DOE/CF-0132
Volume 5

Department of Energy

FY 2018 Congressional Budget Request

Environmental Management

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($K)

	FY 2016 Enacted	FY 2017 Annualized CR*	FY 2018 Request	FY 2018 vs FY 2016 $	FY 2018 vs FY 2016 %
Department of Energy Budget by Appropriation					
Energy and Water Development, and Related Agencies					
Energy Programs					
Energy Efficiency and Renewable Energy	2,069,194	2,069,059	636,149	-1,433,045	-69.3%
Electricity Delivery and Energy Reliability	206,000	205,608	120,000	-86,000	-41.7%
Nuclear Energy	986,161	984,286	703,000	-283,161	-28.7%
Fossil Energy Programs					
Fossil Energy Research and Development	632,000	630,799	280,000	-352,000	-55.7%
Naval Petroleum and Oil Shale Reserves	17,500	17,467	4,900	-12,600	-72.0%
Strategic Petroleum Reserve	212,000	211,597	180,000	-32,000	-15.1%
Strategic Petroleum Account	0	0	8,400	+8,400	N/A
Northeast Home Heating Oil Reserve	7,600	7,586	6,500	-1,100	-14.5%
Total, Fossil Energy Programs	**869,100**	**867,449**	**479,800**	**-389,300**	**-44.8%**
Uranium Enrichment Decontamination and Decommissioning (UED&D) Fund	673,749	767,014	752,749	+79,000	+11.7%
Energy Information Administration	122,000	121,768	118,000	-4,000	-3.3%
Non-Defense Environmental Cleanup	255,000	254,515	218,400	-36,600	-14.4%
Science	5,347,000	5,336,835	4,472,516	-874,484	-16.4%
Advanced Research Projects Agency - Energy	291,000	290,446	20,000	-271,000	-93.1%
Nuclear Waste Disposal	0	0	90,000	+90,000	N/A
Departmental Administration	130,971	130,722	145,652	+14,681	+11.2%
Office of the Inspector General	46,424	46,336	49,000	+2,576	+5.5%
Title 17 - Innovative Technology Loan Guarantee Program	17,000	14,920	0	-17,000	-100.0%
Advanced Technology Vehicles Manufacturing Loan Program	6,000	5,989	0	-6,000	-100.0%
Total, Energy Programs	**11,019,599**	**11,094,947**	**7,805,266**	**-3,214,333**	**-29.2%**
Atomic Energy Defense Activities					
National Nuclear Security Administration					
Weapons Activities	8,846,948	8,830,130	10,239,344	+1,392,396	+15.7%
Defense Nuclear Nonproliferation	1,940,302	1,936,614	1,793,310	-146,992	-7.6%
Naval Reactors	1,375,496	1,372,881	1,479,751	+104,255	+7.6%
Federal Salaries and Expenses	363,766	363,937	418,595	+54,829	+15.1%
Total, National Nuclear Security Administration	**12,526,512**	**12,503,562**	**13,931,000**	**+1,404,488**	**+11.2%**
Environmental and Other Defense Activities					
Defense Environmental Cleanup	5,289,742	5,279,686	5,537,186	+247,444	+4.7%
Other Defense Activities	776,425	774,949	815,512	+39,087	+5.0%
Defense Nuclear Waste Disposal	0	0	30,000	+30,000	N/A
Total, Environmental and Other Defense Activities	**6,066,167**	**6,054,635**	**6,382,698**	**+316,531**	**+5.2%**
Total, Atomic Energy Defense Activities	**18,592,679**	**18,558,197**	**20,313,698**	**+1,721,019**	**+9.3%**
Power Marketing Administrations					
Southeastern Power Administration	0	0	0	0	N/A
Southwestern Power Administration	11,400	11,378	11,400	0	N/A
Western Area Power Administration	93,372	93,194	93,372	0	N/A
Falcon and Amistad Operating and Maintenance Fund	228	228	228	0	N/A
Colorado River Basins Power Marketing Fund	-23,000	-23,000	-23,000	0	N/A
Total, Power Marketing Administrations	**82,000**	**81,800**	**82,000**	**0**	**N/A**
Federal Energy Regulatory Commission (FERC)	0	0	0	0	N/A
Subtotal, Energy and Water Development and Related Agencies	**29,694,278**	**29,734,944**	**28,200,964**	**-1,493,314**	**-5.0%**
Excess Fees and Recoveries, FERC	-23,587	-15,882	-9,000	+14,587	+61.8%
Title XVII Loan Guarantee Program Section 1703 Negative Credit Subsidy Receipt	-68,000	-67,871	-35,000	+33,000	+48.5%
Sale of Northeast Gas Reserve	0	0	-69,000	-69,000	N/A
Use of Advanced Research Projects Agency - Energy Balances	0	0	-46,367	-46,367	N/A
Total, Funding by Appropriation	**29,602,691**	**29,651,191**	**28,041,597**	**-1,561,094**	**-5.3%**

*The Consolidated Appropriations Act was not available when the Department of Energy developed the FY 2018 Congressional Budget. Therefore, the FY 2017 Annualized CR amounts reflect the P.L. 114-254 continuing resolution level annualized to a full year.

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, $5,537,186,000, to remain available until expended: Provided, That of such amount $300,000,000 shall be available until September 30, 2019, for program direction: Provided further, That of such amount, $225,000,000 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 2017 appropriation for this account was not enacted at the time the budget was prepared; therefore, the budget assumes this account is operating under the Further Continuing Appropriations Act, 2017 (P.L. 114–254). The amounts included for 2017 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 2017 appropriation for this account was not enacted at the time the budget was prepared; therefore, the budget assumes this account is operating under the Further Continuing Appropriations Act, 2017 (P.L. 114–254). The amounts included for 2017 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 2017 appropriation for this account was not enacted at the time the budget was prepared; therefore, the budget assumes this account is operating under the Further Continuing Appropriations Act, 2017 (P.L. 114–254). The amounts included for 2017 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, “GPRA Modernization Act of 2010”
- Public Law 113-66, "National Defense Authorization Act for Fiscal Year 2014"

Environmental Management ($K)

	FY 2016 Enacted	FY 2017 Annualized CR[1]	FY 2018 Request
Defense Environmental Cleanup	5,289,742	5,279,686	5,537,186
Non-Defense Environmental Cleanup	255,000	254,515	218,400
Uranium Enrichment Decontamination and Decommissioning Fund	673,749	767,014	752,749
Total, Environmental Management	6,218,491	6,301,215	6,508,335

[1] The FY 2017 Annualized CR amounts reflect the P.L. 114-254 continuing resolution level annualized to a full year. 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, disposition of large volumes of transuranic and mixed/low-level waste, huge quantities of contaminated soil and water, and deactivation and decommissioning of thousands of excess facilities. This environmental cleanup program results 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. The EM Program's progress on completion of sites are 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 2016. A key accomplishment was the demolition of a complete gaseous diffusion plant for the first time at the East Tennessee Technology Park at Oak Ridge. At the Savannah River Site, EM completed construction of the Salt Waste Processing Facility, which, once in operation, will significantly accelerate EM's ability to treat tank waste. EM also completed closure of the eighth high-level waste tank at the Savannah River site. At Hanford, EM initiated demolition of the Plutonium Finishing Plant, once one of the most dangerous buildings in the DOE complex. At Idaho, EM packaged a total of 7,485 cubic meters of exhumed hazardous and radioactive waste in accordance with a 2008 agreement. At Moab, EM has passed the halfway point of the uranium mill tailings remediation effort, which has a life-cycle estimate of 16 million tons.

EM's progress and planned scope in FY 2018 continues to be affected by events across the complex. The Waste Isolation Pilot Plant (WIPP) restarted operations upon resuming waste emplacement in the underground on January 4, 2017. While DOE successfully completed the WIPP recovery effort with the resumption of waste emplacement, waste emplacements

will be limited until two line item capital projects are completed: the new safety significant confinement ventilation system (15-D-411) and exhaust shaft (15-D-412), which are necessary to allow the facility to perform full scale, simultaneous activities of mining, waste emplacement, and maintenance. In FY 2018, up to four waste shipments per week to WIPP are supported.

Highlights and Major Changes in the FY 2018 Budget Request

The FY 2018 investment of $6,508,335,000 in discretionary budget authority funds activities to maintain a safe and secure posture in the EM complex, while maximizing the investment in 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 2018.

In FY 2018, much progress will be made on the treatment of high level radioactive waste in tanks across the complex. At the Idaho Site, the FY 2018 funding request supports continued progress toward closing the tank farm, including commissioning the Integrated Waste Treatment Unit for treatment of sodium-bearing waste. At the Savannah River Site, the FY 2018 request supports continued production of approximately 60 to 70 canisters of vitrified waste derived and processed from the high level waste tanks, and the construction of an additional on-site disposal space for saltstone, contributing to FY 2018 targets for the EM Corporate Performance metrics: high-level liquid waste eliminated and high level waste packaged for final disposal.

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, continued construction of the Waste Treatment and Immobilization Plant's (WTP) Low-Activity Waste Facility, Balance of Facilities, Effluent Management Facility and Analytical Laboratory, as well as, design and some construction on the High-Level Waste Facility, while resources are dedicated to promptly resolve the outstanding technical issues of the High-Level Waste and Pretreatment Facilities. When completed these facilities will contribute to several EM corporate performance metrics: high-level liquid waste eliminated, high level liquid tanks closed, and high level waste packaged for final disposal.

The FY 2018 budget supports the 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 2018 budget also supports further stabilization of the Paducah Gaseous Diffusion Plant facilities and continued operations of the Depleted Uranium Hexafluoride Conversion Facility at Portsmouth and Paducah. The support for the safe operation of the Depleted Uranium Hexafluoride Conversion facilities at Portsmouth and Paducah actively contributes to FY 2018 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 completing the design and initiating construction for the Outfall 200 Mercury Treatment Facility at the Y-12 National Security Complex.

The budget also includes approximately $138,000,000 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 2018, the lab will support 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, grinding, and retrieval, and sampling and analysis of nuclear materials. The lab 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.

EM's Innovation and Technology Development program (formerly technology development and deployment) 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 safely. 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 2018 request of $25,000,000 for Innovation and Technology Development funds projects to tackle our greatest challenges with remediation of Technetium-99, Mercury, Cesium-137 and Strontium-90, and the integration of advanced tooling and robotics for enhanced worker safety and productivity.

In FY 2018, EM's share of the Working Capital Fund is estimated at $37,774,000, which is split funded between Program Direction (through Headquarters Working Capital Fund Other Related Expenses line of account) and Program Support (through the newly proposed Working Capital Fund Activities line of account). EM's share of the total Working Capital Fund increase from FY 2016 to FY 2018 is $2,024,000.

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 2018 Program Direction Working Capital Fund allocation is $15,665,000.

EM's remaining FY 2018 Working Capital Fund request is $22,109,000. 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, 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 are services funded through PBS HQ-WCF-0100, Working Capital Fund.

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

FY 2018 Working Capital Fund Estimate

	Program Direction	Program Support	Total
A123	0	531	531
Building Occupancy	7,058	0	7,058
Copy Services	344	0	344
Corporate Business Systems	3,445	5,167	8,612
Corp Training Services	243	0	243
CyberOne	0	7,138	7,138
Financial Statement Audits	0	2,500	2,500
Health Services	137	0	137
Interagency Transfers	0	1,662	1,662
Mail & Transportation	205	0	205
Overseas Presence	326	0	326
Pension Studies	99	0	99
PMCDP	776	0	776
Print & graphics	171	0	171
Procurement Management	0	5,111	5,111
Supply	212	0	212
Telecom	2,649	0	2,649
Total	**15,665**	**22,109**	**37,774**

EM's FY 2018 request also provides a significant focus on cybersecurity activities. Prior to FY 2018, cybersecurity activities were funded in a variety of ways across the EM complex. Some sites funded cyber activities through overhead accounts, while other sites funded cyber activities through both site overheads and direct fund accounts within Safeguards and Security. This request establishes a formal cybersecurity line of accounting in order to ensure effective oversight.

The table below provides a comparable display of Cyber Security activities across the EM complex:

FY 2018 Cyber Security

	FY 2016 Enacted (Comp)	FY 2017 Annualized CR (Comp)	FY 2018 Request
Carlsbad	1,155	1,155	1,270
Headquarters	6,325	6,325	8,085
Moab	272	272	315
Oak Ridge	2,686	2,686	1,105
Paducah	1,919	1,919	1,507

	FY 2016 Enacted (Comp)	FY 2017 Annualized CR (Comp)	FY 2018 Request
Portsmouth	1,546	1,546	1,546
Richland	8,211	8,211	6,390
Savannah River	9,500	9,500	22,810
West Valley	324	324	314
Total	**31,938**	**31,938**	**43,342**

The FY 2018 budget funds the following specific activities:

At Idaho, the FY 2018 request will continue commissioning of the Integrated Waste Treatment Unit. This facility will treat approximately 900,000 gallons of sodium bearing waste stored in tanks that are 35-to-45 years old. The treatment of this waste will enable EM to complete removal and treatment of all liquid tank waste from the underground tanks. The request also continues exhumations at the Subsurface Disposal Area, treatment of legacy contact-handled and remote-handled transuranic and mixed low-level waste, and safe, secure management of spent (used) nuclear fuel.

Idaho's FY 2018 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 waste at the Radioactive Waste Management Complex and mixed low-level 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 activities for closure of the tank farm and 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 high-level waste calcine.

The Office of River Protection's FY 2018 budget request represents planned efforts for continued progress toward important cleanup required by the Amended 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 necessary to enable waste treatment operations; advance construction work at the Waste Treatment and Immobilization Plant's Low-Activity Waste Facility, Balance of Facilities, the Effluent Management Facility and Analytical Laboratory; resolve significant technical issues with the Pretreatment and the High-Level Waste Facilities; and protect workers, the public and environment.

As the design and construction of the Waste Treatment and Immobilization Plant progressed, a number of technical issues emerged involving the tank farms, the Waste Treatment and Immobilization Plant, and the interfaces between the two projects. The technical issues in the Waste Treatment and Immobilization Plant are primarily associated with the Pretreatment Facility and, to a lesser degree, the High-Level Waste Facility. Since the current design requires waste to flow through the Pretreatment Facility, these technical issues impact the Office of River Protection's overall ability to begin treating Hanford's tank waste. The majority of ongoing work associated with the High-Level Waste Facility is focused on completing the facility design, some construction, and the resolution of technical issues. In addition, DOE suspended all of

the construction work on the Pretreatment Facility to focus on resolving the Pretreatment Facility technical issues. Significant progress has been made in resolving the technical issues with a key focus on hydrogen generation, criticality, and erosion-corrosion. Phase 1 of the full scale test platform program and Phase 2 of the testing program, using a 13 foot vessel (which focused on control limits to support mixing and to test system reliability) have been completed. Platform testing using the standardized 16 foot vessel began in December 2016, and all technical issues resolution is forecasted to be completed in FY 2018.

At the Savannah River Site, the largest portion of the FY 2018 request supports the Liquid Tank Waste Management Program. The liquid waste tanks pose the highest public, worker, and environmental risk at the site; therefore, stabilization and preparation for disposal are a high priority. Scope includes the operation of the Defense Waste Processing Facility, the Saltstone Facility, the Effluent Treatment Facility, and the Actinide Removal Process and Modular Caustic Side Solvent Extraction Unit (this unit will be needed until the Salt Waste Processing Facility begins operation); the performance of tank farm operation activities including waste transfers and removals; Salt Disposition Initiative activities in the tank farm to support the startup of the Salt Waste Processing Facility in December 2018; and Tank Closure Cesium Removal demonstration in H-Tank Farm. In addition, the request supports commissioning and start-up activities for the Salt Waste Processing Facility and the initiation of the Saltstone Disposal Units #7, #8 and #9.

The FY 2018 request supports the Savannah River Site operation of the H Canyon/ HB-Line to process aluminum-clad spent (used) nuclear fuel, down blend EM-owned plutonium for disposal at the Waste Isolation Pilot Plant, and preparations to process High Flux Isotope Reactor spent (used) nuclear fuel; maintenance of K-Area to safely and securely store nuclear material; safe storage of spent (used) nuclear fuel in L-Area Basin; and receipt of GAP Plutonium from foreign countries, and of foreign and domestic research reactor spent (used) nuclear fuel. The request also provides surveillance and maintenance of the F-Area Complex Facilities and activities to reduce the risk by reducing residual contamination in the F-Area Materials Storage Facility. In addition, the request supports the initiation of the Emergency Operations Center Replacement project.

In FY 2018, the budget request will support the deactivation and decommissioning project at the Portsmouth Gaseous Diffusion Plant in Piketon, Ohio, by providing the site a total of $417,936,000. The majority of the funding request, $312,389,000, will be used for deactivation and decommissioning of gaseous diffusion plant ancillary facilities and systems, disposal of waste, small equipment removal, utility optimizations, and hazardous material abatement. The FY 2018 request also includes $38,882,000 for 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 2018, the budget request of $270,203,000 will support environmental cleanup and stabilization of the Paducah Gaseous Diffusion Plant in Paducah, Kentucky. Of that total, $202,297,000 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 DUF6 Conversion facility that converts depleted uranium hexafluoride into a more stable depleted uranium oxide form suitable for reuse or disposition.

Richland's FY 2018 budget request represents continued achievement of important cleanup progress required by the Tri-Party Agreement. The Richland budget request is designed to maintain safe operations and Hanford site-wide services; continue groundwater remediation; make progress toward waste remediation; certify Large/Small Container CH TRUM or RH TRUM Waste; continue K Area decontamination and decommissioning/remediation; and support K West Basin sludge

removal progress. Cleanup work is accomplished while maintaining safe and compliant waste management, decontamination and decommissioning, and groundwater capabilities in the Central Plateau.

At Oak Ridge, the FY 2018 request will maintain EM facilities in a safe, compliant, and secure manner; operate EM waste management facilities such as the on-site Comprehensive, Environmental, Response, Compensation and Liability Act disposal facility, sanitary landfills at the Y-12 National Security Complex, and waste water and gaseous waste treatment operations at Oak Ridge National Laboratory; continue deactivation and demolition of remaining facilities and slab and soils remediation at the East Tennessee Technology Park; continue planning and initiate design for the new on-site Comprehensive Environmental, Response, Compensation and Liability Act disposal facility and finalize design and initiate early site preparations for the Mercury Treatment Facility at the Y-12 National Security Complex. The processing of transuranic waste debris will continue at the Transuranic Waste Processing Center and technology maturation and planning will continue for the Sludge Processing Facility Buildout project. Additionally, the budget supports preparation of Building 2026 at the Oak Ridge National Laboratory to support processing of U-233 materials from Building 3019.

At the Waste Isolation Pilot Plant, recovery activities are completed and waste emplacement resumed on January 4, 2017. Since opening the Waste Isolation Pilot Plant, EM has sent nearly 11,900 shipments of transuranic waste for permanent disposal, safely emplacing over 91,000 cubic meters (171,000 containers) of waste. The FY 2018 request will continue regulatory and environmental compliance actions, waste emplacement, underground maintenance and ground control, continuation of permanent ventilation project, and the Central Characterization Project and transportation activities. Waste characterization at DOE 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, and Los Alamos National Laboratory will be funded by the Waste Isolation Pilot Plant, whereas the Idaho National Laboratory funds its waste characterization certification. The FY 2018 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.

Excess Facilities

The FY 2018 Congressional Budget request includes $225,000,000 for a targeted effort to accelerate deactivation and decommissioning (D&D) 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' project inventory to achieve substantial risk reduction within four years. This effort to address excess facilities supports modernization of the nuclear security enterprise.

Environmental Management Funding by Congressional Control ($K)

	FY 2016 Enacted	FY 2017 Annualized CR[1]	FY 2018 Request	FY 2018 vs FY 2016
Defense Environmental Cleanup				
Closure Sites				
Closure Sites Administration	4,889	4,880	4,889	0
Hanford Site				
Central Plateau Remediation	555,163	554,108	637,879	+82,716
Richland Community and Regulatory Support	19,701	19,664	5,121	-14,580
River Corridor and Other Cleanup Operations	270,710	270,195	58,692	-212,018
Construction				
15-D-401: Containerized Sludge (KBC Sludge Removal Annex Construction), RL (RL-0012)	77,016	76,869	8,000	-69,016
18-D-404: Modification of Waste Encapsulation and Storage Facility, Richland, WA (PBS RL-0013C)	0	0	6,500	+6,500
Total, Construction	**77,016**	**76,869**	**14,500**	**-62,516**
Total, Hanford Site	**922,590**	**920,836**	**716,192**	**-206,398**
Idaho National Laboratory				
Idaho Cleanup and Waste Disposition	393,000	392,253	346,155	-46,845
Idaho Community and Regulatory Support	3,000	2,994	4,071	+1,071
Total, Idaho National Laboratory	**396,000**	**395,247**	**350,226**	**-45,774**
NNSA Sites				
Lawrence Livermore National Laboratory	1,366	1,363	1,175	-191
Los Alamos National Laboratory	185,000	184,648	191,629	+6,629
Nevada	62,385	62,267	60,136	-2,249
Sandia National Laboratories	2,500	2,495	2,600	+100
Separations Processing Research Unit	0	0	1,800	+1,800
Total, NNSA Sites	**251,251**	**250,773**	**257,340**	**+6,089**
Oak Ridge				
OR Cleanup and Disposition	74,597	74,455	66,632	-7,965
OR Nuclear Facility D&D	111,958	111,745	77,479	-34,479
OR Reservation Community and Regulatory Support	4,400	4,392	4,605	+205

1 The FY 2017 Annualized CR amounts reflect the P.L. 114-254 continuing resolution level annualized to a full year. These amounts are shown only at the congressional control level and above; below that level, a dash (–) is shown.

	FY 2016 Enacted	FY 2017 Annualized CR[1]	FY 2018 Request	FY 2018 vs FY 2016
OR Technology Development and Deployment	2,800	2,795	3,000	+200
U233 Disposition Program	35,895	35,827	33,784	-2,111
Construction				
14-D-403: Outfall 200 Mercury Treatment Facility, OR (OR-0041)	9,400	9,382	17,100	+7,700
17-D-401: On-Site Disposal Facility	0	0	5,000	+5,000
Total, Construction	**9,400**	**9,382**	**22,100**	**+12,700**
Total, Oak Ridge	**239,050**	**238,596**	**207,600**	**-31,450**
Office of River Protection				
Tank Farm Activities	649,000	647,766	713,311	+64,311
Waste Treatment and Immobilization Plant	0	0	8,000	+8,000
Construction				
01-D-16E: Pretreatment Facility, RL	95,000	94,819	35,000	-60,000
01-D-16-A-D: Waste Treatment and Immobilization Plant - Sub-Projects A-D, RL	595,000	593,869	655,000	+60,000
15-D-409: Low Activity Waste Pretreatment System, Hanford (ORP-0014)	75,000	74,857	93,000	+18,000
Total, Construction	**765,000**	**763,545**	**783,000**	**+18,000**
Total, Office of River Protection	**1,414,000**	**1,411,311**	**1,504,311**	**+90,311**
Savannah River Site				
Environmental Cleanup	0	0	159,478	+159,478
Nuclear Material Management	0	0	323,482	+323,482
Radioactive Liquid Tank Waste Stabilization and Disposition	554,878	578,867	597,258	+42,380
Savannah River Risk Management Operations	413,652	426,404	0	-413,652
SR Community and Regulatory Support	11,249	11,228	11,249	0
Construction				
15-D-402: Saltstone Disposal Unit #6, SR (SR-0014C)	34,642	21,313	0	-34,642
05-D-405: Salt Waste Processing Facility, SR	194,000	168,312	150,000	-44,000
18-D-401: Saltstone Disposal Unit #8/9, SR (SR-0014C)	0	0	500	+500
17-D-402: Saltstone Disposal Unit #7, SR (SR-0014C)	0	0	40,000	+40,000
18-D-402: Emergency Operations Center	0	0	500	+500
Total, Construction	**228,642**	**189,625**	**191,000**	**-37,642**
Total, Savannah River Site	**1,208,421**	**1,206,124**	**1,282,467**	**+74,046**
Program Support				
Mission Support	14,979	14,951	35,088	+20,109
Program Direction	**281,951**	**281,415**	**300,000**	**+18,049**
Safeguards and Security	**236,633**	**236,183**	**269,160**	**+32,527**
Technology Development and Deployment				

	FY 2016 Enacted	FY 2017 Annualized CR[1]	FY 2018 Request	FY 2018 vs FY 2016
Mission Support	20,000	19,962	0	-20,000
Cyber Security	**0**	**0**	**43,342**	**+43,342**
Innovation and Technology Development	**0**	**0**	**25,000**	**+25,000**
Excess Facilities	**0**	**0**	**225,000**	**+225,000**
Waste Isolation Pilot Plant				
Waste Isolation Pilot Plant	269,260	268,749	250,971	-18,289
Construction				
15-D-411: Safety Significant Confinement Ventilation System, WIPP	23,218	23,173	46,000	+22,782
15-D-412: Exhaust Shaft, WIPP	7,500	7,486	19,600	+12,100
Total, Construction	**30,718**	**30,659**	**65,600**	**+34,882**
Total, Waste Isolation Pilot Plant	**299,978**	**299,408**	**316,571**	**+16,593**
Total, Defense Environmental Cleanup	**5,289,742**	**5,279,686**	**5,537,186**	**+247,444**
Non-Defense Environmental Cleanup				
Fast Flux Test Reactor Facility D&D	**2,562**	**2,557**	**2,240**	**-322**
Gaseous Diffusion Plants				
Paducah Gaseous Diffusion Plant	52,886	52,785	49,964	-2,922
Portsmouth Gaseous Diffusion Plant	51,517	51,419	50,611	-906
Total, Gaseous Diffusion Plants	**104,403**	**104,204**	**100,575**	**-3,828**
Small Sites				
Brookhaven National Laboratory	0	0	2,000	+2,000
DOE-Sponsored Facilities (per P.L. 112-74)	17,000	16,967	0	-17,000
Energy Technology Engineering Center	10,459	10,439	9,000	-1,459
Idaho National Laboratory	5,919	5,907	9,000	+3,081
Moab	38,644	38,571	35,000	-3,644
Oak Ridge	6,000	5,989	0	-6,000
Southwest Experimental Fast Oxide Reactor (SEFOR)	9,500	9,482	0	-9,500
Total, Small Sites	**87,522**	**87,355**	**55,000**	**-32,522**
West Valley Demonstration Project	**59,213**	**59,101**	**60,585**	**+1,372**
Mercury Storage Facility	**1,300**	**1,298**	**0**	**-1,300**
Total, Non-Defense Environmental Cleanup	**255,000**	**254,515**	**218,400**	**-36,600**
Uranium Enrichment Decontamination and Decommissioning Fund				
Oak Ridge	**194,673**	**194,673**	**145,726**	**-48,947**
Paducah				

	FY 2016 Enacted	FY 2017 Annualized CR[1]	FY 2018 Request	FY 2018 vs FY 2016
Paducah Gaseous Diffusion Plant	198,729	198,729	202,958	+4,229
Construction				
15-U-407: On-Site Waste Disposal Facility, Paducah (PA-0040)	0	1,196	0	0
16-U-401: SWMU 5&6, Paducah	1,196	0	0	-1,196
Total, Construction	**1,196**	**1,196**	**0**	**-1,196**
Total, Paducah	**199,925**	**199,925**	**202,958**	**+3,033**
Portsmouth				
Portsmouth Gaseous Diffusion Plant	203,417	296,682	312,389	+108,972
Construction				
15-U-408: On-Site Waste Disposal Facility, Portsmouth (PO-0040)	21,749	21,749	38,882	+17,133
Total, Portsmouth	**225,166**	**318,431**	**351,271**	**+126,105**
Pension and Community and Regulatory Support				
Oak Ridge	16,856	16,856	19,274	+2,418
Paducah Gaseous Diffusion Plant	2,375	2,375	1,725	-650
Portsmouth Gaseous Diffusion Plant	1,795	1,795	1,795	0
Total, Pension and Community and Regulatory Support	**21,026**	**21,026**	**22,794**	**+1,768**
U/Th Reimbursements				
Mission Support	32,959	32,959	30,000	-2,959
Total, Uranium Enrichment Decontamination and Decommissioning Fund	**673,749**	**767,014**	**752,749**	**+79,000**
Total, Environmental Management	**6,218,491**	**6,301,215**	**6,508,335**	**+289,844**
Full Time Equivalents	**1,460**	**1,460**	**1,400**	**-60**

SBIR/STTR:

- FY 2016 Transferred to the Office of Science: SBIR: $704; STTR: $99
- FY 2018 Request: SBIR $896; STTR $126

Environmental Management

Funding by Budget Chapters ($K)

	FY 2016 Enacted	FY 2017 Annualized CR[2]	FY 2018 Request	FY 2018 vs FY 2016
Carlsbad	304,838	304,196	323,041	+18,203
Idaho	401,919	401,154	359,226	-42,693
Oak Ridge	468,407	467,670	390,205	-78,202
Paducah	268,402	268,249	270,203	+1,801
Portsmouth	288,970	381,845	417,936	+128,966
Richland	990,653	988,748	800,422	-190,231
River Protection	1,414,000	1,411,311	1,504,311	+90,311
Savannah River	1,336,566	1,334,658	1,447,591	+111,025
Lawrence Livermore National Laboratory	1,366	1,363	1,175	-191
Los Alamos National Laboratory	185,000	184,648	191,629	+6,629
Nevada	62,385	62,267	60,136	-2,249
Sandia Site Office	2,500	2,495	2,600	+100
Separations Process Research Unit	0	0	1,800	+1,800
West Valley Demonstration Project	61,804	61,687	63,683	+1,879
Brookhaven National Laboratory	0	0	2,000	+2,000
Energy Technology Engineering Center	10,459	10,439	9,000	-1,459
Moab	38,644	38,571	35,315	-3,329
Other Sites				
Closure Sites Administration	4,889	4,880	4,889	0
DOE-Sponsored Facilities (per P.L. 112-74)	17,000	16,967	0	-17,000
Southwest Experimental Fast Oxide Reactor (SEFOR)	9,500	9,482	0	-9,500
Subtotal, Other Sites	**31,389**	**31,329**	**4,889**	**-26,500**
Program Direction	281,951	281,415	300,000	+18,049
Mission Support	69,238	69,170	98,173	+28,935
Excess Facilities	0	0	225,000	+225,000
Total, Environmental Management	**6,218,491**	**6,301,215**	**6,508,335**	**+289,844**

[2] The FY 2017 Annualized CR amounts reflect the P.L. 114-254 continuing resolution level annualized to a full year. These amounts are shown only at the congressional control level and above, below that level, a dash (-) is shown.

Environmental Management

Capital Summary ($K)

	Total	Prior Years	FY 2016 Enacted	FY 2018 Request	FY 2018 vs FY 2016 Enacted
Capital Operating Expenses Summary (including (Major Items of Equipment (MIE))					
Capital Equipment > $500K (including MIE)					
Plant Projects (GPP and IGPP) (<$10M)					
Total, Capital Operating Expenses					
Capital Equipment > $500K (including MIE)	0	0	0	0	0
Total, Capital Equipment (including MIE)	**0**	**0**	**0**	**0**	**0**
Plant Projects (GPP and IGPP) (Total Estimated Cost (TEC) <$10M)					
Oak Ridge					
SWSA 5	1,300	0	1,300	0	-1,300
Viewing Tower/Equipment Building	1,729	0	1,729	0	-1,729
History Center	1,495	0	1,495	0	-1,495
Interpretational Displays	1,376	0	1,376	0	-1,376
Classified Landfill Expansion	1,600	0	1,600	0	-1,600
Building 2026 U-233 Processing	5,128	0	496	4,632	+4,136
Total, Oak Ridge	**12,628**	**0**	**7,996**	**4,632**	**-3,364**
Richland					
Wood Power Poles Replacement	6,257	0	6,257	0	-6,257

	Total	Prior Years	FY 2016 Enacted	FY 2018 Request	FY 2018 vs FY 2016 Enacted
Foundation and Fencing for Cesium Strontium Cask Interim Dry Storage	2,977	0	0	2,977	+2,977
L-888 400 Area Fire Station	961	0	0	961	+961
L-894 Raw Water Cross Connection Isolation 200 E/W	7,878	0	0	7,878	+7,878
L-895 Fire Protection Infrastructure for Plateau Raw Water	7,041	0	0	7,041	+7,041
Total, Richland	**25,114**	**0**	**6,257**	**18,857**	**+12,600**
River Protection					
222-SA Facility Replacement	4,500	0	0	4,500	+4,500
Design and Construct 222-S Ancillary Equipment Addition	1,100	0	0	1,100	+1,100
Design and Construct Interim Barrier 1	5,450	0	0	5,450	+5,450
Design and Construct Interim Barrier 2	5,450	0	0	5,450	+5,450
Total, River Protection	**16,500**	**0**	**0**	**16,500**	**+16,500**
Savannah River					
SRNL B-Cell Block Window Replacement (Windows #10, #11, #12, #14, #15, and #16)	8,020	0	8,020	0	-8,020
SRNL IGPPs	3,965	0	0	3,965	+3,965
Total, Savannah River	**11,985**	**0**	**8,020**	**3,965**	**-4,055**
Total, Plant Projects (GPP and IGPP) (Total Estimated (TEC) <$10M	**66,227**	**0**	**22,273**	**43,954**	**+21,681**
Total, Capital Summary	**66,227**	**0**	**22,273**	**43,954**	**+21,681**

Environmental Management
Construction Summary ($K)

	Total	Prior Years	FY 2016 Enacted	FY 2018 Request	FY 2018 vs. FY 2016 Enacted
01-D-416, Waste Treatment and Immobilization Plant, Hanford WA					
01-D-16A-D WTP Subprojects A-D					
Total Estimate Cost (TEC)	TBD	6,364,563	595,000	655,000	+60,000
Other Project Costs (OPC)	0	0	0	0	0
01-D-16E Pretreatment Facility					
Total Estimate Cost (TEC)	TBD	3,500,050	95,000	35,000	-60,000
Other Project Costs (OPC)	0	0	0	0	0
Total Project Cost (TPC) 01-D-416	**TBD**	**9,864,613**	**690,000**	**690,000**	**0**
05-D-405, Salt Waste Processing Facility, Aiken, SC					
Total Estimate Cost (TEC)	1,677,122	1,483,122	194,000	0	-194,000
Other Project Costs (OPC)	260,983	110,983	0	150,000	+150,000
Total Project Cost (TPC) 05-D-405	**1,938,105**	**1,594,105**	**194,000**	**150,000**	**-44,000**
KW Basin Sludge Removal Project, Hanford Washington (RL-0012)					
SNF Stabilization and Disposition (RL-0012)					
Total Estimate Cost (TEC)	110,260	110,260	0	0	0
Other Project Costs (OPC)	46,522	46,522	0	0	0
Subtotal, KW Basin Sludge Removal Project, Hanford Washington (RL-0012)	**156,782**	**156,782**	**0**	**0**	**0**

	Total	Prior Years	FY 2016 Enacted	FY 2018 Request	FY 2018 vs. FY 2016 Enacted
15-D-401, KW Basin Sludge Removal Project, Hanford Washington (RL-0012)					
Total Estimate Cost (TEC)	125,071	46,055	77,016	2,000	-75,016
Other Project Costs (OPC)	12,407	0	6,407	6,000	-407
Subtotal, 15-D-401, KW Basin Sludge Removal Project, Hanford Washington (RL-0012)	**137,478**	**46,055**	**83,423**	**8,000**	**-75,423**
Total Project Cost (TPC) 15-D-401	**294,260**	**202,837**	**83,423**	**8,000**	**-75,423**
Saltstone Disposal Unit #6, SR (SR-0014C)					
Savannah River Tank Waste (SR-0014C)					
Total Estimate Cost (TEC)	12,280	12,280	0	0	0
Other Project Costs (OPC)	5,834	5,834	0	0	0
Subtotal, Saltstone Disposal Unit #6, SR (SR-0014C)	**18,114**	**18,114**	**0**	**0**	**0**
15-D-402, Saltstone Disposal Unit #6, SR (SR-0014C)					
Total Estimate Cost (TEC)	92,104	57,462	34,642	0	-34,642
Other Project Costs (OPC)	5,753	3,408	2,345	0	-2,345
Subtotal, 15-D-402, Saltstone Disposal Unit #6, SR (SR-0014C)	97,857	60,870	36,987	0	-36,987
Total Project Cost (TPC) 15-D-402	**115,971**	**78,984**	**36,987**	**0**	**-36,987**
15-D-403, Outfall 200 Mercury Treatment Facility, OR (OR-0041)					
Total Estimate Cost (TEC)	TBD	14,008	9,400	16,000	+6,600
Other Project Costs (OPC)	TBD	11,194	700	1,100	+400
Total Project Cost (TPC) 15-D-403	**TBD**	**25,202**	**10,100**	**17,100**	**+7,000**
15-U-408, On Site Waste Disposal Facility (PO-0040)					
Total Estimate Cost (TEC)	TBD	4,500	21,749	35,984	+14,235
Other Project Costs (OPC)	TBD	0	2,705	2,898	+193
Total Project Cost (TPC) 15-U-408	**TBD**	**4,500**	**24,454**	**38,882**	**+14,428**

	Total	Prior Years	FY 2016 Enacted	FY 2018 Request	FY 2018 vs. FY 2016 Enacted
15-D-409, Low Activity Waste Pretreatment System (Hanford) (ORP-0014)					
Total Estimate Cost (TEC)	TBD	23,000	75,000	93,000	+18,000
Other Project Costs (OPC)	TBD	9,675	382	200	-182
Total Project Cost (TPC) 15-D-409	**TBD**	**32,675**	**75,382**	**93,200**	**+17,818**
15-D-411, Safety Significant Confinement Ventilation System (WIPP) (CB-0080)					
Total Estimate Cost (TEC)	TBD	12,000	23,218	46,000	+22,782
Other Project Costs (OPC)	TBD	5,000	0	3,500	+3,500
Total Project Cost (TPC) 15-D-411	**TBD**	**17,000**	**23,218**	**49,500**	**+26,282**
15-D-412, Exhaust Shaft (WIPP) (CB-0080)					
Total Estimate Cost (TEC)	TBD	4,000	7,500	19,600	+12,100
Other Project Costs (OPC)	TBD	2,000	0	1,900	+1,900
Total Project Cost (TPC) 15-D-412	**TBD**	**6,000**	**7,500**	**21,500**	**+14,000**
16-U-401, Solid Waste Management Unit 5 & 6 (PA-0040)					
Total Estimate Cost (TEC)	TBD	0	1,196	0	-1,196
Other Project Costs (OPC)	TBD	0	693	0	-693
Total Project Cost (TPC) 16-U-401	**TBD**	**0**	**1,889**	**0**	**-1,889**
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
Subtotal, On Site Disposal Facility (OR-0041)	**TBD**	**8,214**	**0**	**0**	**0**

	Total	Prior Years	FY 2016 Enacted	FY 2018 Request	FY 2018 vs. FY 2016 Enacted
17-D-401, On Site Disposal Facility (OR-0041)					
Total Estimate Cost (TEC)	TBD	0	0	1,000	+1,000
Other Project Costs (OPC)	TBD	0	7,050	4,000	-3,050
Subtotal, 17-D-401, On Site Disposal Facility (OR-0041)	**TBD**	**0**	**7,050**	**5,000**	**-2,050**
Total Project Cost (TPC) 17-D-401	**TBD**	**0**	**7,050**	**5,000**	**-2,050**
17-D-402, Saltstone Disposal Unit #7, SR (SR-0014C)					
Total Estimate Cost (TEC)	40,000	0	0	40,000	+40,000
Other Project Costs (OPC)	5,201	0	1,201	4,000	+2,799
Total Project Cost (TPC) 16-U-401	**45,201**	**0**	**1,201**	**44,000**	**+42,799**
18-D-401, Saltstone Disposal Unit #8 and #9, SR (SR-0014C)					
Total Estimate Cost (TEC)	500	0	0	500	+500
Other Project Costs (OPC)	500	0	0	500	+500
Total Project Cost (TPC) 18-U-401	**1,000**	**0**	**0**	**1,000**	**+1,000**
18-D-402, Emergency Operations Center Replacement, SR (SR-0013)					
Total Estimate Cost (TEC)	500	0	0	500	+500
Other Project Costs (OPC)	500	0	0	500	+500
Total Project Cost (TPC) 18-U-402	**1,000**	**0**	**0**	**1,000**	**+1,000**
18-D-404, Modifications of Waste Encapsulation and Storage Facility (RL-0013C)					
Total Estimate Cost (TEC)	6,500	0	0	6,500	+6,500
Other Project Costs (OPC)	500	0	0	500	+500
Total Project Cost, (TPC) 18-D-404	**7,000**	**0**	**0**	**7,000**	**7,000**
Total All Construction Projects					

	Total	Prior Years	FY 2016 Enacted	FY 2018 Request	FY 2018 vs. FY 2016 Enacted
Total Estimate Cost (TEC)	2,064,337	8,131,250	1,038,721	916,084	-122,637
Other Project Costs (OPC)	338,200	3,702,880	116,483	210,098	+93,615
Total Project Cost (TPC) All Construction Projects	2,402,537	11,834,130	1,155,204	1,126,182	-29,022

ANCILLARY TABLES

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

	FY 2016 Enacted	FY 2017 Annualized CR	FY 2018 Request	FY 2018 vs FY 2016
Defense Environmental Cleanup				
Operating				
Carlsbad				
CB-0020	4,860	4,788	5,200	+340
CB-0090	16,339	16,308	21,854	+5,515
CB-0081	22,553	22,510	22,500	-53
CB-0080	148,368	148,087	206,617	+58,249
CB-0025	0	0	1,270	+1,270
CB-0082	82,000	81,844	0	-82,000
Subtotal, Carlsbad	**274,120**	**273,537**	**257,441**	**-16,679**
Excess Facilities				
EM-EF-0040	0	0	225,000	+225,000
Idaho				
ID-0100	3,000	2,994	4,071	+1,071
ID-0013	202,348	201,963	170,101	-32,247
ID-0014B	126,413	126,173	111,352	-15,061
ID-0030B	48,989	48,896	44,727	-4,262
ID-0012B-D	15,250	15,221	19,975	+4,725
Subtotal, Idaho	**396,000**	**395,247**	**350,226**	**-45,774**
Lawrence Livermore National Laboratory				
VL-LLNL-0031	1,128	1,125	900	-228
VL-FOO-0013B-D	238	238	275	+37
Subtotal, Lawrence Livermore National Laboratory	**1,366**	**1,363**	**1,175**	**-191**
Los Alamos National Laboratory				
VL-FAO-0101	3,394	3,387	3,394	0
VL-LANL-0040-D	1,453	1,450	0	-1,453
VL-LANL-0030	99,570	99,381	121,799	+22,229
VL-LANL-0013	80,583	80,430	66,436	-14,147
Subtotal, Los Alamos National Laboratory	**185,000**	**184,648**	**191,629**	**+6,629**
Mission Support				
HQ-MS-0100	6,979	6,966	6,979	0
HQ-TD-0100	20,000	19,962	25,000	+5,000

	FY 2016 Enacted	FY 2017 Annualized CR	FY 2018 Request	FY 2018 vs FY 2016
EM-HBCU-0100	8,000	7,985	6,000	-2,000
HQ-WCF-0100	0	0	22,109	+22,109
HQ-0025	0	0	8,085	+8,085
Subtotal, Mission Support	**34,979**	**34,913**	**68,173**	**+33,194**
Moab				
CBC-Moab-0025	0	0	315	+315
Nevada				
VL-NV-0100	2,829	2,824	4,578	+1,749
VL-NV-0030	38,560	38,487	37,537	-1,023
VL-NV-0080	20,996	20,956	18,021	-2,975
Subtotal, Nevada	**62,385**	**62,267**	**60,136**	**-2,249**
Oak Ridge				
OR-0100	4,400	4,392	4,605	+205
OR-TD-0100	2,800	2,795	3,000	+200
OR-0013B	74,597	74,455	66,632	-7,965
OR-0041	66,058	65,932	29,369	-36,689
OR-0042	45,900	45,813	48,110	+2,210
OR-0020	11,828	11,556	16,500	+4,672
OR-0011D	35,895	35,827	33,784	-2,111
OR-0025	0	0	1,105	+1,105
Subtotal, Oak Ridge	**241,478**	**240,770**	**203,105**	**-38,373**
Other Sites				
CBC-0100-FN	1,300	1,298	1,000	-300
CBC-0100-RF	3,589	3,582	3,889	+300
Subtotal, Other Sites	**4,889**	**4,880**	**4,889**	**0**
Paducah				
PA-0020	13,216	13,164	14,049	+833
PA-0025	0	0	1,507	+1,507
Subtotal, Paducah	**13,216**	**13,164**	**15,556**	**+2,340**
Portsmouth				
PO-0020	10,492	10,200	12,713	+2,221
PO-0025	0	0	1,546	+1,546
Subtotal, Portsmouth	**10,492**	**10,200**	**14,259**	**+3,767**
Program Direction				

