b>3,215</b>	<b>3,193</b>	<b>3,133</b>	<b>-82</b>
<b>Total, Safeguards and Security</b>	<b>262,189</b>	<b>260,409</b>	<b>324,434</b>	<b>+62,245</b>

**Safeguards and Security (\$K)**

	<b>FY 2017 Enacted</b>	<b>FY 2018 Annualized CR*</b>	<b>FY 2019 Request</b>	<b>FY 2019 Request vs FY 2017 Enacted</b>
Protective Forces	180,165	178,942	191,461	+11,296
Physical Security Systems	24,398	24,233	35,859	+11,461
Information Security	4,847	4,815	5,004	+157
Personnel Security	10,184	10,115	12,137	+1,953
Security Investigations	1,127	1,119	1,016	-111
Material Control and Accountability	4,108	4,080	5,422	+1,314
Security Infrastructure/Construction	4,397	4,368	8,424	+4,027
Program Management	20,112	19,975	21,560	+1,448
Transportation	220	219	195	-25
<b>Subtotal, Safeguards and Security</b>	<b>249,558</b>	<b>247,866</b>	<b>281,078</b>	<b>+31,520</b>
Cyber Security	12,631	12,543	43,356	+30,725
<b>Total, Safeguards and Security</b>	<b>262,189</b>	<b>260,409</b>	<b>324,434</b>	<b>+62,245</b>

\*A full-year 2018 appropriation for this account was not enacted at the time the budget was prepared; therefore, the budget assumes this account is operating under the Continuing Appropriations Act, 2018 (Division D of P.L. 115-56, as amended). The amounts included for 2018 reflect the annualized level provided by the continuing resolution. (These amounts are shown only at the Congressional control level and above; below that level, a dash (—) is shown).



**Department of Energy**  
**FY 2019 Congressional Budget**  
**Funding by Appropriation by Site**  
(\$K)

<b>Defense Environmental Cleanup</b>	<b>FY 2017 Enacted</b>	<b>FY 2018 Annualized CR</b>	<b>FY 2019 Request</b>
<b>Carlsbad Area Office</b>			
<b>Waste Isolation Pilot Plant</b>			
Operation and Maintenance	0	0	46,695
Central Characterization Project	19,534	19,401	19,500
<b>Total, Waste Isolation Pilot Plant</b>	<b>19,534</b>	<b>19,401</b>	<b>66,195</b>
<b>Program Direction</b>			
Carlsbad	12,868	12,323	12,733
<b>Safeguards and Security</b>			
Waste Isolation Pilot Plant	5,200	5,164	6,580
<b>CB-0101-Economic Assistance to the State of NM</b>			
CB-0101-Economic Assistance to the State of NM	26,800	26,618	0
<b>Total, Carlsbad Area Office</b>	<b>64,402</b>	<b>63,506</b>	<b>85,508</b>
<b>Consolidated Business Center</b>			
<b>Closure Sites</b>			
Miamisburg	0	0	1,789
<b>Program Direction</b>			
Consolidated Business Center	28,864	31,978	33,516
<b>Total, Consolidated Business Center</b>	<b>28,864</b>	<b>31,978</b>	<b>35,305</b>
<b>East Tennessee Technology Park (K25)</b>			
<b>Safeguards and Security</b>			
Oak Ridge Reservation	15,500	15,395	14,023
<b>Total, East Tennessee Technology Park (K25)</b>	<b>15,500</b>	<b>15,395</b>	<b>14,023</b>
<b>Fernald Environmental Management Project</b>			
<b>Closure Sites</b>			
Fernald	1,000	993	1,100
<b>Total, Fernald Environmental Management Project</b>	<b>1,000</b>	<b>993</b>	<b>1,100</b>
<b>Hanford Site</b>			
<b>Hanford Site</b>			
Central Plateau Remediation	671,304	666,745	563,473
River Corridor & Other Cleanup Operations	143,755	142,779	89,577
<b>Total, Hanford Site</b>	<b>815,059</b>	<b>809,524</b>	<b>653,050</b>
<b>Safeguards and Security</b>			
Richland/Hanford Site	74,176	73,672	86,686
<b>Total, Hanford Site</b>	<b>889,235</b>	<b>883,196</b>	<b>739,736</b>

**Department of Energy**  
**FY 2019 Congressional Budget**  
**Funding by Appropriation by Site**  
(\$K)

	<b>FY 2017 Enacted</b>	<b>FY 2018 Annualized CR</b>	<b>FY 2019 Request</b>
<b>Defense Environmental Cleanup</b>			
<b>Idaho National Laboratory</b>			
<b>Idaho National Laboratory</b>			
Idaho Community and Regulatory Support	3,000	2,980	3,200
Idaho Clean-up and Waste Disposition	379,088	376,513	346,026
<b>Total, Idaho National Laboratory</b>	<b>382,088</b>	<b>379,493</b>	<b>349,226</b>
<b>Total, Idaho National Laboratory</b>	<b>382,088</b>	<b>379,493</b>	<b>349,226</b>
<b>Idaho Operations Office</b>			
<b>Program Direction</b>			
Idaho	6,907	7,623	7,849
<b>Total, Idaho Operations Office</b>	<b>6,907</b>	<b>7,623</b>	<b>7,849</b>
<b>Lawrence Livermore National Laboratory</b>			
<b>NNSA Sites</b>			
NNSA Sites	1,147	1,140	1,175
<b>Total, Lawrence Livermore National Laboratory</b>	<b>1,147</b>	<b>1,140</b>	<b>1,175</b>
<b>Los Alamos National Laboratory</b>			
<b>NNSA Sites</b>			
NNSA Sites	190,606	189,312	188,235
<b>Total, Los Alamos National Laboratory</b>	<b>190,606</b>	<b>189,312</b>	<b>188,235</b>
<b>Nevada Field Office</b>			
<b>Program Direction</b>			
Nevada	2,512	2,810	2,898
<b>NNSA Sites</b>			
NNSA Sites	14,940	14,839	22,398
<b>Total, Nevada Field Office</b>	<b>17,452</b>	<b>17,649</b>	<b>25,296</b>
<b>Nevada National Security Site</b>			
<b>NNSA Sites</b>			
NNSA Sites	47,236	46,915	37,738
<b>Total, Nevada National Security Site</b>	<b>47,236</b>	<b>46,915</b>	<b>37,738</b>
<b>NNSA Albuquerque Complex</b>			
<b>Program Direction</b>			
Los Alamos	5,358	4,995	5,164
<b>NNSA Sites</b>			
NNSA Sites	3,643	3,618	3,923
<b>Total, NNSA Albuquerque Complex</b>	<b>9,001</b>	<b>8,613</b>	<b>9,087</b>



**Department of Energy**  
**FY 2019 Congressional Budget**  
**Funding by Appropriation by Site**  
(\$K)

Defense Environmental Cleanup	FY 2017 Enacted	FY 2018 Annualized CR	FY 2019 Request
<b>Oak Ridge National Laboratory</b>			
<b>Oak Ridge Reservation</b>			
Nuclear Facility D & D, ORNL	70,100	69,624	60,007
U233 Disposition Program	43,311	43,017	45,000
<b>Total, Oak Ridge Reservation</b>	<b>113,411</b>	<b>112,641</b>	<b>105,007</b>
<b>Total, Oak Ridge National Laboratory</b>	<b>113,411</b>	<b>112,641</b>	<b>105,007</b>
<b>Oak Ridge Office</b>			
<b>Oak Ridge Reservation</b>			
Nuclear Facility D & D, Y-12	11,100	11,024	16,274
<b>Program Direction</b>			
Oak Ridge	14,554	14,576	15,314
<b>Total, Oak Ridge Office</b>	<b>25,654</b>	<b>25,600</b>	<b>31,588</b>
<b>Oak Ridge Reservation</b>			
<b>Oak Ridge Reservation</b>			
Clean-up and Disposition	68,457	67,992	67,000
<b>Total, Oak Ridge Reservation</b>	<b>68,457</b>	<b>67,992</b>	<b>67,000</b>
<b>Oak Ridge Reservation (Off-Site)</b>			
<b>Oak Ridge Reservation</b>			
ORR Community and Regulatory Support	5,500	5,462	4,711
<b>Total, Oak Ridge Reservation (Off-Site)</b>	<b>5,500</b>	<b>5,462</b>	<b>4,711</b>
<b>Office of River Protection</b>			
<b>Office of River Protection</b>			
Tank Farm Activities	733,965	728,981	677,460
Waste Treatment Plant	693,000	688,294	705,000
<b>Total, Office of River Protection</b>	<b>1,426,965</b>	<b>1,417,275</b>	<b>1,382,460</b>
<b>Program Direction</b>			
Office of River Protection	31,395	31,320	32,481
<b>Total, Office of River Protection</b>	<b>1,458,360</b>	<b>1,448,595</b>	<b>1,414,941</b>
<b>Paducah Gaseous Diffusion Plant</b>			
<b>Program Direction</b>			
Paducah/Portsmouth	13,039	13,136	13,750
<b>Safeguards and Security</b>			
Paducah	14,049	13,954	15,577
<b>Total, Paducah Gaseous Diffusion Plant</b>	<b>27,088</b>	<b>27,090</b>	<b>29,327</b>