	FY 2016 Enacted	FY 2017 Annualized CR	FY 2018 Request	FY 2018 vs FY 2016
HQ-PD-0100	281,951	281,415	284,335	+2,384
HQ-PDWCF-0100	0	0	15,665	+15,665
Subtotal, Program Direction	**281,951**	**281,415**	**300,000**	**+18,049**
Richland				
RL-0100	19,701	19,664	5,121	-14,580
RL-0013C	150,691	150,405	120,500	-30,191
RL-0030	174,619	174,287	150,000	-24,619
RL-0011	148,661	148,378	0	-148,661
RL-0041	181,836	181,490	44,692	-137,144
RL-0040	88,874	88,705	14,000	-74,874
RL-0012	81,192	81,038	45,000	-36,192
RL-0020	65,501	65,355	75,600	+10,099
RL-0025	0	0	6,390	+6,390
RL-0201	0	0	322,379	+322,379
Subtotal, Richland	**911,075**	**909,322**	**783,682**	**-127,393**
River Protection				
ORP-0014	649,000	647,766	713,311	+64,311
ORP-0070	0	0	8,000	+8,000
Subtotal, River Protection	**649,000**	**647,766**	**721,311**	**+72,311**
Sandia Site Office				
VL-SN-0030	2,500	2,495	2,600	+100
Savannah River				
SR-0100	11,249	11,228	11,249	0
SR-0013	51,546	51,448	57,580	+6,034
SR-0011C	254,655	267,710	323,482	+68,827
SR-0014C	554,878	578,867	597,258	+42,380
SR-0012	41,407	41,328	0	-41,407
SR-0030	66,044	65,918	81,199	+15,155
SR-0020	128,145	128,534	142,314	+14,169
SR-0041	0	0	20,699	+20,699
SR-0025	0	0	22,810	+22,810
Subtotal, Savannah River	**1,107,924**	**1,145,033**	**1,256,591**	**+148,667**
Separations Process Research Unit				
VL-SPRU-0040	0	0	1,800	+1,800
West Valley Demonstration Project				

	FY 2016 Enacted	FY 2017 Annualized CR	FY 2018 Request	FY 2018 vs FY 2016
OH-WV-0020	2,591	2,586	2,784	+193
OH-WV-0025	0	0	314	+314
Subtotal, West Valley Demonstration Project	**2,591**	**2,586**	**3,098**	**+507**
Subtotal, Operating	**4,178,966**	**4,209,606**	**4,460,986**	**+282,020**
Line Item Construction				
Carlsbad				
CB-0080	30,718	30,659	65,600	+34,882
Oak Ridge				
OR-0041	9,400	9,382	22,100	+12,700
Richland				
RL-0013C	0	0	6,500	+6,500
RL-0012	77,016	76,869	8,000	-69,016
Subtotal, Richland	**77,016**	**76,869**	**14,500**	**-62,516**
River Protection				
ORP-0014	75,000	74,857	93,000	+18,000
ORP-0060	690,000	688,688	690,000	0
Subtotal, River Protection	**765,000**	**763,545**	**783,000**	**+18,000**
Savannah River				
SR-0013	0	0	500	+500
SR-0014C	228,642	189,625	190,500	-38,142
Subtotal, Savannah River	**228,642**	**189,625**	**191,000**	**-37,642**
Subtotal, Line Item Construction	**1,110,776**	**1,070,080**	**1,076,200**	**-34,576**
Subtotal, Environmental Management	**5,289,742**	**5,279,686**	**5,537,186**	**+247,444**
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	10,439	9,000	-1,459
Idaho				
ID-0012B-N	5,919	5,907	9,000	+3,081
Moab				
CBC-MOAB-0031	38,644	38,571	35,000	-3,644
Oak Ridge				

	FY 2016 Enacted	FY 2017 Annualized CR	FY 2018 Request	FY 2018 vs FY 2016
OR-0104	6,000	5,989	0	-6,000
Other Sites				
SEFOR	9,500	9,482	0	-9,500
CBC-LBNL-0040	17,000	16,967	0	-17,000
Subtotal, Other Sites	**26,500**	**26,449**	**0**	**-26,500**
Paducah				
PA-0011	1,369	1,366	1,369	0
PA-0011X	51,517	51,419	48,595	-2,922
Subtotal, Paducah	**52,886**	**52,785**	**49,964**	**-2,922**
Portsmouth				
PO-0011X	51,517	51,419	50,611	-906
Richland				
RL-0042	2,562	2,557	2,240	-322
West Valley Demonstration Project				
OH-WV-0040	51,275	51,178	50,732	-543
OH-WV-0013	7,938	7,923	9,853	+1,915
Subtotal, West Valley Demonstration Project	**59,213**	**59,101**	**60,585**	**+1,372**
Subtotal, Operating	**253,700**	**253,217**	**218,400**	**-35,300**
Line Item Construction				
Mission Support				
HQ-MSF	1,300	1,298	0	-1,300
Subtotal, Environmental Management	**255,000**	**254,515**	**218,400**	**-36,600**
Uranium Enrichment Decontamination and Decommissioning Fund				
Operating				
Mission Support				
HQ-UR-0100	32,959	32,959	30,000	-2,959
Oak Ridge				
OR-0102	16,856	16,856	19,274	+2,418
OR-0040	194,673	194,673	145,726	-48,947
Subtotal, Oak Ridge	**211,529**	**211,529**	**165,000**	**-46,529**
Paducah				
PA-0103	1,725	1,725	1,725	0
PA-0102	650	650	0	-650
PA-0040	198,729	198,729	202,958	+4,229

	FY 2016 Enacted	FY 2017 Annualized CR	FY 2018 Request	FY 2018 vs FY 2016
Subtotal, Paducah	**201,104**	**201,104**	**204,683**	**+3,579**
Portsmouth				
PO-0104	1,020	1,020	1,020	0
PO-0040	203,417	296,682	312,389	+108,972
PO-0103	775	775	775	0
Subtotal, Portsmouth	**205,212**	**298,477**	**314,184**	**+108,972**
Subtotal, Operating	**650,804**	**744,069**	**713,867**	**+63,063**
Line Item Construction				
Paducah				
PA-0040	1,196	1,196	0	-1,196
Portsmouth				
PO-0040	21,749	21,749	38,882	+17,133
Subtotal, Line Item Construction	**22,945**	**22,945**	**38,882**	**+15,937**
Subtotal, Environmental Management	**673,749**	**767,014**	**752,749**	**+79,000**
Total, Environmental Cleanup	**6,218,491**	**6,301,215**	**6,508,335**	**+289,844**

Summary

	FY 2016 Enacted	FY 2017 Annualized CR	FY 2018 Request	FY 2018 vs FY 2016
Defense Environmental Cleanup				
Operating	4,178,966	4,209,606	4,460,986	+282,020
Line Item Construction	1,110,776	1,070,080	1,076,200	-34,576
Subtotal, Defense Environmental Cleanup	5,289,742	5,279,686	5,537,186	+247,444
Defense EM Funded UE D&D Fund Contribution				
Operating	0	0	0	0
Line Item Construction	0	0	0	0
Non-Defense Environmental Cleanup				
Operating	253,700	253,217	218,400	-35,300
Line Item Construction	1,300	1,298	0	-1,300
Subtotal, Non-Defense Environmental Cleanup	255,000	254,515	218,400	-36,600
Uranium Enrichment Decontamination and Decommissioning Fund				
Operating	650,804	744,069	713,867	+63,063
Line Item Construction	22,945	22,945	38,882	+15,937
Subtotal, Uranium Enrichment Decontamination and Decommissioning Fund	673,749	767,014	752,749	+79,000
Decontamination and Decommissioning Fund Contribution				
Operating	0	0	0	0
Line Item Construction	0	0	0	0
Defense Uranium Enrichment Decontamination and Decommissioning				
Operating	0	0	0	0
Line Item Construction	0	0	0	0
Total, Environmental Cleanup	**6,218,491**	**6,301,215**	**6,508,335**	**+289,844**

Total Operating	5,083,470	5,206,892	5,393,253	+309,783
Total Line Item Construction	1,135,021	1,094,323	1,115,082	-19,939
Total, Environmental Management	**6,218,491**	**6,301,215**	**6,508,335**	**+289,844**

Environmental Management Federal Staffing

	FY 2016 Enacted	FY 2017 Annualized CR	FY 2018 Request	FY 2018 vs FY 2016
Carlsbad	74	74	69	-5
Idaho	45	45	43	-2
Oak Ridge	80	80	76	-4
Portsmouth/Paducah Project Office	63	63	60	-3
Richland	245	245	233	-12
River Protection	162	162	170	+8
Savannah River	280	280	265	-15
Small Sites	30	30	27	-3
Nevada Site Office	18	18	16	-2
Los Alamos Site Office	35	35	29	-6
Subtotal, Field, Full-Time Equivalents	**1,032**	**1,032**	**988**	**-44**
Headquarters Operations	283	283	275	-8
Consolidated Business Center	145	145	137	-8
Total, Field, Full-Time Equivalents	**1,460**	**1,460**	**1,400**	**-60**

[Note] Due to the current stage of WIPP operations and limited number of shipments, detailed (site-specific) targets for the corporate performance metric, "Transuranic Waste Dispositioned," cannot be provided at this time. The Department's preliminary planning estimate is to dispose of approximately 1,000 cubic meters of transuranic waste at WIPP during Fiscal Year 2018. Performance metric targets at a site and PBS level will be reported in the future.

[d]Corporate Performance Measures – EM Totals

	Cumulative FY 2016 Actual	Cumulative FY 2017 Target	Cumulative FY 2018 Target	Life-cycle Estimate
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)	80,221	88,721	113,721	838,031
Liquid Waste in Inventory eliminated (Thousands of Gallons)	7,342	7,684	8,362	102,045
Liquid Waste Tanks closed (Number of Tanks)	15	15	15	239
High-Level Waste packaged for final disposition (Number of Containers)	4,374	4,426	4,543	24,858
Spent Nuclear Fuel packaged for final disposition (Metric Tons of Heavy Metal)	2,130	2,131	2,132	2,452
Transuranic Waste Dispositioned (Cubic meters) - CH	103,088	[Note]	[Note]	144,993
Transuranic Waste Dispositioned (Cubic meters) - RH	354	[Note]	[Note]	6,755
Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	1,330,550	1,340,981	1,354,278	1,589,543
Material Access Areas eliminated (Number of Material Access Areas)	30	30	30	35
Nuclear Facility Completions (Number of Facilities)	151	157	158	488
Radioactive Facility Completions (Number of Facilities)	567	577	587	961
Industrial Facility Completions (Number of Facilities)	2,144	2,162	2,206	4,243
Remediation Complete (Number of Release Sites)	8,159	8,205	8,294	11,666

[d] Performance measures are currently being updated.

[Note] Due to the current stage of WIPP operations and limited number of shipments, detailed (site-specific) targets for the corporate performance metric, "Transuranic Waste Dispositioned," cannot be provided at this time. The Department's preliminary planning estimate is to dispose of approximately 1,000 cubic meters of transuranic waste at WIPP during Fiscal Year 2018. Performance metric targets at a site and PBS level will be reported in the future.

[e]Corporate Performance Measures – EM Totals

	Cumulative FY 2016 Actual	Cumulative FY 2017 Target	Cumulative FY 2018 Target	Life-cycle Estimate
All Other Sites				
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	[Note]	[Note]	22
Transuranic Waste Dispositioned (Cubic meters) - RH	21	[Note]	[Note]	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
Energy Technology Engineering Center				
Geographic Sites Eliminated (number of sites)	0	0	0	1
Industrial Facility Completions (Number of Facilities)	29	29	29	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	5	7

[e] Performance measures are currently being updated.

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	Cumulative FY 2016 Actual	Cumulative FY 2017 Target	Cumulative FY 2018 Target	Life-cycle Estimate
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
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

[Note] Due to the current stage of WIPP operations and limited number of shipments, detailed (site-specific) targets for the corporate performance metric, "Transuranic Waste Dispositioned," cannot be provided at this time. The Department's preliminary planning estimate is to dispose of approximately 1,000 cubic meters of transuranic waste at WIPP during Fiscal Year 2018. Performance metric targets at a site and PBS level will be reported in the future.

	Cumulative FY 2016 Actual	Cumulative FY 2017 Target	Cumulative FY 2018 Target	Life-cycle Estimate
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
Oak Ridge				
Oak Ridge				
Geographic Sites Eliminated (number of sites)	2	2	2	2
Industrial Facility Completions (Number of Facilities)	426	426	460	715
Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	200,372	200,721	201,136	201,628
Nuclear Facility Completions (Number of Facilities)	10	11	11	26
Radioactive Facility Completions (Number of Facilities)	58	58	66	120
Remediation Complete (Number of Release Sites)	470	474	487	693
Transuranic Waste Dispositioned (Cubic meters) - CH	1,045	[Note]	[Note]	1,502
Transuranic Waste Dispositioned (Cubic meters) - RH	168	[Note]	[Note]	600
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
Headquarters				
Headquarters				
Geographic Sites Eliminated (number of sites)	24	24	24	24
NNSA Sites				
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

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	Cumulative FY 2016 Actual	Cumulative FY 2017 Target	Cumulative FY 2018 Target	Life-cycle Estimate
Industrial Facility Completions (Number of Facilities)	1	1	1	1
Radioactive Facility Completions (Number of Facilities)	10	10	10	11
Remediation Complete (Number of Release Sites)	1,227	1,242	1,242	2,113
Transuranic Waste Dispositioned (Cubic meters) - CH	1,246	[Note]	[Note]	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	194	195	196
Transuranic Waste Dispositioned (Cubic meters) - CH	125	[Note]	[Note]	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	2	2	2
Remediation Complete (Number of Release Sites)	6	8	8	8
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
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

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	Cumulative FY 2016 Actual	Cumulative FY 2017 Target	Cumulative FY 2018 Target	Life-cycle Estimate
Idaho				
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	177	182	307
Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	83,831	84,551	85,271	85,271
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	68	68	86
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	62,002	[Note]	[Note]	74,453
Transuranic Waste Dispositioned (Cubic meters) - RH	122	[Note]	[Note]	165
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
Closure Sites				
Ashtabula				

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	Cumulative FY 2016 Actual	Cumulative FY 2017 Target	Cumulative FY 2018 Target	Life-cycle Estimate
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
Radioactive Facility Completions (Number of Facilities)	29	29	29	29
Remediation Complete (Number of Release Sites)	6	6	6	6
Miamisburg				
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
Rocky Flats Environmental Technology Site				
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	7	7	7	7

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	Cumulative FY 2016 Actual	Cumulative FY 2017 Target	Cumulative FY 2018 Target	Life-cycle Estimate
Material Access Areas)				
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	[Note]	[Note]	15,036
West Valley Demonstration Project				
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
Industrial Facility Completions (Number of Facilities)	17	17	18	43
Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	32,105	32,128	33,111	34,414
Liquid Waste in Inventory eliminated (Thousands of Gallons)	814	814	814	814
Nuclear Facility Completions (Number of Facilities)	3	3	4	24
Radioactive Facility Completions (Number of Facilities)	6	6	6	24
Transuranic Waste Dispositioned (Cubic meters) - CH	0	[Note]	[Note]	596
Transuranic Waste Dispositioned (Cubic meters) - RH	0	[Note]	[Note]	1,125
Portsmouth				
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	25,444	36,158	250,534
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	78,356	78,366	78,402
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
Paducah				
Paducah Gaseous Diffusion Plant				

[Note] Due to the current stage of WIPP operations and limited number of shipments, detailed (site-specific) targets for the corporate performance metric, "Transuranic Waste Dispositioned," cannot be provided at this time. The Department's preliminary planning estimate is to dispose of approximately 1,000 cubic meters of transuranic waste at WIPP during Fiscal Year 2018. Performance metric targets at a site and PBS level will be reported in the future.

	Cumulative FY 2016 Actual	Cumulative FY 2017 Target	Cumulative FY 2018 Target	Life-cycle Estimate
Geographic Sites Eliminated (number of sites)	0	0	0	1
Depleted and Other Uranium packaged for disposition (Metric Tons)	30,814	36,996	51,282	561,216
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	132	232
Carlsbad				
Waste Isolation Pilot Plant				
Geographic Sites Eliminated (number of sites)	0	0	0	1
Richland				
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)	713	731	735	1,407
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)	134	143	145	274
Remediation Complete (Number of Release Sites)	1,302	1,324	1,332	2,190
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	[Note]	[Note]	24,580
Transuranic Waste Dispositioned (Cubic meters) - RH	0	[Note]	[Note]	858

[Note] Due to the current stage of WIPP operations and limited number of shipments, detailed (site-specific) targets for the corporate performance metric, "Transuranic Waste Dispositioned," cannot be provided at this time. The Department's preliminary planning estimate is to dispose of approximately 1,000 cubic meters of transuranic waste at WIPP during Fiscal Year 2018. Performance metric targets at a site and PBS level will be reported in the future.

	Cumulative FY 2016 Actual	Cumulative FY 2017 Target	Cumulative FY 2018 Target	Life-cycle Estimate
Savannah River				
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 (Number of Containers)	4,099	4,151	4,268	8,256
Industrial Facility Completions (Number of Facilities)	257	257	257	870
Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	165,854	172,654	179,454	265,985
Liquid Waste in Inventory eliminated (Thousands of Gallons)	6,528	6,870	7,548	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)	405	408	408	515
Spent Nuclear Fuel packaged for final disposition (Metric Tons of Heavy Metal)	5	6	7	42
Transuranic Waste Dispositioned (Cubic meters) - CH	11,134	[Note]	[Note]	15,584
Transuranic Waste Dispositioned (Cubic meters) - RH	26	[Note]	[Note]	105
Los Alamos National Laboratory				
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)	11,721	11,721	11,721	13,442
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)	1,626	1,626	1,693	2,648
Transuranic Waste Dispositioned (Cubic meters) - CH	6,715	[Note]	[Note]	10,294
Transuranic Waste Dispositioned (Cubic meters) - RH	16	[Note]	[Note]	16
River Protection				

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	Cumulative FY 2016 Actual	Cumulative FY 2017 Target	Cumulative FY 2018 Target	Life-cycle Estimate
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
Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	53,753	56,233	60,602	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	[Note]	[Note]	1,555
Transuranic Waste Dispositioned (Cubic meters) - RH	0	[Note]	[Note]	3,864

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Corporate Performance Measure Quantities by Project Baseline Summary[abc]

Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2016	Targeted Completion Through 2017	Targeted Completion Through 2018	Balance Remaining	Life-Cycle Estimate
All Other Sites							
Argonne National Laboratory-East	CH-ANLE-0040.NEW						
		Transuranic Waste Dispositioned (Cubic meters) - CH	22[Note]	[Note]			22
		Transuranic Waste Dispositioned (Cubic meters) - RH	21[Note]	[Note]			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
Brookhaven National Laboratory	BRNL-0030						
		Radioactive Facility Completions (Number of Facilities)	3	3	3	0	3
		Remediation Complete (Number of	75	75	75	0	75

[a] 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.

[b] 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.

[c] 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.

[Note] Due to the current stage of WIPP operations and limited number of shipments, detailed (site-specific) targets for the corporate performance metric, "Transuranic Waste Dispositioned," cannot be provided at this time. The Department's preliminary planning estimate is to dispose of approximately 1,000 cubic meters of transuranic waste at WIPP during Fiscal Year 2018. Performance metric targets at a site and PBS level will be reported in the future.

Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2016	Targeted Completion Through 2017	Targeted Completion Through 2018	Balance Remaining	Life-Cycle Estimate
		Release Sites)					
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
Energy Technology Engineering Center	CBC-ETEC-0040						
		Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	1,075	1,075	1,075	0	1,075
		Radioactive Facility Completions (Number of Facilities)	4	4	4	+2	6
		Industrial Facility Completions (Number of Facilities)	24	24	24	+3	27

[Note] Due to the current stage of WIPP operations and limited number of shipments, detailed (site-specific) targets for the corporate performance metric, "Transuranic Waste Dispositioned," cannot be provided at this time. The Department's preliminary planning estimate is to dispose of approximately 1,000 cubic meters of transuranic waste at WIPP during Fiscal Year 2018. Performance metric targets at a site and PBS level will be reported in the future.

Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2016	Targeted Completion Through 2017	Targeted Completion Through 2018	Balance Remaining	Life-Cycle Estimate
Inhalation Toxicology Laboratory	CBC-ITL-0030	Remediation Complete (Number of Release Sites)	4	4	4	+1	5
Lawrence Berkeley National Laboratory	CBC-LBNL-0030	Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	359	359	359	0	359
		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	537	537	537	0	537

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Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2016	Targeted Completion Through 2017	Targeted Completion Through 2018	Balance Remaining	Life-Cycle Estimate
		(Cubic meters)					
		Remediation Complete (Number of Release Sites)	30	30	30	0	30
Laboratory for Energy-Related Health Research	LEHR-0040						
		Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	944	944	944	0	944
		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						

[Note] Due to the current stage of WIPP operations and limited number of shipments, detailed (site-specific) targets for the corporate performance metric, "Transuranic Waste Dispositioned," cannot be provided at this time. The Department's preliminary planning estimate is to dispose of approximately 1,000 cubic meters of transuranic waste at WIPP during Fiscal Year 2018. Performance metric targets at a site and PBS level will be reported in the future.

Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2016	Targeted Completion Through 2017	Targeted Completion Through 2018	Balance Remaining	Life-Cycle Estimate
		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						
		Remediation Complete (Number of Release Sites)	13	13	13	0	13
Laboratory for Energy-Related Health Research	VL-LEHR-0040						
		Industrial Facility Completions (Number of Facilities)	1	1	1	0	1
Stanford Linear Accelerator Center	VL-SLAC-0030						
		Remediation Complete (Number of Release Sites)	1	1	1	0	1
Closure Sites							
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
		Remediation Complete (Number of	3	3	3	0	3

[Note] Due to the current stage of WIPP operations and limited number of shipments, detailed (site-specific) targets for the corporate performance metric, "Transuranic Waste Dispositioned," cannot be provided at this time. The Department's preliminary planning estimate is to dispose of approximately 1,000 cubic meters of transuranic waste at WIPP during Fiscal Year 2018. Performance metric targets at a site and PBS level will be reported in the future.

Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2016	Targeted Completion Through 2017	Targeted Completion Through 2018	Balance Remaining	Life-Cycle Estimate
		Release Sites)					
Columbus	OH-CL-0040						
		Nuclear Facility Completions (Number of Facilities)	1	1	1	0	1
		Radioactive Facility Completions (Number of Facilities)	14	14	14	0	14
		Remediation Complete (Number of Release Sites)	2	2	2	0	2
Fernald	OH-FN-0013						
		Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	7,085	7,085	7,085	0	7,085
		Remediation Complete (Number of Release Sites)	4	4	4	0	4
Fernald	OH-FN-0030						
		Remediation Complete (Number of Release Sites)	2	2	2	0	2
Fernald	OH-FN-0050						
		Radioactive Facility Completions (Number of Facilities)	29	29	29	0	29
		Industrial Facility Completions (Number of Facilities)	1	1	1	0	1
Miamisburg	OH-MB-0013						
		Depleted and Other Uranium packaged for disposition (Metric Tons)	0	0	0	0	0
		Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	3,947	3,947	3,947	0	3,947
Miamisburg	OH-MB-0030						

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Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2016	Targeted Completion Through 2017	Targeted Completion Through 2018	Balance Remaining	Life-Cycle Estimate
		Depleted and Other Uranium packaged for disposition (Metric Tons)	0	0	0	0	0
		Remediation Complete (Number of Release Sites)	178	178	178	0	178
Miamisburg	OH-MB-0040						
		Nuclear Facility Completions (Number of Facilities)	8	8	8	0	8
		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	RF-0030						

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Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2016	Targeted Completion Through 2017	Targeted Completion Through 2018	Balance Remaining	Life-Cycle Estimate
Technology Site							
		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
		Radioactive Facility Completions (Number of Facilities)	22	22	22	0	22
		Industrial Facility Completions (Number of Facilities)	141	141	141	0	141
Rocky Flats Environmental Technology Site	RF-0041						
		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
Idaho							
Idaho National Laboratory	ID-0012B						
		Spent Nuclear Fuel packaged for final disposition (Metric Tons of Heavy Metal)	0	0	0	+285	285
Idaho National	ID-0013B						

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Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2016	Targeted Completion Through 2017	Targeted Completion Through 2018	Balance Remaining	Life-Cycle Estimate
Laboratory							
		Transuranic Waste Dispositioned (Cubic meters) - CH	56,502	[Note]	[Note]		68,953
		Transuranic Waste Dispositioned (Cubic meters) - RH	119	[Note]	[Note]		162
		Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	83,831	84,551	85,271	0	85,271
		Nuclear Facility Completions (Number of Facilities)	0	0	0	+12	12
		Radioactive Facility Completions (Number of Facilities)	0	0	0	+1	1
		Industrial Facility Completions (Number of Facilities)	0	0	0	+38	38
Idaho National Laboratory	ID-0013B.NEW						
		Transuranic Waste Dispositioned (Cubic meters) - RH	3	[Note]	[Note]		3
Idaho National Laboratory	ID-0040B.NEW						
		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
Argonne National Laboratory - West	CH-ANLW-0030						
		Remediation Complete (Number of	37	37	37	0	37

[Note] Due to the current stage of WIPP operations and limited number of shipments, detailed (site-specific) targets for the corporate performance metric, "Transuranic Waste Dispositioned," cannot be provided at this time. The Department's preliminary planning estimate is to dispose of approximately 1,000 cubic meters of transuranic waste at WIPP during Fiscal Year 2018. Performance metric targets at a site and PBS level will be reported in the future.

Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2016	Targeted Completion Through 2017	Targeted Completion Through 2018	Balance Remaining	Life-Cycle Estimate
		Release Sites)					
Idaho National Laboratory	HQ-SNF-0012X						
Idaho National Laboratory	ID-0011						
		Enriched Uranium packaged for disposition (Number of Containers)	1,586	1,586	1,586	0	1,586
		Material Access Areas eliminated (Number of Material Access Areas)	1	1	1	0	1
Idaho National Laboratory	ID-0014B						
		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
		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	2	2	+15	17
		Industrial Facility Completions (Number of Facilities)	0	0	5	+46	51
Idaho National Laboratory	ID-0030B						
		Transuranic Waste Dispositioned (Cubic meters) - CH	5,501	[Note]	[Note]		5,501
		Nuclear Facility Completions (Number of Facilities)	0	0	0	+8	8

[Note] Due to the current stage of WIPP operations and limited number of shipments, detailed (site-specific) targets for the corporate performance metric, "Transuranic Waste Dispositioned," cannot be provided at this time. The Department's preliminary planning estimate is to dispose of approximately 1,000 cubic meters of transuranic waste at WIPP during Fiscal Year 2018. Performance metric targets at a site and PBS level will be reported in the future.

Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2016	Targeted Completion Through 2017	Targeted Completion Through 2018	Balance Remaining	Life-Cycle Estimate
		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
		Industrial Facility Completions (Number of Facilities)	143	143	143	0	143
Idaho Operations Office	ID-0900						
		Remediation Complete (Number of Release Sites)	233	233	233	0	233
Los Alamos National Laboratory							
Los Alamos National Laboratory	VL-LANL-0013						
		Transuranic Waste Dispositioned (Cubic meters) - CH	6,715	[Note]	[Note]		10,294

[Note] Due to the current stage of WIPP operations and limited number of shipments, detailed (site-specific) targets for the corporate performance metric, "Transuranic Waste Dispositioned," cannot be provided at this time. The Department's preliminary planning estimate is to dispose of approximately 1,000 cubic meters of transuranic waste at WIPP during Fiscal Year 2018. Performance metric targets at a site and PBS level will be reported in the future.

Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2016	Targeted Completion Through 2017	Targeted Completion Through 2018	Balance Remaining	Life-Cycle Estimate
		Transuranic Waste Dispositioned (Cubic meters) - RH	16	[Note]	[Note]		16
Los Alamos National Laboratory	VL-LANL-0030	Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	6,295	6,295	6,295	+1,721	8,016
		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)	1,626	1,626	1,693	+955	2,648
		Nuclear Facility Completions (Number of Facilities)	1	1	1	0	1
		Radioactive Facility Completions (Number of Facilities)	15	15	15	0	15
Los Alamos National Laboratory	VL-LANL-0040-N	Industrial Facility Completions (Number of Facilities)	5	5	5	0	5
		Radioactive Facility Completions (Number of Facilities)	4	4	4	0	4
		Industrial Facility Completions (Number of Facilities)	1	1	1	0	1
NNSA Sites							
Lawrence Livermore National Laboratory	HQ-SW-0013Y						

[Note] Due to the current stage of WIPP operations and limited number of shipments, detailed (site-specific) targets for the corporate performance metric, "Transuranic Waste Dispositioned," cannot be provided at this time. The Department's preliminary planning estimate is to dispose of approximately 1,000 cubic meters of transuranic waste at WIPP during Fiscal Year 2018. Performance metric targets at a site and PBS level will be reported in the future.

Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2016	Targeted Completion Through 2017	Targeted Completion Through 2018	Balance Remaining	Life-Cycle Estimate
Nevada National Security Site	NV-0030	Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	2,546	2,546	2,546	0	2,546
New Mexico Site Support	VL-FAO-0900	Remediation Complete (Number of Release Sites)	53	53	53	0	53
Kansas City Plant	VL-KCP-0030	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
Lawrence Livermore National Laboratory	VL-LLNL-0013	Remediation Complete (Number of Release Sites)	43	43	43	0	43
Lawrence Livermore National Laboratory	VL-LLNL-0030	Transuranic Waste Dispositioned (Cubic meters) - CH	125[Note]	[Note]			125
		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	VL-LLNL-0031	Remediation Complete (Number of Release Sites)	120	120	120	0	120

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Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2016	Targeted Completion Through 2017	Targeted Completion Through 2018	Balance Remaining	Life-Cycle Estimate
National Laboratory							
		Remediation Complete (Number of Release Sites)	74	74	75	+1	76
Nevada National Security Site	VL-NV-0013						
		Transuranic Waste Dispositioned (Cubic meters) - CH	1,246[Note]	[Note]			1,246
Nevada National Security Site	VL-NV-0030						
		Radioactive Facility Completions (Number of Facilities)	10	10	10	+1	11
		Industrial Facility Completions (Number of Facilities)	1	1	1	0	1
		Remediation Complete (Number of Release Sites)	1,174	1,189	1,189	+871	2,060
Pantex Plant	VL-PX-0030						
		Remediation Complete (Number of Release Sites)	237	237	237	0	237
Pantex Plant	VL-PX-0040						
		Industrial Facility Completions (Number of Facilities)	4	4	4	0	4
Sandia National Laboratory	VL-SN-0030						
		Radioactive Facility Completions (Number of Facilities)	1	1	1	0	1
		Remediation Complete (Number of Release Sites)	265	265	265	0	265
NNSA Service Center	VL-SPRU-0040						
		Nuclear Facility Completions (Number of	0	2	2	0	2

[Note] Due to the current stage of WIPP operations and limited number of shipments, detailed (site-specific) targets for the corporate performance metric, "Transuranic Waste Dispositioned," cannot be provided at this time. The Department's preliminary planning estimate is to dispose of approximately 1,000 cubic meters of transuranic waste at WIPP during Fiscal Year 2018. Performance metric targets at a site and PBS level will be reported in the future.

Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2016	Targeted Completion Through 2017	Targeted Completion Through 2018	Balance Remaining	Life-Cycle Estimate
		Facilities)					
		Remediation Complete (Number of Release Sites)	5	7	7	0	7
NNSA Service Center	VL-SV-0100						
		Remediation Complete (Number of Release Sites)	1	1	1	0	1
Oak Ridge							
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
		Industrial Facility Completions (Number of Facilities)	4	4	4	0	4
Oak Ridge	OR-0042.NEW						
		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
		Industrial Facility Completions (Number of Facilities)	12	12	12	0	12
Oak Ridge	HQ-SW-0013X-OR						
		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	HQ-SW-0013Y						

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Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2016	Targeted Completion Through 2017	Targeted Completion Through 2018	Balance Remaining	Life-Cycle Estimate
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)	211	265	434	0	434
Oak Ridge	OR-0013A	Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	93	93	93	0	93
		Nuclear Facility Completions (Number of Facilities)	4	4	4	0	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	1,045	[Note]	[Note]		1,502
		Transuranic Waste Dispositioned (Cubic meters) - RH	168	[Note]	[Note]		600
Oak Ridge	OR-0030	Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	18,141	18,141	18,141	0	18,141
		Nuclear Facility Completions (Number of Facilities)	2	2	2	0	2
		Radioactive Facility Completions (Number	15	15	15	0	15

[Note] Due to the current stage of WIPP operations and limited number of shipments, detailed (site-specific) targets for the corporate performance metric, "Transuranic Waste Dispositioned," cannot be provided at this time. The Department's preliminary planning estimate is to dispose of approximately 1,000 cubic meters of transuranic waste at WIPP during Fiscal Year 2018. Performance metric targets at a site and PBS level will be reported in the future.

Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2016	Targeted Completion Through 2017	Targeted Completion Through 2018	Balance Remaining	Life-Cycle Estimate
		of Facilities)					
		Industrial Facility Completions (Number of Facilities)	2	2	2	0	2
		Remediation Complete (Number of Release Sites)	106	106	106	0	106
Oak Ridge	OR-0031						
		Remediation Complete (Number of Release Sites)	7	7	7	+1	8
Oak Ridge	OR-0040						
		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)	3	4	4	0	4
		Radioactive Facility Completions (Number of Facilities)	10	10	18	+21	39
		Industrial Facility Completions (Number of Facilities)	388	388	422	+137	559
		Remediation Complete (Number of Release Sites)	143	147	160	+17	177
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	30	30	30	+96	126

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Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2016	Targeted Completion Through 2017	Targeted Completion Through 2018	Balance Remaining	Life-Cycle Estimate
		Release Sites)					
Oak Ridge	OR-0042						
		Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	4,935	5,230	5,476	+492	5,968
		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						
		Remediation Complete (Number of Release Sites)	74	74	74	0	74
Oak Ridge	OR-0900-N						
		Industrial Facility Completions (Number of Facilities)	3	3	3	0	3
		Remediation Complete (Number of Release Sites)	23	23	23	0	23
Paducah							
Paducah Gaseous	PA-0011						

[Note] Due to the current stage of WIPP operations and limited number of shipments, detailed (site-specific) targets for the corporate performance metric, "Transuranic Waste Dispositioned," cannot be provided at this time. The Department's preliminary planning estimate is to dispose of approximately 1,000 cubic meters of transuranic waste at WIPP during Fiscal Year 2018. Performance metric targets at a site and PBS level will be reported in the future.

Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2016	Targeted Completion Through 2017	Targeted Completion Through 2018	Balance Remaining	Life-Cycle Estimate
Diffusion Plant							
		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)	30,814	36,996	51,282	+509,934	561,216
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
		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	131	+100	231
Paducah Gaseous Diffusion Plant	PA-0900						

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Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2016	Targeted Completion Through 2017	Targeted Completion Through 2018	Balance Remaining	Life-Cycle Estimate
		Remediation Complete (Number of Release Sites)	1	1	1	0	1
Portsmouth							
Portsmouth Gaseous Diffusion Plant	PO-0011X						
		Depleted and Other Uranium packaged for disposition (Metric Tons)	23,126	25,444	36,158	+214,376	250,534
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	41,654	41,664	+36	41,700
		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
		Remediation Complete (Number of Release Sites)	20	20	20	0	20
Portsmouth Gaseous Diffusion Plant	PO-0900						
		Remediation Complete (Number of Release Sites)	130	130	130	0	130

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Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2016	Targeted Completion Through 2017	Targeted Completion Through 2018	Balance Remaining	Life-Cycle Estimate
Richland							
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)	21	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	0	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
Hanford Site	RL-0013C						
		Transuranic Waste Dispositioned (Cubic meters) - CH	5,763[Note]	[Note]			24,580
		Transuranic Waste Dispositioned (Cubic meters) - RH	0[Note]	[Note]			858
		Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed	51,019	51,019	51,019	0	51,019

[Note] Due to the current stage of WIPP operations and limited number of shipments, detailed (site-specific) targets for the corporate performance metric, "Transuranic Waste Dispositioned," cannot be provided at this time. The Department's preliminary planning estimate is to dispose of approximately 1,000 cubic meters of transuranic waste at WIPP during Fiscal Year 2018. Performance metric targets at a site and PBS level will be reported in the future.

Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2016	Targeted Completion Through 2017	Targeted Completion Through 2018	Balance Remaining	Life-Cycle Estimate
		(Cubic meters)					
		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	2	+3	5
		Industrial Facility Completions (Number of Facilities)	5	5	9	+30	39
Hanford Site	RL-0040						
		Nuclear Facility Completions (Number of Facilities)	6	6	6	+29	35
		Radioactive Facility Completions (Number of Facilities)	21	25	25	+106	131
		Industrial Facility Completions (Number of Facilities)	297	300	300	+544	844
		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
		Nuclear Facility Completions (Number of Facilities)	8	8	8	+3	11
		Radioactive Facility Completions (Number of Facilities)	104	104	104	+12	116
		Industrial Facility Completions (Number of Facilities)	390	390	390	+66	456
		Remediation Complete (Number of	1,221	1,243	1,251	+82	1,333

[Note] Due to the current stage of WIPP operations and limited number of shipments, detailed (site-specific) targets for the corporate performance metric, "Transuranic Waste Dispositioned," cannot be provided at this time. The Department's preliminary planning estimate is to dispose of approximately 1,000 cubic meters of transuranic waste at WIPP during Fiscal Year 2018. Performance metric targets at a site and PBS level will be reported in the future.

Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2016	Targeted Completion Through 2017	Targeted Completion Through 2018	Balance Remaining	Life-Cycle Estimate
		Release Sites)					
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
River Protection							
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[Note]	[Note]			1,555
		Transuranic Waste Dispositioned (Cubic meters) - RH	0[Note]	[Note]			3,864
		Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	53,753	56,233	60,602	+145,182	205,784
		Nuclear Facility Completions (Number of Facilities)	0	0	0	+18	18
		Radioactive Facility Completions (Number of Facilities)	0	0	0	+114	114

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Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2016	Targeted Completion Through 2017	Targeted Completion Through 2018	Balance Remaining	Life-Cycle Estimate
		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						
West Valley Demonstration Project							
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[Note]	[Note]			596
		Transuranic Waste Dispositioned (Cubic meters) - RH	0[Note]	[Note]			1,125
		Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	32,105	32,128	33,111	+1,303	34,414
West Valley Demonstration Project	OH-WV-0040						
		Nuclear Facility Completions (Number of Facilities)	3	3	4	+20	24
		Radioactive Facility Completions (Number of Facilities)	6	6	6	+18	24
		Industrial Facility Completions (Number of Facilities)	17	17	18	+25	43
Savannah River							

[Note] Due to the current stage of WIPP operations and limited number of shipments, detailed (site-specific) targets for the corporate performance metric, "Transuranic Waste Dispositioned," cannot be provided at this time. The Department's preliminary planning estimate is to dispose of approximately 1,000 cubic meters of transuranic waste at WIPP during Fiscal Year 2018. Performance metric targets at a site and PBS level will be reported in the future.

Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2016	Targeted Completion Through 2017	Targeted Completion Through 2018	Balance Remaining	Life-Cycle Estimate
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)	5	6	7	+35	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	11,134	[Note]	[Note]		15,584
		Transuranic Waste Dispositioned (Cubic meters) - RH	26	[Note]	[Note]		105
		Legacy and Newly Generated Low-Level and Mixed Low-Level Waste disposed (Cubic meters)	165,854	172,654	179,454	+86,531	265,985
SR-0014C							
		Liquid Waste in Inventory eliminated (Thousands of Gallons)	6,528	6,870	7,548	+36,783	44,331
		Liquid Waste Tanks closed (Number of Tanks)	8	8	8	+43	51

[Note] Due to the current stage of WIPP operations and limited number of shipments, detailed (site-specific) targets for the corporate performance metric, "Transuranic Waste Dispositioned," cannot be provided at this time. The Department's preliminary planning estimate is to dispose of approximately 1,000 cubic meters of transuranic waste at WIPP during Fiscal Year 2018. Performance metric targets at a site and PBS level will be reported in the future.

Office / Installation	Project Number	Project Name / Measure	Actuals Completed Through 2016	Targeted Completion Through 2017	Targeted Completion Through 2018	Balance Remaining	Life-Cycle Estimate
		High-Level Waste packaged for final disposition (Number of Containers)	4,099	4,151	4,268	+3,988	8,256
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)	25	25	25	+613	638
		Remediation Complete (Number of Release Sites)	405	408	408	+107	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

[Note] Due to the current stage of WIPP operations and limited number of shipments, detailed (site-specific) targets for the corporate performance metric, "Transuranic Waste Dispositioned," cannot be provided at this time. The Department's preliminary planning estimate is to dispose of approximately 1,000 cubic meters of transuranic waste at WIPP during Fiscal Year 2018. Performance metric targets at a site and PBS level will be reported in the future.