**Department of Energy**  
**FY 2019 Congressional Budget**  
**Funding by Appropriation by Site**  
(\$K)

<b>Defense Environmental Cleanup</b>	<b>FY 2017 Enacted</b>	<b>FY 2018 Annualized CR</b>	<b>FY 2019 Request</b>
<b>Portsmouth Gaseous Diffusion Plant</b>			
<b>Safeguards and Security</b>			
Portsmouth	14,049	13,954	15,078
<b>Total, Portsmouth Gaseous Diffusion Plant</b>	<b>14,049</b>	<b>13,954</b>	<b>15,078</b>
<b>Richland Operations Office</b>			
<b>Hanford Site</b>			
Community and Regulatory Support	24,701	24,533	5,121
<b>Office of River Protection</b>			
Tank Farm Activities	73,000	72,504	56,053
<b>Program Direction</b>			
Richland	40,664	39,816	41,207
<b>Total, Richland Operations Office</b>	<b>138,365</b>	<b>136,853</b>	<b>102,381</b>
<b>Rocky Flats Site</b>			
<b>Closure Sites</b>			
Rocky Flats	8,389	8,332	2,000
<b>Total, Rocky Flats Site</b>	<b>8,389</b>	<b>8,332</b>	<b>2,000</b>
<b>Sandia National Laboratories</b>			
<b>NNSA Sites</b>			
NNSA Sites	4,130	4,102	2,600
<b>Total, Sandia National Laboratories</b>	<b>4,130</b>	<b>4,102</b>	<b>2,600</b>
<b>Savannah River Operations Office</b>			
<b>Savannah River Sites</b>			
Community and Regulatory Support	11,249	11,172	4,749
<b>Program Direction</b>			
Savannah River	43,137	45,477	47,001
<b>Safeguards and Security</b>			
Savannah River Site	136,000	135,076	183,357
<b>Total, Savannah River Operations Office</b>	<b>190,386</b>	<b>191,725</b>	<b>235,107</b>
<b>Savannah River Site</b>			
<b>Savannah River Sites</b>			
Site Risk Management Operations	448,980	445,931	0
Radioactive Liquid Tank Waste Stabilization and Disposition	773,200	767,950	949,379
Nuclear Material Management	0	0	351,331
Environmental Cleanup	0	0	167,364
<b>Total, Savannah River Sites</b>	<b>1,222,180</b>	<b>1,213,881</b>	<b>1,468,074</b>
<b>Total, Savannah River Site</b>	<b>1,222,180</b>	<b>1,213,881</b>	<b>1,468,074</b>

**Department of Energy**  
**FY 2019 Congressional Budget**  
**Funding by Appropriation by Site**  
(\$K)

	FY 2017 Enacted	FY 2018 Annualized CR	FY 2019 Request
<b>Defense Environmental Cleanup</b>			
<b>Separations Process Research Unit</b>			
<b>NNSA Sites</b>			
NNSA Sites	3,685	3,660	15,000
<b>Total, Separations Process Research Unit</b>	<b>3,685</b>	<b>3,660</b>	<b>15,000</b>
<b>Washington Headquarters</b>			
<b>Program Direction</b>			
Headquarters	90,752	84,026	88,087
<b>Program Support</b>			
Program Support	14,979	14,878	12,979
<b>Technology Development</b>			
Technology Development	25,025	24,855	25,000
<b>Excess Facilities</b>			
Excess Facilities	0	0	150,000
<b>Total, Washington Headquarters</b>	<b>130,756</b>	<b>123,759</b>	<b>276,066</b>
<b>Waste Isolation Pilot Plant</b>			
<b>Waste Isolation Pilot Plant</b>			
Operation and Maintenance	253,318	251,598	305,212
Transportation	19,868	19,733	25,500
<b>Total, Waste Isolation Pilot Plant</b>	<b>273,186</b>	<b>271,331</b>	<b>330,712</b>
<b>Total, Waste Isolation Pilot Plant</b>	<b>273,186</b>	<b>271,331</b>	<b>330,712</b>
<b>West Valley Demonstration Project</b>			
<b>Safeguards and Security</b>			
West Valley	3,215	3,193	3,133
<b>Total, West Valley Demonstration Project</b>	<b>3,215</b>	<b>3,193</b>	<b>3,133</b>
<b>Y-12 Site Office</b>			
<b>Oak Ridge Reservation</b>			
Nuclear Facility D & D, Y-12	61,751	61,332	30,214
OR Technology Development and Deployment	3,000	2,980	3,000
<b>Total, Oak Ridge Reservation</b>	<b>64,751</b>	<b>64,312</b>	<b>33,214</b>
<b>Total, Y-12 Site Office</b>	<b>64,751</b>	<b>64,312</b>	<b>33,214</b>
<b>Total, Defense Environmental Cleanup</b>	<b>5,405,000</b>	<b>5,368,295</b>	<b>5,630,217</b>

**Department of Energy**  
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**Funding by Appropriation by Site**  
(\$K)

	FY 2017 Enacted	FY 2018 Annualized CR	FY 2019 Request
<b>Non-Defense Environmental Cleanup</b>			
<b>Brookhaven National Laboratory</b>			
<b>Small Sites</b>			
Small Sites	0	0	2,000
<b>Total, Brookhaven National Laboratory</b>	<b>0</b>	<b>0</b>	<b>2,000</b>
<b>East Tennessee Technology Park (K25)</b>			
<b>Small Sites</b>			
Oak Ridge – ETPP	6,000	5,959	0
<b>Total, East Tennessee Technology Park (K25)</b>	<b>6,000</b>	<b>5,959</b>	<b>0</b>
<b>Energy Technology Engineering Center</b>			
<b>Small Sites</b>			
Small Sites	10,459	10,388	8,038
<b>Total, Energy Technology Engineering Center</b>	<b>10,459</b>	<b>10,388</b>	<b>8,038</b>
<b>Hanford Site</b>			
<b>Fast Flux Test Reactor Facility</b>			
Fast Flux Test Reactor Facility	2,240	2,225	2,240
<b>Total, Hanford Site</b>	<b>2,240</b>	<b>2,225</b>	<b>2,240</b>
<b>Idaho National Laboratory</b>			
<b>Small Sites</b>			
Small Sites	8,000	7,946	10,000
<b>Total, Idaho National Laboratory</b>	<b>8,000</b>	<b>7,946</b>	<b>10,000</b>
<b>Lawrence Berkeley National Laboratory</b>			
<b>Small Sites</b>			
Small Sites	9,200	9,138	0
<b>Total, Lawrence Berkeley National Laboratory</b>	<b>9,200</b>	<b>9,138</b>	<b>0</b>
<b>Miamisburg Site</b>			
<b>Small Sites</b>			
Southwest Experimental Fast Oxide Reactor	5,500	5,463	0
<b>Total, Miamisburg Site</b>	<b>5,500</b>	<b>5,463</b>	<b>0</b>
<b>Moab Site</b>			
<b>Small Sites</b>			
Small Sites	37,884	37,626	34,993
<b>Total, Moab Site</b>	<b>37,884</b>	<b>37,626</b>	<b>34,993</b>
<b>Paducah Gaseous Diffusion Plant</b>			
<b>Gaseous Diffusion Plants</b>			
Gaseous Diffusion Plants	50,345	50,003	49,964
<b>Total, Paducah Gaseous Diffusion Plant</b>	<b>50,345</b>	<b>50,003</b>	<b>49,964</b>