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

Site	LCC Total Range		
Argonne National Laboratory-East	179	-	
Ashtabula	138	-	
Brookhaven National Laboratory	477	-	478
Columbus	172	-	
D&D Fund Deposit	2,780	-	
Energy Technology Engineering Center	345	-	364
Fernald	3,220	-	
Hanford Site	57,670	-	62,644
Headquarters	2,077	-	
Idaho National Laboratory	18,864	-	22,278
Inhalation Toxicology Laboratory	13	-	
Kansas City Plant	30	-	
Laboratory for Energy-Related Health Research	40	-	
Lawrence Berkeley National Laboratory	58	-	
Lawrence Livermore National Laboratory	543	-	553
Los Alamos National Laboratory	5,802	-	6,695
Miamisburg	670	-	
Moab	1,186	-	1,197
Nevada National Security Site	2,675	-	
Oak Ridge	17,726	-	17,971
Office of River Protection	64,912	-	72,284
Other	1,322	-	
Paducah Gaseous Diffusion Plant	14,689	-	22,355
Pantex Plant	206	-	
Portsmouth Gaseous Diffusion Plant	17,548	-	18,567
Program Direction	11,767	-	
Rocky Flats Environmental Technology Site	8,831	-	
Sandia National Laboratory	285	-	286
Savannah River Site	96,798	-	115,988
Stanford Linear Accelerator Center	69	-	
Technology Development and Deployment	2,849	-	
Waste Isolation Pilot Plant	7,091	-	7,525
West Valley Demonstration Project	1,848	-	1,962
Total EM Program	342,880	-	388,243

Environmental Management Lifecycle Costs by Program Baseline Summary (PBS) ($K)						
PBS Code	**PBS Name**	**Prior Costs (97 – 2016)**	**FY2017 and Remaining Cost (Low Range)**	**FY2017 and Remaining Cost (High Range)**	**Lifecycle Cost (Low Range)**	**Lifecycle Cost (High Range)**
Argonne National Laboratory - East						
CH-ANLE-0030	Soil and Water Remediation	30,244	0	0	30,244	30,244
CH-ANLE-0040	Nuclear Facility D&D	69,806	0	0	69,806	69,806
CH-ANLE-0040.NEW	Argonne Recovery Act Project	78,918	0	0	78,918	78,918
	Argonne National Laboratory - East Total	**178,968**	**0**	**0**	**178,968**	**178,968**
Argonne National Laboratory - West						
CH-ANLW-0030	Soil and Water Remediation-Argonne National Laboratory-West	8,245	0	0	8,245	8,245
	Argonne National Laboratory - West Total	**8,245**	**0**	**0**	**8,245**	**8,245**
Ashtabula						
OH-AB-0030	Soil and Water Remediation-Ashtabula	137,991	0	0	137,991	137,991
	Ashtabula Total	**137,991**	**0**	**0**	**137,991**	**137,991**
Brookhaven National Laboratory						
BRNL-0030	Soil and Water Remediation-Brookhaven National Laboratory	261,706	0	0	261,706	261,706
BRNL-0040	Nuclear Facility D&D-Brookhaven Graphite Research Reactor	137,216	0	0	137,216	137,216
BRNL-0041	Nuclear Facility D&D-High Flux Beam Reactor	61,272	10,729	11,545	72,001	72,817

Environmental Management Lifecycle Costs by Program Baseline Summary (PBS) ($K)						
PBS Code	**PBS Name**	**Prior Costs (97 – 2016)**	**FY2017 and Remaining Cost (Low Range)**	**FY2017 and Remaining Cost (High Range)**	**Lifecycle Cost (Low Range)**	**Lifecycle Cost (High Range)**
BRNL-0041.NEW	A/B Waste Lines Removal and FHWMF Perimeter Area Soils Remediation	3,351	0	0	3,351	3,351
BRNL-0100	Brookhaven Community and Regulatory Support	2,907	0	0	2,907	2,907
	Brookhaven National Laboratory Total	**466,452**	**10,729**	**11,545**	**477,181**	**477,997**
California Site Support (Defense)						
VL-FOO-0013B-D	Solid Waste	15,819	2,400	2,400	18,219	18,219
VL-FOO-0100-D	LLNL Community and Regulatory Support	5,617	0	0	5,617	5,617
	California Site Support (Defense) Total	**21,436**	**2,400**	**2,400**	**23,836**	**23,836**
California Site Support (Non-Defense)						
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
VL-FOO-0900-N	Pre-2004 Completions (Non-Defense)	20,896	0	0	20,896	20,896
	California Site Support (Non-Defense) Total	**30,211**	**0**	**0**	**30,211**	**30,211**

Environmental Management Lifecycle Costs by Program Baseline Summary (PBS) ($K)						
PBS Code	**PBS Name**	**Prior Costs (97 – 2016)**	**FY2017 and Remaining Cost (Low Range)**	**FY2017 and Remaining Cost (High Range)**	**Lifecycle Cost (Low Range)**	**Lifecycle Cost (High Range)**
Carlsbad Field Office						
CB-0020	Safeguards and Security - WIPP	59,608	130,056	130,056	189,664	189,664
CB-0100	US/Mexico/Border/Material Partnership	11,387	0	0	11,387	11,387
CB-0900	Pre-2004 Completions	7,137	0	0	7,137	7,137
	Carlsbad Field Office Total	**78,132**	**130,056**	**130,056**	**208,188**	**208,188**
Chicago Operations Office						
CH-OPS-0900	Pre-2004 Completions	98,862	0	0	98,862	98,862
	Chicago Operations Office Total	**98,862**	**0**	**0**	**98,862**	**98,862**
Columbus						
OH-CL-0040	Columbus Nuclear Facility D&D	172,289	0	0	172,289	172,289
	Columbus Total	**172,289**	**0**	**0**	**172,289**	**172,289**
Consolidated Business Center						
CBC-0100-FN	CBC Post Closure Administration - Fernald	64,499	0	0	64,499	64,499
CBC-0100-MD	CBC Post Closure Administration - Mound	1,973	0	0	1,973	1,973
CBC-0100-RF	CBC Post Closure Administration - Rocky Flats	24,444	0	0	24,444	24,444
CBC-ND-0100	CBC - Non-Defense Post Closure	10,705	0	0	10,705	10,705

Environmental Management Lifecycle Costs by Program Baseline Summary (PBS) ($K)						
PBS Code	**PBS Name**	**Prior Costs (97 – 2016)**	**FY2017 and Remaining Cost (Low Range)**	**FY2017 and Remaining Cost (High Range)**	**Lifecycle Cost (Low Range)**	**Lifecycle Cost (High Range)**
CBC-UM-0100	CBC - Non-Defense Post Closure Administration - UMTRA Sites	383	0	0	383	383
	Consolidated Business Center Total	**102,004**	**0**	**0**	**102,004**	**102,004**
D&D Fund Deposit						
HQ-DD-0100	Contribution to the Uranium Enrichment D&D Fund	2,779,826	0	0	2,779,826	2,779,826
	D&D Fund Deposit Total	**2,779,826**	**0**	**0**	**2,779,826**	**2,779,826**
Energy Technology Engineering Center						
CBC-ETEC-0040	Nuclear Facility D&D-Energy Technology Engineering Center	316,342	26,786	45,431	343,128	361,773
VL-ETEC-0040	Nuclear Facility D&D-Energy Technology Engineering Center	1,771	0	0	1,771	1,771
	Energy Technology Engineering Center Total	**318,113**	**26,786**	**45,431**	**344,899**	**363,544**
Fernald						
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	1,338,087	0	0	1,338,087	1,338,087
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

Environmental Management Lifecycle Costs by Program Baseline Summary (PBS) ($K)						
PBS Code	**PBS Name**	**Prior Costs (97 – 2016)**	**FY2017 and Remaining Cost (Low Range)**	**FY2017 and Remaining Cost (High Range)**	**Lifecycle Cost (Low Range)**	**Lifecycle Cost (High Range)**
OH-FN-0101	Fernald Community and Regulatory Support	13,902	0	0	13,902	13,902
	Fernald Total	**3,220,246**	**0**	**0**	**3,220,246**	**3,220,246**
General Atomics						
VL-GA-0012	SNF Stabilization and Disposition-General Atomics	15,169	0	0	15,169	15,169
	General Atomics Total	**15,169**	**0**	**0**	**15,169**	**15,169**
Hanford Site						
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	2,639,784	106,970	257,412	2,746,754	2,897,196
RL-0012	SNF Stabilization and Disposition	2,962,652	64,690	64,690	3,027,342	3,027,342
RL-0013B	Solid Waste Stabilization and Disposition-200 Area-2012	796	0	0	796	796
RL-0013C	Solid Waste Stabilization & Disposition	3,133,123	8,443,607	8,723,166	11,576,730	11,856,289
RL-0020	Safeguards and Security	996,017	3,292,847	3,292,847	4,288,864	4,288,864
RL-0030	Soil and Water Remediation-Groundwater/Vadose Zone	2,269,767	6,602,393	7,106,303	8,872,160	9,376,070
RL-0040	Nuclear Facility D&D-Remainder of Hanford	2,006,657	16,465,438	20,436,122	18,472,095	22,442,779
RL-0041	Nuclear Facility D&D-River Corridor Closure Project	5,589,086	207,292	207,292	5,796,378	5,796,378

Environmental Management Lifecycle Costs by Program Baseline Summary (PBS) ($K)						
PBS Code	**PBS Name**	**Prior Costs (97 – 2016)**	**FY2017 and Remaining Cost (Low Range)**	**FY2017 and Remaining Cost (High Range)**	**Lifecycle Cost (Low Range)**	**Lifecycle Cost (High Range)**
RL-0042	Nuclear Facility D&D-Fast Flux Test Facility Project	323,927	1,038,868	1,108,347	1,362,795	1,432,274
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
	Hanford Site Total	**20,005,192**	**36,222,105**	**41,196,179**	**56,227,297**	**61,201,371**
Headquarters						
HQ-CDP-0100-N	Congressionally Directed Projects - Non Defense	-25	0	0	-25	-25
HQ-MS-0100	Policy, Management, and Technical Support	836,188	634,857	634,857	1,471,045	1,471,045
HQ-OPS-0900	Pre-2004 Completions	0	0	0	0	0
HQ-UR-0100	Uranium/Thorium Reimbursements	454,908	151,398	151,398	606,306	606,306
	Headquarters Total	**1,291,071**	**786,255**	**786,255**	**2,077,326**	**2,077,326**
Idaho National Laboratory						
HQ-SNF-0012X	SNF Stabilization and Disposition-Storage Operations Awaiting Geologic Repository	60,089	0	0	60,089	60,089
HQ-SNF-0012X-ID	SNF Stabilization and Disposition-Storage Operations Awaiting Geologic Repository	18,995	0	0	18,995	18,995
HQ-SNF-0012Y	SNF Stabilization and Disposition-New/Upgraded Facilities	66,844	0	0	66,844	66,844

Environmental Management Lifecycle Costs by Program Baseline Summary (PBS) ($K)						
PBS Code	**PBS Name**	**Prior Costs (97 – 2016)**	**FY2017 and Remaining Cost (Low Range)**	**FY2017 and Remaining Cost (High Range)**	**Lifecycle Cost (Low Range)**	**Lifecycle Cost (High Range)**
	Awaiting Geologic Repository					
ID-0011	NM Stabilization and Disposition	19,058	0	0	19,058	19,058
ID-0012B	SNF Stabilization and Disposition (Defense)	569,903	2,720,409	3,673,342	3,290,312	4,243,245
ID-0012B-N	SNF Stabilization and Disposition (Non-Defense)	66,327	201,949	223,818	268,276	290,145
ID-0012C	SNF Stabilization and Disposition-2035	0	0	0	0	0
ID-0012C-N	Fort Saint Vrain Facility	13,663	7,355	7,355	21,018	21,018
ID-0013B	Solid Waste Stabilization and Disposition	3,729,477	1,239,489	1,554,546	4,968,966	5,284,023
ID-0013B.NEW	INL Recovery Act Project--TRU Waste	115,315	0	0	115,315	115,315
ID-0014B	Radioactive Liquid Tank Waste Stabilization and Disposition-2012	2,515,920	3,404,490	5,402,148	5,920,410	7,918,068
ID-0014B-T	Radioactive Liquid Tank Waste Stabilization and Disposition-2012 (T)	71,140	0	0	71,140	71,140
ID-0014C	Radioactive Liquid Tank Waste Stabilization and Disposition-2035	0	0	0	0	0
ID-0030B	Soil and Water Remediation-2012	1,530,530	1,131,840	1,258,359	2,662,370	2,788,889
ID-0030C	Soil and Water Remediation-2035	0	0	0	0	0
ID-0040B	Nuclear Facility D&D-2012	698,414	0	0	698,414	698,414
ID-0040B.NEW	D&D NE Facilities (New)	90,956	0	0	90,956	90,956

Environmental Management Lifecycle Costs by Program Baseline Summary (PBS) ($K)						
PBS Code	**PBS Name**	**Prior Costs (97 – 2016)**	**FY2017 and Remaining Cost (Low Range)**	**FY2017 and Remaining Cost (High Range)**	**Lifecycle Cost (Low Range)**	**Lifecycle Cost (High Range)**
ID-0040C	Nuclear Facility D&D-2035	0	0	0	0	0
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	88,200	70,380	70,380	158,580	158,580
	Idaho National Laboratory Total	**9,777,594**	**8,775,912**	**12,189,948**	**18,553,506**	**21,967,542**
Idaho Operations Office						
ID-0900	Pre-2004 Completions	310,264	0	0	310,264	310,264
	Idaho Operations Office Total	**310,264**	**0**	**0**	**310,264**	**310,264**
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
	Inhalation Toxicology Laboratory Total	**12,550**	**0**	**0**	**12,550**	**12,550**
Kansas City Plant						
VL-KCP-0030	Soil and Water Remediation-Kansas City Plant	30,277	0	0	30,277	30,277
	Kansas City Plant Total	**30,277**	**0**	**0**	**30,277**	**30,277**

Environmental Management Lifecycle Costs by Program Baseline Summary (PBS) ($K)						
PBS Code	**PBS Name**	**Prior Costs (97 – 2016)**	**FY2017 and Remaining Cost (Low Range)**	**FY2017 and Remaining Cost (High Range)**	**Lifecycle Cost (Low Range)**	**Lifecycle Cost (High Range)**
Laboratory for Energy-Related Health Research						
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
	Laboratory for Energy-Related Health Research Total	**40,108**	**0**	**0**	**40,108**	**40,108**
Lawrence Berkeley National Laboratory						
CBC-LBNL-0030	Soil and Water Remediation-Lawrence Berkeley National Laboratory	34,666	0	0	34,666	34,666
CBC-LBNL-0040	Decontamination and Decommissioning - LBNL	21,753	0	0	21,753	21,753
VL-LBNL-0030	Soil and Water Remediation-Lawrence Berkeley National Laboratory	1,539	0	0	1,539	1,539
	Lawrence Berkeley National Laboratory Total	**57,958**	**0**	**0**	**57,958**	**57,958**
Lawrence Livermore National Laboratory						
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	136,158	0	0	136,158	136,158

Environmental Management Lifecycle Costs by Program Baseline Summary (PBS) ($K)						
PBS Code	**PBS Name**	**Prior Costs (97 – 2016)**	**FY2017 and Remaining Cost (Low Range)**	**FY2017 and Remaining Cost (High Range)**	**Lifecycle Cost (Low Range)**	**Lifecycle Cost (High Range)**
	Laboratory - Main Site					
VL-LLNL-0031	Soil and Water Remediation-Lawrence Livermore National Laboratory - Site 300	134,637	42,545	52,617	177,182	187,254
	Lawrence Livermore National Laboratory Total	**500,530**	**42,545**	**52,617**	**543,075**	**553,147**
Los Alamos National Laboratory						
VL-FAO-0101	Miscellaneous Programs and Agreements in Principle	103,100	88,829	88,829	191,929	191,929
VL-LANL-0013	Solid Waste Stabilization and Disposition-LANL Legacy	1,105,843	988,037	1,345,252	2,093,880	2,451,095
VL-LANL-0030	Soil and Water Remediation-LANL	1,742,313	1,699,680	2,235,499	3,441,993	3,977,812
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
	Los Alamos National Laboratory Total	**3,025,671**	**2,776,546**	**3,669,580**	**5,802,217**	**6,695,251**
Miamisburg						
OH-MB-0013	Solid Waste	264,692	0	0	264,692	264,692
OH-MB-0020	Safeguards and Security-Miamisburg	28,284	0	0	28,284	28,284
OH-MB-0030	Soil and Water	263,961	0	0	263,961	263,961
OH-MB-0031	Soil and Water Remediation - OU-1	0	0	0	0	0

Environmental Management Lifecycle Costs by Program Baseline Summary (PBS) ($K)						
PBS Code	**PBS Name**	**Prior Costs (97 – 2016)**	**FY2017 and Remaining Cost (Low Range)**	**FY2017 and Remaining Cost (High Range)**	**Lifecycle Cost (Low Range)**	**Lifecycle Cost (High Range)**
OH-MB-0031.NEW	Mound Operable Unit 1 Recovery Act Project	17,526	0	0	17,526	17,526
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
	Miamisburg Total	**670,345**	**0**	**0**	**670,345**	**670,345**
Moab						
CBC-MOAB-0031	Soil and Water Remediation-Moab	491,501	694,071	705,733	1,185,572	1,197,234
	Moab Total	**491,501**	**694,071**	**705,733**	**1,185,572**	**1,197,234**
Nevada National Security Site						
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	1,123,120	613,301	613,301	1,736,421	1,736,421
VL-NV-0080	Operate Waste Disposal Facility-Nevada	187,477	422,949	422,949	610,426	610,426
VL-NV-0100	Nevada Community and Regulatory Support	70,315	61,835	61,835	132,150	132,150
	Nevada National Security Site Total	**1,577,123**	**1,098,085**	**1,098,085**	**2,675,208**	**2,675,208**
New Mexico Site Support						

Environmental Management Lifecycle Costs by Program Baseline Summary (PBS) ($K)						
PBS Code	**PBS Name**	**Prior Costs (97 – 2016)**	**FY2017 and Remaining Cost (Low Range)**	**FY2017 and Remaining Cost (High Range)**	**Lifecycle Cost (Low Range)**	**Lifecycle Cost (High Range)**
VL-FAO-0100-D	Nuclear Material Stewardship (Defense)	108,725	0	0	108,725	108,725
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
	New Mexico Site Support Total	**356,509**	**0**	**0**	**356,509**	**356,509**
NNSA Service Center						
VL-SPRU-0040	Nuclear Facility D&D-Separations Process Research Unit	225,831	0	0	225,831	225,831
VL-SV-0100	South Valley Superfund	6,061	0	0	6,061	6,061
	NNSA Service Center Total	**231,892**	**0**	**0**	**231,892**	**231,892**
Oak Ridge						
HQ-SW-0013X	Solid Waste Stabilization and Disposition-Science Current Generation	92,469	0	0	92,469	92,469
HQ-SW-0013X-OR	Solid Waste Stabilization and Disposition-Science Current Generation	143,584	0	0	143,584	143,584
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	246,836	314,757	325,761	561,593	572,597
OR-0011Y	NM Stabilization and Disposition-ETTP Uranium Facilities	52,430	0	0	52,430	52,430

Environmental Management Lifecycle Costs by Program Baseline Summary (PBS) ($K)						
PBS Code	**PBS Name**	**Prior Costs (97 – 2016)**	**FY2017 and Remaining Cost (Low Range)**	**FY2017 and Remaining Cost (High Range)**	**Lifecycle Cost (Low Range)**	**Lifecycle Cost (High Range)**
	Management					
OR-0011Z	Downblend of U-233 in Building 3019	164,321	0	0	164,321	164,321
OR-0013A	Solid Waste Stabilization and Disposition-2006	464,926	0	0	464,926	464,926
OR-0013B	Solid Waste Stabilization and Disposition-2012	1,624,044	361,055	388,778	1,985,099	2,012,822
OR-0020	Safeguards and Security	301,065	386,956	390,603	688,021	691,668
OR-0030	Soil and Water Remediation-Melton Valley	350,609	0	0	350,609	350,609
OR-0031	Soil and Water Remediation-Offsites	60,343	0	0	60,343	60,343
OR-0040	Nuclear Facility D&D-East Tennessee Technology Park (D&D Fund)	3,484,650	845,912	909,203	4,330,562	4,393,853
OR-0041	Nuclear Facility D&D-Y-12	710,584	2,560,411	2,617,665	3,270,995	3,328,249
OR-0041.NEW	Y-12 Recovery Act Project	156,504	0	0	156,504	156,504
OR-0042	Nuclear Facility D&D-Oak Ridge National Laboratory	865,255	1,874,613	1,933,796	2,739,868	2,799,051
OR-0042.NEW	Oak Ridge Recovery Act Project	58,165	0	0	58,165	58,165
OR-0043	Nuclear Facility D&D-East Tennessee Technology Park (Defense)	87,148	66,687	89,364	153,835	176,512
OR-0100	Oak Ridge Reservation Community & Regulatory Support (Defense)	135,103	279,480	279,480	414,583	414,583
OR-0101	Oak Ridge Contract/Post-Closure Liabilities/Administration	105,169	0	0	105,169	105,169

Environmental Management Lifecycle Costs by Program Baseline Summary (PBS) ($K)						
PBS Code	**PBS Name**	**Prior Costs (97 – 2016)**	**FY2017 and Remaining Cost (Low Range)**	**FY2017 and Remaining Cost (High Range)**	**Lifecycle Cost (Low Range)**	**Lifecycle Cost (High Range)**
OR-0102	East Tennessee Technology Park Contract/Post-Closure Liabilities/Administration	271,927	750,360	750,360	1,022,287	1,022,287
OR-0103	Oak Ridge Reservation Community & Regulatory Support (D&D Fund)	44,375	0	0	44,375	44,375
OR-0104	Community and Regulatory (Non-Defense)	2,410	0	0	2,410	2,410
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	15,000	15,000	20,660	20,660
	Oak Ridge Total	**10,270,589**	**7,455,231**	**7,700,010**	**17,725,820**	**17,970,599**
Ohio Field Office						
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
	Ohio Field Office Total	**454,583**	**0**	**0**	**454,583**	**454,583**
Paducah Gaseous Diffusion Plant						
GDP D&D	Nuclear Facility D&D-Paducah	0	5,800,000	12,500,000	5,800,000	12,500,000
PA-0011	NM Stabilization and Disposition-Paducah Uranium Facilities Management	55,163	5,451	7,149	60,614	62,312

Environmental Management Lifecycle Costs by Program Baseline Summary (PBS) ($K)						
PBS Code	**PBS Name**	**Prior Costs (97 – 2016)**	**FY2017 and Remaining Cost (Low Range)**	**FY2017 and Remaining Cost (High Range)**	**Lifecycle Cost (Low Range)**	**Lifecycle Cost (High Range)**
PA-0011X	NM Stabilization and Disposition-Depleted Uranium Hexafluoride Conversion	742,110	2,663,034	2,663,034	3,405,144	3,405,144
PA-0013	Solid Waste Stabilization and Disposition	285,273	0	0	285,273	285,273
PA-0020	Safeguards and Security	111,569	190,093	219,790	301,662	331,359
PA-0040	Nuclear Facility D&D-Paducah	1,884,901	2,850,680	3,784,294	4,735,581	5,669,195
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)	41,460	1,528	1,871	42,988	43,331
PA-0103	Paducah Community and Regulatory Support (D&D Fund)	36,041	12,958	13,830	48,999	49,871
	Paducah Gaseous Diffusion Plant Total	**3,165,195**	**11,523,744**	**19,189,968**	**14,688,939**	**22,355,163**
Pantex Plant						
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
	Pantex Plant Total	**206,336**	**0**	**0**	**206,336**	**206,336**
Portsmouth Gaseous Diffusion Plant						

Environmental Management Lifecycle Costs by Program Baseline Summary (PBS) ($K)						
PBS Code	**PBS Name**	**Prior Costs (97 – 2016)**	**FY2017 and Remaining Cost (Low Range)**	**FY2017 and Remaining Cost (High Range)**	**Lifecycle Cost (Low Range)**	**Lifecycle Cost (High Range)**
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	716,799	1,302,660	1,302,660	2,019,459	2,019,459
PO-0013	Solid Waste Stabilization and Disposition	444,906	0	0	444,906	444,906
PO-0020	Safeguards and Security	205,677	257,510	257,510	463,187	463,187
PO-0040	Nuclear Facility D&D-Portsmouth	2,167,607	11,822,586	12,841,830	13,990,193	15,009,437
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)	12,068	25,253	25,253	37,321	37,321
PO-0104	Portsmouth Community and Regulatory Support (D&D Fund)	10,900	37,264	37,264	48,164	48,164
	Portsmouth Gaseous Diffusion Plant Total	**4,102,719**	**13,445,273**	**14,464,517**	**17,547,992**	**18,567,236**
Princeton Plasma Physics Laboratory						
CH-PPPL-0030	Soil and Water Remediation-Princeton Site A/B	309	0	0	309	309
	Princeton Plasma Physics Laboratory Total	**309**	**0**	**0**	**309**	**309**
Program Direction						

Environmental Management Lifecycle Costs by Program Baseline Summary (PBS) ($K)						
PBS Code	**PBS Name**	**Prior Costs (97 – 2016)**	**FY2017 and Remaining Cost (Low Range)**	**FY2017 and Remaining Cost (High Range)**	**Lifecycle Cost (Low Range)**	**Lifecycle Cost (High Range)**
HQ-PD-0100	Program Direction	6,078,257	5,688,766	5,688,766	11,767,023	11,767,023
	Program Direction Total	**6,078,257**	**5,688,766**	**5,688,766**	**11,767,023**	**11,767,023**
Richland Operations Office						
RL-0100	Richland Community and Regulatory Support	323,978	985,817	985,817	1,309,795	1,309,795
RL-0900	Pre-2004 Completions	132,586	0	0	132,586	132,586
	Richland Operations Office Total	**456,564**	**985,817**	**985,817**	**1,442,381**	**1,442,381**
River Protection						
HQ-HLW-0014X-RV	Radioactive Liquid Tank Waste Stabilization and Disposition-Storage Operations Awaiting Geologic Rep	0	106,679	106,679	106,679	106,679
ORP-0014	Radioactive Liquid Tank Waste Stabilization and Disposition	8,023,234	45,111,958	52,483,662	53,135,192	60,506,896
ORP-0014-T	Radioactive Liquid Tank Waste Stabilization and Disposition (T)	0	0	0	0	0
ORP-0060	Major Construction-Waste Treatment Plant	10,163,175	1,072,370	1,072,370	11,235,545	11,235,545
ORP-0061	Pre-Waste Treatment Plan, Transition Activity	433,314	0	0	433,314	433,314
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
	River Protection Total	**18,621,244**	**46,291,007**	**53,662,711**	**64,912,251**	**72,283,955**

Environmental Management Lifecycle Costs by Program Baseline Summary (PBS) ($K)						
PBS Code	**PBS Name**	**Prior Costs (97 – 2016)**	**FY2017 and Remaining Cost (Low Range)**	**FY2017 and Remaining Cost (High Range)**	**Lifecycle Cost (Low Range)**	**Lifecycle Cost (High Range)**
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
	Rocky Flats Environmental Technology Site Total	**6,429,795**	**0**	**0**	**6,429,795**	**6,429,795**
Rocky Flats Field Office						
CBC-RF-0102	Rocky Flats Future Use	3,061	0	0	3,061	3,061
RF-0100	RFETS	102,965	2,258,226	2,258,226	2,361,191	2,361,191
RF-0101	Rocky Flats Community and Regulatory Support	37,041	0	0	37,041	37,041
	Rocky Flats Field Office Total	**143,067**	**2,258,226**	**2,258,226**	**2,401,293**	**2,401,293**
Sandia National Laboratory						
VL-SN-0030	Soil and Water Remediation-Sandia	256,853	28,460	29,397	285,313	286,250
	Sandia National Laboratory Total	**256,853**	**28,460**	**29,397**	**285,313**	**286,250**

Environmental Management Lifecycle Costs by Program Baseline Summary (PBS) ($K)						
PBS Code	**PBS Name**	**Prior Costs (97 – 2016)**	**FY2017 and Remaining Cost (Low Range)**	**FY2017 and Remaining Cost (High Range)**	**Lifecycle Cost (Low Range)**	**Lifecycle Cost (High Range)**
Savannah River Operations Office						
SR-0100	Non-Closure Mission Support	246,132	1,146,635	1,609,732	1,392,767	1,855,864
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
	Savannah River Operations Office Total	**609,116**	**1,146,635**	**1,609,732**	**1,755,751**	**2,218,848**
Savannah River Site						
HQ-HLW-0014X-SR	Radioactive Liquid Tank Waste Stabilization and Disposition-Storage Operations Awaiting Geologic Rep	0	0	0	0	0
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	3,105,329	7,090,844	7,717,119	10,196,173	10,822,448
SR-0012	SNF Stabilization and Disposition	594,674	7,138,686	8,292,408	7,733,360	8,887,082
SR-0013	Solid Waste Stabilization and Disposition	1,996,287	10,853,133	14,078,721	12,849,420	16,075,008
SR-0014B	Radioactive Liquid Tank Waste Stabilization and Disposition-2012	0	0	0	0	0

Environmental Management Lifecycle Costs by Program Baseline Summary (PBS) ($K)						
PBS Code	**PBS Name**	**Prior Costs (97 – 2016)**	**FY2017 and Remaining Cost (Low Range)**	**FY2017 and Remaining Cost (High Range)**	**Lifecycle Cost (Low Range)**	**Lifecycle Cost (High Range)**
SR-0014C	Radioactive Liquid Tank Waste Stabilization and Disposition-2035	11,494,786	21,820,139	29,886,772	33,314,925	41,381,558
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	2,211,822	8,700,563	10,788,606	10,912,385	13,000,428
SR-0020-ARGUS	Argus Security Systems - Savannah River	1,234	0	0	1,234	1,234
SR-0030	Area Completion	2,173,517	13,354,606	16,920,985	15,528,123	19,094,502
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
	Savannah River Site Total	**26,084,177**	**68,957,971**	**87,684,611**	**95,042,148**	**113,768,788**
SEFOR, University of Arkansas						
CBC-SEFOR-0040N	Southwest Experimental Fast Oxide Reactor (SEFOR) to the University of Arkansas	23	0	0	23	23
	SEFOR, University of Arkansas Total	**23**	**0**	**0**	**23**	**23**
Stanford Linear Accelerator Center						
CBC-SLAC-0030	Soil and Water Remediation-Stanford Linear Accelerator Center	68,203	0	0	68,203	68,203
VL-SLAC-0030	Soil and Water Remediation-Stanford Linear Accelerator Center	1,043	0	0	1,043	1,043

Environmental Management Lifecycle Costs by Program Baseline Summary (PBS) ($K)						
PBS Code	**PBS Name**	**Prior Costs (97 – 2016)**	**FY2017 and Remaining Cost (Low Range)**	**FY2017 and Remaining Cost (High Range)**	**Lifecycle Cost (Low Range)**	**Lifecycle Cost (High Range)**
	Stanford Linear Accelerator Center Total	**69,246**	**0**	**0**	**69,246**	**69,246**
Technology Development and Deployment						
HQ-TD-0100	Mission Innovation and Technology	1,803,167	1,046,111	1,046,111	2,849,278	2,849,278
	Technology Development and Deployment Total	**1,803,167**	**1,046,111**	**1,046,111**	**2,849,278**	**2,849,278**
Tuba City						
CBC-TUBA-0031	Tuba City Mill Tailings	576	0	0	576	576
	Tuba City Total	**576**	**0**	**0**	**576**	**576**
Waste Isolation Pilot Plant						
CB-0080	Operate Waste Disposal Facility-WIPP	3,070,205	2,112,185	2,445,212	5,182,390	5,515,417
CB-0081	Central Characterization Project	419,131	169,407	215,910	588,538	635,041
CB-0090	Transportation-WIPP	487,234	363,188	416,968	850,422	904,202
CB-0101	Community and Regulatory Support	261,898	0	0	261,898	261,898
	Waste Isolation Pilot Plant Total	**4,238,468**	**2,644,780**	**3,078,090**	**6,883,248**	**7,316,558**
West Valley Demonstration Project						
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	342,853	106,137	135,689	448,990	478,542

Environmental Management Lifecycle Costs by Program Baseline Summary (PBS) ($K)						
PBS Code	**PBS Name**	**Prior Costs (97 – 2016)**	**FY2017 and Remaining Cost (Low Range)**	**FY2017 and Remaining Cost (High Range)**	**Lifecycle Cost (Low Range)**	**Lifecycle Cost (High Range)**
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	32,032	32,918	32,917	64,950	64,949
OH-WV-0040	Nuclear Facility D&D-West Valley	940,394	361,325	445,852	1,301,719	1,386,246
	West Valley Demonstration Project Total	**1,347,598**	**500,380**	**614,458**	**1,847,978**	**1,962,056**
	Grand Total	**130,344,411**	**212,537,891**	**257,900,243**	**342,882,302**	**388,244,654**

Environmental Management Project Schedule Range 50% to 80% Confidence Level (Single date indicates both 50% and 80% Confidence Levels are the same)	
Site	**Completion Date**
Energy Technology Engineering Center	TBD[a]
Separations Process Research Unit	2020
Brookhaven National Laboratory	2020
Lawrence Livermore National Laboratory	2022
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	2042 - 2050
Portsmouth Gaseous Diffusion Plant	2044 - 2052
Oak Ridge	2047
Paducah Gaseous Diffusion Plant	2047
Savannah River Site	2065
Hanford Site	2070-2075

[a] 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.

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 $26,668,000 in FY 2018.

Summary of Operational Incidents

Two isolated events took place at the Waste Isolation Pilot Plant in February 2014. On February 5, 2014, a vehicle used to transport salt caught fire in the underground. Workers were safely evacuated and the underground portion of the Waste Isolation Pilot Plant was shut down. The fire resulted in minor smoke inhalation to six workers, but it did not impact the public or the environment. On February 14, 2014, a second unrelated event occurred when a continuous air monitor alarmed during the night shift, when 11 employees were at the Waste Isolation Pilot Plant on the surface and no employees were in the underground. The continuous air monitor measured airborne radioactivity close to the operating location where waste was being emplaced. The next day an aboveground exhaust air monitor on the Waste Isolation Pilot Plant detected very low levels of airborne radioactive contamination. A small amount of radioactivity leaked by the exhaust-duct dampers, through the unfiltered exhaust ducts, and escaped above ground. (The dampers were sealed with high-density expanding foam insulation soon after the event.) No workers were underground when the release occurred. The above-ground workers present during the radioactive release event were tested for internal radioactive contamination after the event. Radiation levels from the Waste Isolation Pilot Plant release have been very low; involving less exposure than a person receives from a chest x-ray. Unknown at the time of the event, the release was determined to be the result of an exothermic reaction from a waste drum caused by the introduction of an organic desiccant that was incompatible with the waste, making the drum non-compliant with the Waste Isolation Pilot Plant waste acceptance criteria.

As a result of these events, the Department established two Accident Investigation Boards to fully investigate the events and to assess the Waste Isolation Pilot Plant safety systems, programs and processes at the federal and contractor level. The Department’s Accident Investigation Boards use a rigorous process to investigate events that had or potentially could have harmed employees, public or the environment. The report on the salt haul-truck fire was released March 7, 2014. The fire event Accident Investigation Board’s report details a significant number of Judgments of Needs that form the basis for corrective actions in the recovery plans, designed to prevent the recurrence of such an event. It also identified issues with maintenance, fire protection, training and qualifications, emergency response/preparedness, oversight, contractor assurance systems, safety culture, etc., and included areas where the Department should evaluate processes or procedures, and develop and implement corrective actions.

The initial “Phase I” Accident Investigation Board report related to the radioactive material release event was issued on April 24, 2014, and focused on the site’s reaction to the radioactive material release, including related exposure to above-ground workers and the response actions. The Phase I report covered many of the safety management programs and systems, including nuclear safety (e.g. hazards analysis and safety-significant classification), maintenance, radiological protection and controls, emergency management, integrated safety management, safety culture and oversight. The Phase II Accident Investigation Board report was released on April 16, 2015, and covered the specific cause of the radiological release and programmatic needs to prevent reoccurrence.

Status of Recovery

The return to Waste Isolation Pilot Plant operations required incident mitigation (completed May 2014), re-establishing mine habitability, temporary and permanent ventilation upgrades, facility and safety management program enhancements, and reassessment of the safety basis. The Waste Isolation Pilot Plant restarted operations upon resuming waste

emplacement in the underground on January 4, 2017. While DOE successfully completed the Waste Isolation Pilot Plant recovery effort with the resumption of waste emplacement, waste emplacements will be limited until two line-item capital projects are completed: the new safety significant confinement ventilation system (15-D-411) and exhaust shaft (15-D-412), which are necessary to allow the facility to perform simultaneous activities of mining, waste emplacement, and maintenance. Ongoing actions include: implementation of post-emplacement corrective actions; safety management program improvements; underground stabilization activities (e.g., geotechnical surveys, roof bolting); continued radiological contamination mitigation; 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 installation; progress on the Critical Decision-2/3, Approve Performance Baseline/Approve Start of Construction for the new safety significant confinement ventilation system and new exhaust shaft; periodic replacement of the underground ventilation system filters; and other activities to ensure protection of the environment.

Highlights of the FY 2018 Budget Request

The funding 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 2018 (within Project Baseline Summary Operate Waste Disposal Facility-WIPP, CB-0080)) include continued base operations, maintaining enhancements/improvements established in response to the Accident Investigation Boards' three reports and 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; continuation of mining; and continuation of disposal operations of waste using existing disposal panels. The enhancements/improvements established in response to the Accident Investigation Boards' corrective actions will continue to be definitized. Enhancements/improvements to be maintained include: Safety Management Programs, continued radiological contamination mitigation, emergency management capabilities, and contractor assurance effectiveness.

There are three components which comprise the PBS Central Characterization Project (CB-0081) scope: waste characterization, characterization certification, and transportation certification: (1) Waste characterization at DOE 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; (2) Waste characterization certification of legacy transuranic waste at Savannah River Site, Oak Ridge 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; and (3) Transportation certification is funded by PBS Central Characterization (CB-0081).

Transportation activities (within Project Baseline Summary 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 2018, the transportation capability supports up to four waste shipments per week to the Waste Isolation Pilot Plant.

The FY 2018 request includes $19,600,000 in FY 2018 line-item funding for design and construction of the new exhaust shaft and $46,000,000 for the design and construction of the new safety significant confinement ventilation system. These projects are needed to increase 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.

FY 2017 - 2018 Key Milestones/Outlook

- (January 2017) Resumed waste emplacement operations of wastes stored on-site
- (April 2017) Resumed waste shipments
- (September 2017) Complete supplemental ventilation upgrades
- (Second Quarter 2018) Achieve Critical Decision-2/3 to commence construction on the Safety Significant Confinement Ventilation System (15-D-411) and Exhaust Shaft (15-D-412)

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 Plat 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 allowed 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. Following the radioactive material release event, the Department implemented its Resource Conservation and Recovery Act Contingency Plan at the site.

The Department has received three Administrative Orders, one Administrative Compliance Order and one Settlement Agreement from the New Mexico Environmental Department:

1. February 28, 2014, which established a schedule of compliance for all aboveground facility permit inspections, monitoring, recordkeeping, and reporting requirements. This order has been resolved and closed.
2. May 12, 2014, which addressed permit-required actions in the underground (monitoring permit requirements) that could not be performed and modifications to requirements under the February 28, 2014, Administrative Order and required two plans: Underground Compliance Plan and an Underground Derived Waste Storage Plan. This Administrative Order also required monitoring for the volatile organic compound trichloroethylene.
3. May 20, 2014, which addressed the initial closure of Panel 6 and Panel 7, Room 7 containing nitrate-salt bearing waste containers in the Waste Isolation Pilot Plant underground. This order required the development and submittal of the *Waste Isolation Pilot Plant Nitrate Salt Bearing Waste Container Isolation Plan,* describing the Department's plans for implementing closure of Panel 6 and Panel 7, Room 7.
4. December 6, 2014, an Administrative Compliance Order was issued, which assessed civil penalties of $17,746,250 for alleged thirteen violations of the New Mexico Hazardous Waste Act, New Mexico Waste Management Regulations and the Waste Isolation Pilot Plant permit.
5. On January 22, 2016, the New Mexico Environment Depart and the Permittees (U.S. Department of Energy and Nuclear Waste Partnership) signed a Settlement Agreement and Stipulated Final Order, resolving the December 6, 2014, Administrative Compliance Order.

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 second Compliance Recertification from the Environmental Protection Agency in March 2006, and the third in November 2010. The fourth Compliance Recertification Application was submitted in March 2014 and is currently within the regulatory review process. The Environmental Protection Agency conducted an inspection at the Waste Isolation Pilot Plant soon after the February 2014 incidents. After an independent review of the data, the Environmental Protection Agency concluded the following:

- The radiation releases do not pose a public health concern.
- DOE followed the procedures previously approved by the Environmental Protection Agency.
- The Waste Isolation Pilot Plant remains in compliance with Environmental Protection Agency regulations.

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. Since the February 2014 operational incidents, an updated Memorandum of Understanding has been developed between the Department and Mine Safety and Health Administration. The Mine Safety and Health Administration has resumed 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 a 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. In FY 2016, the original five year option period was replaced with two option periods for the contract with a one year option period from October 1, 2017 to September 30, 2018 and a four year option period from October 1, 2018 to September 30, 2022.

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

The Carlsbad Field Office also manages several contracts which provide management analysis, site integration, transportation services, transportation communications support, and electric utilities. These contracts include indefinite delivery/indefinite quantity contracts with prime small businesses: Cast Specialty Transportation, Inc., and Visionary Solutions for transportation services. These are indefinite delivery/indefinite quantity contracts which have a base year period and four option periods for out-years. The Cast Specialty contract is for the period January 2012, to January 2017. The Visionary Solutions contract is for the period July 2012, to July 2017. The Carlsbad Field Office is prepared to consolidate transportation services and award a new contract to only one transportation company in 2017. 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)

	FY 2016 Enacted	FY 2017 Annualized CR[1]	FY 2018 Request	FY 2018 vs FY 2016
Defense Environmental Cleanup				
Waste Isolation Pilot Plant				
Recovery Activities				
CB-0082 / WIPP Recovery Activities	82,000	81,844	0	-82,000
Waste Isolation Pilot Plant				
CB-0080 / Operate Waste Disposal Facility-WIPP	179,086	178,746	272,217	+93,131
CB-0081 / Central Characterization Project	22,553	22,510	22,500	-53
CB-0090 / Transportation-WIPP	16,339	16,308	21,854	+5,515
Subtotal, Waste Isolation Pilot Plant	**217,978**	**217,564**	**316,571**	**+98,593**
Total, Waste Isolation Pilot Plant	**299,978**	**299,408**	**316,571**	**+16,593**
Safeguards and Security				
CB-0020 / Safeguards and Security	4,860	4,788	5,200	+340
Cyber Security				
CB-0025 / CB Cyber Security	0	0	1,270	+1,270
Total, Defense Environmental Cleanup	**304,838**	**304,196**	**323,041**	**+18,203**

[1] The FY 2017 Annualized CR amounts reflect the P.L. 114-254 continuing resolution level annualized to a full year. 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)

	FY 2018 vs FY 2016
Defense Environmental Cleanup	
Waste Isolation Pilot Plant	
Recovery Activities	
CB-0082 / WIPP Recovery Activities	
• Decrease reflects completion of the recovery effort by the resumption of waste emplacements in January 2017.	-82,000
CB-0080 / Operate Waste Disposal Facility-WIPP	
• Increase reflects: (1) activities to sustain enhancements established under the recovery effort and support emplacement operations; and (2) complete support activities including purchase of mining equipment, infrastructure improvement, and development of above-ground storage capability, which is currently planned to be a General Plant Project.	+93,131
CB-0081 / Central Characterization Project	
• Decrease reflects reduction in waste characterization support activities at shipping sites until increased shipping and emplacement rates are realized with recovered/added mine ventilation and current waste generator sites' backlog is reduced. Actual transuranic waste characterization activities such as Visual Examination, Real Time Radiography, Non Destructive Assay, Dose to Curie Conversion, and Flammable Gas Analysis will be funded by their respective DOE waste generator sites.	-53
CB-0090 / Transportation-WIPP	
• Increase reflects transportation activities required for operations at a rate of up to four shipments per week.	+5,515
Cyber Security	
CB-0025 / CB Cyber Security	
• Prior to FY 2018, cyber security activities were executed as part of the site overhead cost. The FY 2018 budget proposes to establish a formal cyber security program which will direct fund cyber activities. In FY 2016, it was estimated that the Cyber investment out of overhead was $1,155,000 for a net increase of $115,000.	+1,270
Safeguards and Security	
CB-0020 / Safeguards and Security	
• Increased funding maintains compliance for access control at the Waste Isolation Pilot Plant.	+340
Total, Carlsbad	**+18,203**

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; 2) environmental compliance – maintenance of compliance certification through monitoring and verifying the performance of the systems sensitive parameters; and 3) National Transuranic Waste Program – integration activities required to characterize and certify transuranic waste and coordinate all activities across the transuranic waste complex for shipments of waste to the Waste Isolation Pilot Plant.

Actions within this Project Baseline Summary include operations, safety, fire, compliance, environmental monitoring, surface and underground operations, emergency management, quality assurance, security, facility maintenance, safety and health programs, including safety management program and oversight program enhancements, Resource Conservation and Recovery Act permit maintenance, project planning and control, DOE Order 413.3B requirements, mining and panel closure activities, decontamination of contaminated areas, purchase of mining equipment, procurement, finance and accounting, information system, oversight and interagency programs, ground control, maintenance of equipment, continuation of progress on for above-ground storage capability, which is currently planned to be a General Plant Project in accordance with preliminary analyses, repair of New Mexico roads used for the transportation of DOE shipments of transuranic waste to the Waste Isolation Pilot Plant. The Waste Isolation Pilot Plant facility experiences a harsh environmental condition with salt dust, high heat and high humidity during the summer monsoonal season, which had led to advanced aging of the installed infrastructure and buildings which also includes General Plant Projects as well as direct maintenance and repair that are applicable to these areas.

A return to normal operational capability, including increased waste emplacement rate and concurrent activities in the facility, requires permanent ventilation upgrades, including two line-item construction projects: Safety Significant Confinement Ventilation System (15-D-411) and Exhaust Shaft (15-D-412).

FY 2018 funding includes the following activities: continued pre-2014 events base operations and maintaining enhancements/improvements established in response to the Accident Investigation Boards' various reports and required corrective actions, and progress on the line-item capital asset projects. 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 disposal operations of waste using existing disposal panels. The enhancements/improvements established in response to the Accident Investigation Boards' corrective actions will continue to be definitized. Enhancements/improvements to be maintained include: Safety Management Programs, continued radiological contamination mitigation, emergency management capabilities, and contractor assurance effectiveness.

The volumes provided here reflect certified transuranic waste volumes emplaced at the Waste Isolation Pilot Plant, including total unfilled disposal package volume. This differs from the "Transuranic Dispositioned" corporate performance metric, which reflects waste inventories at generator sites, prior to full characterization and processing. A significant portion of the "Transuranic Dispositioned" inventory may be disposed of, after characterization, as low-level waste which is not disposed at the ste Isolation Pilot Plant.

Transuranic Waste Emplaced in the WIPP Repository

Contact Handled (CH), Container Volume by Site (cubic meters)											
Fiscal Year	ANL-E	Hanford	INL	LANL	LLNL	NTS	ORNL	RFETS	SRS	WIPP	Cumulative Total
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	**90,626**
2017			45						20.37		**90,692**
Site Totals:	**121**	**5,061**	**42,789**	**9,163**	**146**	**405**	**415**	**15,062**	**17,526**	**4**	**90,692**

Remote Handled (RH), Container Volume by Site (cubic meters)									
Fiscal Year	ANL-E	BAPL	GEVNC	INL	LANL	ORNL	SNL	SRS	Cumulative Total
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**
Site Totals:	**67**	**3**	**20**	**177**	**14**	**46**	**5**	**25**	**357**

*Data is as of March 31, 2017. WIPP estimates 128 shipments for the remainder of FY 2017 into FY 2018 from Idaho National Laboratory, Oak Ridge National Laboratory, Savannah River Site, and Waste Control Specialists, Andrews, Texas.

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

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$179,086	**$272,217**	**+$93,131**
• 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. • 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. • Supported routine site maintenance items and activities. • 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. • 15-D-411: Safety Significant Confinement Vent – Started Preliminary Design for Safety Significant Confinement Ventilation System capital asset project.	• Perform activities for continued waste emplacement operations including continued corrective actions and safety management program improvements, mine stabilization, mine habitability activities in all underground areas, completion of decontamination of contaminated areas, High Efficiency Particulate Air Filter change out, purchase of mining equipment and infrastructure improvements. • Maintain safety and personnel health 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. • 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. • Support routine site maintenance items and activities. • Maintain enhancements/improvements established in response to the Accident Investigation Boards' various reports and required corrective actions.	• Increase reflects: (1) activities to sustain enhancements established under the recovery effort and support emplacement operations; and (2) complete support activities including purchase of mining equipment, infrastructure improvement, and development of above-ground storage capability, which is currently planned to be a General Plant Project.

    - Achieved a 60 percent Design by the end of FY 2016.
  - Earned Value Management System implementation for the Safety Significant Confinement Ventilation system and the Exhaust Shaft capital asset projects.
    - Achieved ANSI-748B Compliant System by July 2016.
    - Declaration of Readiness for Certification of Earned Value Management System by the end of FY 2016.
- 15-D-412: Exhaust Shaft
  - Started Preliminary Design Exhaust Shaft capital asset project.
    - Achieved a 60 percent Design by the end of FY 2016.
    - Earned Value Management System implementation for Exhaust Shaft and the Safety Significant Confinement Ventilation System capital asset projects.
    - Achieved ANSI-748B Compliant System by July 2016.
- Declaration of Readiness for Certification of Earned Value Management System by the end of FY 2016.
- Support of Above Ground Storage Capability activities with support of Permit Modification Request to the Hazardous Waste Storage Facility Permit for the ability to start final design and construction activities.
- Continue progress toward design and construction of Safety Significant Confinement Ventilation System (15-D-411) and Exhaust Shaft (15-D-412) projects with achievement of a DOE certified Earned Value Management System to ANSI-7488 by first quarter FY 2018 and Critical Decision-2/3 for start of construction by second quarter FY 2018.
- Continue progress on replacement/repair of beyond design life infrastructure.