**Department of Energy**  
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(\$K)

<b>Non-Defense Environmental Cleanup</b>	<b>FY 2017 Enacted</b>	<b>FY 2018 Annualized CR</b>	<b>FY 2019 Request</b>
<b>Portsmouth Gaseous Diffusion Plant</b>			
<b>Gaseous Diffusion Plants</b>			
Gaseous Diffusion Plants	50,959	50,613	50,611
<b>Total, Portsmouth Gaseous Diffusion Plant</b>	<b>50,959</b>	<b>50,613</b>	<b>50,611</b>
<b>West Valley Demonstration Project</b>			
<b>West Valley Demonstration Project</b>			
West Valley Demonstration Project	66,413	65,963	60,554
<b>Total, West Valley Demonstration Project</b>	<b>66,413</b>	<b>65,963</b>	<b>60,554</b>
<b>Total, Non-Defense Environmental Cleanup</b>	<b>247,000</b>	<b>245,324</b>	<b>218,400</b>

**Department of Energy**  
**FY 2019 Congressional Budget**  
**Funding by Appropriation by Site**  
(\$K)

	FY 2017 Enacted	FY 2018 Annualized CR	FY 2019 Request
<b>Uranium Enrichment Decon. &amp; Decom. Fund</b>			
<b>East Tennessee Technology Park (K25)</b>			
<b>Uranium Enrichment D&amp;D Fund</b>			
Pension & comm & Reg Suport Oak Ridge	18,772	18,645	17,258
Oak Ridge	194,673	193,352	151,039
<b>Total, Uranium Enrichment D&amp;D Fund</b>	<b>213,445</b>	<b>211,997</b>	<b>168,297</b>
<b>Total, East Tennessee Technology Park (K25)</b>	<b>213,445</b>	<b>211,997</b>	<b>168,297</b>
<b>Paducah Gaseous Diffusion Plant</b>			
<b>Uranium Enrichment D&amp;D Fund</b>			
Pens & Comm & Reg Support Paducah	2,386	2,370	2,102
Paducah Gaseous Diffusion Plant	205,530	204,135	202,581
<b>Total, Uranium Enrichment D&amp;D Fund</b>	<b>207,916</b>	<b>206,505</b>	<b>204,683</b>
<b>Total, Paducah Gaseous Diffusion Plant</b>	<b>207,916</b>	<b>206,505</b>	<b>204,683</b>
<b>Portsmouth Gaseous Diffusion Plant</b>			
<b>Uranium Enrichment D&amp;D Fund</b>			
Pens & Comm & Reg Support Portsmouth	1,795	1,783	1,670
Portsmouth Gaseous Diffusion Plant	315,168	313,028	348,099
<b>Total, Uranium Enrichment D&amp;D Fund</b>	<b>316,963</b>	<b>314,811</b>	<b>349,769</b>
<b>Total, Portsmouth Gaseous Diffusion Plant</b>	<b>316,963</b>	<b>314,811</b>	<b>349,769</b>
<b>Washington Headquarters</b>			
<b>U/TH Reimbursements</b>			
U/TH Reimbursements	30,000	29,796	30,000
<b>Total, Washington Headquarters</b>	<b>30,000</b>	<b>29,796</b>	<b>30,000</b>
<b>Total, Uranium Enrichment Decon. &amp; Decom. Fund</b>	<b>768,324</b>	<b>763,109</b>	<b>752,749</b>

**GENERAL PROVISIONS—DEPARTMENT OF ENERGY**  
**(INCLUDING TRANSFER OF FUNDS)**

SEC. 301. (a) No appropriation, funds, or authority made available by this title for the Department of Energy shall be used to initiate or resume any program, project, or activity or to prepare or initiate Requests For Proposals or similar arrangements (including Requests for Quotations, Requests for Information, and Funding Opportunity Announcements) for a program, project, or activity if the program, project, or activity has not been funded by Congress.

(b) (1) Unless the Secretary of Energy notifies the Committees on Appropriations of both Houses of Congress at least 3 full business days in advance, none of the funds made available in this title may be used to—

- (A) make a grant allocation or discretionary grant award totaling \$1,000,000 or more;
- (B) make a discretionary contract award or Other Transaction Agreement totaling \$1,000,000 or more, including contract covered by the Federal Acquisition Regulation;
- (C) issue a letter of intent to make an allocation, award, or Agreement in excess
- (D) of the limits in subparagraph (A) or (B); or announce publicly the intention to make an allocation, award, or Agreement in excess of the limits in subparagraph (A) or (B).

(2) The Secretary of Energy shall submit to the Committees on Appropriations of both Houses of Congress within 15 days of the conclusion of each quarter a report detailing each grant allocation or discretionary grant award totaling less than \$1,000,000 provided during the previous quarter.

(3) The notification required by paragraph (1) and the report required by paragraph (2) shall include the recipient of the award, the amount of the award, the fiscal year for which the funds for the award were appropriated, the account and program, project, or activity from which the funds are being drawn, the title of the award, and a brief description of the activity for which the award is made.

(c) The Department of Energy may not, with respect to any program, project, or activity that uses budget authority made available in this title under the heading "Department of Energy—Energy Programs", enter into a multiyear contract, award a multiyear grant, or enter into a multiyear cooperative agreement unless—

- (1) the contract, grant, or cooperative agreement is funded for the full period of performance as anticipated at the time of award; or
- (2) the contract, grant, or cooperative agreement includes a clause conditioning the Federal Government's obligation on the availability of future year budget authority and the Secretary notifies the Committees on Appropriations of both Houses of Congress at least 3 days in advance.

(d) Except as provided in subsections (e), (f), and (g), the amounts made available by this title shall be expended as authorized by law for the programs, projects, and activities specified in the "Final Bill" column in the "Department of Energy" table included under the heading "Title III—Department of Energy" in the explanatory statement accompanying this Act.

(e) The amounts made available by this title may be reprogrammed for any program, project, or activity, and the Department shall notify the Committees on Appropriations of both Houses of Congress at least 30 days prior to the use of any proposed reprogramming that would cause any program, project, or activity funding level to increase or decrease by more than \$5,000,000 or 10 percent, whichever is less, during the time period covered by this Act.

(f) None of the funds provided in this title shall be available for obligation or expenditure through a reprogramming of funds that—

- (1) creates, initiates, or eliminates a program, project, or activity;
- (2) increases funds or personnel for any program, project, or activity for which funds are denied or restricted by this Act; or
- (3) reduces funds that are directed to be used for a specific program, project, or activity by this Act.

(g) (1) The Secretary of Energy may waive any requirement or restriction in this section that applies to the use of funds made available for the Department of Energy if compliance with such requirement or restriction would pose a substantial risk to human health, the environment, welfare, or national security.

(2) The Secretary of Energy shall notify the Committees on Appropriations of both Houses of Congress of any waiver under paragraph (1) as soon as practicable, but not later than 3 days after the date of the activity to which a requirement or restriction would otherwise have applied. Such notice shall include an explanation of the substantial risk under paragraph (1) that permitted such waiver.

SEC. 302. The unexpended balances of prior appropriations provided for activities in this Act may be available to the same appropriation accounts for such activities established pursuant to this title. Available balances may be merged with funds in the applicable established accounts and thereafter may be accounted for as one fund for the same time period as originally enacted.

SEC. 303. Funds appropriated by this or any other Act, or made available by the transfer of funds in this Act, for intelligence activities are deemed to be specifically authorized by the Congress for purposes of section 504 of the National Security Act of 1947 (50 U.S.C. 3094) during fiscal year 2019 until the enactment of the Intelligence Authorization Act for fiscal year 2019.