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 operations 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.

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$22,553	**$22,500**	**-$53**
• Provided acceptable knowledge and procedural support, mobile waste loading support at select generator sites and waste certification support required for characterization activities. • Supported generator site interface for the Central Characterization Project activities, Central Characterization Project administration, and Performance Demonstration Program for 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.	• Provide acceptable knowledge and procedural support, and mobile waste loading support at actively shipping generator sites. • Support generator site interface for the Central Characterization Project activities, Central Characterization Project administration, and Performance 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 Los Alamos National Laboratory. Provide only transportation certification at Idaho National Laboratory (where Idaho National Laboratory funds waste certification).	• Decrease reflects reduction in waste characterization support activities at shipping sites until increased shipping and emplacement rates are realized with recovered/added mine ventilation and current waste generator sites' backlog is reduced. Actual transuranic waste characterization activities such as Visual Examination, Real Time Radiography, Non Destructive Assay, Dose to Curie Conversion, and Flammable Gas Analysis will be funded by their respective DOE waste generator sites.

WIPP Recovery Activities (PBS: CB-0082)

Overview

This PBS is within the Defense Environmental Cleanup appropriation.

In February 2014, two incidents led to the suspension of transuranic waste shipment, receipt, and emplacement activities. Site activities within this Project Baseline Summary are focused on continuation of Waste Isolation Pilot Plant operations.

The Waste Isolation Pilot Plant restarted operations with waste being emplaced in the underground January 4, 2017. There are no further recovery activities.

WIPP Recovery Activities (PBS: CB-0082)

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$82,000	**$0**	**-$82,000**
• Performed recovery activities including continued corrective actions and safety management program improvements, completion of mine stabilization, mine habitability activities in all underground areas, completion of decontamination of contaminated areas for restart of waste emplacement activities, continued purchase of mining equipment, and infrastructure improvements. • Completed of pre-start corrective actions from Accident Investigation Board reports and improvements to Safety Management Programs. • Completed of readiness activities for the Interim Ventilation system. • Completed of Documented Safety Analysis Revision 5 implementation. • Completed of preparations for readiness activities (training, procedures, etc.) for Commence Waste Emplacement milestone	• Emplacement resumed January 4, 2017. No further recovery activities.	• Decrease reflects completion of the recovery effort by the resumption of waste emplacements in January 2017.

at 80 percent confidence level.

- Continued with Radiological Release Accident Investigation Board Report Phase II corrective actions.

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 2018 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 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$16,339	**$21,854**	**+$5,515**
• Provided transportation capabilities through the carrier contracts. • Supported shipping corridor readiness, including training and associated stakeholder and regulatory grants, including Nuclear Regulatory Commission fees. • Maintained package certification and associated required maintenance for packages used: TRUPACT II's, Half PACTS, TRUPACT III's, and RH-72B's. • Preserved transportation readiness and capability for inter-site shipments.	• Provides transportation capabilities for up to four shipments per week through the carrier contract. • Supports shipping corridor readiness, including training and associated stakeholder and regulatory grants, including Nuclear Regulatory Commission fees. • Maintains package certification and associated required maintenance for packages used: TRUPACT II's, Half PACTS, TRUPACT III's, and RH-72B's. • Continue transportation readiness and capability for inter-site shipments.	• Increase reflects transportation activities required for operations at a rate of up to four shipments per week.

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.

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$4,860	**$5,200**	**+$340**
• Provided security coverage at the Waste Isolation Pilot Plant.	• Provide security coverage at the Waste Isolation Plant.	• Increased funding maintains compliance for access control at the Waste Isolation Pilot Plant.

CB Cyber Security (PBS: CB-0025)

Overview

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

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

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$0	**$1,270**	**+$1,270**
• Prior to FY 2018, cyber security activities were executed as part of the site overhead cost.	▪ Provide cyber security to ensure DOE information resources are identified and protected.	• Prior to FY 2018, cyber security activities were executed as part of the site overhead cost. The FY 2018 budget proposes to establish a formal cyber security program which will direct fund cyber activities. In FY 2016, it was estimated that the Cyber investment out of overhead was $1,155,000 for a net increase of $115,000.

Carlsbad
Construction Projects Summary ($K)

	Total	Prior Years	FY 2016 Enacted	FY 2018 Request	FY 2018 vs FY 2016 Enacted
15-D-411, Safety Significant Confinement Ventilation System (WIPP) (CB-0080)					
Total Estimate Cost (TEC)	TBD	12,000	23,218	46,000	+22,782
Other Project Costs (OPC)	TBD	5,000	0	3,500	+3,500
Total Project Cost (TPC) 15-D-411	**TBD**	**17,000**	**23,218**	**49,500**	**+26,282**
15-D-412, Exhaust Shaft (WIPP) (CB-0080)					
Total Estimate Cost (TEC)	TBD	4,000	7,500	19,600	+12,100
Other Project Costs (OPC)	TBD	2,000	0	1,900	+1,900
Total Project Cost (TPC) 15-D-412	**TBD**	**6,000**	**7,500**	**21,500**	**+14,000**

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

1. Significant Changes and Summary

Significant Changes

This Construction Project Data Sheet is an update of the FY 2017 Construction Project Data Sheet and does not include a new start for the budget year.

Summary

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.

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.

2. 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

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					

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

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

3. 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

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.

4. 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.

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 has 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 resumption of 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.*

5. Financial Schedule

(dollars in thousands)

	Appropriations	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
FY 2015[a]	12,000	12,000	0
FY 2016	10,468	10,468	5,753
FY 2017	2,532	2,532	15,950
FY 2018	0	0	3,297
Outyears	TBD	TBD	TBD
Total, Design	TBD	TBD	TBD
Construction			
FY 2016[b]	12,750	12,750	0
FY 2018	46,000	46,000	41,782
Outyears	TBD	TBD	TBD
Total, Construction	TBD	TBD	TBD
TEC			
FY 2015	12,000	12,000	0
FY 2016	23,218	23,218	5,753
FY 2017	2,532	2,532	15,950
FY 2018	46,000	46,000	45,079
Outyears	TBD	TBD	TBD
Total, TEC	TBD	TBD	TBD
Other Project Costs			
OPC (except D&D)			
FY 2015	N/A	N/A	1,940
FY 2016	N/A	N/A	2,302
FY 2017	N/A	N/A	2,630
FY 2018	N/A	N/A	2,674
Outyears	TBD	TBD	TBD
Total, OPC (except D&D)	TBD	TBD	TBD
OPC D&D			
Outyears	N/A	N/A	TBD
Total OPC D&D	N/A	N/A	TBD

Total OPC with D&D			
FY 2015	5,000	5,000	1,940
FY 2016	0	0	2,302
FY 2017	2,000	2,000	2,630
FY 2018	3,500	3,500	2,674
Outyears	TBD	TBD	TBD
Total OPC	TBD	TBD	TBD
Total Project Costs			
FY 2015	17,000	17,000	1,940
FY 2016	23,218	23,218	8,055
FY 2017	4,532	4,532	18,580
FY 2018	49,500	49,500	47,753
Outyears	TBD	TBD	TBD
Total, TPC	TBD	TBD	TBD

[a] The FY 2015 Omnibus Appropriations Bill appropriated $12,000,000 in construction funding for this project.
[b] Reflects long lead procurement activities upon CD-3A approval.

6. 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

Reviews	TBD	TBD	N/A
Contingency	TBD	TBD	N/A
Other OPC	TBD	TBD	N/A
Total, OPC except D&D	TBD	TBD	N/A
OPC, D&D			
D&D	TBD	TBD	N/A
Contingency	TBD	TBD	N/A
Total, OPC D&D	TBD	TBD	N/A
Total, OPC	TBD	TBD	N/A
Contingency	TBD	TBD	N/A
Total, TPC	TBD	TBD	N/A
Total, Contingency	TBD	TBD	N/A

7. Schedule of Appropriation Requests

(dollars in thousands)

Request		Prior Years	FY 2017	FY 2018	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

8. 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	Previous	Current	Previous

	Total Estimate	Total Estimate	Total Estimate	Total Estimate
Operations	TBD	TBD	TBD	TBD
Utilities	TBD	TBD	TBD	TBD
Maintenance & Repair	TBD	TBD	TBD	TBD
Total	TBD	TBD	TBD	TBD

9. 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.

10. 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, Exhaust Shaft
Waste Isolation Pilot Plant, Carlsbad, New Mexico
Project is for Design and Construction

1. Significant Changes and Summary

Significant Changes

This Construction Project Data Sheet is an update of the FY 2017 Construction Project Data Sheet and does not include a new start for the budget year.

Summary

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 $118,000,000 and Critical Decision-4 in the second quarter of fiscal year 2021.

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. This new shaft will be used as an intake shaft and the existing Air Intake Shaft will become the unfiltered exhaust shaft that will allow mining dust to exhaust from the WIPP underground in an unfiltered exhaust pathway.

2. 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	4QFY 2015	1QFY 2016	1QFY 2018	1QFY 2018	TBD	N/A	TBD
FY 2018	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	
FY 2017	1QFY 2018	
FY 2018	2QFY 2018	3QYFY2017

CD-3A - Long Lead Procurement

3. 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

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.

4. Project Scope and Justification

Scope

Design and construct a new exhaust shaft to replace the contaminated exhaust shaft currently in place.

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 clean-up 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*.

5. Financial Schedule

(dollars in thousands)

	Appropriations	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
FY 2015[a]	N/A	N/A	0
FY 2016	N/A	N/A	1,473
FY 2017	N/A	N/A	10,484
FY 2018	N/A	N/A	2,076

Outyears			TBD
Total, Design	**N/A**	**N/A**	**TBD**
Construction			
FY 2018	N/A	N/A	17,202
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	1,473
FY 2017	30,000	30,000	10,484
FY 2018	19,600	19,600	19,278
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 2016	0	0	1,980
FY 2017	1,500	1,500	954
FY 2018	1,900	1,900	1,543
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	3,453
FY 2017	31,500	31,500	11,438
FY 2018	21,500	21,500	20,821
Outyears	TBD	TBD	TBD
Total, TPC	**TBD**	**TBD**	**TBD**

[a] The FY 2015 Omnibus Appropriations Bill appropriated $4,000,000 in construction funding for this project.

6. 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**

7. Schedule of Appropriation Requests ($K)

(dollars in thousands)

Request		Prior Years	FY 2017	FY 2018	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

8. 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
Maintenance & Repair	TBD	TBD	TBD	TBD
Total	TBD	TBD	TBD	TBD

9. D&D Information

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

The new area being constructed in this project is replacing the contaminated exhaust shaft currently in place.

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

10. 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 Ill (Construction) services through a competitive bid process.

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, waste calcine 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 $24,132,000.

Highlights of the FY 2018 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 closing the tank farm, including stored sodium bearing waste. Commissioning challenges with the first-of-a-kind Integrated Waste Treatment Unit has taken several years longer than originally planned delaying the start of sodium bearing waste treatment.

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

This request also supports planning activities for the receipt of offsite spent (used) nuclear fuel from foreign and domestic research reactors after the treatment of sodium bearing waste and supports fuel transfers from wet to dry storage.

FY 2017 - 2018 Key Milestones/Outlook

- (November 2017) Complete Interim Tank Farm Cap
- (June 2018) Complete exhumation in Accelerated Retrieval Project XIII
- (September 2018) Complete treatment for legacy Remote-Handled Transuranic waste

The following are the Idaho Cleanup Projects' regulatory milestones:

- (September 2017) 30 percent of Waste Treated Through the Integrated Waste Treatment Unit

- (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) Maintain each year a 2,000 cubic meter Running Average of Legacy Transuranic Waste Over Three Years Shipped Out of Idaho (Certified for Waste Isolation Pilot Plant Disposal and Compliantly Stored in Lieu of Shipment)
- (December 2018) Remove above-ground legacy stored transuranic waste 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. 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 stored by 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 availability of the Waste Isolation Pilot Plant for legacy transuranic waste. The certified backlog of transuranic waste currently consists of over 20,000 containers; shipments resumed in April 2017.
- 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.
- The effort to reclassify sodium bearing waste from high level waste to TRU waste is important to continue in order to meet strategic management goals.

Idaho

Funding ($K)

	FY 2016 Enacted	FY 2017 Annualized CR[1]	FY 2018 Request	FY 2018 vs FY 2016
Defense Environmental Cleanup				
Idaho National Laboratory				
Idaho Cleanup and Waste Disposition				
ID-0012B-D / SNF Stabilization and Disposition-2012 (Defense)	15,250	15,221	19,975	+4,725
ID-0013 / Solid Waste Stabilization and Disposition	202,348	201,963	170,101	-32,247
ID-0014B / Radioactive Liquid Tank Waste Stabilization and Disposition-2012	126,413	126,173	111,352	-15,061
ID-0030B / Soil and Water Remediation-2012	48,989	48,896	44,727	-4,262
Subtotal, Idaho Cleanup and Waste Disposition	**393,000**	**392,253**	**346,155**	**-46,845**
Idaho Community and Regulatory Support				
ID-0100 / Idaho Community and Regulatory Support	3,000	2,994	4,071	+1,071
Total, Idaho National Laboratory	**396,000**	**395,247**	**350,226**	**-45,774**
Non-Defense Environmental Cleanup				
Small Sites				
Idaho National Laboratory				
ID-0012B-N / SNF Stabilization and Disposition-2012 (Non-Defense)	5,919	5,907	9,000	+3,081
Total, Idaho	**401,919**	**401,154**	**359,226**	**-42,693**

[1] The FY 2017 Annualized CR amounts reflect the P.L. 114-254 continuing resolution level annualized to a full year. 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)

	FY 2018 vs FY 2016
Defense Environmental Cleanup	
Idaho National Laboratory	
Idaho Cleanup and Waste Disposition	
ID-0012B-D / SNF Stabilization and Disposition-2012 (Defense)	
• Increase to meet 2023 milestone date for Advanced Test Reactor and Experimental Breeder Reactor II Fuels (i.e., transfer of fuel from wet storage to dry storage by this date).	+4,725
ID-0013 / Solid Waste Stabilization and Disposition	
• The funding decrease reflects progress in treatment and completion of retrieval in the transuranic waste storage area. Retrieval has been completed in the Transuranic Storage Area, major upgrades have been completed in the treatment facility allowing for enhanced operations.	-32,247
ID-0014B / Radioactive Liquid Tank Waste Stabilization and Disposition-2012	
• The decrease reflects delays in closing the four high-level waste tanks until the Integrated Waste Treatment Unit is operational and can treat waste contained in the tanks. As waste is treated and tanks are emptied, closure will begin.	-15,061
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.	-4,262
Idaho Community and Regulatory Support	
ID-0100 / Idaho Community and Regulatory Support	
• Increase consolidates regulatory activities into this project and supports the Federal Facility Agreement and Consent Order.	+1,071
Non-Defense Environmental Cleanup	
Small Sites	
ID-0012B-N / SNF Stabilization and Disposition-2012 (Non-Defense)	
• The increase reflects increased operational requirements of facilities at Fort St. Vrain.	+3,081
Total, Idaho	**-42,693**

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 nuclear fuel and managing the receipt of off-site spent 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 nuclear fuel from off-site locations, including Foreign and Domestic Research Reactor spent nuclear fuel, from FY 2005 through disposition.

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

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$15,250	**$19,975**	**+$4,725**
• Maintained all dry spent (used) nuclear fuel storage facilities. • Maintained the Chemical Processing Plant building-666 and 603 with accompanying spent (used) nuclear fuel. • Retrieved Experimental Breeder Reactor II fuel (20 shipments) from storage for transfer to the Materials and Fuels Complex. • 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. • Received and store up to 15 shipments of Advanced Test Reactor spent (used) nuclear fuel.	• Maintain all dry spent (used) nuclear fuel storage facilities. • Maintain the wet storage facility Chemical Processing Plant building-666 and dry storage at Chemical Processing Plant-603 with accompanying spent (used) nuclear fuel. • Retrieve Experimental Breeder Reactor II fuel (20 shipments) from storage for transfer to the Materials and Fuels Complex. • 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. • 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.	• Increase to meet 2023 milestone date for Advanced Test Reactor and Experimental Breeder Reactor II Fuels (i.e., transfer of fuel from wet storage to dry storage by this date).

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 backlog 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 2018, certification of transuranic waste for the Waste Isolation Pilot Plant, and disposal and shipment of mixed low-level waste for disposal will continue in support of transuranic waste activities. The inventory of certified transuranic waste will be safely and compliantly stored at the Idaho Site pending shipment to the Waste Isolation Pilot Plant.

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

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$202,348	**$170,101**	**-$32,247**
• Provided for site-wide environmental compliance and oversight. • Retrieved mixed low-level waste/low-level waste from the transuranic waste storage area. • Maintained and operated the Radioactive Waste Management Complex infrastructure including utility systems, project management, engineering, 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 retrieve, repackage, and characterize contact-handled transuranic waste from other DOE sites and ship offsite within a one year timeframe.	• 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 biota surveillance. • Meet requirements of the Idaho Settlement Agreement and Site Treatment Plan by 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. • Process approximately 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 a one year timeframe. • Treat and dispose mixed low-level and low-level waste offsite. • Provide for storage of processed and certified transuranic waste pending	• The funding decrease reflects progress in treatment and completion of retrieval in the transuranic waste storage area. Retrieval has been completed in the Transuranic Storage Area, major upgrades have been completed in the treatment facility allowing for enhanced operations.

- 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, and temporarily stored exhumed waste on site pending the resumption of operations at and shipments to the Waste Isolation Pilot Plant.

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 high-level waste calcine 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.

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$126,413	**$111,352**	**-$15,061**
• Prepared for initiation of tank cleaning activities supporting Resource Conservation and Recovery Act closure of the final four high-level waste tanks. • Developed and further the regulatory path forward for disposal of the sodium bearing waste treatment product. • Maintained tank farm and systems necessary for safe delivery of sodium bearing waste until treatment is complete. • Continued providing Idaho Nuclear Technology and Engineering Center utilities, maintenance and operations for the process waste system, support laboratories, and existing process facilities. • Continued safe storage and management of calcine. • Continued start-up and commissioning activities. • Constructed additional storage facilities and containers when the Integrated Waste Treatment Unit becomes operational.	• Continue commissioning activities at the Integrated Waste Treatment Unit. • Prepare for initiation of tank cleaning activities supporting Resource Conservation and Recovery Act closure of the final four high-level waste tanks. • Develop and further the regulatory path forward for disposal of the sodium bearing waste treatment product. • Maintain tank farm and systems necessary for 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. • Plan for decontamination and decommissioning related to Materials and Fuel Complex Facilities and capping of the tank farm.	• The decrease reflects delays in closing the four high-level waste tanks until the Integrated Waste Treatment Unit is operational and can treat waste contained in the tanks. As waste is treated and tanks are emptied, closure will begin.

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.

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$48,989	**$44,727**	**-$4,262**
• 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. • 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. • 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). • Implemented 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. • Implemented the Comprehensive Environmental Response, Compensation, and Liability Act Record of Decision for Waste Area Group 1	• 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. • Complete exhumation of targeted buried waste at the Accelerated Retrieval Project VIII facility and continue exhumations at Accelerated Retrieval Project IX retrieval area. • 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). • 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. • Implement the Comprehensive Environmental Response, Compensation, and Liability Act Record of Decision for Waste Area Group 1 (Operable Unit 1-07B) TAN Groundwater.	• 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.

(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 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 Idaho Comprehensive Environmental Response, Compensation, and Liability Act Disposal Facility operations.
- Provide for site-wide environmental compliance.

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

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

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$3,000	**$4,071**	**+$1,071**
• Continued groundwater monitoring and subsurface investigation with analysis of contaminants and transport mechanisms affecting the Snake River Aquifer, both on-site and off-site. • Payment of fees for the Title V Air Permit and technical assistance for air quality compliance. • Provided grant to the State of Idaho Department of Environmental Quality.	• Provided for site-wide environmental compliance and oversight. • Continue groundwater monitoring and subsurface investigation with analysis of contaminants and transport mechanisms affecting the Snake River Aquifer, both on-site and off-site. • Payment of fees for the Title V Air Permit and technical assistance for air quality compliance. • Provide grant to the State of Idaho Department of Environmental Quality.	• Increase consolidates regulatory activities into this project and supports the Federal Facility Agreement and Consent Order.

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 Installation 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, 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 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$5,919	**$9,000**	**+$3,081**
• 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. • Provided security for Fort St. Vrain Spent (Used) Nuclear Fuel. • Continued to operate and monitor Fort St. Vrain and Three Mile Island-2 Spent (Used) Nuclear Fuel. • Implemented Nuclear Regulatory Commission license renewal for Three Mile Island-2. • Completed facility license upgrades for Fort St. Vrain Spent (Used) Nuclear Fuel.	• 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. • Provide security for Fort St. Vrain Spent (used) nuclear fuel facility. • Continue to operate and monitor Fort St. Vrain and Three Mile Island-2 Spent (used) nuclear fuel. • Implement Nuclear Regulatory Commission license renewal for Three Mile Island-2. • Operate new upgraded systems to meet NRC license conditions.	• The increase reflects increased operational requirements of facilities at Fort St. Vrain.

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 5,000 acres adjacent to the Clinch River. Approximately 2,200 of these acres must be addressed under the Comprehensive, Environmental, Response, Compensation and Liability Act. The remainder of the site area is not contaminated and no further Comprehensive, Environmental, Response, Compensation and Liability Act investigations are necessary. The site is a former gaseous diffusion plant that was shut down in 1984. 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. Historically, the Oak Ridge National Laboratory 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 site is 811 acres that was once a uranium processing facility, and now refurbishes nuclear weapon components, 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 at the Y-12 National Security Complex. 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 at Y-12 National Security Complex.

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 $45,459,000 in FY 2018.

The Oak Ridge Operations Office plans to purchase a Heavy Duty Truck in FY 2018.

Highlights of the FY 2018 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 Comprehensive, Environmental, Response, Compensation and Liability Act 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 U-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
- Finalize design and initiate early site preparation activities for the Outfall 200 Mercury Treatment Facility at the Y-12 National Security Complex
- Continue planning and initiate design for the Environmental Management Disposal Facility, a new Comprehensive, Environmental, Response, Compensation and Liability Act disposal facility to support Y-12 and Oak Ridge National Laboratory clean-up
- Continue technology maturation and planning for the Transuranic Sludge Processing Project
- Continue mercury-related technology development, including characterization, remediation, monitoring, and modeling

The FY 2018 request includes funding for two line item construction projects, the Outfall 200 Mercury Treatment Facility ($17,100,000) and the Environmental Management 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 to prepare for large-scale demolition of the former mercury use buildings located at the Y-12 National Security Complex site.
- The purpose of the Environmental Management Disposal Facility project is to provide on-site waste disposal capacity for demolition debris and remediation waste from Y-12 and Oak Ridge National Laboratory clean-up projects once the existing disposal facility has reached capacity.

FY 2017 and FY 2018 Key Milestones/Outlook

- (January 2017) Complete Sludge Test Area Environmental Characterization
- (January 2017) Complete Preparation of Final Design for K-25 Historic Preservation Facilities
- (February 2017) Complete Demolition of K-731 Building at the East Tennessee Technology Park
- (May 2017) Complete Final Design for the New Outfall 200 Mercury Treatment Facility
- (September 2017) Complete K-27 Demolition Project
- (September 2017) Complete Direct Disposition of Consolidated Edison Uranium Solidification Project U-233 Materials
- (January 2018) Complete Y-12 Colex West Side Demolition
- (September 2018) Complete K-1037 Demolition Project

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 and legacy soil and groundwater remediation at the East Tennessee Technology Park (former uranium enrichment gaseous diffusion plant); as well as the surveillance and maintenance of excess facilities, design of the Outfall 200 Mercury Treatment Facility, 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 NW 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 July 2018 for waste processing, and also includes a two-year option period for surveillance and maintenance or facility decontamination and downgrading.

- 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 is currently performing direct disposition and planning for processing the remainder of the inventory. The authorized work under the contract is through June 2018; however, the remainder of work will be definitized, which will further extend the period of performance.

- An Architect-Engineering Services contract with CH2M Hill Constructers, Inc., 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. Currently authorized work includes the design of the test facility and additional support for the development of the final design which is expected to be complete by July, 2017. The remaining contract line item costs and schedule are undefinitized.

Strategic Management

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

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 2016 Enacted	FY 2017 Annualized CR[1]	FY 2018 Request	FY 2018 vs FY 2016
Defense Environmental Cleanup				
Oak Ridge				
OR Cleanup and Disposition				
OR-0013B / Solid Waste Stabilization and Disposition-2012	74,597	74,455	66,632	-7,965
OR Nuclear Facility D&D				
OR-0041 / Nuclear Facility D&D-Y-12	75,458	75,314	51,469	-23,989
OR-0042 / Nuclear Facility D&D-Oak Ridge National Laboratory	45,900	45,813	48,110	+2,210
Subtotal, OR Nuclear Facility D&D	**121,358**	**121,127**	**99,579**	**-21,779**
OR Reservation Community and Regulatory Support				
OR-0100 / Oak Ridge Reservation Community & Regulatory Support (Defense)	4,400	4,392	4,605	+205
OR Technology Development and Deployment				
OR-TD-0100 / Technology Development Activities - Oak Ridge	2,800	2,795	3,000	+200
U233 Disposition Program				
OR-0011D / U233 Disposition Program	35,895	35,827	33,784	-2,111
Total, Oak Ridge	**239,050**	**238,596**	**207,600**	**-31,450**
Safeguards and Security				
OR-0020 / Safeguards and Security	11,828	11,556	16,500	+4,672
Cyber Security				
OR-0025 / OR Cyber Security	0	0	1,105	+1,105

[1] The FY 2017 Annualized CR amounts reflect the P.L. 114-254 continuing resolution level annualized to a full year. These amounts are shown only at the congressional control level and above, below that level, a dash (-) is shown.

	FY 2016 Enacted	FY 2017 Annualized CR[1]	FY 2018 Request	FY 2018 vs FY 2016
Total, Defense Environmental Cleanup	**250,878**	**250,152**	**225,205**	**-25,673**
Non-Defense Environmental Cleanup				
Small Sites				
Oak Ridge				
OR-0104 / Community and Regulatory (Non-Defense)	6,000	5,989	0	-6,000
Uranium Enrichment Decontamination and Decommissioning Fund				
Oak Ridge				
Oak Ridge				
OR-0040 / Nuclear Facility D&D-East Tennessee Technology Park (D&D Fund)	194,673	194,673	145,726	-48,947
Pension and Community and Regulatory Support				
Oak Ridge				
OR-0102 / East Tennessee Technology Park Contract/Post-Closure Liabilities/Administration	16,856	16,856	19,274	+2,418
Total, Uranium Enrichment Decontamination and Decommissioning Fund	**211,529**	**211,529**	**165,000**	**-46,529**
Total, Oak Ridge	**468,407**	**467,670**	**390,205**	**-78,202**

Explanation of Major Changes ($K)

	FY 2018 vs FY 2016
Defense Environmental Cleanup	
Oak Ridge	
OR Cleanup and Disposition	
OR-0013B / Solid Waste Stabilization and Disposition-2012	
• Decrease maintains the current level of operations at the Transuranic Waste Processing Center, offset by increased support for the Central Characterization Project that certifies legacy contact-handled and remote-handled debris being prepared for disposal at the Waste Isolation Pilot Plant.	-7,965
OR Nuclear Facility D&D	
OR-0041 / Nuclear Facility D&D-Y-12	
• Decrease reflects completion of risk reduction activities to abate hazards and stabilize excess facilities at Y-12.	-23,989
OR-0042 / Nuclear Facility D&D-Oak Ridge National Laboratory	
• Increase reflects higher surveillance and maintenance costs to manage risks associated with Environmental Management-owned excess facilities at the Oak Ridge National Laboratory.	+2,210
OR Reservation Community and Regulatory Support	
OR-0100 / Oak Ridge Reservation Community & Regulatory Support (Defense)	
• No significant change.	+205
OR Technology Development and Deployment	
OR-TD-0100 / Technology Development Activities - Oak Ridge	
• No significant change.	+200
U233 Disposition Program	
OR-0011D / U233 Disposition Program	
• Decrease reflects completion of the Consolidated Edison Uranium Solidification Project Uranium-233 direct disposition campaign.	-2,111
Cyber Security	
OR-0025 / OR Cyber Security	
• Prior to FY 2018, Cyber Security activities were executed as part of the overall Safeguards and Security	+1,105

	FY 2018 vs FY 2016
program. The FY 2018 budget proposes to establish a formal Cyber Security program which will direct fund cyber activities within a unique PBS. In FY 2016, it was estimated that the direct and indirect cyber investment was $2,686,000 for a net decrease of $1,581,000.	
Safeguards and Security	
OR-0020 / Safeguards and Security	
• Increased funding maintains the security posture and implements Homeland Security Presidential Directive-12 identification credentials.	+4,672
Non-Defense Environmental Cleanup	
Small Sites	
OR-0104 / Community and Regulatory (Non-Defense)	
• Decrease reflects completion of work to preserve the historical significance of the K-25 Gaseous Diffusion Plant.	-6,000
Uranium Enrichment Decontamination and Decommissioning Fund	
OR-0040 / Nuclear Facility D&D-East Tennessee Technology Park (D&D Fund)	
• Decrease reflects cleanup of the East Tennessee Technology Park is nearing completion.	-48,947
Pension and Community and Regulatory Support	
OR-0102 / East Tennessee Technology Park Contract/Post-Closure Liabilities/Administration	
• Increase supports anticipated increases in post-retirement life and medical and pension costs.	+2,418
Total, Oak Ridge	**-78,202**

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 pending off-site shipments to the Waste Isolation Pilot Plant.

This PBS includes one line item construction project, 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 Oak Ridge National Laboratory. Work to mature the technology of the selected alternative is underway and prior year funding will be used to continue progress on this project.

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

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$74,597	**$66,632**	**-$7,965**
• Managed and stored mixed low-level waste in compliance with regulations. • Maintained regulatory safety basis documents and permits and operated waste storage facilities. • Continued to process, store and transfer remote-handled and contact-handled transuranic waste at the Transuranic Waste Processing Center. • Developed a processing strategy for approximately 2,000 cubic meters of remote-handled sludge inventory.	• Maintain regulatory and safety basis documents and permits and operate waste storage facilities at the Oak Ridge National Laboratory. • Continue transfers of transuranic waste from storage facilities to the Transuranic Waste Processing Facility. • Continue processing of legacy contact-handled and remote-handled debris at the Transuranic Waste Processing Facility to meet regulatory milestones. • 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.	• Decrease maintains the current level of operations at the Transuranic Waste Processing Center, offset by increased support for the Central Characterization Project that certifies legacy contact-handled and remote-handled debris being prepared for disposal at the Waste Isolation Pilot Plant.

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 Environmental Management 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 project; the Outfall 200 Mercury Treatment Facility and the Environmental Management 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 Environmental Management 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 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$75,458	**$51,469**	**-$23,989**
• Continued routine surveillance and maintenance for EM-owned excess contaminated facilities at Y-12. • Operated the Environmental Management Waste Management Facility and other Oak Ridge Reservation landfills. • Continued implementing Oak Ridge Reservation groundwater strategy. • Addressed the high priority contaminated excess facilities at Y-12 to reduce the risks and stabilize deteriorating conditions while they await demolition.	• Continue routine surveillance and maintenance for EM-owned excess contaminated facilities at Y-12. • Operate the Environmental Management Waste Management Facility and other Oak Ridge Reservation landfills. • Continue implementing Oak Ridge Reservation groundwater strategy. • Complete Y-12 Colex West Side Demolition.	• Decrease reflects completion of risk reduction activities to abate hazards and stabilize excess facilities at Y-12.

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 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$45,900	**$48,110**	**+$2,210**
• Monitored groundwater and surface water in accordance with the Melton Valley and Bethel Valley Records of Decision. • Maintained liquid, gaseous and process waste operations systems in support of the missions of the Offices of Environmental Management and Science. • Performed surveillance and maintenance required by the Melton Valley Comprehensive Environmental Response, 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. • 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. • Addressed the high priority contaminated excess facilities at Oak Ridge National Laboratory to reduce the risks and stabilize conditions while they await demolition.	• Monitor groundwater and surface water in accordance with the Melton Valley and Bethel Valley Records of Decision. • Maintain liquid, gaseous and process waste operations systems in support of the missions of the Offices of Environmental Management and Science. • Perform surveillance and maintenance required by the Melton Valley Comprehensive Environmental Response, 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.	• Increase reflects higher surveillance and maintenance costs to manage risks associated with Environmental Management-owned excess facilities 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.

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$4,400	**$4,605**	**+$205**
• 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; DOE facility surveillance walkthroughs; Federal Facility Agreement support activities; and emergency management exercises. • Continued activities by the Site Specific Advisory Board sponsored by DOE-EM to assist in public participation activities and out-reach assistance.	• 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. • Continue activities by the Site Specific Advisory Board sponsored by DOE-EM to assist in public participation activities and outreach assistance.	• No significant change.

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 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$2,800	**$3,000**	**+$200**
• Continued 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. • Continued planning for the Field Research Station.	• 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. • Continue operations and research at the Field Research Station.	• No significant change.

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.

The current strategy consists of the direct disposition of Consolidated Edison Uranium Solidification Project material, which represents about half of the containers in the inventory, and dissolution, downblending, and solidification of the remainder of the inventory in Building 2026. When the disposition of the Consolidated Edison Uranium Solidification Project waste is completed the focus will shift to the preparation activities for the future downblending, 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 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$35,895	**$33,784**	**-$2,111**
• Continued required surveillance and maintenance and other activities at Building 3019 to maintain a safe and secure condition. • Continued Uranium-233 disposition activities in support of Consolidated Edison Uranium Solidification Project material direct disposition. • Performed activities, such as modifying hot cells and readiness reviews, in support of preparing Building 2026 for dissolution and downblending of material from Building 3019 that cannot be directly dispositioned.	• Continue required surveillance and maintenance and other activities at Building 3019 to maintain a safe and secure condition. • Complete direct disposition of Consolidated Edison Uranium Solidification Project material from the Building 3019 inventory to offsite disposal. • Continue planning and implementation of U-233 processing campaign.	• Decrease reflects completion of the Consolidated Edison Uranium Solidification Project Uranium-233 direct disposition campaign.

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.

Safeguards and Security (PBS: OR-0020)

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$11,828	**$16,500**	**+$4,672**
• Provided safeguard and security services for the following major facilities: K-27, 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, Cyber Security and Nuclear Material Control and Accountability. • Applied site security services using a graded, risk-based management approach supporting site cleanup mission priorities and protecting government equipment, materials, information, and the site workforce.	• Provide safeguard and security services for the following major facilities: K-27, 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 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.	• Increased funding maintains the security posture and implements Homeland Security Presidential Directive-12 identification credentials.

OR Cyber Security (PBS: OR-0025)

Overview

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

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.

This scope will continue until DOE's mission at the Oak Ridge site is complete.

OR Cyber Security (PBS: OR-0025)

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$0	**$1,105**	**+$1,105**
• Prior to FY 2018, Cyber Security activities were budgeted with the Safeguards and Security Program. • Provided implementation and compliance with DOE requirements; site incident response capability; vulnerability management; continuous diagnostic and mitigation implementation and awareness and user training. • Implemented and sustained Multifactor Authentication.	• Provide cyber security to ensure DOE information resources are identified and protected.	• Prior to FY 2018, Cyber Security activities were executed as part of the overall Safeguards and Security program. The FY 2018 budget proposes to establish a formal Cyber Security program which will direct fund cyber activities within a unique PBS. In FY 2016, it was estimated that the direct and indirect cyber investment was $2,686,000 for a net decrease of $1,581,000.

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.

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$6,000	**$0**	**-$6,000**
• Completed design of the Equipment Building/Viewing Tower and History Center.	• No activities in FY 2018.	• Decrease reflects completion of work to preserve the historical significance of the K-25 Gaseous Diffusion Plant.

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); the 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 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$194,673	**$145,726**	**-$48,947**
• Conducted base operation activities at the East Tennessee Technology Park to provide infrastructure and support to the cleanup project. • Maintained East Tennessee Technology Park in a safe and secure condition. • Continued decontamination and decommissioning of the balance of East Tennessee Technology Park facilities and conducted remediation to meet regulatory milestones. • Completed K-27 Building deactivation activities and initiated demolition. • Completed K-31 Building demolition and waste disposal activities. • Performed pre-demolition/demolition activities on selected remaining facilities.	• Maintain East Tennessee Technology Park in a safe and secure condition. • Conduct base operations activities at the East Tennessee Technology Park to provide infrastructure and support to cleanup projects. • Perform pre-demolition and demolition activities on remaining facilities • Conduct characterization and slab and soil remediation of the main plant area, Zone 2.	• Decrease reflects cleanup of the East Tennessee Technology Park is nearing completion.

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 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$16,856	**$19,274**	**+$2,418**
• Continued funding of contractor liabilities associated with post-retirement life, medical benefits and pensions.	• Continue funding of contractor liabilities associated with post-retirement life, medical benefits and pensions.	• Increase supports anticipated increases in post-retirement life and medical and pension costs.

Oak Ridge

Capital Summary ($K)

	Total	Prior Years	FY 2016 Enacted	FY 2018 Request	FY 2018 vs FY 2016 Enacted
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)					
Total, Capital Operating Expenses	**12,628**	**0**	**7,996**	**4,632**	**-3,364**
Capital Equipment > $500K (including MIE)	0	0	0	0	+0
Total, Capital Equipment (including MIE)	**12,628**	**0**	**7,996**	**4,632**	**-3,364**
Plant Projects (GPP and IGPP) (Total Estimated Cost (TEC) <$10M)					
Oak Ridge					
SWSA 5	1,300	0	1,300	0	-1,300
Viewing Tower/Equipment Building	1,729	0	1,729	0	-1,729
History Center	1,495	0	1,495	0	-1,495
Interpretational Displays	1,376	0	1,376	0	-1,376
Classified Landfill Expansion	1,600	0	1,600	0	-1,600
Building 2026 U-233 Processing	5,128	0	496	4,632	+4,136
Total, Oak Ridge	**12,628**	**0**	**7,996**	**4,632**	**-3,364**
Total, Plant Projects (GPP and IGPP) (Total Estimated (TEC) <$10M	**12,628**	**0**	**7,996**	**4,632**	**-3,364**
Total, Capital Summary	**12,628**	**0**	**7,996**	**4,632**	**-3,364**

Oak Ridge
Construction Projects Summary ($K)

	Total	Prior Years	FY 2016 Enacted	FY 2018 Request	FY 2018 vs FY 2016 Enacted
14-D-403, Outfall 200 Mercury Treatment Facility, OR (OR-0041)					
Total Estimate Cost (TEC)	TBD	14,008	9,400	16,000	+6,600
Other Project Costs (OPC)	TBD	11,194	700	1,100	+400
Total Project Cost (TPC) 15-D-403	TBD	25,202	10,100	17,100	+7,000
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
Subtotal, On Site Disposal Facility (OR-0041)	**TBD**	**8,214**	**0**	**0**	**0**
17-D-401, On Site Disposal Facility (OR-0041)					
Total Estimate Cost (TEC)	TBD	0	0	1,000	+1,000
Other Project Costs (OPC)	TBD	0	7,050	4,000	-3,050
17-D-401, Environmental Management Disposal Facility (OR-0041)	**TBD**	**0**	**7,050**	**5,000**	**-2,050**
Total Project Cost (TPC) 17-D-401	**TBD**	**8,214**	**7,050**	**5,000**	**-2,050**

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

Significant Changes:
This FY 2018 Data Sheet is the first Construction Project Data Sheet for the On-Site Waste Disposal Facility and does include a new start for the budget year.

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

A Federal Project Director has been assigned to the project and has approved this data sheet. The Federal Project Director is currently certified at Level III.

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 approximately 2.5 million yd^3.

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

2. Critical Milestone History

Request	CD-0	Conceptual Design Complete	CD-1	Final Design Complete	CD-2/3	D&D Complete	CD-4
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

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-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

3. Project Cost History

	TEC, Design	TEC, Construction	TEC, Total	OPC, Except D&D	OPC, D&D	OPC, Total	TPC
Phase 1	21,396	TBD	TBD	TBD	TBD	TBD	TBD
Phase 2	0	TBD	TBD	TBD	TBD	TBD	TBE
Phase 3	0	TBD	TBD	TBD	TBD	TBD	TBD
TOTAL	21,396	TBD	TBD	TBD	TBD	TBD	TBD

4. 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 2.5 million yd^3 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.

5. Financial Schedule

		(dollars in thousands)		
		Appropriations	**Obligations**	**Costs**
Total Estimated Cost (TEC)				
Design				
FY 2017	Phase 1	N/A	N/A	0
FY 2018	Phase 1	N/A	N/A	1,000
Outyears		N/A	N/A	TBD
Total, Design		**N/A**	**N/A**	**TBD**
Construction				
Outyears		N/A	N/A	TBD
Total, Construction		**N/A**	**N/A**	**TBD**
TEC				
FY 2017	Phase 1	6,000	0	0
FY 2018	Phase 1	1,000	7,000	1,000
Outyears		N/A	N/A	TBD
Total TEC		**TBD**	**TBD**	**TBD**
Other Project Cost (OPC)				
OPC except D&D				
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	5,000	6,531
FY 2018	Phase 1	4,000	4,000	6,336
Outyears		N/A	N/A	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	5,000	6,531
FY 2018	Phase 1	4,000	4,000	6,336
Outyears		N/A	N/A	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*

		(dollars in thousands)		
		Appropriations	**Obligations**	**Costs**
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	5,000	6,531*
FY 2018	Phase 1	5,000	11,000	7,336*
Outyears		N/A	N/A	N/A
Total, TPC		**TBD**	**TBD**	**TBD**

*Activities were performed with OPC funds prior to development of line item construction approach. Beginning in FY 2018 funds will be appropriated for the TPC.

6. Details of Project Cost Estimate

	(dollars in thousands)		
	Current Total Estimate	**Previous Total Estimate**	**Original Validated Baseline**
Total Estimated Cost (TEC)			
Design			
Phase 1	21,396	N/A	N/A
Total Design	**21,396**	**N/A**	**N/A**
Construction			
Phase 1	TBD	N/A	N/A
Phase 2	TBD	N/A	N/A
Phase 3	TBD	N/A	N/A
Total Construction	**TBD**	**N/A**	**N/A**
Total Estimated Cost (TEC)	TBD		
Other Project Cost (OPC)			
Phase 1	TBD	N/A	N/A
Phase 2	TBD	N/A	N/A
Phase 3	TBD	N/A	N/A
Total, OPC	**TBD**	**TBD**	**N/A**
Total, TPC	**TBD**	**TBD**	**N/A**

7. Schedule of Appropriation Requests

Request		**Prior Years**	**FY 2018**	**Outyears**	**Total**
FY 2018 Request	TEC	6,000	1,000	TBD	TBD
	OPC	20,264	4,000	TBD	TBD
	TPC	26,264	5,000	TBD	TBD

8. 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**	

9. 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.

10. 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 CD 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 CD-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. Significant Changes and Summary

Significant Changes:
This Construction Project Data Sheet is an update of the FY 2017 Construction Project Data Sheet and does not include a new start for the budget year.

Summary:
The most recent DOE O 413.3B approved Critical Decision is Critical Decision-1 that was approved by the Project Management Executive on May 6, 2015 with a preliminary cost range of $120,000,000 - $244,000,000 and a Critical Decision-4 range of 2Q FY2021 to 3Q FY 2024.

A Federal Project Director has been assigned to the project and has approved this data sheet. The Federal Project Director is currently certified at Level III.

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 2018 will be used to complete early site preparation construction activities and to initiate balance of construction activities following Critical Decision-2/3 approval.

2. Critical Milestone History

Request	CD-0	Conceptual Design Complete	CD-1	CD-3A	CD-2	Final Design Complete	CD-3	D&D Complete	CD-4
FY 2015	2Q FY2014[a]	N/A	2Q FY 2015	N/A	4Q FY2017	1Q FY2017	TBD	N/A	TBD
FY 2016	3/17/2014[a]	1Q FY2015	2Q FY 2015	N/A	TBD	TBD	TBD	N/A	TBD
FY 2017	3/17/2014[a]	10/13/2014	5/6/2015	N/A	TBD	TBD	TBD	N/A	TBD
FY 2018	3/17/2014[a]	10/13/2014	5/6/2015	N/A	TBD	TBD	TBD	N/A	TBD

[a] 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.

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

3. Project Cost History

	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

Note: The numbers are only estimates and are consistent with the high end of the cost range.

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.

4. 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.

5. Financial Schedule

	(dollars in thousands)		
	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	5,800
FY 2018	N/A	N/A	5,116
Outyears	N/A	N/A	TBD
Total, Design	**N/A**	**N/A**	**TBD**
Construction			
FY 2017 [d]	N/A	N/A	1,000
FY 2018 [e]	N/A	N/A	15,325
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[d]	4,000	4,000	6,800
FY 2018[e]	16,000	16,000	20,441
Outyears	0	0	TBD
Total TEC	**TBD**	**TBD**	**TBD**
Other Project Cost (OPC)			
OPC except D&D			
FY 2012[a]	5,153	5,153	2,325
FY 2013[b]	253	253	2,937
FY 2014[c]	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	1,000
FY 2018	1,100	1,100	1,100

	(dollars in thousands)		
	Appropriations	**Obligations**	**Costs**
Outyears	N/A	N/A	TBD
Total, OPC except D&D	**TBD**	**TBD**	**TBD**
OPC			
FY 2012[a]	5,153	5,153	2,325
FY 2013[b]	253	253	2,937
FY 2014[c]	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	1,000
FY 2018	1,100	1,100	1,100
Outyears	N/A	N/A	TBD
Total, OPC	**23,500**	**23,500**	**23,500**
Total Project Cost (TPC)			
FY 2012[a]	5,153	5,153	2,325
FY 2013[b]	253	253	2,937
FY 2014[c]	8,983	4,375	2,965
FY 2015	10,813	15,421	3,767
FY 2016	10,100	10,100	7,053
FY 2017[d]	5,100	5,100	7,800
FY 2018[e]	17,100	17,100	21,541
Outyears	N/A	N/A	TBD
Total, TPC	**TBD**	**TBD**	**TBD**

[a] FY 2012 cost of $2,325 is funded by Recovery Act appropriations.
[b] FY 2013 cost of $2,684 is funded by Recovery Act appropriations.
[C] FY 2014 cost of $145 is funded by Recovery Act appropriations.
[d] Includes $1,000 for Early Site Preparation Activities.
[e] Includes $12,000 for Early Site Preparation Activities.

6. Details of Project Cost Estimate

	(dollars in thousands)		
	Current Total Estimate	**Previous Total Estimate**	**Original Validated Baseline**
Total Estimated Cost (TEC)			
Design			
Design	19,575	20,300	N/A
Title III	9,350	9,350	N/A
Contingency	1,250	4,850	N/A
Total Design	**30,175**	**34,500**	**N/A**
Construction			
Construction	TBD	TBD	N/A
Early Site Preparation			
Contingency	TBD	TBD	N/A
Total Construction	**TBD**	**TBD**	**N/A**

	(dollars in thousands)		
	Current Total Estimate	**Previous Total Estimate**	**Original Validated Baseline**
Total, TEC	TBD	TBD	N/A
Contingency, TEC	**TBD**	**TBD**	**N/A**
Other Project Cost (OPC)			
OPC except D&D			
Conceptual Design	7,300	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**

7. Schedule of Appropriation Requests

Request		Prior Years	FY 2016	FY 2017	FY 2018	Total
FY 2015 Request	TEC	14,000	TBD	TBD	TBD	TBD
	OPC	13,600	TBD	TBD	TBD	TBD
	TPC	27,000	TBD	TBD	TBD	TBD
FY 2016 Request	TEC	14,008	6,800	TBD	TBD	TBD
	OPC	13,600	500	TBD	TBD	TBD
	TPC	27,608	7,300	TBD	TBD	TBD
FY 2017 Request	TEC	14,008	9,400	4,000	TBD	TBD
	OPC	12,800	1,000	1,100	TBD	TBD
	TPC	26,808	10,400	5,100	TBD	TBD
FY 2018 Request	TEC	14,008	9,400	4,000	16,000	TBD
	OPC	11,194	700	1,100	1,100	TBD
	TPC	25,202	10,100	5,100	17,100	TBD

8. 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	6,000[a]	6,000	180,000[b]	180,000
Utilities	0	0	0	0
Maintenance	0	0	0	0
Total, Operations & Maintenance	6,000[a]	6,000	180,000[b]	180,000

[a] Annual Costs have been escalated to FY 2024 dollars to reflect estimated cost as of the start of operations.
[b] Life Cycle Costs have not been escalated over the estimated 30-year period of operations.

9. 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.

10. 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, and support for DOE Order 413.3B Critical Decision approval through Critical Decision-2/3. The contract is a cost plus award fee with performance based incentives.

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.

Paducah

Overview

The Paducah Site cleanup will support 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 $39,488,000 in FY 2018.

The Paducah Project Office plans to purchase the following vehicles in FY 2018. They are a fire (ladder) truck, a fire (pumper) truck, a bucket truck, a line truck, and a roll-off truck.

Highlights of the FY 2018 Budget Request

This FY 2018 budget proposal supports activities to continue environmental remediation and to further stabilize the gaseous diffusion plant. The stabilization activities include non-destructive assay characterization, facility modifications, surveillance and maintenance, and activities to remove hazardous materials.

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

FY 2017 and FY 2018 Key Milestones/Outlook

- (January 2017) Issue addendum to the Soils Operable Unit Remedial Investigation Report for Solid Waste Management Unit 1 to regulators (D2).
- (February 2017) Issue Solid Waste Management Unit 27 Removal Action Report to Regulators (D1).
- (April 2017) Issue Burial Grounds Solid Waste Management Unit 4 Feasibility Study to Regulators (D1).
- (September 2017) Complete Limited Area Footprint Reduction for the C-100, C-101, C-102, and C-304 Facilities.
- (December 2017) Initiate Non-Destructive Assay Characterization in Process Buildings.
- (March 2018) Complete Construction of Modular Facility Near Post 57.
- (August 2018) Complete Design and Initiate Construction of a Modular Firing Range.
- (September 2018) Complete Northeast Plume Optimization Project.
- (September 2018) Complete Deactivation of the C-400 Cleaning Building.
- (September 2018) Initiate 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 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 contract, a cost-plus award fee/firm fixed price for operations of the depleted uranium hexafluoride facility and cylinder surveillance and maintenance, covering the period from 2/1/2017 - 1/30/2022.
- Fluor Federal Services contract, a cost-plus award fee hybrid contract for deactivation of the Gaseous Diffusion Plant and legacy soil and groundwater remediation, covering the period from 7/22/2014 – 7/21/2017 (competitive procurement for a replacement contract ongoing).
- Swift and Staley contract, a small business, firm fixed price hybrid contract for site support services, covering the period 10/02/2015 – 10/01/2018. This contract has the potential for a two-year 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 is currently 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. Deactivation and facility optimization activities are ongoing with future decommissioning plans being developed. In addition, Paducah is operating a depleted uranium hexafluoride conversion facility.

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)

	FY 2016 Enacted	FY 2017 Annualized CR[1]	FY 2018 Request	FY 2018 vs FY 2016
Defense Environmental Cleanup				
Safeguards and Security				
PA-0020 / Safeguards and Security	13,216	13,164	14,049	+833
Cyber Security				
PA-0025 / PA Cyber Security	0	0	1,507	+1,507
Total, Defense Environmental Cleanup	**13,216**	**13,164**	**15,556**	**+2,340**
Non-Defense Environmental Cleanup				
Gaseous Diffusion Plants				
Paducah Gaseous Diffusion Plant				
PA-0011 / NM Stabilization and Disposition-Paducah Uranium Facilities Management	1,369	1,366	1,369	0
PA-0011X / NM Stabilization and Disposition-Depleted Uranium Hexafluoride Conversion	51,517	51,419	48,595	-2,922
Subtotal, Paducah Gaseous Diffusion Plant	**52,886**	**52,785**	**49,964**	**-2,922**
Uranium Enrichment Decontamination and Decommissioning Fund				
Paducah				
Paducah Gaseous Diffusion Plant				
PA-0040 / Nuclear Facility D&D-Paducah	199,925	199,925	202,958	+3,033
Pension and Community and Regulatory Support				
Paducah Gaseous Diffusion Plant				
PA-0103 / Paducah Community and Regulatory Support	1,725	1,725	1,725	0
PA-0102 / Paducah Contract/Post-Closure	650	650	0	-650

[1] The FY 2017 Annualized CR amounts reflect the P.L. 114-254 continuing resolution level annualized to a full year. These amounts are shown only at the congressional control level and above, below that level, a dash (-) is shown.

	FY 2016 Enacted	FY 2017 Annualized CR[1]	FY 2018 Request	FY 2018 vs FY 2016
Liabilities/Administration				
Subtotal, Paducah Gaseous Diffusion Plant	**2,375**	**2,375**	**1,725**	**-650**
Total, Uranium Enrichment Decontamination and Decommissioning Fund	**202,300**	**202,300**	**204,683**	**+2,383**
Total, Paducah	**268,402**	**268,249**	**270,203**	**+1,801**

Paducah Project Office

Explanation of Major Changes ($K)

	FY 2018 vs FY 2016
Defense Environmental Cleanup	
Cyber Security	
PA-0025 / PA Cyber Security	
• Prior to FY 2018, Cyber Security activities were executed as part of the overall Safeguards and Security program. The FY 2018 budget proposes to establish a formal Cyber Security program which will direct fund cyber activities within a unique PBS. In FY 2016, it was estimated that the cyber investment was $1,919,000 for a net increase of $412,000.	+1,507
Safeguards and Security	
PA-0020 / Safeguards and Security	
• Increased funding supports Limited Area footprint reduction.	+833
Non-Defense Environmental Cleanup	
Gaseous Diffusion Plants	
Paducah Gaseous Diffusion Plant	
PA-0011 / NM Stabilization and Disposition-Paducah Uranium Facilities Management	
• No change.	0
PA-0011X / NM Stabilization and Disposition-Depleted Uranium Hexafluoride Conversion	
• Decrease reflects a reduction in resources required to complete corrective actions in support of the restart of facility operations.	-2,922
Uranium Enrichment Decontamination and Decommissioning Fund	
Paducah	
PA-0040 / Nuclear Facility D&D-Paducah	
• Increase to support the completion of Northeast Plume optimization project, completion of C-400 Cleaning Building deactivation, and the initiation of C-400 Cleaning Building demolition.	+3,033

	FY 2018 vs FY 2016
Pension and Community and Regulatory Support	
PA-0102 / Paducah Contract/Post-Closure Liabilities/Administration	
• Decrease reflects reduction in severance payments since the transfer of the Gaseous Diffusion Plant facilities to DOE and a reduction in litigation needs.	-650
PA-0103 / Paducah Community and Regulatory Support	
• No change.	0
Total, Paducah	**+1,801**

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.

DOE is responsible for providing security operations necessary to protect the respective site's national security interests, personnel, and government property. Safeguard and security activities include protective forces, protection of restricted data associated with gaseous diffusion technology and legacy nuclear weapons components, special nuclear material, official use only information, unclassified controlled nuclear information, export controlled information, personnel, and high risk government property. This risk-based site security is in keeping with the evolving EM mission at Paducah.

Safeguards and Security (PBS: PA-0020)

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$13,216	**$14,049**	**+$833**
• Provided security services for personnel, equipment, information, classified matter, and special nuclear materials relating to DOE missions, to include decommissioning, decontamination, and demolition activities.	• Provide protective force, physical security, information security, and personnel security at the Paducah site, with priority on the physical protection of nuclear materials, classified information, and technology. • Complete construction of on-site firing range. • Continue Limited Area footprint reduction.	• Increased funding supports Limited Area footprint reduction.

PA Cyber Security (PBS: PA-0025)

Overview

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

The cyber security program at Paducah Gaseous Diffusion Plant utilizes a qualitative risk management approach to reduce risk to an acceptable level, in support of mission objectives. Programmatic and technical security controls are selected, implemented, and maintained that protect the confidentiality, integrity, and availability of DOE information systems and information assets. As a result, a diverse set of cyber security capabilities are operational at the site, including incident response, vulnerability management, information system monitoring, and a process for the continuous monitoring of security controls, determining their effectiveness.

The cyber security program involves operations- and project-related work related to the protection of high value assets and legacy systems and applications supporting site operations.

PA Cyber Security (PBS: PA-0025)

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$0	**$1,507**	**+$1,507**
• Prior to FY 2018, Cyber Security activities were executed as part of the site overhead costs.	• Implement and comply with most current DOE cyber security requirements. • Maintain site cyber security incident response capabilities. • Upgrade and retire legacy information technology systems. • Identify and secure high value assets. • Remediate critical and high vulnerabilities that affect DOE information systems. • Implement continuous diagnostic and mitigation. • Provide employee cyber security awareness and privilege user training. • Implement and sustain Level 4 multifactor.	Prior to FY 2018, Cyber Security activities were executed as part of the overall Safeguards and Security program. The FY 2018 budget proposes to establish a formal Cyber Security program which will direct fund cyber activities within a unique PBS. In FY 2016, it was estimated that the cyber investment was $1,919,000 for a net increase of $412,000.

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^2 and contain approximately 16,000 collection systems.

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

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$1,369	**$1,369**	**$0**
• Continued to maintain cleanup, sampling, and decontamination of polychlorinated spills and leaks, and monitoring activities related to polychlorinated biphenyls. • Inspected and maintained polychlorinated biphenyl collection and containment systems. • Conducted cleanup, sampling and disposal of polychlorinated biphenyl spills.	• Continue to monitor activities related to polychlorinated biphenyls and to maintain cleanup, sampling, and decontamination of polychlorinated spills and leaks. • Maintain polychlorinated biphenyl collection and containment trough systems in the cascade buildings.	• No change.

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 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$51,517	**$48,595**	**-$2,922**
• Maintained safe DUF6 conversion operations with a gradual ramp up to steady-state operations. • Packaged converted depleted uranium oxide for beneficial reuse or disposal. • Conducted cylinder surveillance and maintenance to keep existing material in a safe, stable condition.	• Continue steady operations of the DUF6 conversion facility with emphasis on plant availability and achieving optimal throughput. • Package converted depleted uranium oxide and store on site. • Conduct cylinder surveillance and maintenance to keep material in a safe, stable condition.	• Decrease reflects a reduction in resources required to complete corrective actions in support of the restart of facility operations.

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 that were returned in FY 2015. 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 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$199,925	**$202,958**	**+$3,033**
• Continued deactivation of the C-410 Feed Plant Complex. • Continued deactivation of C-340 A/B/C Uranium Metal Production Complex. • Submitted Northeast Plume Optimization Pump and Treat System D1 Remedial Action Work Plan. • Initiated operations of C-400 Phase Al trichloroethylene source treatment system. • Continued pump-and-treat operations and environmental surveillance, monitoring, and reporting. • Conducted management and infrastructure surveillance and maintenance.	• Continue base operations such as utility operations, pump-and-treat operations, waste and landfill operations, infrastructure support, environmental monitoring and reporting, surveillance and maintenance of facilities. • Continue non-destructive assay characterization and stabilization & deactivation in process buildings. • Continue stabilization and deactivation activities (remove tanks, pipes, equipment, and other hazardous materials) in C-400 Cleaning Building. • Conduct remedial investigation and sampling around and under slab at C-400 Cleaning Building. • Complete deactivation of the C-400 Cleaning Building. • Initiate demolition of the C-400 Cleaning Building • Complete Northeast Plume Optimization project. • Continue removal of R-114 refrigerant (Freon) from site process buildings. • Initiate disposition (conversion) of R-114 refrigerant.	• Increase to support the completion of Northeast Plume optimization project, completion of C-400 Cleaning Building deactivation, and the initiation of C-400 Cleaning Building demolition.

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 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$650	**$0**	**-$650**
• Provided support to DOE and Department of Justice for all investigations and litigation. • 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.	• Planned prior year carryover allows for the continuation of support to the DOE and Department of Justice for all investigations and litigations. • 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.	• Decrease reflects reduction in severance payments since the transfer of the Gaseous Diffusion Plant facilities to DOE and a reduction in litigation needs.

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; 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; and the Kentucky Research Consortium for Energy and Environment grant to develop technical information to support decision-making in the Paducah environmental cleanup. 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 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$1,725	**$1,725**	**$0**
• Supported the Citizens Advisory Board to assist in the public participation activities required by the Comprehensive Environmental Response, Compensation, and Liability Act. • Continued to ensure requirements are met regarding the grants.	• Continue support to the Citizens Advisory Board to assist in the public participation activities required by the Comprehensive Environmental Response, Compensation, and Liability Act. • Continue to ensure requirements are met regarding the Federal Facility Agreement and Agreement-In-Principle grants.	• No change.

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 operate its Depleted Uranium Hexafluoride Conversion Facility.

Direct maintenance and repair at Portsmouth is estimated to be $41,407,000 in FY 2018.

The Portsmouth Project Office plans to purchase the following vehicles in FY 2018. They are a fire truck (emergency response), a fire (pumper) truck, two roll-off trucks, and a roll-back truck.

Highlights of the FY 2018 Budget Request

This FY 2018 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 2018 proposal includes funding the On-Site Waste Disposal Facility, Line Item Capital Project at $38,882,000 ($4,643,000 for design, $31,341,000 for construction and $2,898,000 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 2017 and FY 2018 Key Milestones/Outlook

- (October 2016) Initiate Deactivation in the Second Process Building (X-333) .
- (December 2016) Complete On-Site Waste Disposal Facility Sediment Pond 2.
- (December 2016) Complete On-Site Waste Disposal Facility Raw Water Line Phase 1.
- (March 2017) Complete On-Site Waste Disposal Facility trailer installation.
- (September 2017) Achieve deactivation requirements for ten units in the first Process Building (X-326).
- (September 2017) Complete On-Site Waste Disposal Facility Booster and Water Filling Station.
- (November 2017) Complete On-Site Waste Disposal Facility Sediment Pond 3.
- (June 2018) Declare first Process Building (X-326) "Cold and Dark."
- (September 2018) Complete Dispostion of 90% of the Remaining Uranium Management Center (established in 1990's as a Centralized Repository for DOE Low Enriched Uranium Waste) That Has Been Authorized for Disposal.
- (September 2018) Achieve Deactivation Requirements for One Unit 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 June 2015, and the Process Building Record of Decision was issued July 2015. Compliance with DOE Order 435.1 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 formalize 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 contract, a cost-plus award fee/firm fixed price for operations of the depleted uranium hexafluoride facility and cylinder surveillance and maintenance, covering the period from 2/1/2017 - 1/30/2022.
- Fluor - B&W Portsmouth LLC contract, a cost-plus award fee 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.
- Portsmouth Mission Alliance, LLC contract, a fixed price hybrid including both fixed price and cost reimbursable elements 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.

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; continue disposition of excess uranium materials; 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 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)

	FY 2016 Enacted	FY 2017 Annualized CR[1]	FY 2018 Request	FY 2018 vs FY 2016
Defense Environmental Cleanup				
Safeguards and Security				
PO-0020 / Safeguards and Security	10,492	10,200	12,713	+2,221
Cyber Security				
PO-0025 / PO Cyber Security	0	0	1,546	+1,546
Total, Defense Environmental Cleanup	**10,492**	**10,200**	**14,259**	**+3,767**
Non-Defense Environmental Cleanup				
Gaseous Diffusion Plants				
Portsmouth Gaseous Diffusion Plant				
PO-0011X / NM Stabilization and Disposition-Depleted Uranium Hexafluoride Conversion	51,517	51,419	50,611	-906
Uranium Enrichment Decontamination and Decommissioning Fund				
Portsmouth				
Portsmouth Gaseous Diffusion Plant				
PO-0040 / Nuclear Facility D&D-Portsmouth	225,166	318,431	351,271	+126,105
Pension and Community and Regulatory Support				
Portsmouth Gaseous Diffusion Plant				
PO-0104 / Portsmouth Community and Regulatory Support	1,020	1,020	1,020	0
PO-0103 / Portsmouth Contract/Post-Closure Liabilities/Administration	775	775	775	0
Subtotal, Portsmouth Gaseous Diffusion Plant	**1,795**	**1,795**	**1,795**	**0**

[1] The FY 2017 Annualized CR amounts reflect the P.L. 114-254 continuing resolution level annualized to a full year. These amounts are shown only at the congressional control level and above, below that level, a dash (-) is shown.

	FY 2016 Enacted	FY 2017 Annualized CR[1]	FY 2018 Request	FY 2018 vs FY 2016
Total, Uranium Enrichment Decontamination and Decommissioning Fund	**226,961**	**320,226**	**353,066**	**+126,105**
Total, Portsmouth	**288,970**	**381,845**	**417,936**	**+128,966**

Portsmouth Project Office
Explanation of Major Changes ($K)

	FY 2018 vs FY 2016
Defense Environmental Cleanup	
Cyber Security	
PO-0025 / PO Cyber Security	
• Prior to FY 2018, Cyber Security activities were executed as part of the overall Safeguards and Security program. The FY 2018 budget proposes to establish a formal Cyber Security program which will direct fund cyber activities within a unique PBS.	+1,546
Safeguards and Security	
PO-0020 / Safeguards and Security	
• Increase maintains the security posture at the site and will support the initiation of analysis and planning for DOE Order 470.3C Design Basis Threat.	+2,221
Non-Defense Environmental Cleanup	
Gaseous Diffusion Plants	
Portsmouth Gaseous Diffusion Plant	
PO-0011X / NM Stabilization and Disposition-Depleted Uranium Hexafluoride Conversion	
• No significant change.	-906
Uranium Enrichment Decontamination and Decommissioning Fund	
Pension and Community and Regulatory Support	
PO-0103 / Portsmouth Contract/Post-Closure Liabilities/Administration	
• No change.	0
PO-0104 / Portsmouth Community and Regulatory Support	
• No change.	0
Portsmouth	
PO-0040 / Nuclear Facility D&D-Portsmouth	
• Increase supports decontamination and decommissioning. Increase also supports design and construction of the On-Site Waste Disposal Facility.	+126,105
Total, Portsmouth	**+128,966**

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 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$10,492	**$12,713**	**+$2,221**
• Implemented a cost savings measure to safeguards and security using a graded approach for the Portsmouth Gaseous Diffusion Plant. • Provided Protective Forces, Nuclear Material Control and Accountability and communications security services.	• 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, and program management. • Support initiation of analysis and planning for DOE Order 470.3C Design Basis Threat. • Support initiation of conceptual planning for "islands of security" to reduce security footprint at the site.	• Increase maintains the security posture at the site and will support the initiation of analysis and planning for DOE Order 470.3C Design Basis Threat.

PO Cyber Security (PBS: PO-0025)

Overview

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

The cyber security program at Portsmouth Gaseous Diffusion Plant utilizes a qualitative risk management approach to reduce risk to an acceptable level, in support of mission objectives. Programmatic and technical security controls are selected, implemented, and maintained that protect the confidentiality, integrity, and availability of DOE information systems and information assets. As a result, a diverse set of cyber security capabilities are operational at the site, including incident response, vulnerability management, information system monitoring, and a process for the continuous monitoring of security controls, determining their effectiveness.

The cyber security program involves operations- and project-related work related to the protection of high value assets and legacy systems and applications supporting site operations.

PO Cyber Security (PBS: PO-0025)

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$0	**$1,546**	**+$1,546**
• FY 2016 scope was included in PO-0020.	• 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.	• Prior to FY 2018, Cyber Security activities were executed as part of the overall Safeguards and Security program. The FY 2018 budget proposes to establish a formal Cyber Security program which will direct fund cyber activities within a unique PBS.

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 will be 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.

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$51,517	**$50,611**	**-$906**
• Continued to maintain safe DUF6 conversion operations with a gradual ramp up to steady-state operations. • Packaged converted depleted uranium oxide for beneficial reuse or disposition. • Continued cylinder maintenance and surveillance to maintain existing material in safe, stable condition.	• Continue steady state operations of the DUF6 conversion facility with emphasis on plant availability and maintain optimum throughput. • Package converted depleted uranium oxide and store on site. • Conduct cylinder surveillance and maintenance, to keep existing material in a safe and stable condition.	• No significant change.

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 2018 request of $351,271,000 supports removal of high-risk radioactively contaminated equipment and hazardous materials from the uranium processing buildings. As part of this request, it includes $38,882,000 ($4,643,000 for design, $31,341,000 for construction, and $2,898,000 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 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$225,166	**$351,271**	**+$126,105**
• Completed preparatory work to remove and dispose of excess equipment/hazardous materials from buildings X-326. • Began removal of building X-326 process equipment. • Completed decommissioning and demolition of the X-100, X-100B, X-101, and the X-109C buildings. • Issued Remedial Investigation/Feasibility Study for decontamination and decommissioning of the process buildings. • Issued Remedial Investigation/Feasibility Study for waste disposition. • Continued unit remediation activities (buildings for which Resource Conservation and Recovery Act facility investigation had been deferred) in accordance with the deferred unit strategy. • Disposed waste off-site (during an interim period until a decision regarding waste disposition, including a potential on-site waste disposal facility and metal recycling, is made in consultation with regulators and stakeholders). • Continued site-wide infrastructure surveillance and maintenance to maintain compliance. • Initiated infrastructure optimizations. • Performed facility site services, programmatic safety and environmental technical oversight.	• Continue base operations such as utility operations, pump-and-treat operations, waste and landfill operations, infrastructure support, environmental monitoring and reporting, surveillance and maintenance of facilities. • Declare X-326 Highly Enriched Uranium Enrichment Process Building “Cold and Dark.” • Achieve deactivation requirements for one unit in the second Process Building (X-333). • Continued progress on deactivation of the remaining process buildings. • Complete dispostion of 90% of the remaining Uranium Management Center waste that has been authorized for disposal. The Uranium Management Center was established in the 1990s as a centralized repository for DOE low enriched uranium. • Complete On-Site Waste Disposal Facility Sediment Pond 3.	• Increase supports decontamination and decommissioning. Increase also supports design and construction of the On-Site Waste Disposal Facility.

- Conducted soil and groundwater environmental monitoring and reporting and associated sample collection.
- Performed characterization, treatment, and disposition of waste associated with deactivation and decommissioning.

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 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$775	**$775**	**+$0**
• Provided defense against legal claims filed against the Government and its contractors. • 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. • 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.	• Continue to provide defense against legal claims filed against the Government and its contractors. • Continue record searches in support of legal claims, Freedom of Information Act requests, and requests from both state and Federal regulatory and elected officials. • 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.	• No change.

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 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$1,020	**$1,020**	**+$0**
• Supported oversight activities of the Ohio Environmental Protection Agency. • Supported the designated Site Specific Advisory Board. • Supported technical/scientific activities for the Ohio University.	• Support oversight activities of the Ohio Environmental Protection Agency. • Support the designated Site Specific Advisory Board.	• No change.

Portsmouth
Construction Projects Summary ($K)

	Total	Prior Years	FY 2016 Enacted	FY 2018 Request	FY 2018 vs FY 2016
15-U-408, On Site Waste Disposal Facility (PO-0040)					
Total Estimate Cost (TEC)	TBD	4,500	21,749	35,984	+14,235
Other Project Costs (OPC)	TBD	0	2,705	2,898	+193
Total Project Cost (TPC) 15-U-408	TBD	4,500	24,454	38,882	+14,428

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. Significant Changes and Summary

Significant Changes

This project datasheet is an update to the FY 2017 President's Budget Request datasheet and does not include a new start for the budget year.

A slower-than-planned execution of the project has resulted in the delay of the first waste placement in the On-Site Waste Disposal Facility which has impacted the schedule for the demolition of Building X-326, the first Gaseous Diffusion Plant process building. A realignment strategy has been developed 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. This realignment strategy was approved on March 17, 2017, and revises the scope of this project to include Cell 4 and Cell 5 Liners with a modular, temporary leachate treatment system and to defer the infrastructure which supports future cells. The preliminary upper cost range for the realigned On-Site Waste Disposal Facility project is $350,000,000 with the projected first waste debris placement in third quarter FY 2022.

Summary

The most recent DOE O 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.

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 through FY 2017: 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, and potable water and sanitary sewer installations; and initiation of major earthwork for infrastructure areas (Sedimentation Pond 3).

2. 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.

(fiscal quarter or date)

	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	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[a]	4Q FY2015	TBD	TBD	TBD	TBD	TBD
FY 2017	4Q FY2015	04/10/2014[a]	4Q FY2015	TBD	TBD	TBD	N/A	TBD
FY 2018	08/28/2015	04/10/2014[a]	08/28/2015	2Q FY2018	TBD	TBD	N/A	TBD

[a] Conceptual Design was completed as part of the Remedial Investigation/Feasibility Study development prior to Critical Decision-0.

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[ab]		
	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

Notes:
[a] 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.
[b] 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 O 413.3B.

3. Project Cost History

	($K)						
	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

No constructon, 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.

4. Project Scope and Justification

Scope

The On-Site Waste Disposal Facility initial infrastructure and Cell 1, 4 and 5 Liner Construction project will include 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, will be 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 O 413.3B, Program and Project Management for the Acquisition of Capital Assets.

5. Financial Schedule ($K)

(dollars in thousands)

	Appropriations	Obligations	Costs
[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	1,324
FY 2018	N/A	N/A	4,643
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	25,568
FY 2018	N/A	N/A	31,341
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[a]	21,749	21,749	26,892
FY 2018	35,984	35,984	35,984
Outyears	TBD	TBD	TBD
Total, TEC	TBD	TBD	TBD
[Other Project Cost (OPC)]			
OPC except D&D			
FY 2015			0
FY 2016	N/A	N/A	2,705
FY 2017	N/A	N/A	1,368
FY 2018	N/A	N/A	2,898
Outyears	N/A	N/A	TBD
Total, OPC except D&D	N/A	N/A	TBD
OPC, D&D	N/A	N/A	N/A
Total, D&D	N/A	N/A	N/A
OPC			
FY 2015	0	0	0

(dollars in thousands)

	Appropriations	Obligations	Costs
FY 2016	2,705	2,705	2,705
FY 2017	1,368	1,368	1,368
FY 2018	2,898	2,898	2,898
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	23,117	23,117	28,260
FY 2018	38,882	38,882	38,882
Outyears	TBD	TBD	TBD
Total, TPC	TBD	TBD	TBD

6. 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 *(if any)*			
D&D	N/A	N/A	N/A

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
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	TBD	TBD	N/A
Total, Contingency	TBD	TBD	N/A

7. Schedule of Appropriation Requests

($K)

Request Year		Prior Years	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	Outyears	Total
FY 2015	TEC	92,245	66,283	76,725	52,073	0	0	0	0	287,326
	OPC	12,035	5,860	2,369	2,410	0	0	0	0	22,674
	TPC	104,280	72,143	79,094	54,483	0	0	0	0	310,000
FY 2016	TEC	26,249	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
	OPC	0	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
	TPC	26,249	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
FY 2017	TEC	26,249	40,468	TBD	TBD	TBD	TBD	TBD	TBD	TBD
	OPC	0	700	TBD	TBD	TBD	TBD	TBD	TBD	TBD
	TPC	26,249	41,168	TBD	TBD	TBD	TBD	TBD	TBD	TBD
FY 2018	TEC	26,249	40,468	35,984	TBD	TBD	TBD	TBD	TBD	TBD
	OPC	2,705	700	2,898	TBD	TBD	TBD	TBD	TBD	TBD
	TPC	28,954	41,468	38,882	TBD	TBD	TBD	TBD	TBD	TBD

8. 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[a]

Notes:

[a] No future D&D required for this project.

(dollars in thousands, $K)

	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.

9. Required 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.

10. 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 to meet the challenges of the nation's Manhattan Project and Cold War 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 one 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. The cleanup momentum over the past several years is significant. As such, effort continues 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 $64,398,000.

The Richland Operations Office plans to purchase the following vehicles in FY 2018: a Ladder Truck-EF26; a Hazmat-EF32; two Septic Trucks; a Portable Water Truck; and a Water Truck.

Highlights of the FY 2018 Budget Request

Richland's FY 2018 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 remediation and continue progress toward waste remediation; continue progress toward certification of Large/Small Container Contact-handled (CH) Transuranic Mixed (TRUM) or Remote-handled (RH) TRUM Waste; K Area decontamination and decommissioning/remediation; support K West Basin sludge removal progress. Cleanup work is accomplished while maintaining safe and compliant waste management, decontamination and decommissioning, and groundwater capabilities in the Central Plateau.

The FY 2018 request includes funding for Line Item 15-D-401, the KW Basin Sludge Removal construction project ($8,000,000). This project will design, install and operate a system to safely remove consolidated sludge and transport it to the T Plant in the Central Plateau for temporary storage until shipped to the Waste Isolation Pilot Plant. The sludge in the KW Basin is highly radioactive and poses a threat to the nearby Columbia River. Retrieval of the material requires specialized, engineered equipment and special precautions to ensure safety of the public, workers, and the environment. The $8,000,000 requested for this project is for commissioning and start of operations.

The FY 2018 request also includes funding for 18-D-404, Modification of the Waste Encapsulation and Storage Facility ($6,500,000). 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 (WESF). WESF cannot provide a continued capability to safely manage the capsules for an extended period of time. This line item construction supports the mission need by equipping WESF to remove the capsules in order to support interim dry storage until a permanent disposition is determined. The $6,500,000 requested for this project is primarily for design efforts supporting the Critical Decision process.

The Richland Operations Office provides the Hanford site landlord services. For FY 2018, Richland's request includes a new PBS (RL-0201) for site wide services for the Hanford site. The PBS was created to provide delineation between the direct project cleanup work and the site services, which have been funded through an allocation to most or all of the other Richland PBS's in prior years. 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.

The following table provides a crosswalk of the funding for these services in FY 2016 and FY 2018:

PBS	PBS Title	FY 2016 Enacted	FY 2016 Site Wide Services Distributed	FY 2018 Request	FY 2018 vs FY 2016 Site Wide Services Distributed
RL-0011	NM Stabilization and Disposition - PFP	148,661	94,714	0	-94,714
RL-0012	SNF Stabilization and Disposition	81,192	48,986	45,000	-3,986
RL-0012	15-D-401 Containerized Sludge Line Item	77,016	77,016	8,000	-69,016
RL-0013	Solid Waste Stabilization and Disposition - 200 Area	150,691	97,345	127,000	+29,655
RL-0030	Soil and Water Remediation - Groundwater/Vadose Zone	174,619	106,832	150,000	+43,168
RL-0201	Site Wide Services/RL Direct/Infrastructure Upgrades	0	257,000	322,379	+65,379
Subtotal	**Central Plateau Remediation**	**632,179**	**681,893**	**652,379**	**-29,514**
RL-0040	Nuclear Facility D&D - Remainder of Hanford	88,874	32,906	14,000	-18,906
RL-0041	Nuclear Facility D&D - River Corridor Closure Project	181,836	189,712	44,692	-145,020
Subtotal	**River Corridor and Other Cleanup Operations**	**270,710**	**222,618**	**58,692**	**-163,926**
RL-0020	Safeguards and Security	65,501	63,879	75,600	+11,721
RL-0025	Cyber Security	0	0	6,390	+6,390
RL-0042	Nuclear Facility D&D - Fast Flux Test Facility Project	2,562	2,562	2,240	-322
RL-0100	Richland Community and Regulatory Support	19,701	19,701	5,121	-14,580
Total - RL	**Richland Field Office Funding Summary**	**990,653**	**990,653**	**800,422**	**-190,231**

FY 2017 & FY 2018 Key Milestones/Outlook

- (December 2016) M-015-79; Submitted CERCLA Soil and Groundwater Remedial Investigation/Feasibility Study Report and Proposed Plan for 100-BC-1/2/5.
- (September 2017) M-016-177; Complete 105-K West sludge transfer equipment installation.
- (September 2018) M-016-193; Investigate SE Chromium Plume, install wells, evaluate groundwater monitoring data and install monitoring wells.

- (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 TRUM/MLLW waste.
- (September 2018) M-092-09; Establish milestones and/or target dates for Sodium Facilities.

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 Tri-Parties also reached agreement on additional milestone date changes which revised timetables for multiple near-term and outyear milestones captured under the 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. The remaining scope of the Washington Closure Hanford, LLC, a cost plus incentive completion contract for cleanup and closure of the River Corridor was transitioned to CH2M Hill Plateau Remediation Company at the end of FY 2016.
- Mission Support Alliance, LLC, contract with a base period of performance from May 26, 2009, through May 25, 2014, with one 3-year option plus one 2-year option. The Mission Support Alliance contract first option has been exercised for the period of May 26, 2014, through May 25, 2017. That cost plus award fee contract has an additional option of May 26, 2017, through May 25, 2019, remaining on the contract.

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 2016 Enacted	FY 2017 Annualized CR[1]	FY 2018 Request	FY 2018 vs FY 2016
Defense Environmental Cleanup				
Hanford Site				
Central Plateau Remediation				
RL-0011 / NM Stabilization and Disposition-PFP	148,661	148,378	0	-148,661
RL-0012 / SNF Stabilization and Disposition	158,208	157,907	53,000	-105,208
RL-0013C / Solid Waste Stabilization and Disposition- 2035	150,691	150,405	127,000	-23,691
RL-0030 / Soil and Water Remediation-Groundwater/Vadose Zone - 2035	174,619	174,287	150,000	-24,619
RL-0201 / Hanford Site Wide Services	0	0	322,379	+322,379
Subtotal, Central Plateau Remediation	**632,179**	**630,977**	**652,379**	**+20,200**
Richland Community and Regulatory Support				
RL-0100 / Richland Community and Regulatory Support	19,701	19,664	5,121	-14,580
River Corridor and Other Cleanup Operations				
RL-0040 / Nuclear Facility D&D-Remainder of Hanford - 2035	88,874	88,705	14,000	-74,874
RL-0041 / Nuclear Facility D&D-River Corridor Closure Project	181,836	181,490	44,692	-137,144
Subtotal, River Corridor and Other Cleanup Operations	**270,710**	**270,195**	**58,692**	**-212,018**
Total, Hanford Site	**922,590**	**920,836**	**716,192**	**-206,398**
Safeguards and Security				
RL-0020 / Safeguards and Security	65,501	65,355	75,600	+10,099
Cyber Security				
RL-0025 / RL Cyber Security	0	0	6,390	+6,390
Total, Defense Environmental Cleanup	**988,091**	**986,191**	**798,182**	**-189,909**

[1] The FY 2017 Annualized CR amounts reflect the P.L. 114-254 continuing resolution level annualized to a full year. These amounts are shown only at the congressional control level and above, below that level, a dash (-) is shown.

	FY 2016 Enacted	FY 2017 Annualized CR[1]	FY 2018 Request	FY 2018 vs FY 2016
Non-Defense Environmental Cleanup				
Fast Flux Test Reactor Facility D&D				
Fast Flux Test Reactor Facility D&D				
RL-0042 / Nuclear Facility D&D-Fast Flux Test Facility Project	2,562	2,557	2,240	-322
Total, Richland	**990,653**	**988,748**	**800,422**	**-190,231**

Explanation of Major Changes ($K)

	FY 2018 vs FY 2016
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. Additionally, the decrease reflects a redistribution of Hanford Site Service costs to PBS RL-0201 (Site Wide Services).	-148,661
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 redistribution of Hanford Site Services costs to PBS RL-0201 (Site Wide Services).	-105,208
RL-0013C / Solid Waste Stabilization and Disposition- 2035	
• The net decrease reflects redistribution of the Hanford Site Services costs to PBS RL-0201 (Site Wide Services). This also includes an increase to support continued planning for dry storage options for the cesium and strontium capsules and transfer of operations of the Environmental Restoration Disposal Facility from PBS RL-0041 to this PBS.	-23,691
RL-0030 / Soil and Water Remediation-Groundwater/Vadose Zone - 2035	
• The decrease reflects redistribution of Hanford Site Services cost to PBS RL-0201 (Site Wide Services).	-24,619
RL-0201 / Hanford Site Wide Services	
• The increase reflects the creation of a new PBS to capture these costs which were previously spread amongst the other PBSs. Considering the aggregated amount for FY 2016 of $257,000,000, the delta for FY 2018 is an increase of $65,379,000. The increase includes severance costs for workforce reduction and an increase for critical infrastructure projects. Workforce reduction is required due to completion of major cleanup activities in FY 2017. They are not discretionary due to labor agreements. The funding accommodates both the severance costs (non-discretionary) and a focus on critical infrastructure and deferred maintenance projects.	+322,379
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	-14,580

	FY 2018 vs FY 2016
reflects reductions for discretionary payments in lieu of taxes to support recapitalizing critical infrastructure and addressing deferred maintenance.	
River Corridor and Other Cleanup Operations	
RL-0040 / Nuclear Facility D&D-Remainder of Hanford - 2035	
• The decrease primarily reflects redistribution of Hanford Site Wide Services cost and infrastructure support to PBS RL-0201 (Site Wide Services).	-74,874
RL-0041 / Nuclear Facility D&D-River Corridor Closure Project	
• The decrease reflects redistribution of the Hanford Site Services costs to PBS RL-0201 (Site Wide Services) and transfer of the Environmental Restoration Disposal Facility operations to RL-0013.	-137,144
Cyber Security	
RL-0025 / RL Cyber Security	
• Prior to FY 2018, Cyber Security activities were executed as part of the overall Safeguards and Security program. The FY 2018 budget proposes to establish a formal Cyber Security program which will direct fund cyber activities within a unique PBS. In FY 2016, it was estimated that the direct and indirect cyber investment was $8,211,000 for a decrease of $1,821,000.	+6,390
Safeguards and Security	
RL-0020 / Safeguards and Security	
• Increased funding maintains the security posture of the site including upgrades or replacement of obsolete systems and facilities.	+10,099
Non-Defense Environmental Cleanup	
Fast Flux Test Reactor Facility D&D	
RL-0042 / Nuclear Facility D&D-Fast Flux Test Facility Project	
• The decrease represents the Fast Flux Test Facility having been placed in long-term, low cost surveillance and maintenance condition.	-322
Total, Richland	**-190,231**

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.

This PBS included general site-wide services and direct maintenance and repair in FY 2016, but in FY 2018 funds are requested in PBS RL-0201, Hanford Site Wide Services.

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$148,661	**$0**	**-$148,661**
• 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. • Provided services for industrial, radiological and nuclear Plutonium Finishing Plant facilities/structures and systems including the vital safety systems. • 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 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.	• Transition the below-grade structures to PBS RL-0040, Nuclear Facility Decommissioning & Decontamination – Remainder of Hanford.	• The decrease reflects the decommissioning and demolition of the Plutonium Finishing Plant facilities to slab-on-grade. Additionally, the decrease reflects a redistribution of Hanford Site Service costs to PBS RL-0201 (Site Wide Services).

- Completed Plutonium Finishing Plant Facility transition and selected disposition activities to achieve slab-on-grade by September 2016.

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 final design of the sludge handling and supporting equipment.

This PBS included general site-wide services and direct maintenance and repair in FY 2016, but in FY 2018 funds are requested in PBS RL-0201, Hanford Site Wide Services.

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$158,208	**$53,000**	**-$105,208**
• Provided site-wide services of day-to-day operations of general utilities, fire department, and analytical services. • 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. • Continued K West Basin facility modifications to prepare for installation of sludge removal system and procurement of long-lead equipment for sludge removal. • Initiated T Plant modifications necessary to receive and store sludge. • Provided project management support during the Containerized Sludge construction, installation, and readiness activities.	• Provide 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. • Continue T Plant modifications and T Plant cell cleanout necessary to receive and store sludge. • Provide support to prepare for startup of operations of the Engineered Container Retrieval and Transfer System.	• 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 redistribution of Hanford Site Services costs to PBS RL-0201 (Site Wide Services).

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 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.

This PBS included general site-wide services and direct maintenance and repair in FY 2016, but in FY 2018 funds are requested in PBS RL-0201, Hanford Site Wide Services.

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$150,691	**$127,000**	**-$23,691**
• 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. • Supported safe storage of 1,936 cesium and strontium capsules in the Waste Encapsulation and Storage Facility. • Maintained T Plant Complex in a safe, compliant, 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	• Support operations necessary to provide for safe and compliant interim storage of 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. • Support safe storage of 1,936 cesium and strontium capsules in the Waste Encapsulation and Storage Facility. • Continue project planning for dry storage options for the cesium and strontium capsules. • Maintain T Plant Complex in a safe, compliant, and cost-effective manner for acceptance/storage of low-level waste, mixed low-level waste, and TRU waste. 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, 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 (transferred from	• The net decrease reflects redistribution of the Hanford Site Services costs to PBS RL-0201 (Site Wide Services). This also includes an increase to support continued planning for dry storage options for the cesium and strontium capsules and transfer of operations of the Environmental Restoration Disposal Facility from PBS RL-0041 to this PBS.

acceptance and storage of low-level, mixed low-level and transuranic wastes at Hanford.
- Repackaged large container transuranic mixed waste.
- Completed upgrades to the Waste Encapsulation and Storage Facility K-3 exhaust system for ventilation confinement and hydrogen gas removal.

RL-0041).
- Repackage suspect transuranic/mixed waste to meet Federal and State regulations.

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.

This PBS included general site-wide services and direct maintenance and repair in FY 2016, but in FY 2018 funds are requested in PBS RL-0201, Hanford Site Wide Services.

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$174,619	**$150,000**	**-$24,619**
• 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. • 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. • Continued to meet Tri-Party Agreement M-24 Well Drilling commitments.	• 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. • Continue to meet Tri-Party Agreement M-24 Well Drilling Commitments. • 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 Decisions for operable units in the River Corridor and the Central Plateau. • Support implementation of remedies to stop contaminants from reaching the Columbia River.	• The decrease reflects redistribution of Hanford Site Services cost to PBS RL-0201 (Site Wide Services).

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.

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$0	**$322,379**	**+$322,379**
	• Services include, but are not limited to, roads and transportation services; electrical and water services; facility maintenance; network and software engineering; and records management. • 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.	• The increase reflects the creation of a new PBS to capture these costs which were previously spread amongst the other PBSs. Considering the aggregated amount for FY 2016 of $257,000,000, the delta for FY 2018 is an increase of $65,379,000. The increase includes severance costs for workforce reduction and an increase for critical infrastructure projects. Workforce reduction is required due to completion of major cleanup activities in FY 2017. They are not discretionary due to labor agreements. The funding accommodates both the severance costs (non-discretionary) and a focus on critical infrastructure and deferred maintenance projects.

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 regulatory and stakeholder support and assistance payments. The activities included in this PBS are: 1) grants to Washington State and Oregon State; 2) payments in lieu of property taxes made to the three host counties where the Hanford reservation is located; and 3) funding to support the Hanford Advisory Board and related activities. This PBS scope will end upon completion of the Hanford EM mission.

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$19,701	**$5,121**	**-$14,580**
• Supported Washington and Oregon States' emergency preparedness, environmental oversight, Hanford Advisory Board and other related activities. • 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.	• Support Washington and Oregon States' emergency preparedness, environmental oversight, Hanford Advisory Board and other related activities. • Support Washington State Department of Health's air emissions monitoring and payment-in-lieu-of-taxes to Grant, Benton, and Franklin Counties.	• 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 recapitalizing critical infrastructure and addressing deferred maintenance.

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.

This PBS included general site-wide services and direct maintenance and repair in FY 2016, but in FY 2018 funds are requested in PBS RL-0201, Hanford Site Wide Services.

Nuclear Facility D&D-Remainder of Hanford - 2035 (PBS: RL-0040)

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$88,874	**$14,000**	**-$74,874**
• 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. • 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. • Provided steam for critical site heating systems, occupational medicine, Bonneville Power Administration electricity, litigation support, 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.	• 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.	• The decrease primarily reflects redistribution of Hanford Site Wide Services cost and infrastructure support to PBS RL-0201 (Site Wide Services).

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.

This PBS included general site-wide services and direct maintenance and repair in FY 2016, but in FY 2018 funds are requested in PBS RL-0201, Hanford Site Wide Services.

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$181,836	**$44,692**	**-$137,144**
• 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. • Continued operation of the Environmental Restoration Disposal Facility for disposal of low-level radioactive, hazardous, and mixed wastes generated during Hanford cleanup. • Supported safe activities for K Area Remediation. • Continued remediation of the highly radioactive waste site 300-296 waste located beneath the 324 Building (i.e., the Radiochemical Engineering Complex), in the 300 Area close to the City of Richland. • Completed 100 Area and 300 Area field remediation except the 100 K Area. • Conducted 618-10 vertical piping units auguring and remediation efforts along with expansion of	• Continue to support operations necessary to provide for safe and compliant monitoring of the 324 Building. Continue waste site remediation in the River Corridor. • Support safe surveillance and monitoring activities for K Area Remediation.	• The decrease reflects redistribution of the Hanford Site Services costs to PBS RL-0201 (Site Wide Services) and transfer of the Environmental Restoration Disposal Facility operations to RL-0013. •

Environmental Restoration and Disposal Facility operations.
- Completed Long-lead procurements for design verification, in preparation for remediation of the 300-296 waste site beneath the 324 Building.
- Completed of 300-288:2 waste site remediation.
- Initiated of waste site remediation in the 100K 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.

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$65,501	**$75,600**	**+$10,099**
• Provided a Safeguards and Security services program at the Hanford Site, including protection of Category I Spent Nuclear Material. • 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. • Continued implementation of revised access controls and common identification standards (Homeland Security Presidential Directive-12).	• Provide a Safeguards and Security services program at the Hanford Site, including protection of Category I Spent Nuclear Material. Provide 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. • Continue implementation of revised access controls and common identification standards (Homeland Security Presidential Directive-12). • Upgrade/replacement of aged/obsolete physical security, qualification, and training systems and facilities.	• Increased funding maintains the security posture of the site including upgrades or replacement of obsolete systems and facilities.

RL Cyber Security (PBS: RL-0025)

Overview

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

The Cyber Security Program at the Hanford site protects government information and technology systems to support the cleanup of both the Richland Site Office and the Office of River Protection.

This scope will continue until DOE's mission at the Hanford site is complete.

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$0	**$6,390**	**+$6,390**
▪ Prior to FY 2018, Cyber Security activities were executed as part of the site overhead cost.	▪ Provide cyber security to ensure DOE information resources are identified and protected.	• Prior to FY 2018, Cyber Security activities were executed as part of the overall Safeguards and Security program. The FY 2018 budget proposes to establish a formal Cyber Security program which will direct fund cyber activities within a unique PBS. In FY 2016, it was estimated that the direct and indirect cyber investment was $8,211,000 for a decrease of $1,821,000.

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 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$2,562	**$2,240**	**-$322**
• 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. • Provided site-wide services for facility maintenance and safe keeping.	• 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.	• The decrease represents the Fast Flux Test Facility having been placed in long-term, low cost surveillance and maintenance condition.

Richland

Capital Summary ($K)

	Total	Prior Years	FY 2016 Enacted	FY 2018 Request	FY 2018 vs FY 2016 Enacted
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)	25,114	0	6,257	18,857	+12,600
Total, Capital Operating Expenses	**25,114**	**0**	**6,257**	**18,857**	**+12,600**
Capital Equipment > $500K (including MIE)	0	0	0	0	0
Total, Capital Equipment (including MIE)	**0**	**0**	**0**	**0**	**0**
Plant Projects (GPP and IGPP) (Total Estimated Cost (TEC) <$10M)					
Richland					
Wood Power Poles Replacement	6,257	0	6,257	0	-6,257
Foundation and Fencing for Cesium Strontium Cask Interim Dry Storage	2,977	0	0	2,977	+2,977
L-888 400 Area Fire Station	961	0	0	961	+961
L-894 Raw Water Cross Connection Isolation 200 E/W	7,878	0	0	7,878	+7,878
L-895 Fire Protection Infrastructure for Plateau Raw Water	7,041	0	0	7,041	+7,041
Total, Richland	**25,114**	**0**	**6,257**	**18,857**	**+12,600**
Total, Plant Projects (GPP and IGPP) (Total Estimated (TEC) <$10M	**25,114**	**0**	**6,257**	**18,857**	**+12,600**
Total, Capital Summary	**25,114**	**0**	**6,257**	**18,857**	**+12,600**

Richland
Construction Projects Summary ($K)

	Total	Prior Years	FY 2016 Enacted	FY 2018 Request	FY 2018 vs FY 2016 Enacted
KW Basin Sludge Removal Project, Hanford Washington (RL-0012)					
SNF Stabilization and Disposition (RL-0012)					
Total Estimate Cost (TEC)	110,260	110,260	0	0	0
Other Project Costs (OPC)	46,522	46,522	0	0	0
Subtotal, KW Basin Sludge Removal Project, Hanford Washington (RL-0012)	**156,782**	**156,782**	**0**	**0**	**0**
15-D-401, KW Basin Sludge Removal Project, Hanford Washington (RL-0012)					
Total Estimate Cost (TEC)	125,071	46,055	77,016	2,000	-75,016
Other Project Costs (OPC)	12,407	0	6,407	6,000	-407
Subtotal, 15-D-401, KW Basin Sludge Removal Project, Hanford Washington (RL-0012)	**137,478**	**46,055**	**83,423**	**8,000**	**-75,423**
Total Project Cost (TPC) 15-D-401	**294,260**	**202,837**	**83,423**	**8,000**	**-75,423**
18-D-404, Modifications of Waste Encapsulation and Storage Facility (RL-0013C)					
Total Estimate Cost (TEC)	6,500	0	0	6,500	+6,500
Other Project Costs (OPC)	500	0	0	500	+500
Total Project Cost (TPC) 18-D-404	**7,000**	**0**	**0**	**7,000**	**7,000**

15-D-401
KW Basin Sludge Removal Project, Hanford, WA
Project is for Design and Construction

1. Significant Changes and Summary

Significant Changes:
This Construction Project Data Sheet is an update to the FY 2017 Construction Project Data Sheet and does not include a new start for the budget year.

The project established Critical Decision -2 approved baseline in June of 2016. The changes in this Construction Project Data Sheet update FY 2014 and beyond to align with the validated and approved baseline. During the External Independent Review, costs were identified that were associated with the project, but were not previously captured in the cost profiles in prior Construction Project Data Sheet submissions. Additional changes were made to the total project Total Project Cost and funding schedule. The changes captured in this document are to align with the approved Critical Decision -2 baseline.

Changes to this construction project data sheet financial schedule result from an approved Critical Decision -2/3 and established baseline for transition from an Operations Project to a Capital Line Item and establish a Total Project Cost and Critical Decision -4 date which were previously undetermined.

Summary:
The most recent approved DOE 0rder 413.3B Critical Decision is Critical Decision-1/2/3 that was approved on 6/2/2016 by the Under Secretary for Management and Performance (S-3) with a Total Project Cost (TPC) of $311,000,000 and Critical Decision-4 in the 1st quarter of FY 2020.

This project was originally executed as an operating expense funded project. Beginning in FY 2015, EM requested that the Total Estimated Cost (TEC) of this project be appropriated in the capital line item construction account. This data sheet includes a full accounting of the total project cost expended in prior years.

A Federal Project Director has been assigned to this project. The Federal Project Director has approved this updated Construction Project Data Sheet.

2. Critical Milestone History

	(fiscal quarter or date)						
	CD-0	**CD-1**	**Design Complete**	**CD-2**	**CD-3**	**CD-4[a]**	**D&D Complete**
FY 2015 Request	07/03/2007	06/17/2010	02/03/2014	02/03/2014	02/03/2014	2QFY2018	N/A
FY 2016 Request	07/03/2007	06/17/2010	02/03/2014	TBD	TBD	TBD	N/A
FY 2017 Request	07/03/2007	06/17/2010	02/03/2014	TBD	TBD	TBD	N/A
FY 2018 Request	07/03/2007	06/02/2016	02/03/2014	06/02/2016	06/02/2016	1QFY2020	N/A

[a] Critical Decision-4 for this line item will be at the approval for start of Engineered Container Retrieval and Transfer System (ECRTS) operations.

CD-0 – Approve Mission Need
CD-1 – Approve Alternative Selection and Cost Range
CD-2 – Approve Performance Baseline
CD-3 – Approve Start of Construction
CD-4 – Approve Start of Operations or Project Closeout
D&D Start – Start of Demolition & Decontamination (D&D) work
D&D Complete –Completion of D&D work

(Fiscal Quarter or Date)		
	Performance Baseline Validation*	**CD-3A Long Lead Procurement**
FY 2015 Request	2QFY2014	N/A
FY 2016 Request	TBD	N/A
FY 2017 Request	TBD	N/A
FY 2018 Request	06/02/2016	N/A

3. Project Cost History

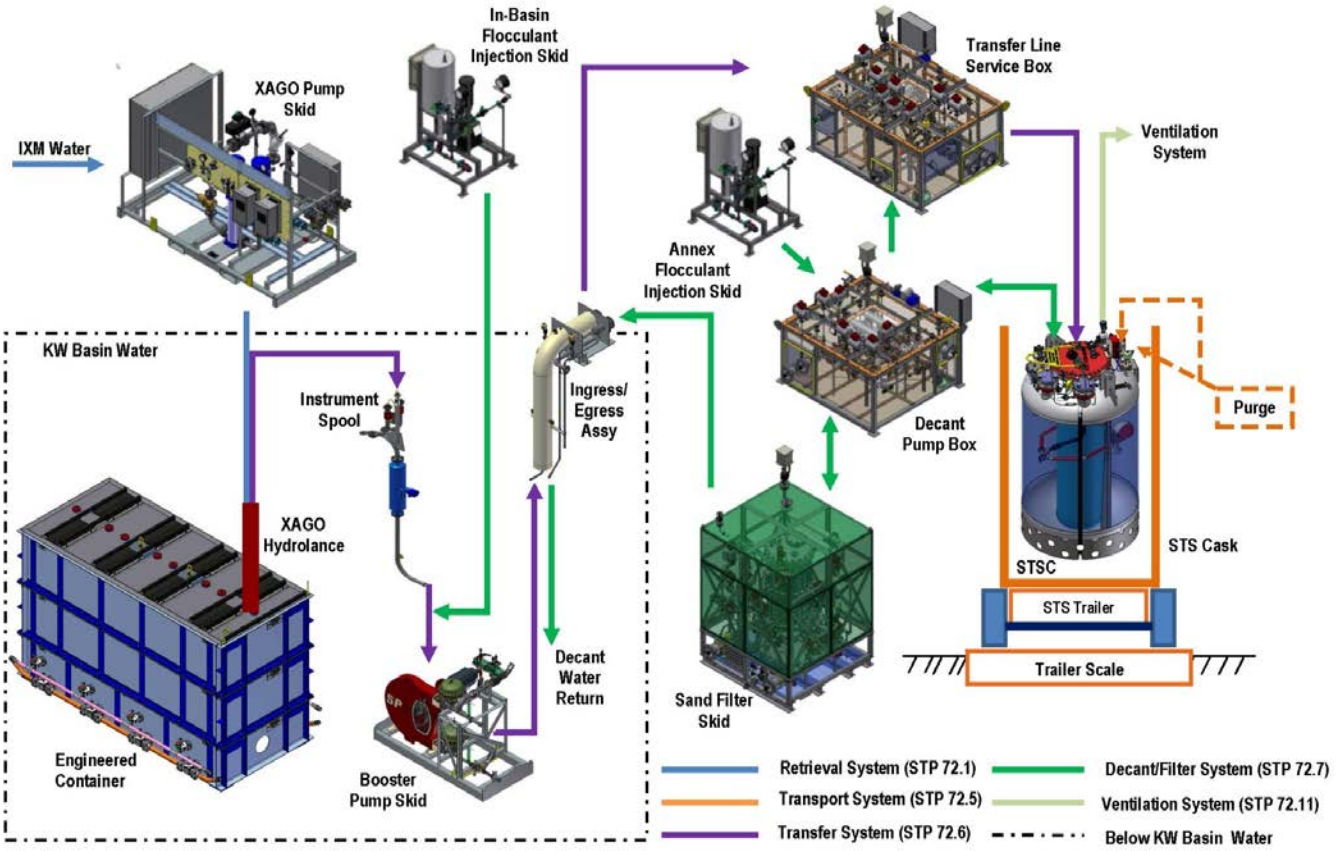
	(dollars in thousands)						
	TEC, Design	**TEC, Construction**	**TEC, Total**	**OPC Except D&D**	**OPC, D&D**	**OPC, Total**	**TPC**
FY 2015 Request	41,072	189,283	230,355	77,918	N/A	77,918	308,273
FY 2016 Request	41,072	189,283	230,355	77,918	N/A	77,918	308,273
FY 2017 Request	41,072	TBD	TBD	TBD	N/A	77,918	308,273
FY 2018 Request	41,247	195,213	236,460	74,540	N/A	74,540	311,000

4. Project Scope and Justification

Scope

The consolidated sludge in KW Basin originated from previous recovery campaigns. This sludge is highly radioactive and poses a threat to the nearby Columbia River. Retrieval of this material requires specialized engineered equipment and processes to ensure the safety of the public, workers and the environment. This project will design, procure, construct, test, and commission a system to safely remove this material and transport it to T Plant in the Central Plateau for temporary storage. A simplified illustration of this system is pictured below.

Engineered Container Retrieval and Transfer System Simplified Flow Diagram



Justification

The scope of this project is to design, procure, construct, test, and commission an integrated set of process/systems to remove radioactive sludge currently stored in the KW Basin. The system being constructed and installed in the 105KW Basin is composed of the following components:

1. Xago Hydrolance Retrieval tool
2. Overfill recovery tool
3. Positive displacement booster pump
4. Sludge Transport and Storage Containers (STSC) and trailer
5. Transfer line service box
6. Decant pump box
7. Sand Filter
8. Flocculant Addition systems
9. Transfer Hose system
10. Ventilation System
11. Instrumentation & Controls System

In addition, the project includes the Sludge Removal Project KW Basin Annex which is being constructed to accommodate the Engineered Container Retrieval and Transfer System process equipment and provide a Sludge Transport and Storage Containers loading bay to support sludge packaging and transfer. The Sludge Removal Project KW Basin Annex will be a Hazard Category 2 nuclear facility, with a design life of five years. The Sludge Removal Project annex mission life is expected

to be one year. The Sludge Removal Project KW Basin Annex will include a Sludge Transport and Storage Containers loading bay, a mechanical equipment room, process ventilation system, a high-efficiency particulate air (HEPA) filter room, and a change room. The Transfer Line Service Box, Decant Pump Box, and Annex Flocculant Addition Skid will be located on the mezzanine level in the Annex. The Sand filter will be located in the Sludge Transport and Storage Containers loading bay below the mezzanine level.

There were two technology readiness assessments (TRAs) conducted for this project in 2009 and 2012 concluded that the various technology elements demonstrated a high level of confidence for successful operation. Also in support of the Critical Decision 2/3 decision an Independent Cost Estimate (ICE) and External Independent Review (EIR) were completed February 2016 as part of bringing the project into full compliance with DOE Order 413.3B. Final Critical Decision -1/2/3 was approved by S-3 June 2, 2016.

5. Financial Schedule

Changes were made to the following profiles for FY 2014 and beyond to capture the validated and approved Critical Decision -2 baseline and costs. Prior to the External Independent Review and final Critical Decision -3 baseline approval the cost profiles were budget profiles planned and reviewed during the External Independent Review. The External Independent Review identified elements of the capital project that needed to be added or moved between Total Estimated Cost and Other Project Costs for this capital project changing the FY 2014 and beyond profiles. These profiles have been updated to align with the approved Critical Decision -2 baseline.

(dollars in thousands)

	Appropriations	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
FY 2010	N/A	N/A	11,468
FY 2011	N/A	N/A	11,933
FY 2012	N/A	N/A	12,457
FY 2013	N/A	N/A	4,714
FY 2014	N/A	N/A	675
Total, Design	**N/A**	**N/A**	**41,247**
Construction			
FY 2012	N/A	N/A	10,117
FY 2013	N/A	N/A	20,031
FY 2014	N/A	N/A	38,865
FY 2015	N/A	N/A	39,275
FY 2016	N/A	N/A	36,994
FY 2017	N/A	N/A	39,926
FY 2018	N/A	N/A	9,979
FY 2019	N/A	N/A	26
Total, Construction	**N/A**	**N/A**	**195,213**
TEC			
FY 2010	11,468	11,468	11,468
FY 2011	11,933	11,933	11,933
FY 2012	22,574	22,574	22,574
FY 2013	24,745	24,745	24,745
FY 2014	39,540	39,540	39,540
FY 2015	46,055	46,055	39,275
FY 2016	77,016	77,016	36,994

	(dollars in thousands)		
	Appropriations	**Obligations**	**Costs**
FY 2017	1,103	1,103	39,926
FY 2018	2,000	2,000	9,979
FY 2019	26	26	26
Total, TEC	**236,460**	**236,460**	**236,460**
OPC			
FY 2009	13,388	13,388	13,388
FY 2010	10,165	10,165	10,165
FY 2011	7,912	7,912	7,912
FY 2012	6,556	6,556	6,557
FY 2013	5,101	5,101	4,383
FY 2014	3,400	3,400	4,117
FY 2015	5,043	5,043	2,982
FY 2016	6,407	6,407	9,832
FY 2017	10,383	10,383	7,858
FY 2018	6,000	6,000	7,135
FY 2019	185	185	211
Total, OPC	**74,540**	**74,540**	**74,540**
Total Project Cost (TPC)			
FY 2009	13,388	13,388	13,388
FY 2010	21,633	21,633	21,633
FY 2011	19,845	19,845	19,845
FY 2012	29,130	29,130	29,131
FY 2013	29,846	29,846	29,128
FY 2014	42,940	42,940	43,657
FY 2015	51,098	51,098	42,257
FY 2016	83,423	83,423	46,826
FY 2017	11,486	11,486	47,784
FY 2018	8,000	8,000	17,140
FY 2019	211	211	211
Total, TPC	**311,000**	**311,000**	**311,000**

This project was originally executed as an operating expense funded project. Beginning in FY 2015, EM determined that this project will be funded as a capital line item construction project. This data sheet includes a full accounting of the total project cost including budget authority requested or received in prior years. Project has been funded through FY 2014 through PBS RL-0012 expense funding.

6. Details of Project Cost Estimate

For this Construction Project Data Sheet the Contingency values contain the contractor's Management Reserve value.

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design			
Design	41,247	41,072	41,247
Contingency	0	0	0
Total, Design	**41,247**	**41,072**	**41,247**
Construction			
Equipment	29,994	TBD	29,994
Construction	151,955	TBD	151,955
Contingency	13,264	TBD	13,264
Total, Construction	**195,213**	**TBD**	**195,213**
Total, TEC	**236,460**	**TBD**	**236,460**
Contingency, TEC	13,264	TBD	13,264
Other Project Cost (OPC)			
OPC except D&D			
Testing	32,759	TBD	32,759
Sampling & Analysis	14,294	TBD	14,294
Conceptual Design	5,603	TBD	5,603
Start-Up	7,528	TBD	7,528
Other OPC Costs	9,342	TBD	9,342
Contingency[(b)]	5,014	TBD	5,014
Total, OPC except D&D	**74,540**	**TBD**	**74,540**
Total, OPC	**74,540**	**TBD**	**74,540**
Contingency, OPC	5,014	TBD	5,014
Total, TPC	**311,000**	**TBD**	**311,000**
Total, Contingency	**18,278**	**TBD**	**18,278**

7. Schedule of Appropriation Requests

($K)										
		Prior Years	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2019	Outyears	Total
FY 2015 Request	TEC	93,166	26,290	62,604	34,588	13,707	0	0	0	230,355
	OPC	45,869	5,344	7,756	8,754	10,195	0	0	0	77,918
	TPC	139,035	31,634	70,360	43,342	23,902	0	0	0	308,273
FY 2016 Request	TEC	106,181	46,055	77,016	1,103	0	0	0	0	230,355
	OPC	48,014	5,043	6,407	10,383	TBD	0	0	TBD	TBD
	TPC	154,195	51,098	83,423	11,486	TBD	0	0	TBD	TBD
FY 2017 Request	TEC	106,181	46,055	77,016	1,103	TBD	0	0	TBD	TBD
	OPC	48,014	5,043	6,407	10,383	TBD	0	0	TBD	TBD
	TPC	154,195	51,098	83,423	11,486	TBD	0	0	TBD	TBD
FY 2018 Request	TEC	110,260	46,055	77,016	1,103	2,000	26	0	0	236,460
	OPC	46,522	5,043	6,407	10,383	6,000	185	0	0	74,540
	TPC	156,782	51,098	83,423	11,486	8,000	211	0	0	311,000

8. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	1Q FY2020
Expected Useful Life (number of years)	1
Expected Future Start of D&D of this capital asset (fiscal quarter)	1Q FY2021

The facility housing the system is the 105KW Basin that must maintain operations during the Engineered Container Retrieval and Transfer System operations.

The operations of this system will be used to transfer the KW Basin sludge from the existing engineered containers in the Basin to the Sludge Transfer and Storage Containers to be transported to the interim storage in the Central Plateau away from the river.

(Related Funding requirements)

(dollars in thousands)

	Annual Costs		Life Cycle Costs	
	Current Total Estimate	Previous Total Estimate	Current Total Estimate	Previous Total Estimate
ECRTS Operations	13,850	TBD	13,850	TBD
Utilities	0	0	0	0
Maintenance & Repair	0	0	0	0
Total	**13,850**	**TBD**	**13,850**	TBD

9. D&D Information

Richland is modifying an existing facility to change the capabilities. 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.

10. Acquisition Approach

The project acquisition strategy is the use of the existing Richland Prime contractor under the existing Cost plus Award Fee Plateau Remediation Contract and the subcontractors for Plateau Remediation Contract. The KW Sludge Removal Project was included in the scope of the Plateau Remediation Contract that was awarded by the DOE in 2008.

18-D-404
Modification of Waste Encapsulation and Storage Facility, Line Item Construction
Richland, WA
Project is for Design and Construction

1. Significant Changes and Summary

Significant Changes:
This Construction Project Data Sheet is new and does include a new start for the budget year.

Line Item funding is being requested for Waste Encapsulation and Storage Facility (WESF) modifications to facilitate the radioactive cesium/strontium (Cs/Sr) capsule transfer system. This Construction Project Data Sheet is the initial submittal for the Design and construction funding required for Waste Encapsulation and Storage Facility modifications.

Summary:
The most recent DOE O 413.3B approved Critical Decision is Critical Decision -0 that was approved on November 5, 2015 with a preliminary cost range of $93,000,000 to $150,000,000 and Critical Decision -4 range of 4Qtr, FY 2021 to 4Qtr, FY 2026.

A Federal Project Director (FPD) at the appropriate level has been assigned to this project and the FPD has approved this PDS.

2. Critical Milestone History

Fiscal Year (FY)	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	CD-4	D&D Complete
FY 2018 Request	11/5/2015	3QFY2017	4Q FY2018	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

3. 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

4. Scope and Justification

Scope:
The scope of the Management of the Cesium and Strontium Capsules 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 Waste Encapsulation and Storage Facility. 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 Waste Encapsulation and Storage Facility to remove the capsules.

The scope of the Waste Encapsulation and Storage Facility modifications line item 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:
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.

5. Financial Schedule

	(dollars in thousands)		
	Appropriations	**Obligations**	**Costs**
Total Estimated Cost (TEC)			
Design			
FY 2018	N/A	N/A	6,500
Outyears	N/A	N/A	TBD
Total, Design	**N/A**	**N/A**	**TBD**
Construction			
Outyears	N/A	N/A	TBD
Total, Construction	**N/A**	**N/A**	**TBD**
TEC			
FY 2018	N/A	N/A	6,500
Outyears	N/A	N/A	TBD
Total, TEC			**TBD**

Other Project Cost (OPC)			
OPC except D&D			
FY 2017	N/A	N/A	2,000
FY 2018	N/A	N/A	500
Outyears	N/A	N/A	TBD
Total, OPC except D&D			**TBD**
Total Project Cost (TPC) (Line Item only)			
FY 2017	N/A	N/A	2,000
FY 2018	N/A	N/A	7,000
Outyears	N/A	N/A	TBD
Total, TPC			**TBD**

6. Details of Project Cost Estimate

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design			
Design	TBD	N/A	N/A
Contingency	TBD	N/A	N/A
Total, Design	**TBD**	**N/A**	**N/A**
Construction			
Equip/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 Design	TBD	N/A	N/A
Support	TBD	N/A	N/A

Contingency	TBD	N/A	N/A
Total, OPC	**TBD**	**N/A**	**N/A**
Contingency, OPC	TBD	N/A	N/A
Total, TPC	**TBD**	**N/A**	**N/A**
Total Contingency	**TBD**	**N/A**	**N/A**

7. Schedule of Appropriation Requests

	($K)								
		Prior Years	**FY2017**	**FY2018**				**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

8. 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.

(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	N/A	TBD	N/A
Utilities	TBD	N/A	TBD	N/A
Maintenance & Repair	TBD	N/A	TBD	N/A
Total	TBD	N/A	TBD	N/A

9. 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.

10. 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 continue 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 million gallons of radioactive and chemical waste stored in 177 underground tanks (tank farms) 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 methods. 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 million 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 these five facilities is also planned. The plant is being designed to process tank farm waste over roughly a 40-year period. The original plan required waste to be processed through the Pretreatment Facility, where it will 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 must be resolved for the Pretreatment and, to a lesser degree, for the High-Level Waste Facilities, the Department is pursuing the construction of the Low-Activity Waste Facility, Balance of Facilities and Analytical Laboratory and the work necessary to feed low-activity waste directly to the Low-Activity Waste Facility instead of routing it through the Pretreatment Facility (an approach called Direct Feed Low Activity Waste). The Department is also continuing with those activities necessary to resolve the technical issues associated with the Pretreatment and High-Level Waste facilities. Since the Low-Activity Waste Facility, Balance of Facilities and Analytical Laboratory are nearest to completion, the Department is pursuing activities necessary for the start-up and operation of these facilities.

Consistent with the Department's intent to complete the Low-Activity Waste Facility, the Balance of Facilities, and the Analytical Laboratory in order to commence the immobilization of waste as soon as practicable without waiting for completion of the Pretreatment and High-Level Waste Facilities, the budget includes support for analysis and preliminary design of a Low-Activity Waste Pretreatment System Facility. Pursuing the completion of the Low-Activity Waste Facility, the Balance of Facilities, and the Analytical Laboratory allows DOE to address the most mobile tank waste (liquid) in the near term while in parallel working to resolve the technical and design issues associated with the Pretreatment Facility. As part of this approach, 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 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 of EMF is estimated to be approximately $371 million with planned completion in 3Q 2021.

The cost of direct maintenance and repair activities at the Office of River Protection is estimated to be $103,756,000.

Highlights of the FY 2018 Budget Request

The Office of River Protection's FY 2018 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 necessary to enable waste treatment operations; advance construction work at the Low-Activity Waste Facility, Balance of Facilities and Analytical Laboratory; resolve significant technical issues with the Pretreatment and the High-Level Waste Facilities; and protect workers, the public and environment.

As the design and construction of the Waste Treatment and Immobilization Plant progressed, a number of technical issues emerged involving the tank farms, the Waste Treatment and Immobilization Plant, and the interfaces between the two. As previously noted, the technical issues in the Waste Treatment and Immobilization Plant are primarily associated with the Pretreatment Facility and, to a lesser degree, the High-Level Waste Facility. Since the current design requires waste to flow through the Pretreatment Facility, these technical issues impact the Office of River Protection's overall ability to begin treating Hanford's tank waste. The majority of ongoing work associated with the High-Level Waste Facility is focused on completing the facility design, some construction, and the resolution of technical issues. In addition, DOE suspended all of the construction work on the Pretreatment Facility to focus on resolving the Pretreatment Facility technical issues. The timing of resolution of these issues will determine when construction activities can increase on the High-Level Waste Facility and begin again on the Pretreatment Facility.

The FY 2018 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 ($93,000,000). 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 in the case of high-level waste and disposal in the case of low-level waste. The mission of the Low Activity Waste Pretreatment System is to remove tank waste solids and cesium to supply a low activity waste feed stream directly to the Waste Treatment and Immobilization Plant Low-Activity Waste Facility.

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 the October 25, 2010 Consent Decree entered in the case of State of Washington v. United States Department of Energy, No. 08-5085 (E.D. Wash.). The Consent Decree covers certain work and scheduled activities for the Waste Treatment and Immobilization Plant and Tank Farms. Since multiple technical and programmatic issues with WTP and the tank farms have arisen since 2010, DOE has informed the state that serious risks still exist which DOE may be unable to meet certain milestones for the construction and startup of WTP. DOE has also provided the State notice that it may be unable to meet certain milestones for tank retrievals, despite DOE's exercise of reasonable diligence. Both DOE and the State of Washington filed a proposal to amend the Consent Decree with the Court on October 3, 2014. In August 2015 the court issued an order (1) directing the parties to submit revised proposals in line with the court's ruling on the extent and nature of the modifications that would be permissible, and (2) reflecting the court's intent to use a three-member expert panel to assist the court with the technical aspects of the proposals. The parties submitted revised proposals in November 2015, and an expert panel was appointed. On March 11, 2016, the Court issued Amended Consent Decree (amending the 2010 Consent Decree).

The 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 of self-contained breathing apparatus within all tank farms resulting from issuance of the June 20, 2016, Demand Letter by the Hanford Atomic Metals Trades Council. Activities are ongoing to improve work efficiency and provide worker protection from chemical vapors.

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. Current contracts at the site include:

- Bechtel National, Inc., for coordinating the construction of Hanford's Waste Treatment 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. The strategy accounts for the full scope of the technical challenges associated with the Pretreatment Facility and High-Level Waste Facility, and the current construction timelines for the individual Waste Treatment and Immobilization Plant facilities. DOE is currently advancing the completion of the design, procurement and construction of the Low-Activity Waste Facility, Balance of Facilities and Analytical Laboratory necessary to operate the Low-Activity Waste Facility independent of the Pretreatment and High-Level Waste Facilities. DOE expects construction of these facilities to be nearly complete during FY 2017 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 December FY 2016. The element will capture 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. The activities in FY 2018 support the procurement of parts, consumable and the initiation of hot commissioning necessary to support operations. 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 remain under construction under the continuing Waste Treatment and Immobilization Plant Project.

Funding ($K)

	FY 2016 Enacted	FY 2017 Annualized CR[1]	FY 2018 Request	FY 2018 vs FY 2016
Defense Environmental Cleanup				
Office of River Protection				
Tank Farm Activities				
ORP-0014 / Radioactive Liquid Tank Waste Stabilization and Disposition	724,000	722,623	806,311	+82,311
Waste Treatment and Immobilization Plant				
ORP-0060 / Major Construction-Waste Treatment Plant	690,000	688,688	690,000	0
ORP-0070 / Waste Treatment Plant Commissioning	0	0	8,000	+8,000
Subtotal, Waste Treatment and Immobilization Plant	**690,000**	**688,688**	**698,000**	**+8,000**
Total, Office of River Protection	**1,414,000**	**1,411,311**	**1,504,311**	**+90,311**

[1] The FY 2017 Annualized CR amounts reflect the P.L. 114-254 continuing resolution level annualized to a full year. These amounts are shown only at the congressional control level and above, below that level, a dash (-) is shown.

Explanation of Major Changes ($K)

	FY 2018 vs FY 2016
Defense Environmental Cleanup	
Office of River Protection	
Tank Farm Activities	
ORP-0014 / Radioactive Liquid Tank Waste Stabilization and Disposition	
• Increase reflects the activities required in the tank farms to support A/AX Single Shell Tank retrievals; support for tank farms critical spares for retrievals; implementation of Phase 2 of the Vapor Mitigation Strategy; and start of construction for the Low Activity Waste Pretreatment System.	+82,311
Waste Treatment and Immobilization Plant	
ORP-0060 / Major Construction-Waste Treatment Plant	
• No change in cost. 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 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.	0
ORP-0070 / Waste Treatment Plant Commissioning	
• The increase reflects the procurement of parts and the initiation of hot commissioning activities for the Low Activity Waste Facility, Analytical Laboratory, and the Balance of Facilities.	+8,000
Total, River Protection	**+90,311**

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 million gallons of radioactive waste stored underground in 177 tanks, including retrieval, treatment, disposal and closure of the facilities. Up to 67 tanks are assumed to have leaked a total of about 1 million gallons of waste into the soil. Ultimately, the majority of the waste must be processed to a form suitable for disposal.

The scope of this PBS also includes the planning, design, and construction of the Low-Activity Waste Pretreatment System project. The Low-Activity Waste Pretreatment System would remove tank waste solids and cesium 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.

This project also includes General Plant Projects as well as direct maintenance and repair that are applicable to these areas.

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$724,000	**$806,311**	**+$82,311**
• Maintained Tank Farms in a safe and compliant manner. • Continued 222-S Laboratory operations. • Continued 242-A Evaporator campaigns. • Completed Effluent Treatment Facility modifications and restart operations. • Conducted Single-Shell/Double-Shell Tank Integrity assessments. • Continued tank farms preventive/corrective maintenance activities. • Initiated Direct Feed Low Activity Waste Initiative. • Performed AP-107 design for feed to Low Activity Waste Pretreatment System. • Continued design of the Low Activity Waste Pretreatment System project and work towards a CD-2 decision. • Conducted design, construction, and installation of infrastructure activities to support A/AX Single-Shell Tank Farm retrievals. • Continued design activities for the L-780 electrical upgrade project and initiate construction activities. • Continued work on developing and fielding the DNFSB Recommendation 2012-2 flammable gas safety significant support system. • Supported design, construction and installation	• Maintain Tank Farms in a safe and compliant manner. • Continue 222-S Laboratory operations. • Continue 242-A Evaporator campaigns. • Continue 242-A Evaporator operations and maintenance. • Continue Effluent Treatment Facility operations and upgrades. • Conduct Single-Shell/Double-Shell Tank Integrity assessments. • Continue tank farms preventive/corrective maintenance activities. • Continue Phase 2 activities for the Hanford Tank Vapor Assessment Report recommendations. • Continue retrieval of Single-Shell Tank in A/AX Farm. • Continue upgrades to Double-Shell Tank AP-107 to support feed to Low-Activity Waste Pretreatment System. • Vapor Mitigation Strategies – Phase 2 Implementation Plan activities. • Complete Low-Activity Waste Pretreatment System long-lead procurements. • Start construction of the Low-Activity Pretreatment System.	• Increase reflects the activities required in the tank farms to support A/AX Single Shell Tank retrievals; support for tank farms critical spares for retrievals; implementation of Phase 2 of the Vapor Mitigation Strategy; and start of construction for the Low Activity Waste Pretreatment System.

of infrastructure and initiate retrieval activities to remove waste from leaking double-shell tank AY-102.

- Initiated Technical Maturation Integrated Scale Testing for the Low Activity Waste Pretreatment System.
- Continued C Tank Farm waste retrieval activities from the remaining tanks.

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 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. A significant portion of the low-activity waste fraction will be immobilized in the Low-Activity Waste Facility, with the balance immobilized using an additional supplemental treatment being developed on the Hanford Site. 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 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$690,000	$690,000	+$0

Low-Activity Waste Facility –
Design Activities:

- Issued Engineering Design Completion Lists for Various Systems including Uninterruptible Power Electrical, C5 Ventilation, Cathodic Protection Electrical, Programmable Protection, Secondary Offgas/Vessel Vent Process
- Continued engineering support to construction, Engineering & Nuclear Safety, and commissioning
- Continued Permitting Dangerous Waste Permit Application agency packages for Ecology Public Reviews of the Melters
- Issued Control Decision Report Revision 0 in support of the Documented Safety Analysis development

Procurement Activities:

- Delivered Closed Circuit TV system
- Delivered Gas Analyzers
- Delivered Uninterruptible Power Supply

Construction Activities:

- Completed partition wall installation
- Completed Melter #2 brick refractory installation
- Finished +48 bulk piping installation
- Completed the Thermal Catalytic Oxidizer installation
- Installed closed circuit TV equipment
- Completed installation of unscheduled cable
- Installed Secondary Offgas/Vessel Vent Process equipment panels
- Installed communication cable all elevations
- Completed installation of Low-Activity Waste Facility annex instrument enclosures

Low-Activity Waste Facility –
Engineering Design Activities:

- Continue Engineering Design Completion Lists for Various Systems including Uninterruptible Power Electrical, C5 Ventilation, Programmable Protection, Secondary Offgas/Vessel Vent Process
- Continue engineering support to construction, Engineering & Nuclear Safety, and commissioning
- Support of the Documented Safety Analysis development

Procurement Activities:

- Deliver Closed Circuit TV system
- Deliver Gas Analyzers
- Deliver Uninterruptible Power Supply

Construction Activities:

- Complete partition wall installation
- Finish +48 bulk piping installation
- Install closed circuit TV equipment
- Complete installation of unscheduled cable
- Install Secondary Offgas/Vessel Vent Process equipment panels
- Install communication cable all elevations
- Complete installation of Low-Activity Waste Facility annex instrument enclosures

Startup Activities:

- Continue system checkout
- Conduct component testing
- Continue procedure development

Commissioning Activities:

- Develop System Procedures
- Perform Initial Calibrations
- Develop and Conduct Training

Balance of Facilities / DFLAW/Effluent Management Facility –

- No change in cost. 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 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.

Startup Activities:

- Continued system checkout, conduct component testing, and continue procedure development

Analytical Laboratory and Balance of Facilities –

Design Activities:

- Analytical Laboratory:
  - Continued engineering support to construction, Engineering & Nuclear Safety and Commissioning
  - Issued various Engineering Design Completion Lists including Facility Network Infrastructure, Mechanical Handling Control, Process Control System, Stack Discharge Monitoring
  - Prepared the Technical Safety Requirements Document for the Documented Safety Analysis
- Balance Of Facilities:
  - Continued engineering support to construction and Engineering, Nuclear Safety & Commissioning
  - Issued Engineering Design Completion Lists for various systems including Communications Electrical, High Pressure Steam, Process Control, Ammonia Reagent
  - Completed Emergency Turbine Generator design

Procurement Activities:

- Analytical Laboratory:
  - Completed procurement of radiation monitoring equipment
- Balance of Facilities:
  - Equipment procurement for

Engineering Design Activities:

- Develop Steam LPS/HPS/SCW ICN Software Design for LAW/EMF
- Develop Water DIW/DOW/PCW/PSW ICN Software Design for LAW/EMF
- Develop Evaporator ICN Software Design for LAW/EMF
- Develop and Issue Termination Schedule Rev. 0 (Issue Tie to Construction)
- Perform ICN Software Test for LAW/EMF - Steam LPS/HPS/SCW; LAW/EMF - Water DIW/DOW/PCW/PSW; LAW/EMF - Evaporator

Construction Activities:

- Complete remaining punchlist items to support system turnover for startup testing
- Provide support to system startup testing
- Install HDPE Coated and Insulated Pipe
- Install Unscheduled Electrical - EMF
- Install Embedded Conduit , Scheduled Conduit & Tray, and Electrical Tie-Ins
- Install Metal B Decking on Roof - EMF
- Install Platforms - Steel & Grating C3 and C5 Areas
- Perform Hydrotest
- EMF - Install Reboiler Separator Vessel
- EMF - Install Secondary Steam Generator and Condensate
- Backfill To Final Finish Grade
- Set Vendor Supplied Electrical Module Units

Startup Activities

- Support Construction T/O to Startup – Glass Former Storage, Chiller Compressor Plant, Steam Plant Facility
- Component Testing - Water Treatment Facility, Cooling Tower Facility, Chiller

Balance of Facilities modifications in support of Direct Feed Low-Activity Waste Facility

Construction Activities:

- Analytical Laboratory:
  - Installed batteries and racks
- Balance of Facilities:
  - Completed construction of the Balance of Facilities Anhydrous Ammonia Facility
  - Completed construction of above ground process piping
  - Installed telecommunication enclosures

Startup Activities

- Analytical Laboratory:
  - Completed methods development in support of Low -Activity Waste
  - Started Analytical Laboratory Operations Training (Group 1)
  - Started Documented Safety Analysis training
- Balance of Facilities:
  - o Completed startup acceptance from construction of communications electrical system
  - Completed startup acceptance from construction of Process Control system, including walk downs, for Switchgear Buildings 87 and 91
  - Continued cold commissioning training
  - Continued system checkout, conduct component testing, and continue procedure development

Compressor Plant, Steam Plant Facility

- Draft, Review & Approve Test Procedure - Water Treatment Facility, Cooling Tower Facility, Chiller Compressor Plant, Steam Plant Facility
- Startup System Testing - Water Treatment Facility, Cooling Tower Facility, Steam Plant Facility, Chiller Compressor Facility
- Startup System Testing/Closeout and Turnover to Operations - Water Treatment Facility, Cooling Tower Facility
- Startup Systems Turnover and Prep for Testing - CME/SCE - Admin, Warehouse, and Combo Shop

Commissioning Activities

- Continue Operations Training
- Continue Facility Operations
- Continue Maintenance Training
- Continue Operation Support
- Continue - Operations Procedures

Analytical Laboratory –

Engineering Activities:

- Engineering Support to Construction

Construction Activities:

- Provide support to system startup testing
- Install system isolations and modifications to support DFLAW

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,

- Started removing and replacing piping flushing spools

High-Level Waste Facility –

Design Activities:

- Continued work on ventilation system design
- Completed High Efficiency Particulate Air AG-1 Testing and Reporting, High Efficiency Particulate Air filters received for Phase II testing
- Completed dangerous waste permit permitting process for Radioactive Liquid Waste Disposal System Vessel (RLD-VSL-007) and Radioactive Liquid Waste Disposal System Vessel (RLD-VSL-008)
- Updated Preliminary Documented Safety Analysis incorporate safety design strategy and gap analysis
- Completed operability review of the remaining systems
- Updated Radioactive Liquid Waste Disposal System Vessel Safety Basis Change Package

Procurement Activities:

- Delivered melter cave feed preparation
- Resumed procurements in support of construction

Construction Activities

- Completed placement of melter cave 1 and 2 crane maintenance and decontamination walls to +72ft elevation
- Continued construction activities and increase craft work in the +37ft corridors
- Begin installation of mechanical equipment doors and cable reels in maintenance and decontamination rooms – Melter 1 and 2
- Set Shielded Personnel Access doors: HLW 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:

- Support HLW baseline modification
- Design/support Radioactive Liquid Waste Disposal System Vessel (RLD-VSL-007/8) delivery

Procurement Activities:

- Support crane and vessel (RLD-VSL-007/8) deliveries

Construction Activities:

- Support facility preservation activities

Pretreatment Facility –

Design Activities:

- Complete PT Technical Issue Resolution T4 - Standard High Solids Vessel Design testing (mixing)
- Complete PT Technical Issue Resolution T4 - Final PJM Control Recommendation Study
- Complete PT Technical Issue Resolution T5 - Localized Corrosion Design Basis
- Complete PT Technical Issue Resolution T6 - Conceptual Design Study Rev. 0

Procurement Activities:

- Support procurement suspension activities

Construction Activities:

Canister Export Handling System (HEH-DOOR-3), HLW Canister Decontamination Handling System (HDH-DOOR-5), and HLW Melter Cave Support Handling System (HSH-DOOR-18/19)

Startup Activities:

- No Scope

Pretreatment Facility –

Design Activities:

- Continue work on the safety design strategy and system descriptions and Preliminary Documented Safety Analysis
- Start Full Scale Vessel Testing (FSVT) in 16ft standardized high solids vessel design
- Establish a post FSVT path to proceed with production engineering
- Pretreatment Vessel Vent Process/Process Vessel Vent Exhaust/C5 Ventilation system ventilation issue closure ventilation issues
- Complete resolution technical issues of Criticality; Hydrogen Gas Vessels; Pretreatment Optimization
- Continue testing on Erosion/Corrosion
- Continue Radioactive Liquid Waste Disposal System Vessel decommissioning
- Support facility preservation activities

Waste Treatment Plant Commissioning (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 Low-Activity Facility, the Analytical Laboratory, and the Balance of Facilities, 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.

Waste Treatment Plant Commissioning (PBS: ORP-0070)

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$0	**$8,000**	**+$8,000**
	• Initiate 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.	• The increase reflects the procurement of parts and the initiation of hot commissioning activities for the Low Activity Waste Facility, Analytical Laboratory, and the Balance of Facilities.

Office of River Protection
Capital Summary ($K)

	Total	Prior Years	FY 2016 Enacted	FY 2018 Request	FY 2018 vs FY 2016
Capital Operating Expenses Summary (including (Major Items of Equipment (MIE))					
Capital Equipment > $500K (including MIE)	0	0			
Plant Projects (GPP and IGPP) (<$10M)	16,500	0	0	16,500	+16,500
Total, Capital Operating Expenses	**16,500**	**0**	**0**	**16,500**	**+16,500**
Capital Equipment > $500K (including MIE)	0	0	0	0	0
Total, Capital Equipment (including MIE)	**0**	**0**	**0**	**0**	**0**
Plant Projects (GPP and IGPP) (Total Estimated Cost (TEC) <$10M)					
River Protection					
222-SA Facility Replacement	4,500	0	0	4,500	+4,500
Design and Construct 222-S Ancillary Equipment Addition	1,100	0	0	1,100	+1,100
Design and Construct Interim Barrier 1	5,450	0	0	5,450	+5,450
Design and Construct Interim Barrier 2	5,450	0	0	5,450	+5,450
	16,500	**0**	**0**	**16,500**	**+16,500**
Total, Plant Projects (GPP and IGPP) (Total Estimated (TEC) <$10M	**16,500**	**0**	**0**	**16,500**	**+16,500**
Total, Capital Summary	**16,500**	**0**	**0**	**16,500**	**+16,500**

Office of River Protection
Construction Projects Summary ($K)

	Total	Prior Years	FY 2016 Enacted	FY 2018 Request	FY 2018 vs FY 2016
01-D-416, Waste Treatment and Immobilization Plant, Hanford WA					
01-D-16A-D WTP Subprojects A-D					
Total Estimate Cost (TEC)	TBD	6,364,563	595,000	655,000	+60,000
Other Project Costs (OPC)	0	0	0	0	0
01-D-16E Pretreatment Facility					
Total Estimate Cost (TEC)	TBD	3,500,050	95,000	35,000	-60,000
Other Project Costs (OPC)	0	0	0	0	0
Total Project Cost (TPC) 01-D-416	**TBD**	**9,864,613**	**690,000**	**690,000**	**0**
15-D-409, Low Activity Waste Pretreatment System (Hanford) (ORP-0014)					
Total Estimate Cost (TEC)	TBD	23,000	75,000	93,000	+18,000
Other Project Costs (OPC)	TBD	9,675	382	200	-182
Total Project Cost (TPC) 15-D-409	**TBD**	**32,675**	**75,382**	**93,200**	**+17,818**

01-D-416, Waste Treatment and Immobilization Plant, Hanford, WA
Project is for Construction

1. Significant Changes and Summary

Significant Changes

This Construction Project Data Sheet is an update of the FY 2017 Construction Project Data Sheet and does not include a new start for FY 2018.

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 2018 and subsequent funding year needs are to be determined.

Summary

The most recent Department of Energy (DOE) O 413.3B approved Critical Decision is Critical Decision -3C, approved on April 21, 2003, with a Total Project Cost of $5,781,000,000 and Critical Decision -4 of July 2011.

Latest approved Baseline Change - The current approved performance baseline cost is $12,263,000,000 and Critical Decision -4, Project Completion is November 2019.

The Department continues construction of the Low-Activity Waste Facility, Analytical Laboratory and Balance of Facilities, with preservation activities planned for the High-Level Waste Facility and Pretreatment Facility.

In August 2014, the High-Level Waste facility increased production engineering with some construction activities continuing in this facility. The assessment of technical issues related to the High-Level Waste Facility is ongoing.

The Department continues to focus on strategies and key actions that optimize design, procurement, construction, startup, commissioning and turnover of the Waste Treatment and Immobilization Plant facilities.

A Federal Project Director has been assigned to this project.

Status of Major Technical and Performance Issues

As of the end of August 2016, the Waste Treatment and Immobilization Plant project is making considerable progress in resolving the technical, safety, quality, and management, issues that have been identified as a result of multiple internal and external reviews of the project over the past several years. These reviews have resulted in a series of management actions to assess the root causes of the issues and implement management and process changes that, combined with resolution of technical issues, will facilitate the completion of the design of the facilities and progress on major procurements and construction. Significant majority of the process improvement changes have been successfully implemented. The major safety, quality and management processes, and technical issues and their status are summarized below.

Safety Culture: Concerns with the safety culture at the Waste Treatment and Immobilization Plant project were identified and detailed in Defense Nuclear Facility Safety Board Recommendation 2011-1, and further evaluated in independent assessments conducted by the Department of Energy's Office of Environment, Health, Safety & Security and the Office of Enterprise Assessments in 2011, 2012, 2014 and 2015. Both the Office of River Protection and the Waste Treatment and Immobilization Plant contractor, Bechtel National, Inc., developed and implemented safety culture improvement plans. The last open action from the commitments documented in the Department's Implementation Plan for Defense Nuclear Facility Safety Board Recommendation 2011-1 (Action 1-6) is to provide contract documents to the Board that address balanced priorities and include safety culture elements. The Department is working on closure of this action. Both the Office of River

Protection and the Waste Treatment and Immobilization Plant contractor, Bechtel National, Inc., developed and are implementing safety culture sustainment plans, which are revised periodically through self-assessment and Integrated Safety Management System Declaration processes to support continuous improvement.

Technical Issues: The primary Waste Treatment and Immobilization Plant technical issues are associated with the Pretreatment Facility, and, to a lesser degree, the High-Level Waste Facility. The Pretreatment Facility presents a number of first-of-a-kind technical issues that require additional expert analysis and testing activities to resolve. Personnel from the Waste Treatment and Immobilization Plant contractor, Office of River Protection, DOE contractors, and the National Laboratories, are utilized to provide leadership and oversight for resolution of these issues. Eight technical sub-teams have been established and are focused on nine specific issue areas. Significant progress has been made in resolving the technical issues with a key focus on hydrogen generation, criticality, and erosion-corrosion. Phase 1 of the full scale test platform program and Phase 2 of the testing program, using a 13 foot vessel (which focused on control limits to support mixing and to test system reliability) have been completed. Platform testing using the standardized 16 foot vessel began in December 2016, and all technical issues resolution is forecasted to be completed in FY 2018.

The work of technical sub-teams teams has evolved such that the project is now focused on the Pretreatment Facility and, where applicable, the High-Level Waste Facility as described below. Table 1 identifies the key technical challenges for the project.

Table 1. Waste Treatment and Immobilization Plant Project Technical Issues by Facility.

Technical Issue	Pretreatment Facility	High-Level Waste Facility
Pulse-Jet Mixing and Control	X	X
Hydrogen Gas Release from Vessel Solids	X	
Criticality in Pretreatment Facility Vessels	X	
Hydrogen in Piping and Ancillary Vessels	X	X
Erosion and Localized Corrosion in Waste Treatment and Immobilization Plant Vessels and Piping	X	X
Design Redundancy in Black Cells/In-Service Inspection	X	X
Black Cell Vessel Structural Integrity	X	X
Facility Ventilation	X	X
Waste Feed Preconditioning Requirements	X	

Pulse-Jet Mixing and Control

Additional testing is required to verify the mixing performance design of pulse-jet mixed vessels that contain wastes with low-to-high solids concentrations and that are installed in non-accessible areas of the Waste Treatment and Immobilization Plant. Solids in wastes anticipated in some of the pulse-jet mixed vessels, as currently envisioned, could interfere with waste-level measurements and pulse-jet mixer control in vessels, which could lead to overblow events (i.e., air discharged out of the pulse-jet mixers into the vessel). The cumulative effect of overblows could exceed the vessel fatigue design limits and cause a structural failure of the components within the vessels impacting long-term operability.

In early 2014, the Department issued a document titled *U.S. Department of Energy Approach for Resolution of Pulse-Jet Mixed Vessel Technical Issues in the Waste Treatment and Immobilization Plant*, which describes the general plan for the selection and testing of pulse-jet mixed vessels. DOE is pursuing a design solution that would replace up to eight

large vessel designs in the Pretreatment Facility, with up to 14 smaller standardized pulse-jet mixed vessel designs capable of mixing wastes with high concentrations of solids. This strategy has the potential to substantially reduce the testing cost and schedule duration. According to this plan, two vessels will be tested using full-scale prototypes to obtain information to help resolve the technical issues on pulse-jet mixer effectiveness. Both vessel prototypes represent vessel designs, or vessel design features, that have been previously or will be tested first at smaller scales and demonstrated to mix a wide variety of solids concentrations. Full-scale testing with the first vessel was initiated in FY 2014 to demonstrate the pulse-jet mixing control system design and operating concepts. The second vessel, a prototype of the new standardized vessel design, was tested first at a small-scale in early 2015 and will be tested at full-scale during CY 2017 to demonstrate pulse-jet mixing performance and control system testing over the complete range of fluids and slurries planned to be processed in the Pretreatment Facility. Following successful testing, this standard vessel design will be used to complete the design of the Pretreatment Facility.

Hydrogen Gas Release from Vessel Solids

In the current design of the Pretreatment Facility pulse-jet mixed vessels, high solids concentrations expected to be present in some of those vessels, if improperly mixed, could form a sediment layer on the bottom of the vessel resulting in the retention of hydrogen gas. This circumstance could lead to a sudden episodic release of hydrogen into the head space in unacceptably high concentrations, creating a risk of combustion in the unlikely presence of an ignition source. Such a combustion event could breach the containment of the vessel.

Based on results of a combination of engineering studies, development of engineered and administrative safety controls, and vessel testing to ensure that any hydrogen gas release into the headspace of Pretreatment Facility vessels can be prevented though effective mixing or be safely controlled, which was completed in CY 2016, this issue is now considered resolved. Documentation of the issue resolution was provided to the Defense Nuclear Facilities Safety Board in late January 2017.

Criticality in Pretreatment Facility Vessels

Up to 16 of the 149 underground single-shell tanks at Hanford may contain plutonium particles of a size and density that could settle on internal surfaces of the pulse-jet mixed vessels as currently designed. If such settling were to occur, the pulse-jet mixers may not be able to re-suspend the particles, and if certain other conditions were present, a sufficient quantity of plutonium could form in a particular geometry that could possibly initiate a criticality (a limited fission event that releases heat and energy).

The issue of an inadvertent criticality in Pretreatment Facility process vessels was addressed by conducting engineering analyses, testing and peer reviews utilizing nationally recognized nuclear safety experts. Based on results of this testing – completed in CY 2016, it was determined that this issue does not represent a credible hazard based on the proposed controls in the Waste Treatment and Immobilization Plant Preliminary Criticality Safety Evaluation Report, and a proposed strategy in an engineering study used to evaluate potential treatment of Hanford tank waste containing plutonium particulates and oxide. This issue is now considered resolved, and documentation of the issue resolution was provided to the Defense Nuclear Facilities Safety Board in late January 2017.

Hydrogen in Piping and Ancillary Vessels

The high-level waste slurry is comprised of solids, water, organics, radionuclides, and other chemicals. Due to this composition, the waste may produce hydrogen gas through radiolysis and thermolysis. Should hydrogen accumulate in Waste Treatment and Immobilization Plant pipes or vessels, and if an ignition source were present, conditions could exist that would lead to a deflagration event and, in some cases, transition to a more severe detonation event.

The Department has approved (with conditions) the use of a Quantitative Risk Assessment process for conducting design analyses of Waste Treatment and Immobilization Plant process piping subject to hydrogen gas accumulation in both the High-Level Waste and Pretreatment Facilities. The risk-based tools have been reviewed and endorsed by an Independent Review Team of nationally recognized piping design and nuclear safety experts. The Waste Treatment and Immobilization Plant contractor has completed piping design analyses utilizing the Hydrogen in Piping and Ancillary Vessels quantitative risk assessment tools in the High-Level Waste and Pretreatment facilities.

Application of these design and nuclear safety basis activities resulted in a technical report that specifies the Hydrogen in Piping and Ancillary Vessels design features in the High-Level Waste and Pretreatment Facilities, and a conceptual design for affected piping routes. Testing of remote piping connectors and other components (e.g., valves, instruments) to determine integrity from vibration, seismic and hydrogen events has also been completed, and impacts to the designs determined and resolved. Based on results of this testing – completed in CY 2016, it was determined that this issue does not represent a credible hazard and this issue is now considered resolved. Documentation of the issue resolution was provided to the Defense Nuclear Facilities Safety Board in late January 2017.

Erosion and Localized Corrosion in Waste Treatment and Immobilization Plant Vessels and Piping
As currently designed, the Waste Treatment and Immobilization Plant vessels and piping may not be sufficiently robust to establish sufficiently conservative margins for expected erosive wear, particularly in light of the uncertainties in waste feed characteristics. Failure to incorporate an appropriate level of wall thickness into the piping and vessel designs, combined with potential excessive erosion and corrosion, could lead to wall thinning, an extended work stoppage for repairs, and, in some locations, piping or vessel failure.

A series of comprehensive erosion, corrosion, and synergistic erosion/corrosion tests have been initiated to establish a basis for erosion and localized corrosion design criteria specific to Waste Treatment and Immobilization Plant process conditions. The test program will cover process conditions applicable to both the High-Level Waste and Pretreatment Facilities. Required chemistry controls will be identified in the Pretreatment Facility flowsheet and incorporated into corrosion evaluations. Upon completion of the analyses and testing activities, the erosion and localized corrosion design bases for vessels and piping will be validated and used as input for completing the design of the High-Level Waste and Pretreatment Facilities. In advance of completion of the erosion and corrosion test program, an erosion and corrosion risk assessment will be conducted for both facilities (completed in early 2014 for the High-Level Waste Facility) to allow the Department to assess the risk of proceeding with production engineering and design activities. Initial testing has begun related to this issue, but significant testing remains to be completed.

Design Redundancy in Black Cells and In-Service Inspection
The current design for equipment and components located in “black cells” (isolated plant areas that cannot be accessed by workers or easily accessed by machines) and hard-to-reach areas may not provide adequate redundancies or provide for in-service inspection to support a 40-year design life. The potential exists for major equipment failures before the end of the facility design life due to material defects, fabrication errors, installation deficiencies, or other unforeseen reasons. The piping and equipment in black cells and hard-to-reach areas are not accessible to be monitored for potential signs of degradation, or for repair or recovery, should it become necessary.

A process called Failure Modes, Effects, and Criticality Analysis is being implemented to identify the probability and consequences of equipment and piping failures in the black cells and hard-to-reach areas of the High-Level Waste and Pretreatment Facilities. This process will identify potential single-point failure vulnerabilities, inspections or other monitoring that is needed to provide the requisite confidence in achieving predicted design life, and the design and operational contingencies needed to ensure timely recovery and completion of the Waste Treatment and Immobilization Plant project’s mission should an unforeseen failure of a component occur. In addition, design studies are being conducted for Pretreatment Facility black cells to determine what changes to the Pretreatment Facility will be necessary should the Department adopt a standardized design for the high-solids pulse-jet mixed vessels. These conceptual design studies will support the advancement of the Pretreatment Facility design and inform the decision on use of the standardized vessels. This effort is expected to take until the end CY 2018 to resolve.

Black Cell Vessel Structural Integrity
Structural analysis of black cell vessels, especially the pulse-jet mixed vessels, has resulted in the need for significant structural modifications to support components installed in the vessels. The extent and nature of the proposed modifications will require significant project resources and involve complexity in the fabrication and qualification of the new components, posing cost and schedule risks. However, the current seismic categorization of these vessels may be

overly conservative. Accordingly, the structural design criteria for these vessels are being re-evaluated to assess whether such complex and costly modifications are necessary.

The Waste Treatment and Immobilization Plant project is using an expert review panel to assess the degree of conservatism in the existing design criteria, analytical methodology, and design configuration; and to identify potential changes in the criteria and methodology. Once the expert review panel has completed its assessment, the project will develop a plan for implementing these criteria changes. Assuming a change is warranted and approved, the vessels in black cells will be reanalyzed using a seismic category that is consistent with the safety classification. In addition, an assessment will be conducted for the High-Level Waste and Pretreatment Facilities of the cost, schedule and technical risk associated with making internal modifications to installed vessels. The risk assessments will be used to inform the decision on final vessel configuration and seismic/safety classification. A *Preliminary Structural Analysis of Standard High Solids Vessel Design-Plant Study* was issued in December 2016 by the contractor to DOE. Finalization of this issue is expected by the end of FY 2017.

Facility Ventilation

In facilities that handle nuclear materials, air handling units are designed and installed to ensure air always flows from the non-contaminated areas to the contaminated areas. A recent project design and operability review of the High-Level Waste Facility indicated air may not flow in the required direction within the facility under some conditions. This could result in the spread of contamination within the facility. In addition, testing has indicated that operational conditions have the potential to cause the high efficiency particulate air filters to fail due to higher than anticipated aerosol loading onto the filters.

Resolution of the issues related to high efficiency particulate air filter performance requires a combination of testing, design, and safety control strategy development. The Waste Treatment and Immobilization Plant project has developed new filter design, test plans and completed large number of NQA-1 full-scale testing of the revised high efficiency particulate air filter designs for both the remote and safe-change filter housings. Test results demonstrated that the new filter design can support particle loadings at temperatures and humidity levels for normal and accidental conditions with significant margin. Additional design study and alternatives analysis have been completed showing appropriate air flows during all off-normal operational and accident scenarios for the High-Level Waste Facility ventilation systems. A design and operability review similar to that conducted for the High-Level Waste Facility has been completed for Low-Activity Waste Facility, and required design modifications are being evaluated for implementation.

Waste Feed Preconditioning Requirements

Because waste mixing and sampling cannot be accomplished effectively inside the double-shell tanks, the waste to be transferred to the Pretreatment Facility cannot be accurately characterized or shown to comply with expected waste acceptance criteria. Inaccurately characterized waste may not be effectively processed by the Waste Treatment and Immobilization Plant or may not be compliant with the Waste Treatment and Immobilization Plant design basis and/or safety basis.

Important to resolving the technical issues in the Waste Treatment and Immobilization Plant is the proposed Tank Waste Characterization and Staging capability. Waste mixing, sampling, and preconditioning is necessary to ensure the waste acceptance criteria for the Pretreatment Facility and possibly for the High-Level Waste Facility are met. The Tank Waste Characterization and Staging capability will enable the Department to mix, sample, and feed tank waste to the Pretreatment Facility in a predictable and consistent manner. Also, this capability could be designed to provide a method of managing waste projected to be more technically difficult to process, for example by reducing the size of large solid particles in the waste. Lastly, the Tank Waste Characterization and Staging capability will narrow the testing parameters required for pulse-jet mixed vessel testing and support the resolution of technical issues affecting Pretreatment Facility. Critical Decision (CD)-0 was approved by the Department on September 11, 2015.

Based on current analysis and testing plans, including full-scale vessel testing, evaluation and resolution of key technical issues is expected to take a few years for the Pretreatment Facility.

Other Technical Issues: Other engineering and design issues that are currently being addressed by the Waste Treatment and Immobilization Plant project include Waste Treatment and Immobilization Plant uncertainties associated with the safety controls for spray leaks from Waste Treatment and Immobilization Plant process piping and components, heat transfer analysis for Waste Treatment and Immobilization Plant process vessels, engineering issues with design and construction of the electrical distribution system, and the potential for line plugging in Waste Treatment and Immobilization Plant process piping.

2. 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 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[2]	SEP 1995		SEP 1996	4Q FY1998	4Q FY2005	MAY 2002	N/A	1Q FY2007
FY 2003 Congressional Notification	SEP 1995		SEP 1996	04/21/2003	4Q FY2005	04/21/2003	N/A	3Q FY2008
FY 2005	SEP 1995		SEP 1996	04/21/2003	4Q FY2005	04/21/2003	N/A	3Q FY2008
FY 2004 Reprogramming	SEP 1995		SEP 1996	04/21/2003	4Q FY2005	04/21/2003	N/A	3Q FY2008
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[3]	SEP 1995		SEP 1996	04/21/2003	4Q FY2010	04/21/2003	N/A	2Q FY2017
FY 2009[1]	SEP 1995		SEP 1996	04/21/2003	4Q FY2013	04/21/2003	N/A	1Q FY2020
FY 2010[4]	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 Reprogramming	SEP 1995		SEP 1996	04/21/2003	1Q FY 2016	04/21/2003	N/A	1Q FY 2020
FY 2015	SEP 1995		SEP 1996	04/21/2003	1Q FY2016	04/21/2003	N/A	1Q FY2020

(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	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

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 (see Section 9)
CD-4 – Approve Start of Operations or Project Completion
PB – Indicates the Performance Baseline

Notes:
1) The FY 2009 Budget Request 'PED Complete' date was based on the June 2007 Execution Revision schedule.
2) The FY 2004 Budget Request 'Critical Decision -3' date of 4Q FY 2002 represented the start of physical construction. The FY 2003 Congressional Notification 'Critical Decision -3' represents the date approval was granted to begin full construction (Critical Decision 3c).
3) The FY 2008 Budget Request 'Critical Decision -4' date of 2Q FY 2017 represented the completion of physical construction of the Waste Treatment and Immobilization Plant facilities. In the FY 2009 Budget Request, the 'Critical Decision -4' completion date represents the completion of construction, start-up, commissioning and transfer of the Waste Treatment and Immobilization Plant to the operations contractor.
4) In the FY 2010 Budget Request, the 'PED Complete' date reflects contract dates from the revised January 2009 contract.

3. 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

(dollars in thousands)

	TEC, Design	TEC, Construction	TEC, Total	OPC Except D&D	OPC, D&D	OPC, Total	Total Project Cost
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 Reprogramming	0	12,263,000	12,263,000	0	0	0	12,263,000
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

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, which would treat approximately 10 percent of waste by volume, and 25 percent of the waste, by radioactivity, for a Total Project Cost of $12,488,000,000. The plant was designed to have a 40 year operational life, during which time it would process a total of 40 percent of the waste by volume. 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 2000, 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. A second plant (not part of the current project contract) is expected to be necessary to treat and immobilize the balance of the low-activity waste, depending on the operations in the Waste Treatment and Immobilization Plant. 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.

4. 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 a large Analytical Laboratory, and supporting buildings and utilities collectively known as the Balance of Facilities. The Pretreatment Facility will accomplish the separation of the wastes. The High-Level Waste Facility will immobilize, through vitrification, the high-level fraction. The Low-Activity Waste Facility will immobilize, through vitrification, a substantial portion of the low-activity 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 clean up hazardous and 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 thirteen 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 infrastructure that supports storage of this waste is aging.

The Department's Waste Treatment and Immobilization Plant project is responsible for managing the effort to design, build, and commission the waste treatment facilities. The Waste Treatment and Immobilization Plant is an unprecedented 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 over hundreds to thousands of years.

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. From contract award, the contractor is the design authority responsible for the design of the plant.

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 immobilized low-activity fraction will be placed in a disposal facility on the Hanford site.

Risk Management is an integral part of project management and not a separate function. Risk Management is used as a management tool to identify and manage risks to avoid/minimize negative impacts and maximize positive impacts. The risk management process and its integration and execution throughout the project areas and organizations is overseen by a Joint Risk Management Team chaired by the Waste Treatment Plant Project Manager and comprised of DOE's Area Federal Project Managers and key Waste Treatment Plant Senior Project and Functional Managers.

The status of risks is reviewed monthly at a minimum, including a dashboard assessment. The Engineering, Procurement, Construction, and Commissioning and DOE Risk Handling Strategies include developing Risk Response Plans, establishing risk handling actions including identifying individual responsibilities, documenting completion dates, determining residual risk levels, establishing impacts, and developing a time phased residual impact profile.

Remaining risks are primarily associated with technical uncertainties in the High-Level Waste and Pretreatment Facilities.

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.

01-D-16A-D, Low-Activity Waste Facility, Analytical Laboratory, Balance of Facilities, High-Level Waste Facility

Scope and Justification

The Low-Activity Waste Facility will immobilize, through vitrification, a substantial portion of the low-activity fraction. The 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 of 3.6 metric tons per day (average daily throughput). The Analytical Laboratory Facility will provide the necessary sample analysis needed throughout the processing facilities. The High-Level Waste Facility will immobilize, through vitrification, the high-level fraction. 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.

01-D-16E, Pretreatment Facility
Environmental Management/
River Protection/01-D-416 Waste
Treatment and Immobilization Plant,
Hanford, WA

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, evaporation to remove excess water, and an ion exchange system to remove cesium from the tank waste. The process of segregating the waste will be accomplished in black cells (isolated from entry) and a hot cell (remotely accessible) which are located in concrete structures in the center of the building. A hardened control room building and an annex building will be located adjacent to the Pretreatment Facility. 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.

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 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 of EMF is estimated to be approximately $371 million with planned completion in 3Q 2021.

5. Financial Schedule

(dollars in thousands)

	Appropriations	Obligations	Costs
Total Estimated Cost (TEC)			
Construction			
FY 2001[a]	401,171	401,171	226,311
FY 2002	665,000	665,000	488,469
FY 2003[bc]	671,898	671,898	621,574
FY 2004[d]	697,530	682,402	725,246
FY 2005[em]	684,480	695,552	811,862
FY 2006	520,758	524,814	516,003
FY 2007[fghm]	690,000	621,000	550,991
FY 2008[i]	683,721	752,721	727,766
FY 2009	690,000	690,000	716,613
FY 2010	690,000	690,000	790,487
FY 2011 [jm]	738,699	738,699	794,774
FY 2012[k]	740,000	740,000	733,852
FY 2013 [l]	634,356	634,356	555,391
FY 2014	690,000	690,000	633,313
FY 2015 [o]	667,000	667,000	701,679
FY 2016 [o]	690,000	690,000	741,615
FY 2017 [o]	690,000	690,000	801,997
FY 2018	690,000	690,000	690,000

Outyears[k]	328,387	328,387	435,051
Total, Construction	12,263,000	12,263,000	12,263,000
Total Project Cost (TPC)			
FY 2001[a]	401,171	401,171	226,311
FY 2002	665,000	665,000	488,469
FY 2003[bc]	671,898	671,898	621,574
FY 2004[d]	697,530	682,402	725,246
FY 2005[em]	684,480	695,552	811,862
FY 2006	520,758	524,814	516,003
FY 2007[fghm]	690,000	621,000	550,991
FY 2008[i]	683,721	752,721	727,766
FY 2009	690,000	690,000	716,613
FY 2010	690,000	690,000	790,487
FY 2011 [jm]	738,699	738,699	794,774
FY 2012[k]	740,000	740,000	733,852
FY 2013 [l]	634,356	634,356	555,391
FY 2014	690,000	690,000	633,313
FY 2015 [o]	667,000	667,000	701,679
FY 2016 [o]	690,000	690,000	741,615
FY 2017 [o]	690,000	690,000	801,997
FY 2018	690,000	690,000	690,000
Outyears[k]	328,387	328,387	435,057
Total, TPC	**12,263,000**	**12,263,000**	**12,263,000**

[a] FY 2001 Appropriations reflect a FY 2001 Rescission of $829,000 and FY 2001 Supplemental Appropriation of $25,000,000. The original appropriation was $377,000,000.

[b] FY 2003 Appropriations reflect approved FY 2003 reprogramming of $83,981,567 to increase the project from $606,018,433 to $690,000,000 to meet project requirements.

[c] FY 2003 Appropriations and Obligations reflect a reduction of $18,102,000 as part of the FY 2004 Energy and Water Development Appropriation Act prior year reduction.

[d] FY 2004 Appropriations reflect a reduction of $3,964,000 due to FY 2004 Government-wide Rescission of 0.59 percent and increase of $11,494,000 due to a reprogramming.

[e] FY 2005 Appropriations reflect a reduction of $5,520,000 due to FY 2005 Government-wide Rescission of 0.8 percent.

[f] New Waste Treatment and Immobilization Plant Project Performance Baseline as approved on December 22, 2006.

[g] The FY 2007 National Defense Authorization Act states that only 90 percent of funds may be obligated until the Secretary of Energy certifies the Waste Treatment and Immobilization Plant Earned Value Management System. In March of 2008 the Waste Treatment and Immobilization Plant Earned Value Management System received certification.

[h] The Prior Year Appropriations, Obligations, and Costs have been updated to reflect a more current estimate of the anticipated utilization of the non-facility specific carryover funding remaining in the Waste Treatment and Immobilization Plant line-item, 01-D-416.

[i] FY 2008 Enacted Appropriations reflect a reduction of $6,278,000 due to the FY 2008 rescission of 0.91 percent.

[j] FY 2011 Continuing Appropriations reflect a reduction of $1,302,356 due to the FY 2011 rescission of 0.2 percent.

[k] Upon completion of a project review effort, this Project Data Sheet will be formally revised and submitted to Congress.

[l] FY 2013 Enacted Appropriations reflect a reduction of $59,494,000 due to FY 2013 sequestration. Additionally there was a reprogramming of $166,150,000 from the Pretreatment Facility (E) control point with $120,000,000 going to the Low-Activity Waste/Balance of Facilities/Analytical Laboratory/High-Level Waste Facility (A-D) control point and $46,150,000 going to the Tank Farms Operations Contract.

[m] Cost has been updated based on a recent audit performed to accurately reflect the cost as recorded in final DOE cost records after year-end closing entries were finalized.

[n] Costs include costs for reviews conducted by the Office of Project Management Oversight and Assessments.
[o] Costs updated to reflect actual expenditures for FY 2015 and FY 2016 and projected costs for FY 2017.

The following tables break out the two control points.

01-D-16A-D, Low-Activity Waste Facility, Analytical Laboratory, Balance of Facilities, High-Level Waste Facility

(dollars in thousands)

	Appropriations	Obligations	Costs
Total Estimated Cost (TEC)			
Construction			
Prior Years[a]	1,891,449	1,891,449	1,715,169
FY 2006[f]	373,243	373,243	361,715
FY 2007[b]	479,000	450,600	420,421
FY 2008[cf]	433,023	461,423	488,270
FY 2009[df]	425,000	425,000	419,822
FY 2010[f]	365,000	365,000	456,194
FY 2011[f]	379,419	379,419	412,555
FY 2012	430,000	430,000	425,269
FY 2013	515,429	515,429	418,326
FY 2014	510,000	510,000	513,672
FY 2015 [g]	563,000	563,000	575,123
FY 2016 [g]	595,000	595,000	624,479
FY 2017 [g]	593,000	593,000	691,422
FY 2018	655,000	655,000	655,000
Outyears[e]	TBD	TBD	TBD
Total Construction	**TBD**	**TBD**	**TBD**
Total Project Cost (TPC)			
Prior Years[a]	1,891,449	1,891,449	1,715,169
FY 2006[f]	373,243	373,243	361,715
FY 2007[b]	479,000	450,600	420,421
FY 2008[cf]	433,023	461,423	488,270
FY 2009[df]	425,000	425,000	419,822
FY 2010[f]	365,000	365,000	456,194
FY 2011[f]	379,419	379,419	412,555
FY 2012	430,000	430,000	425,269
FY 2013	515,429	515,429	418,326
FY 2014	510,000	510,000	513,672
FY 2015 [g]	563,000	563,000	575,123
FY 2016 [g]	595,000	595,000	624,479
FY 2017 [g]	593,000	593,000	691,422
FY 2018	655,000	655,000	655,000
Outyears[e]	TBD	TBD	TBD
Total TPC	**TBD**	**TBD**	**TBD**

[a)] The prior year appropriations, obligations and costs have been updated to reflect utilization of the non-facility specific carryover funding remaining in the Waste Treatment and Immobilization Plant line item 01-D-416. The Construction Prior[a] line is based on facility costs prior the split of the Waste Treatment and Immobilization Plant into the five facilities.
[b)] Ten (10) percent of the FY 2007 Appropriation was held back as a result of not achieving Secretarial certification of the contractor's Earned Value Management System by September 30, 2007. The certification was received in FY 2008, at which time the $69,000,000 will be obligated to the project. Balance of Facilities portion of the hold-back was $5,700,000.
[c)] FY 2008 Enacted Appropriations reflect a reduction of $1,301,000 due to the FY 2008 Government-wide Rescission of 0.91 percent.
[d)] Adjustments to the FY 2009 costs from the data provided in previous Project Data Sheets are related to utilization of prior to FY 2006 funding. This funding was not facility specific and the adjustments in costs are net zero across the five facilities. The change in cost for FY 2009 is based on earned value data for FY 2009.
[e)] Upon completion of a project review effort, this Project Data Sheet will be formally revised and submitted to Congress.
[f)] Cost has been updated based on a recent audit performed to accurately reflect the cost as recorded in final DOE cost records after year-end closing entries were finalized.
[g] Costs updated to reflect actual expenditures for FY 2015 and FY 2016 and projected costs for FY 2017.

01-D-16E, Pretreatment Facility

(dollars in thousands)

	Appropriations	Obligations	Costs
Total Estimated Cost (TEC)			
Construction			
Prior Years[a]	1,228,630	1,224,574	1,158,293
FY 2006	147,515	151,571	154,288
FY 2007[b]	211,000	170,400	130,570
FY 2008[c]	250,698	291,298	239,496
FY 2009[df]	265,000	265,000	296,791
FY 2010	325,000	325,000	334,293
FY 2011	359,280	359,280	382,219
FY 2012	310,000	310,000	308,583
FY 2013	118,927	118,927	137,065
FY 2014	180,000	180,000	119,641
FY 2015 [g]	104,000	104,000	126,556
FY 2016 [g]	95,000	95,000	117,136
FY 2017 [g]	97,000	97,000	110,575
FY 2018	35,000	35,000	35,000
Outyears[e]	TBD	TBD	TBD
Total Construction	**TBD**	**TBD**	**TBD**
Prior Years[a]	1,228,630	1,224,574	1,158,293
FY 2006	147,515	151,571	154,288
FY 2007[b]	211,000	170,400	130,570
FY 2008[c]	250,698	291,298	239,496

(dollars in thousands)

	Appropriations	Obligations	Costs
FY 2009[df]	265,000	265,000	296,791
FY 2010	325,000	325,000	334,293
FY 2011	359,280	359,280	382,219
FY 2012	310,000	310,000	308,583
FY 2013	118,927	118,927	137,065
FY 2014	180,000	180,000	119,641
FY 2015 [g]	104,000	104,000	126,556
FY 2016 [g]	95,000	95,000	117,136
FY 2017 [g]	97,000	97,000	110,575
FY 2018	35,000	35,000	35,000
Outyears[e]	TBD	TBD	TBD
Total TPC	**TBD**	**TBD**	**TBD**

[a)] The prior year appropriations and obligation have been updated to reflect utilization of the non-facility specific carryover funding remaining in the Waste Treatment and Immobilization Plant line item 01-D-416. The Construction Prior[a] line is based on facility costs prior the split of the Waste Treatment and Immobilization Plant into the five facilities.
[b)] The Waste Treatment and Immobilization Plant Project received an extra obligation of $4,056,000 in FY 2006 to recover a holdback in FY 2005.
[c)] Ten (10) percent of the FY 2007 Appropriation was held back as a result of not achieving Secretarial certification of the contractor's Earned Value Management System by September 30, 2007. The certification was received in FY 2008, at which time the $69,000,000 was obligated to the project. Pretreatment's portion of the hold-back was $40,600,000.
[d)] Adjustments to the FY 2009 costs from the data provided in previous Project Data Sheets are related to utilization of prior to FY 2006 funding. This funding was not facility specific and the adjustments in costs are net zero across the five facilities. The change in cost for FY 2009 is based on earned value data for FY 2009.
[e)] Upon completion of a project review effort, this Project Data Sheet will be formally revised and submitted to Congress.
[f)] Cost has been updated based on a recent audit performed to accurately reflect the cost as recorded in final DOE cost records after year-end closing entries were finalized.
[g] Costs updated to reflect actual expenditures for FY 2015 and FY 2016 and projected costs for FY 2017.

6. Details of Project Cost Estimate

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Construction			
Engineering/Design	2,547,977	2,547,977	1,475,000
Equipment/Procurement[a]	2,380,748	2,380,748	1,125,000
Facility Construction[b]	3,720,637	3,720,637	2,155,000
Commissioning[c]	1,409,428	1,409,428	876,000
Technical Support/Transition[d]	185,000	185,000	50,000

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Contingency/Fee[e]	2,019,210	2,019,210	100,000
Total, Construction	**12,263,000**	**12,263,000**	**5,781,000**
Total, TEC	**12,263,000**	**12,263,000**	**5,781,000**
Contingency/Fee, TEC	2,019,210	2,019,210	100,000
Total, Total Project Cost	**12,263,000**	**12,263,000**	**5,781,000**
Total, Contingency/Fee	**2,019,210**	**2,019,210**	**100,000**

[a)] Equipment/Procurement dollars represent costs of plant equipment, bulk plant material, and acquisition services.
[b)] Facility Construction dollars represent construction costs through system turnover.
[c)] Commissioning dollars represent the cost of Start-up and Cold Commissioning.
[d)] Technical Support/Transition represents the cost of Federal Assurance oversight support to the Federal Project Director and project transition costs.
[e)] Contingency/Fee dollars represent the Fee and DOE Project Contingency.

Note: A project rebaselining effort commenced in the second quarter FY 2012. In the fourth quarter of FY 2012 the Design Completion Team was initiated to resolve project technical issues. A decision was made to delay the rebaselining effort until the Design Completion Team could address the technical issues. The new baseline for the project will be completed in phases. Upon completion of a project review effort, this Project Data Sheet will be formally revised and submitted to Congress.

The following tables break out the two control points.

01-D-16A-D, Low-Activity Waste Facility, Analytical Laboratory, Balance of Facilities, High-Level Waste Facility

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline[e]
Total Estimated Cost (TEC)			
Construction			
Engineering/Design	TBD	1,486,023	1,475,000
Equipment/Procurement[a]	TBD	1,345,590	1,125,000
Facility Construction[b]	TBD	2,154,763	2,155,000
Commissioning[c]	TBD	993,671	876,000
Technical Support/Transition	TBD	98,624	50,000
Contingency/Fee[d]	TBD	984,864	100,000
Total, Construction	**TBD**	**7,063,535**	**5,781,000**

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline[e]
Total, TEC	**TBD**	**7,063,535**	**5,781,000**
Contingency/Fee, TEC	**TBD**	**984,864**	**100,000**
Total, TPC	**TBD**	**7,063,535**	**5,781,000**
Total, Contingency/Fee	**TBD**	**984,864**	**100,000**

[a] Equipment/Procurement dollars represent of costs of plant equipment, plant material, and Acquisition Services.
[b] Facility Construction dollars represent construction costs through system turnover.
[c] Commissioning dollars represent the cost of Start-up and Cold Commissioning.
[d] Contingency/Fee represents the contractor's Management Reserve, Fee, and DOE Project Contingency.
[e] The value listed in the "Original Validated Baseline - Facility Construction" is a total number for all the values that would normally appear in this column.

01-D-16E, Pretreatment Facility

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline[e]
Total Estimated Cost (TEC)			
Construction			
Engineering/Design	1,061,950	1,061,954	N/A
Equipment/Procurement[a]	1,035,160	1,035,158	N/A
Facility Construction[b]	1,565,875	1,565,874	1,920,000
Commissioning[c]	TBD	415,757	N/A
Technical Support/Transition	TBD	86,376	N/A
Contingency/Fee[d]	TBD	1,034,346	N/A
Total, Construction	**TBD**	**5,199,465**	**1,920,000**
Total, TEC	TBD	5,199,465	1,920,000
Contingency/Fee, TEC	**TBD**	**1,034,346**	**N/A**
Total, TPC	TBD	5,199,465	1,920,000
Total, Contingency/Fee	**TBD**	**1,034,346**	**N/A**

[a] Equipment/Procurement dollars represent of costs of plant equipment, plant material, and Acquisition Services.
[b] Facility Construction dollars represent construction costs through system turnover.

[c] Commissioning dollars represent the cost of Start-up and Cold Commissioning.
[d] Contingency/Fee represents the contractor's Management Reserve, Fee, and DOE Project Contingency.
[e] The value listed in the "Original Validated Baseline - Facility Construction" is a total number for all the values that would normally appear in this column. A breakout for the March 2003 Baseline is not available, as until FY 2006 the facilities were not separated but totaled for the whole project, and the current breakout methodology was implemented in FY 2008.

7. Schedule of Appropriation Requests

Request		Prior Years	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	Outyears	Total
FY 2002	TEC	4,350,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4,350,000
	OPC	0	0	0	0	0	0	0	0	0
	TPC	4,350,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4,350,000
FY 2003	TEC	4,350,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4,350,000
	OPC	0	0	0	0	0	0	0	0	0
	TPC	4,350,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4,350,000
FY 2004	TEC	4,350,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4,350,000
	OPC	0	0	0	0	0	0	0	0	0
	TPC	4,350,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4,350,000
FY 2005	TEC	5,781,000	0	0	0	0	0	0	0	5,781,000
	OPC	0	0	0	0	0	0	0	0	0
	TPC	5,781,000	0	0	0	0	0	0	0	5,781,000
FY 2006	TEC	5,781,000	0	0	0	0	0	0	0	5,781,000
	OPC	0	0	0	0	0	0	0	0	0
	TPC	5,781,000	0	0	0	0	0	0	0	5,781,000
FY 2007	TEC	5,781,000	0	0	0	0	0	0	0	5,781,000
	OPC	0	0	0	0	0	0	0	0	0
	TPC	5,781,000	0	0	0	0	0	0	0	5,781,000
FY 2008 Performance Baseline	TEC	10,570,838	690,000	690,000	225,000	87,162	0	0	0	12,263,000
	OPC	0	0	0	0	0	0	0	0	0
	TPC	10,570,838	690,000	690,000	225,000	87,162	0	0	0	12,263,000
FY 2009	TEC	10,534,559	690,000	640,000	398,441	0	0	0	0	12,263,000
	OPC	0	0	0	0	0	0	0	0	0
	TPC	10,534,559	690,000	640,000	398,441	0	0	0	0	12,263,000
FY 2010	TEC	10,534,559	690,000	640,000	398,441	0	0	0	0	12,263,000
	OPC	0	0	0	0	0	0	0	0	0
	TPC	10,534,559	690,000	640,000	398,441	0	0	0	0	12,263,000
FY 2011	TEC	10,584,737	690,000	640,000	348,263	0	0	0	0	12,263,000
	OPC	0	0	0	0	0	0	0	0	0
	TPC	10,584,737	690,000	640,000	348,263	0	0	0	0	12,263,000
FY 2012	TEC	11,224,737	380,000	355,000	240,000	63,263	0	0	0	12,263,000
	OPC	0	0	0	0	0	0	0	0	0
	TPC	11,224,737	380,000	355,000	240,000	63,263	0	0	0	12,263,000
FY 2013	TEC	10,577,613	203,972	0	0	0	0	0	1,481,415	12,263,000
	OPC	0	0	0	0	0	0	0	0	0
	TPC	10,577,613	203,972	0	0	0	0	0	1,481,415	12,263,000
FY 2014	TEC	10,577,613	203,972	0	0	0	0	0	1,481,415	12,263,000
	OPC	0	0	0	0	0	0	0	0	0

	TPC	10,577,613	203,972	0	0	0	0	0	1,481,415	12,263,000
FY 2013	TEC	10,577,613	203,972	0	0	0	0	0	1,481,415	12,263,000
Reprogramm	OPC	0	0	0	0	0	0	0	0	0
ing	TPC	10,577,613	203,972	0	0	0	0	0	1,481,415	12,263,000
	TEC	10,577,613	193,972	0	0	0	0	0	1,491,415	12,263,000
FY 2015	OPC	0	0	0	0	0	0	0	0	0
	TPC	10,577,613	193,972	0	0	0	0	0	1,491,415	12,263,000
	TEC	10,554,613	205,972	0	0	0	0	0	1,502,415	12,263,000
FY 2016	OPC	0	0	0	0	0	0	0	0	0
	TPC	10,554,613	205,972	0	0	0	0	0	1,502,415	12,263,000
	TEC	10,554,613	200,972	0	0	0	0	0	1,507,415	12,263,000
FY 2017	OPC	0	0	0	0	0	0	0	0	0
	TPC	10,554,613	200,972	0	0	0	0	0	1,507,415	12,263,000
FY 2018	TEC	10,554,613	200,972	0	0	0	0	0	1,507,415	12,263,000
	OPC	0	0	0	0	0	0	0	0	0
	TPC	10,554,613	200,972	0	0	0	0	0	1,507,415	12,263,000

(a) A project rebaselining effort commenced in the second quarter FY 2012. In the fourth quarter of FY 2012 the Design Completion Team was initiated to resolve project technical issues. A decision was made to delay the rebaselining effort until the Design Completion Team could address the technical issues. The new baseline for the project will be completed in phases. Upon completion of a project review effort, this Project Data Sheet will be formally revised and submitted to Congress.

The following tables break out the two control points.

01-D-16A-D, Low-Activity Waste Facility, Analytical Laboratory, Balance of Facilities, High-Level Waste Facility

Request		Prior Years	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	Outyears	Total
FY 2008	TEC	6,068,838	340,000	340,000	73,000	47,162	0	0	0	6,869,000
Performance	OPC	0	0	0	0	0	0	0	0	0
Baseline	TPC	6,068,838	340,000	340,000	73,000	47,162	0	0	0	6,869,000
	TEC	6,140,524	336,300	241,000	151,176	0	0	0	0	6,869,000
FY 2009	OPC	0	0	0	0	0	0	0	0	0
	TPC	6,140,524	336,300	241,000	151,176	0	0	0	0	6,869,000
	TEC	6,216,023	430,000	415,000	262,977	0	0	0	0	7,324,000
FY 2010	OPC	0	0	0	0	0	0	0	0	0
	TPC	6,216,023	430,000	415,000	262,977	0	0	0	0	7,324,000
	TEC	6,141,201	465,000	415,000	302,799	0	0	0	0	7,324,000
FY 2011	OPC	0	0	0	0	0	0	0	0	0
	TPC	6,141,201	465,000	415,000	302,799	0	0	0	0	7,324,000
	TEC	6,420,702	280,000	215,000	103,000	44,833	0	0	0	7,063,535
FY 2012	OPC	0	0	0	0	0	0	0	0	0
	TPC	6,420,702	280,000	215,000	103,000	44,833	0	0	0	7,063,535
	TEC	6,971,563	91,972	0	0	0	0	0	0	7,063,535
FY 2013	OPC	0	0	0	0	0	0	0	0	0
	TPC	6,971,563	91,972	0	0	0	0	0	0	7,063,535
	TEC	6,971,563	91,972	0	0	0	0	0	0	7,063,535
FY 2014	OPC	0	0	0	0	0	0	0	0	0

	TPC	6,971,563	91,972	0	0	0	0	0	0	7,063,535
FY 2013 Reprogramming	TEC	6,971,563	91,972	0	0	0	0	0	0	7,063,535
	OPC	0	0	0	0	0	0	0	0	0
	TPC	6,971,563	91,972	0	0	0	0	0	0	7,063,535
FY 2015	TEC	6,981,563	81,972	0	0	0	0	0	0	7,063,535
	OPC	0	0	0	0	0	0	0	0	0
	TPC	6,981,563	81,972	0	0	0	0	0	0	7,063,535
FY 2016	TEC	6,969,563	93,972	0	0	0	0	0	0	7,063,535
	OPC	0	0	0	0	0	0	0	0	0
	TPC	6,969,563	93,972	0	0	0	0	0	0	7,063,535
FY 2017	TEC	6,959,563	103,972	0	0	0	0	0	0	7,063,535
	OPC	0	0	0	0	0	0	0	0	0
	TPC	6,959,563	103,972	0	0	0	0	0	0	7,063,535
FY 2018	TEC	6,959,563	593,000	655,000	0	0	0	0	TBD	TBD
	OPC	0	0	0	0	0	0	0	0	0
	TPC	6,959,563	593,000	655,000	0	0	0	0	TBD	TBD

01-D-16E, Pretreatment Facility

Request		Prior Years	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	Outyears	Total
FY 2008 Performance Baseline	TEC	4,502,000	350,000	350,000	152,000	40,000	0	0	0	5,394,000
	OPC	0	0	0	0	0	0	0	0	0
	TPC	4,502,000	350,000	350,000	152,000	40,000	0	0	0	5,394,000
FY 2009	TEC	4,394,035	353,700	399,000	247,265	0	0	0	0	5,394,000
	OPC	0	0	0	0	0	0	0	0	0
	TPC	4,394,035	353,700	399,000	247,265	0	0	0	0	5,394,000
FY 2010	TEC	4,318,536	260,000	225,000	135,464	0	0	0		4,939,000
	OPC	0	0	0	0	0	0	0	0	0
	TPC	4,318,536	260,000	225,000	135,464	0	0	0	0	4,939,000
FY 2011	TEC	4,443,536	225,000	225,000	45,464	0	0	0	0	4,939,000
	OPC	0	0	0	0	0	0	0	0	0
	TPC	4,443,536	225,000	225,000	45,464	0	0	0	0	4,939,000
FY 2012	TEC	4,804,035	100,000	140,000	137,000	18,430	0	0	0	5,199,465
	OPC	0	0	0	0	0	0	0	0	0
	TPC	4,804,035	100,000	140,000	137,000	18,430	0	0	0	5,199,465
FY 2013	TEC	3,606,050	112,000	0	0	0	0	0	1,481,415	5,199,465
	OPC	0	0	0	0	0	0	0	0	0
	TPC	3,606,050	112,000	0	0	0	0	0	1,481,415	5,199,465
FY 2014	TEC	3,606,050	112,000	0	0	0	0	0	1,481,415	5,199,465
	OPC	0	0	0	0	0	0	0	0	0
	TPC	3,606,050	112,000	0	0	0	0	0	1,481,415	5,199,465
FY 2013 Reprogramming	TEC	3,606,050	112,000	0	0	0	0	0	1,481,415	5,199,465
	OPC	0	0	0	0	0	0	0	0	0
	TPC	3,606,050	112,000	0	0	0	0	0	1,481,415	5,199,465
FY 2015	TEC	3,596,050	112,000	0	0	0	0	0	1,491,415	5,199,465
	OPC	0	0	0	0	0	0	0	0	0
	TPC	3,596,050	112,000	0	0	0	0	0	1,491,415	5,199,465
	TEC	3,585,050	112,000	0	0	0	0	0	1,502,415	5,199,465

FY 2016	OPC	0	0	0	0	0	0	0	0	0
	TPC	3,585,050	112,000	0	0	0	0	0	1,502,415	5,199,465
FY 2017	TEC	3,595,050	97,000	0	0	0	0	0	1,507,415	5,199,465
	OPC	0	0	0	0	0	0	0	0	0
	TPC	3,595,050	97,000	0	0	0	0	0	1,507,415	5,199,465
FY 2018	TEC	3,595,050	97,000	35,000	0	0	0	0	TBD	TBD
	OPC	0	0	0	0	0	0	0	0	0
	TPC	3,595,050	97,000	35,000	0	0	0	0	TBD	TBD

8. 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)

(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 will start after the project is completed. These costs are included in PBS ORP-0060, Waste Treatment and Immobilization Plant, and are therefore not included in this Project Data Sheet.

9. D&D Information

Area	Square Feet
N/A	N/A

This project is providing new capability for the Hanford site, and is not replacing a current capability. Thus, this project was not justified on the basis of replacing current facilities. Therefore, no existing facilities will be demolished in conjunction with this project.

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

The acquisition of a waste treatment facility to treat Hanford waste was initially planned as a privatized procurement and the project was referred to as the Tank Waste Remediation System. The strategy was for the contractor to design, build, finance, and operate the facility for 10 years and the Department would pay for waste processed. Two privatization contracts were signed in September 1996 for the preparation of conceptual designs: (1) a subsidiary of BNFL plc, with Bechtel National, Incorporated as a subcontractor, and (2) Lockheed-Martin. In May 1998, BNFL, Incorporated was

authorized to proceed with preliminary design. Construction was scheduled to commence in December 2000 and hot operations were to start in December 2007, to treat approximately 10 percent of the tank waste (by mass) and 25 percent of the tank waste radioactivity inventory. This plant was expected to have a 40 year operational life and would process a total of 40 percent of the waste by volume. A second facility was expected to be necessary to treat and immobilize the balance of the waste. Planning associated with this privatization contract completed the following Critical Decision milestones:

- Critical Decision - 0: Approved Mission Need - September 1995
- Critical Decision - 1: Approved Preliminary Baseline Range - September 1996
- Critical Decision - 2: Approved Performance Baseline - August 1998

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

The following critical decision is planned for the future:

Critical Decision - 4: Approved Start of Operation – TBD. A new Critical Decision date(s) will be determined upon completion of a review of the project.

15-D-409, Low-Activity Waste Pretreatment System
Hanford, Richland, Washington (ORP-0014)
Project is for Design and Construction

1. Significant Changes and Summary

Significant Changes

This Construction Project Data Sheet is an update of the FY 2017 Project Data Sheet and does not include a new start for budget year FY 2018.

The Critical Decision -1 for this project was approved May 19, 2015. DOE continues to proceed with Preliminary Design.

Summary

The most recent DOE Order 413.3B approved Critical Decision is Critical Decision -1 which 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. This Construction Project Data Sheet uses Critical Decision-4 of September 2021 to support the Department's operational schedule of the Direct Feed Low-Activity Waste program.

A Federal Project Director has been assigned to the project and has approved the Project Data Sheet.

2. 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 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

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	Approve Performance Baseline
CD-3a	CD-2
FY 2018	2Q FY 2018	4Q FY 2018

3. 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

Note: 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.

4. Project Scope and Justification

Scope

This project will design and build a Low-Activity Waste Pretreatment System to remove tank waste solids and cesium, 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. The system will store and feed pretreated waste from the Hanford tank farms to the Low-Activity Waste Facility. This project will enable the Waste Treatment Plant Low Activity Waste Facility to meet the Amended Consent Decree of March 2016 for completion of hot commissioning by December 2023. 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 6.3 million gallons of Double-Shell tank space allowing additional Single-Shell tanks to be retrieved (required by the Amended Consent Decree) and reduce risk of the Waste Treatment Plant start-up.

The Low Activity Waste Pretreatment System is comprised of cross-flow filters to remove suspended solids from the liquid waste from the Hanford Site's double-shell tanks. Following the filtration step, the 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

Due to technical issues, the startup dates for both the Waste Treatment and Immobilization Plant Pretreatment and High-Level Waste Facilities will be delayed beyond current baseline estimates. 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 LAW glass of acceptable quality.” Practically speaking, the Low-Activity Waste Facility must produce a final glass waste form with actual pretreated Hanford Tank Farm waste. 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 to meet this interim milestone.

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 only 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% of the Tank Farms sodium inventory) will be immobilized, reducing environmental risk and freeing up approximately 6.3 million 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. Without the Low-Activity Waste Pretreatment System, the nearly completed Low-Activity Waste Facility and other supporting facilities at the Waste Treatment and Immobilization Plant would have to be mothballed for at least ten years, further complicating the startup and commissioning of the entire Waste Treatment and Immobilization Plant.

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*.

5. Financial Schedule

(dollars in thousands)

	Appropriations	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
FY 2015	N/A	N/A	6,947
FY 2016	N/A	N/A	39,744
FY 2017	N/A	N/A	40,700
FY2018	N/A	N/A	18,800
Outyears	N/A	N/A	TBD
Total, Design	**N/A**	**N/A**	**TBD**
Construction			
FY 2017[a]	N/A	N/A	TBD
FY2018	N/A	N/A	TBD
Outyears	N/A	N/A	TBD
Total, Construction	**N/A**	**N/A**	**TBD**
	23,000	23,000	6,947

TEC			
FY 2015	75,000	75,000	39,744
FY 2016	73,000	73,000	73,000
FY 2017	93,000	93,000	93,000
FY 2018	TBD	TBD	TBD
Outyears	TBD	TBD	TBD
Total, TEC			
Other Project Cost (OPC)			
OPC	4,397	4,397	4,397
FY 2014	5,278	5,278	5,278
FY 2015	382	382	382
FY 2016	600	600	600
FY 2017	200	200	200
FY 2018	TBD	TBD	TBD
Outyears	TBD	YBD	TBD
Total, OPC			
Total Project Cost (TPC)	4,397	4,397	4,397
FY 2014	28,278	28,278	12,225
FY 2015	75,382	75,382	40,126
FY 2016	73,600	73,600	73,600
FY 2017	93,200	93,200	93,200
FY 2018	TBD	TBD	TBD
Outyears	TBD	TBD	TDB
Total, TPC			

[a] Funds will be used for long lead procurement items and site preparation activities. *Numbers are only estimates.

6. Details of Project Cost Estimate

(dollars in thousands)

	Current Total Estimate	**Previous Total Estimate**	**Original Validated Baseline**
Total Estimated Cost (TEC)			
Design			
Design	TBD	50,000	N/A

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Contingency	TBD	10,000	N/A
Total, Design	**TBD**	**60,000**	**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
Total	**TBD**	**TBD**	**N/A**
Other Project Cost (OPC)			
OPC			
Conceptual Planning	TBD	7,200	N/A
Conceptual Design	TBD	2,800	N/A
Office of Project Management Oversight and Assessments Reviews	TBD	TBD	N/A
Other, OPC	TBD	TBD	N/A
Total, OPC except for D&D	**TBD**	**TBD**	**N/A**
Total, Total Project Cost	**TBD**	**TBD**	**N/A**
Total, Contingency	**TBD**	**TBD**	**N/A**

7. Schedule of Appropriation Requests

(dollars in thousands)

Request		Prior Years	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY2021	Outyears	Total
FY 2015	TEC	23,000	0	0	0	0	0	0	0	TBD
	OPC	9,675	0	0	0	0	0	0	0	TBD
	TPC	32,675	0	0	0	0	0	0	0	TBD
FY 2016	TEC	23,000	75,000	0	0	0	0	0	TBD	TBD
	OPC	9,675	382	0	0	0	0	0	TBD	TBD
	TPC	32,675	75,382	0	0	0	0	0	TBD	TBD
FY 2017	TEC	23,000	75,000	73,000	0	0	0	0	TBD	TBD
	OPC	9,675	382	600	0	0	0	0	TBD	TBD
	TPC	32,675	75,382	73,600	0	0	0	0	TBD	TBD
FY 2018	TEC	23,000	75,000	73,000	93,000				TBD	TBD
	OPC	9,675	382	600	200				TBD	TBD
	TPC	32,675	75,382	73,600	93,200	TBD	TBD	TBD	TBD	TBD

8. 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

(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 & Repair	TBD	TBD	TBD	TBD
Total, Operations & Maintenance	TBD	TBD	TBD	TBD

*Includes Utilities 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 CD-1, the EM-1 endorsed Acquisition Plan selected the 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, high level radioactive liquid waste removal and stabilization with subsequent closure of six high-level waste tanks, and over 50 years of successful spent (used) nuclear fuel receipts. 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 except those identified for transfer to another Program Secretarial Office to support other Departmental missions. 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 Federally Funded Research and Development Center, operating in partnership with the Department of Energy 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 2018 is estimated to be $156,499,000.

The Savannah River Operations Office plans to purchase the following vehicles in FY 2018. They are a Fire Apparatus Pumper Truck and a Wrecker Truck.

Highlights of the FY 2018 Budget Request

The Nuclear Material Stabilization and Disposition Program will maintain H-Canyon/HB-Line in a safe condition in FY 2018, the nation’s only production-scale, shielded chemical separations facility still in operation. 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), H-Canyon is required to be operated and maintained.

As a result of 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.

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 2018 request includes funding for three line-item construction projects: Salt Waste Processing Facility ($150,000,000), Saltstone Disposal Unit #7 ($44,000,000) and Saltstone Disposal Units #8 and #9 ($1,000,000). 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 $150,000,000 requested for the Salt Waste Processing Facility supports other project costs such as startup

and commissioning. The mission of the Saltstone Disposal Unit #7 project is to construct a cylindrical reinforced concrete tank designed to contain a minimum of 30 million gallons of Saltstone grout, which is the waste form for the disposition of the decontaminated salt solution resulting from salt waste processing. The $44,000,000 requested for the Saltstone Disposal Unit #7 includes $40,000,000 for design and construction activities and $4,000,000 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 a minimum of 30 million gallons of Saltstone grout each. The $1,000,000 requested for the Saltstone Disposal Units #8 and #9 project includes $500,000 for design activities and $500,000 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 continued remediation of ash from the D-Area Ash Project and construction of a geosynthetic cap over the existing ash basins.

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.

Infrastructure

EM manages a portfolio of facilities and infrastructure that are needed for its mission, some of which are no longer capable of supporting it. Although many of EM's facilities and infrastructure are intended to be shut down and demolished at some point in the future, much of this infrastructure will be needed for another 25-plus years to complete EM's cleanup mission. 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 2018 request includes funding for one line-item construction project – Emergency Operations Center Replacement ($1,000,000). 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 $1,000,000 requested for this project, $500,000 is for initiation of design activities and $500,000 for other project costs.

FY 2017 and 2018 Key Milestones/Outlook

- (October 2016) Start Removal action for the D-Area Ash Basin (488-1D)
- (November 2016) DOE/SCDHEC Consent Order 95-22-HW, amended 10/14/03, requires the Savannah River Site Treatment Plan to be updated annually by November 15, 2016.
- (November 2016) Submit Federal Facility Agreement Appendix E Long-Term Projections for Fiscal Year 2017
- (June 2017) Issue Record of Decision Wetland Area at Dunbarton Bay in Support of Steel Creek Integrator Operable Unit Rev.0
- (June 2017) Initiate Field Start, Fifth Phase II Fourmile Branch Integrator Operable Unit
- (September 2017) Complete Operational Closure of 2 High Level Waste Tanks
- (September 2017) Complete bulk waste removal efforts for three tanks
- (September 2017) Produce 100 - 110 high level waste canisters at Defense Waste Processing Facility
- (September 2017) Process 1.7 million gallons of salt solution in Actinide Removal Process/Modular Caustic Side Solvent Extraction Unit
- (September 2017) Complete construction Saltstone Disposal Unit 6

- (September 2017) Prepare Liquid Waste facilities for the outage starting first Quarter of FY 2018 to tie in with Salt Waste Processing Facility
- (September 2017) Start Early Action Remedial Action for C-Area
- (September 2017) Continue down blending and packaging surplus EM owned plutonium for disposition to Waste Isolation Pilot Plant
- (September 2017) Process EM owned aluminum-clad spent (used) nuclear fuel in accordance with the Amended Record of Decision
- (September 2017) Support receipt of foreign and domestic research reactor spent (used) nuclear fuel and target material (approximately 35 to 40 shipments)
- (September 2017) Continue to support Department's nonproliferation program through receipt of foreign plutonium
- (October 2017) Complete bulk waste removal efforts for Tank 15H
- (November 2017) Submit P-Area Ground Water Operable Unit Corrective Measure Study/Feasibility Study Rev. 0
- (November 2017) Submit Federal Facility Agreement Appendix E Long-Term Projections for Fiscal Year 2018
- (December 2017) Complete Mechanical Field Work of D-Area Ash Basin (488-1D)
- (February 2018) Complete Mechanical Field Work of D-Area Coal Pile Runoff Basin
- (March 2018) Submit P-Area Ground Water Operable Unit Corrective Measure Study/Feasibility Study Rev.1
- (August 2018) Complete bulk waste removal efforts for Tank 10H
- (September 2018) Complete preparation of Tank 3 and bulk waste removal
- (September 2018) Initiate design for Saltstone Disposal Unit #8 and #9
- (September 2018) Maintain safe configuration of active nuclear facilities

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. As a result of State-initiated enforcement actions, several key settlement agreements were entered into with the State of South Carolina:

- 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 43 months of options through February 28, 2017. This contract is a cost plus award fee contract.

- 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. The first option, which has been exercised, is for the continuation of the current work under the contract. This contract is a cost plus award fee contract.
- Centerra Group, LLC: Contract covers the paramilitary 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 option period one. It is a cost plus award fee contract.
- 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 26th, 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 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 factor present the highest risks to timely achievement of the program's strategic goal:

- Commissioning the Salt Waste Processing Facility.

Savannah River

Funding ($K)

	FY 2016 Enacted	FY 2017 Annualized CR[1]	FY 2018 Request	FY 2018 vs FY 2016
Defense Environmental Cleanup				
Savannah River Site				
Environmental Cleanup				
SR-0013 / Solid Waste Stabilization and Disposition	0	0	58,080	+58,080
SR-0030 / Soil and Water Remediation	0	0	81,199	+81,199
SR-0041 / Surveillance, Maintenance, and Deactivation	0	0	20,699	+20,699
Subtotal, Environmental Cleanup	**0**	**0**	**159,978**	**+159,978**
Nuclear Material Management				
SR-0011C / NM Stabilization and Disposition	0	0	323,482	+323,482
Radioactive Liquid Tank Waste Stabilization and Disposition				
SR-0014C / Radioactive Liquid Tank Waste Stabilization and Disposition-2035	783,520	768,492	787,758	+4,238
Savannah River Risk Management Operations				
SR-0011C / NM Stabilization and Disposition	254,655	267,710	0	-254,655
SR-0012 / SNF Stabilization and Disposition	41,407	41,328	0	-41,407
SR-0013 / Solid Waste Stabilization and Disposition	51,546	51,448	0	-51,546
SR-0030 / Soil and Water Remediation	66,044	65,918	0	-66,044
Subtotal, Savannah River Risk Management Operations	**413,652**	**426,404**	**0**	**-413,652**
SR Community and Regulatory Support				
SR-0100 / Savannah River Community and Regulatory Support	11,249	11,228	11,249	0
Total, Savannah River Site	**1,208,421**	**1,206,124**	**1,282,467**	**+74,046**

[1] The FY 2017 Annualized CR amounts reflect the P.L. 114-254 continuing resolution level annualized to a full year. These amounts are shown only at the congressional control level and above, below that level, a dash (-) is shown.

	FY 2016 Enacted	FY 2017 Annualized CR[1]	FY 2018 Request	FY 2018 vs FY 2016
Safeguards and Security				
SR-0020 / Safeguards and Security	128,145	128,534	142,314	+14,169
Cyber Security				
SR-0025 / SR Cyber Security	0	0	22,810	+22,810
Total, Defense Environmental Cleanup	**1,336,566**	**1,334,658**	**1,447,591**	**+111,025**

The FY 2018 Request 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)

	FY 2016 Enacted	FY 2017 Annualized CR	FY 2018 Request	FY 2018 vs FY 2016
Defense Environmental Cleanup				
Savannah River Site				
Environmental Cleanup				
SR-0013 / Solid Waste Stabilization and Disposition	51,546	51,448	58,080	+6,534
SR-0030 / Soil and Water Remediation	66,044	65,918	81,199	+15,155
SR-0041 / Surveillance, Maintenance, and Deactivation	0	0	20,699	+20,699
Subtotal, Environmental Cleanup	**117,590**	**117,366**	**159,978**	**+42,388**
Nuclear Material Management				
SR-0012 / SNF Stabilization and Disposition	41,407	41,328	0	-41,407
SR-0011C / NM Stabilization and Disposition	254,655	267,710	323,482	+68,827
Subtotal, Nuclear Material Management	**296,062**	**309,038**	**323,482**	**+27,420**
Radioactive Liquid Tank Waste Stabilization and Disposition				
SR-0014C / Radioactive Liquid Tank Waste Stabilization and Disposition-2035	783,520	768,492	787,758	+4,238
SR Community and Regulatory Support				
SR-0100 / Savannah River Community and Regulatory Support	11,249	11,228	11,249	0
Total, Savannah River Site	**1,208,421**	**1,206,124**	**1,282,467**	**+74,046**
Safeguards and Security				
SR-0020 / Safeguards and Security	128,145	128,534	142,314	+14,169

	FY 2016 Enacted	FY 2017 Annualized CR	FY 2018 Request	FY 2018 vs FY 2016
Cyber Security				
SR-0025 / SR Cyber Security	0	0	22,810	+22,810
Total, Defense Environmental Cleanup	**1,336,566**	**1,334,658**	**1,447,591**	**+111,025**

	FY 2018 vs FY 2016
Defense Environmental Cleanup	
Savannah River Site	
Environmental Cleanup	
SR-0013 / Solid Waste Stabilization and Disposition	
• The increase reflects additional support for Waste Acceptance assessments needed to enable shipments to Waste Isolation Pilot Plant, including Chemical Compatibility Evaluations to ensure that the waste material does not have the potential to self-ignite. The increase also includes the initiation of the Emergency Operations Center Replacement line-item project, and support for the A-Area Firewater project.	+6,534
SR-0030 / Soil and Water Remediation	
• The increase addresses additional safety/regulatory compliance activities, development of post Record of Decision regulatory documents, source/risk reduction activities such as Asbestos abatement, and safety activities such as removal of nonfunctioning equipment. The increase also reflects additional remediation activities at the D-Area Ash Basin to achieve mechanical completion of the 488-1D Ash Basin.	+15,155
SR-0041 / Surveillance, Maintenance, and Deactivation	
• This increase reflects the transfer of scope to this newly established PBS SR-0041, Surveillance, Maintenance, and Deactivation. 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 for 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).	+20,699
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; resumption of support for spent (used) nuclear fuel and target material processing through H Canyon; an increase in the planned receipts of foreign and domestic research reactor spent (used) nuclear fuel; resumption of the L-Area Basin life extension activities; and down blending of EM-owned plutonium. Some of this increase is offset by the transfer of work scope to newly-created PBS SR-0041, Surveillance, Maintenance, and Deactivation.	+68,827
SR-0012 / SNF Stabilization and Disposition	

	FY 2018 vs FY 2016
• 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 supports the liquid waste system facility modifications (H-Tank Farm feed tank and transfer line modifications, Defense Waste Processing Facility transfer line modification, operating software modifications, and safety documentation) necessary to support startup of the Salt Waste Processing Facility.	+4,238
SR Community and Regulatory Support	
SR-0100 / Savannah River Community and Regulatory Support	
• No change.	0
Cyber Security	
SR-0025 / SR Cyber Security	
• Prior to FY 2018, Cyber Security activities were executed primarily through a Site Indirect cost pool with the remainder executed as part of the Safeguards and Security program (PBS SR-0020). The FY 2018 budget proposes to establish a formal Cyber Security program which will direct fund cyber activities. In FY 2016, Cyber activities executed as part of the Savannah River Site (PBS SR-0020) was $3,000,000 and it is estimated that the Cyber investment via Site Indirect cost pool was $6,500,000, for a new increase of $13,310,000. The increase reflects the addition of overhead costs to the scope executed via Site Indirect cost pools prior to FY 2018. Also reflected in the increase, is the cost EM absorbs for Cyber security scope that was previously shared with the National Nuclear Security Administration (approximately 30 percent cost sharing) when the scope was executed via Site Indirect cost pool.	+22,810
Safeguards and Security	
SR-0020 / Safeguards and Security	
• The increase reflects the increased costs to maintain security posture, support for safeguards and security infrastructure upgrades and maintenance for power distribution, perimeter intrusion detection and assessment system sensors and vulnerability assessment modifications.	+14,169
Total, Savannah River	**+111,025**

Solid Waste Stabilization and Disposition (PBS: SR-0013)

Overview

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

This PBS scope covers 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, and general Site functions including land management activities to sustain natural resources and maintenance of Site's roads, bridges, and dams. 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.

The inventory of processed and certified transuranic waste will be safely stored at Savannah River Site pending authorized shipment to the Waste Isolation Pilot Plant for waste emplacement.

The scope of this PBS covers infrastructure projects such as the site railroad repairs, and the A-Area Firewater replacement project. The scope also includes the design and construction of the Emergency Operations Center Replacement project which will provide space to 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. 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 & Demolition list and will be turned over for closure once the Centers are relocated, and is overran with mold and mildew causing some employees to become sick and removed from their post. Asbestos has also been found throughout the facility and the facility is experiencing multiple utility failures due to the age of the utilities and water intrusion due to a leaking roof.

This PBS also includes direct maintenance and repair that are applicable to these areas.

Solid Waste Stabilization and Disposition (PBS: SR-0013)

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$51,546	**$58,080**	**+$6,534**
• Provided site-wide services and landlord support functions for day-to-day operations. Site-wide and Landlord Support services were prorated across the PBSs. • Maintained Solid Waste management facilities to support site operations, including the construction debris landfill. • Supported treatment/storage/disposal of up to 6,500 m^3 of newly generated low-level waste. • Supported treatment/storage/disposal of up to 50 m^3 of mixed low-level waste. • Supported treatment/storage/disposal of up to 10 m^3 of hazardous waste. • Supported treatment/storage/disposal of sanitary waste. • Continued closure of legacy transuranic-waste pads under Federal and State regulations. • Performed general Site functions that include land management activities to sustain natural resources and maintenance of Site's roads, bridges, and dams. • Performed infrastructure projects from the Site's Critical Infrastructure Plan, such as the A-Area Firewater and the B Cell Block Replacement projects.	• Provide site-wide services and landlord support functions for day-to-day operations. Site-wide and landlord support services are prorated across the PBSs. • Maintain Solid Waste management facilities to support site operations, including the construction debris landfill. • Support treatment/storage/disposal of up to 6,500 m^3 of newly generated low-level waste. • Support treatment/storage/disposal of up to 50 m^3 of mixed low-level waste. • Support treatment/storage/disposal of up to 10 m^3 of hazardous waste. • Support treatment/storage/disposal of sanitary waste. • Continue closure of legacy transuranic-waste pads under Federal and State regulations. • Perform general Site functions that include land management activities to sustain natural resources and maintenance of Site's roads, bridges, and dams. • Perform infrastructure projects from the Site's Critical Infrastructure Plan, such as the A-Area Firewater project. • Initiate design of the Emergency Operations Center Replacement project.	• The increase reflects additional support for Waste Acceptance assessments needed to enable shipments to Waste Isolation Pilot Plant, including Chemical Compatibility Evaluations to ensure that the waste material does not have the potential to self-ignite. The increase also includes the initiation of the Emergency Operations Center Replacement line-item project, and support for the A-Area Firewater project.

Soil and Water Remediation (PBS: SR-0030)

Overview

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

The Soil and Water Remediation PBS scope 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.

The scope of this PBS also 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. Monitor, perform analysis and report 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.

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 goals outlined by the U.S. Department of Energy and the Office of Environmental Management, as well as, 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.

An integral part of the cleanup mission for the Office of Environmental Management 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.

This PBS also includes direct maintenance and repair that are applicable to these areas.

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$66,044	**$81,199**	**+$15,155**
• Provided site-wide services and landlord support functions for day-to-day operations. Site-wide and Landlord Support services were prorated across the PBSs. • Achieved compliance with over 62 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. • Operated and maintained 39 regulatory- required soil and groundwater remedial systems (9 active & 30 passive) to protect groundwater aquifers, site streams, and the Savannah River. • 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. • 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. • Performed surveillance and maintenance of Area Completion Projects inactive facilities to maintain safe and stable facility conditions.	• Provide site-wide services and landlord support functions for day-to-day operations. Site-wide and landlord support services are prorated across the PBSs. • 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. • Operate and maintain 36 regulatory- required soil and groundwater remedial systems (seven active & 29 passive) to protect groundwater aquifers, site streams, and the Savannah River. • 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. • Monitor, perform analysis and report on over 2,000 groundwater wells and five major streams, the Savannah River Floodplain Swamp, and the Savannah River to demonstrate effectiveness of remedial systems. • Perform surveillance and maintenance of Area Completion Projects inactive facilities to maintain safe and stable facility conditions.	• The increase addresses additional safety/regulatory compliance activities, development of post Record of Decision regulatory documents, source/risk reduction activities such as Asbestos abatement, and safety activities such as removal of nonfunctioning equipment. The increase also reflects additional remediation activities at the D-Area Ash Basin to achieve mechanical completion of the 488-1D Ash Basin.

- Performed activities in support of the 2014 Federal Facility Agreement Appendix E regulatory scope for C-Area Groundwater.
- Performed activities in support of the 2014 Federal Facility Agreement Appendix E regulatory scope for P-Area Groundwater.
- Performed activities in support of the 2014 Federal Facility Agreement Appendix E regulatory scope for R-Area Groundwater
- Performed activities in support of the 2014 Federal Facility Agreement Appendix E regulatory scope for A-Area Ash Pile, Coal Pile Runoff Basin, and A-013 Storm-water Outfall.
- Continued remediation activities at the D-Area Ash Basins.

- Continue remediation activities at the D-Area Ash Basin to achieve mechanical completion of 488-1D Ash Basin.

Surveillance, Maintenance and Deactivation (PBS: SR-0041)

Overview

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

This is a new PBS beginning in FY 2018. The scope of work for Surveillance, Maintenance and Deactivation was previously included within Nuclear Materials Stabilization and Disposition (PBS SR-0011C).

This PBS covers scope and funding 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.

The F-Area Complex encompasses 235-F, 221-F, 221-F Canyon, F Canyon B Line, 292-F, 292-1F, 292-2F, 284-10F, 254-13F. The scope includes all general area maintenance, as well as emergency preparedness, utilities, lighting, building and grounds maintenance. Surveillance and maintenance activities for the F Canyon Complexes include maintaining operating staff to meet staffing levels identified in the Technical Safety Requirements; 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 (DSA); conducting preventive maintenance (PMs) & corrective maintenance (CMs) on equipment required to maintain safety posture of facilities in a deactivated state; performing critical infrastructure to maintain 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 alpha contamination.

The Receiving Basin for Offsite Fuel 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.

The 235-F risk reduction activities are necessary to reduce and/or immobilize the residual Plutonium-238 remaining from the facility that supported the National Aeronautics and Space Administration's deep space missions. The Defense Nuclear Facility Safety Board issued Recommendation 2012-1 to mitigate the postulated hazard to co-located workers and the environment in the event of a seismically-induced full facility fire. To ensure protection of on-site and off-site personnel from radiation exposure in the event of seismically-induced fire, the project scope includes the following: controlling transient combustibles, removing fixed combustibles, improving fire detection, minimizing ignition sources, and removing the Plutonium-238 material that creates the risk.

This PBS also includes direct maintenance and repair that are applicable to these areas.

The FY 2018 scope of work for Surveillance and Maintenance, Risk Reduction, and Deactivation includes:

- Continue surveillance and maintenance of the F-Area Complex Facilities (F Canyon, FB-Line, and 235-F) as well as for the Receiving Basin for Off-Site Fuels Facility.
- Continue 235-F Risk Reduction activities, required by Implementation Plan for the Defense Nuclear Facility Safety Board Recommendation 2012-1 (as revised November 2014), to reduce the risk to personnel and the environment by reducing and/or immobilizing residual Plutonium-238 contamination in the F-Area Materials Storage Facility (235-F).

Surveillance, Maintenance, and Deactivation (PBS: SR-0041)

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$0	**$20,699**	**+$20,699**
• The scope of work was included within PBS SR-0011C NM Stabilization and Disposition - No activities.	• Provide site-wide services and landlord support functions for day-to-day operations. Site-wide and landlord support services are prorated across the PBSs. • Continue surveillance and maintenance of the F-Area Complex Facilities (F Canyon, FB-Line, and 235-F) as well as for the Receiving Basin for Off-Site Fuels Facility. • Perform 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).	• This increase reflects the transfer of scope to this newly established PBS SR-0041, Surveillance, Maintenance, and Deactivation. 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 for 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).

NM Stabilization and Disposition (PBS: SR-0011C)

Overview

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

Beginning in FY 2018, the scope of work included in PBS SR-0012, Spent Nuclear Fuel Stabilization and Disposition, will be merged into SR-0011C, Nuclear Materials Stabilization and Disposition.

This PBS includes 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 operation of H Canyon and HB-Line with Analytical Laboratories and 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) nuclear fuel residing in L-Area Basin will continue. The end-state will be accomplished when the unique, irreplaceable 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 Canyon/HB-Line is integral to DOE's efforts to minimize and eliminate nuclear materials through safe treatment and disposition. 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 and target material to alleviate capacity constraints in L-Basin.

The K-Area Material Storage Facility securely stores stabilized non-pit plutonium materials declared surplus to the nation's defense needs after the Cold War and subsequently consolidated from across the DOE Complex pending 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.

This PBS also covers scope and funding for the spent (used) nuclear fuel originating from Atomic Energy Commission and DOE activities, and spent (used) 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 (used) nuclear fuel activities at Savannah River are conducted in a single area and the spent (used) nuclear fuel is consolidated for storage in the 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. 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.

This PBS also includes direct maintenance and repair that are applicable to these areas.

The FY 2018 scope of work for Nuclear Materials and Spent Fuel Stabilization and Disposition includes:

- Operation of H Canyon/HB-Line, the nation's only production-scale, shielded chemical separations facility still in operation, in compliance with 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).
- Process spent (used) nuclear fuel in H Canyon.
- Down blend highly enriched uranium to low enriched uranium for shipment to Tennessee Valley Authority.
- Maintain K-Area to safely and securely store special nuclear material.
- Perform required destructive examinations of 3013 containers to validate/ensure safe long-term storage.

- Down blend plutonium materials in K-Area and support other programs in preparation for shipment of down blended material to Waste Isolation Pilot Plant.
- Cask loading in L Area and shipments of EM-owned aluminum clad spent (used) nuclear fuel bundles to H Canyon for processing.
- Receipt of spent (used) nuclear fuel in L-Area Basin including cask unloading and preparation for underwater storage.
- Continue operation of L-Area Basin de-ionization system in support of fuel storage and water chemistry control requirements.

NM Stabilization and Disposition (PBS: SR-0011C)

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$254,655	**$323,482**	**+$68,827**
• Provided site-wide services and landlord support functions for day-to-day operations. Site-wide and landlord support services were prorated across the PBSs. • Continued surveillance and maintenance of the F Area Complex Facilities (F Canyon, FB-Line, and 235-F) as well as for the Receiving Basin for Off-Site Fuels Facility. • Performed activities to reduce the risk to personnel and the environment by reducing the residual plutonium-238 contamination in the F Area Materials Storage Facility (235-F) as committed to in a 2012 Implementation Plan, as amended in the Savannah River Site Project Plan for Building 235-F, for Defense Nuclear Facilities Safety Board Recommendation 2012. • Operated H Canyon in a safe and secure manner. • Processed spent nuclear fuel in coordination with receipt and processing of Canadian liquid material (funded by Canada). • Began preparations to process High Flux Isotope Reactor spent nuclear fuel. • Supported NNSA Nonproliferation program to prepare plutonium for disposition in HB-Line (NNSA funded). • Purified uranium for the Tennessee Valley	• Provide site-wide services and landlord support functions for day-to-day operations. Site-wide and landlord support services are prorated across the PBSs. • Operate H Canyon in a safe and secure manner. • Process EM-owned aluminum-clad spent (used) nuclear fuel in accordance with the Amended Record of Decision. • Complete preparations to process High Flux Isotope Reactor spent (used) nuclear fuel. • Dissolve spent (used) nuclear fuel, extract highly enriched uranium, purify using the solvent extraction cycles in H Canyon, blend to a low enriched uranium solution and provide to the Tennessee Valley Authority. • Continue receipt and processing of sample return material from onsite laboratories. • Maintain K-Area to safely and securely store special nuclear material. • Perform required 3013 destructive examinations in K-Area in accordance with documented safety analysis. • Down blend EM-owned non-MOXable plutonium for disposal at Waste Isolation Pilot Plant. • Continue to receive Gap Plutonium from foreign	• The increase reflects the merging of scope from PBS SR-0012, Spent Nuclear Fuel Stabilization and Disposition, into this PBS; resumption of support for spent (used) nuclear fuel and target material processing through H Canyon; an increase in the planned receipts of foreign and domestic research reactor spent (used) nuclear fuel; resumption of the L-Area Basin life extension activities; and down blending of EM-owned plutonium. Some of this increase is offset by the transfer of work scope to newly-created PBS SR-0041, Surveillance, Maintenance, and Deactivation.

Authority.
- Continued receipt and processing of sample return material from onsite laboratories.
- Met K-Area safety requirements including surveillance of special nuclear materials in storage by destructive means in accordance with DOE-STD-3013 and the surveillance and monitoring plan.
- Resumed down blending of non-MOXable plutonium oxide for disposition at Waste Isolation Pilot Plant.
- Continued to receive Gap Plutonium from Foreign Countries in support of the Nonproliferation program.
- Performed workforce sustainment activities to replace aging workforce.

countries in support of the NNSA nonproliferation program.
- Perform workforce sustainment activities to replace aging workforce.
- Ship EM-owned spent (used) nuclear fuel to H Canyon for disposition.
- Provide safe storage for EM-owned spent (used) nuclear fuel in L-Area Basin.
- Perform L-Area Basin life extension activities.
- Support Augmented Monitoring Conditional Assessment Program.
- Support receipt of foreign and domestic research reactor spent (used) nuclear fuel.
- Continue to support foreign and domestic research reactor fuel receipt program.
- Perform surveillance and maintenance of legacy heavy water to ensure safe storage.

SNF Stabilization and Disposition (PBS: SR-0012)

Overview

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

This PBS covers scope and funding for the 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.

The end-state will be accomplished when all remaining Savannah River Site inventories of spent nuclear fuel have been disposed and/or placed in approved long term storage, and when spent nuclear fuel facilities have been deactivated and turned over for final disposition.

Beginning in FY 2018, scope of work for Spent Nuclear Fuel Stabilization and Disposition is included within Nuclear Materials Stabilization and Disposition (SR-0011C).

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$41,407	**$0**	**-$41,407**
• Provided site-wide services and landlord support functions for day-to-day operations. Site-wide and Landlord Support services were prorated across the PBSs. • Provided safe, secure storage for spent (used) nuclear fuel in L-Area. • Continued safe, secure storage of heavy water in L, K, and C areas. • Conducted surveillance and maintenance activities of facilities, grounds, and instrumentation. • Supported receipt of planned foreign and domestic research reactor spent (used) nuclear fuel. • Shipped spent (used) nuclear fuel to H Canyon for disposition per H Canyon processing scheduling.	• PBS merged with PBS SR-0011C NM Stabilization and Disposition – No activities.	• The decrease reflects the merging of PBS SR-0012, Spent Nuclear Fuel Stabilization and Disposition into PBS SR-0011C, Nuclear Material Stabilization and Disposition.

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 currently stored in 43 underground storage tanks (as of March 1, 2017).

The Liquid Waste Program has reduced risk to date by:

- Producing over 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 and removing from service 8 non-compliant high-level waste storage tanks on time, meeting 80% of the enforceable commitments in the Federal Facility Agreement.

The Savannah River Site plans to continue reducing the volume of tank waste by waste processing activities; preparing tanks for waste removal by installing necessary equipment and infrastructure; moving, pre-treating, and batching remaining radioactive sludge and salt waste; vitrifying sludge and high curie/high actinide radioactive 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 and treat and discharge evaporator overheads through the Effluent Treatment Facility; emptying and permanently closing in place using grout all liquid radioactive waste storage tanks and support systems; and ensuring risks to the environment and human health and safety from tank waste operations are eliminated or reduced to acceptable levels.

The Department started operating the Defense Waste Processing Facility in 1996 to vitrify high-level waste in a stable form and store it for eventual off-site disposal. 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 total inventory of 35,000,000 gallons of liquid radioactive waste stored in the tank farms. In order to relieve tank space shortages and assure that vitrification in the Defense Waste Processing Facility of the high-activity fraction of liquid waste will continue uninterrupted, the Actinide Removal Process and Modular Caustic Side Solvent Extraction Unit began operation in April 2008. These facilities provide an interim processing capability to remove and treat salt waste from the tank farms to create additional tank space required to support the higher capacity throughput of the Salt Waste Processing Facility. It also provides the Savannah River Site the opportunity to develop operating experience on a production-scale actinide and cesium removal processes which will be used to optimize startup and initial operations of the high capacity Salt Waste Processing Facility.

PBS SR-0014C scope also includes design, construction, and operation of the Salt Waste Processing Facility to safely separate the high-activity fraction from the low-activity fraction of the salt waste stored in underground tanks at the Savannah River Site. Processing salt waste through the Salt Waste Processing Facility is needed to finally process the majority of the waste stored in the tank farms in an expedited manner consistent with the current strategy while maintaining adequate tank space required to optimize Defense Waste Processing Facility operations, and ensure 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. The project has been rebaselined and a new cost and schedule for completion has been established. An Independent Government Cost Estimate was prepared and an external review of the remaining project scope was conducted to further validate remaining project cost. This project is construction complete and it is currently in the testing and commissioning phase with radioactive operation startup scheduled in December 2018.

The Radioactive 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 required to ensure proper integration to support the Salt Waste Processing Facility startup on schedule (December 2018) and support planned processing rates. The program also needs to prepare tanks for waste removal to feed the Salt Waste Processing Facility and the Defense Waste Processing Facility, and build Saltstone Disposal Units 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 all waste out of all tanks by 2028.

The scope of PBS SR-0014C also includes 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. Timely authorization and construction of saltstone disposal capacity is the key to supporting planned Salt Waste Processing Facility production rates to enable the minimization of delays in meeting the Federal Facility Agreement commitments for removing waste and closing tanks and processing all liquid waste by 2028, as mandated in the Site Treatment Plan. Furthermore, a lack of available saltstone disposal capacity will completely shut down Liquid Waste processing. A Saltstone Disposal Unit consists of a cylindrical reinforced concrete tank designed to contain a minimum of 30,000,000 gallons of Saltstone grout. It is planned that one Saltstone Disposal Unit will be filled approximately every 18 months once the Salt Waste Processing Facility is in operation. 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 providing secondary containment.

The Savannah River Site goal is to reliably complete radioactive liquid waste treatment, safely dispose the treated waste, and minimize delay in meeting DOE commitments for completing processing of all liquid radioactive waste by 2028 and closure of the liquid waste storage tanks.

The Liquid Tank Waste Stabilization and Disposition program has three major Regulatory drivers that dictate the program execution schedule:

- The Federal Facility Agreement between the Department, Environmental Protection Agency, and 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.
- The Savannah River Site Treatment Plan between Savannah River Operations Office and South Carolina Department of Health and Environmental Control which requires processing of all radioactive liquid waste by September 30, 2028.
- South Carolina Department of Health and Environmental Control Dispute Resolution Agreement for Alleged Violations of Class 3 Industrial Solid Waste Landfill Permit Facility which requires processing of 36,750,000 gallons of liquid salt solution between Fiscal Years 2016 and 2022.

This PBS also includes direct maintenance and repair that are applicable to these areas.

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$783,520	**$787,758**	**+$4,238**
• Provided site-wide services and landlord support functions for day-to-day operations. Site-wide and Landlord Support services were prorated across the PBSs. • Maintained Tank Farms, including evaporators, and Defense Waste Processing Facility in a safe configuration, staffed and ready for operations. • Conducted liquid waste tie-ins for the Salt Waste Processing Facility and other activities supporting the startup of the Salt Waste Processing Facility. • Performed Tank Farm operation activities, including waste transfers and removals. • Completed grouting and closure of Tank 12. • Completed bulk waste removal