SEC. 304. None of the funds made available in this title shall be used for the construction of facilities classified as high-hazard nuclear facilities under 10 CFR Part 830 unless independent oversight is conducted by the Office of Enterprise Assessments to ensure the project is in compliance with nuclear safety requirements.

SEC. 305. None of the funds made available in this title may be used to approve critical decision–2 or critical decision–3 under Department of Energy Order 413.3B, or any successive departmental guidance, for construction projects where the total project cost exceeds \$100,000,000, until a separate independent cost estimate has been developed for the project for that critical decision.

SEC. 306. Notwithstanding section 301(c) of this Act, none of the funds made available under the heading "Department of Energy—Energy Programs—Science" in this or any subsequent Energy and Water Development and Related Agencies appropriations Act for any fiscal year may be used for a multiyear contract, grant, cooperative agreement, or Other Transaction Agreement of \$1,000,000 or less unless the contract, grant, cooperative agreement, or Other Transaction Agreement is funded for the full period of performance as anticipated at the time of award.

SEC. 307. (a) NEW REGIONAL RESERVES.—The Secretary of Energy may not establish any new regional petroleum product reserve unless funding for the proposed regional petroleum product reserve is explicitly requested in advance in an annual budget submission and approved by the Congress in an appropriations Act.

(b) The budget request or notification shall include—

- (1) the justification for the new reserve;
- (2) a cost estimate for the establishment, operation, and maintenance of the reserve, including funding sources;
- (3) a detailed plan for operation of the reserve, including the conditions upon which the products may be released;
- (4) the location of the reserve; and
- (5) the estimate of the total inventory of the reserve.

SEC. 308. Treatment of Lobbying and Political Activity Costs as Allowable Costs under Department of Energy Contracts.

(a) Allowable Costs.—

(1) Section 4801(b) of the Atomic Energy Defense Act (50 U.S.C. 2781(b)) is amended—

(A) by striking "(1)" and all that follows through "the Secretary" and inserting "The Secretary"; and

(B) by striking paragraph (2).

(2) Section 305 of the Energy and Water Development Appropriation Act, 1988, as contained in section 101(d) of Public Law 100–202 (101 Stat. 1329–125), is repealed.

(b) Regulations Revised.—The Secretary of Energy shall revise existing regulations consistent with the repeal of 50 U.S.C. 2781(b)(2) and section 305 of Public Law 100–202 and shall issue regulations to implement 50 U.S.C. 2781(b), as amended by subsection (a), no later than 150 days after the date of the enactment of this Act. Such regulations shall be consistent with the Federal Acquisition Regulation 48 C.F.R. 31.205–22.

SEC. 309. Not to exceed 5 percent of any appropriation made available for Department of Energy activities funded in this Act may be transferred between such appropriations, but no such appropriation, except as otherwise provided, shall be increased or decreased by more than 5 percent by any such transfers, and notification of any such transfers shall be submitted promptly to the Committees on Appropriations of the House of Representatives and the Senate.

SEC. 310. Notwithstanding section 161 of the Energy Policy and Conservation Act (42 U.S.C. 6241), the Secretary of Energy shall draw down and sell one million barrels of refined petroleum product from the Strategic Petroleum Reserve during



fiscal year 2019. Proceeds from sales under this section shall be deposited into the general fund of the Treasury during fiscal year 2019.

SEC. 311. The Secretary of Energy may draw down and sell up to 1 million barrels of crude oil from the Strategic Petroleum Reserves during fiscal year 2019. The proceeds of such sale shall be deposited into the SPR Petroleum Account and shall remain available until expended.

## **TITLE V—GENERAL PROVISIONS**

Sec. 501. None of the funds appropriated by this Act may be used in any way, directly or indirectly, to influence congressional action on any legislation or appropriation matters pending before Congress, other than to communicate to Members of Congress as described in 18 U.S.C. 1913.

Sec. 502. None of the funds made available by this Act may be used in contravention of Executive Order No. 12898 of February 11, 1994 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations).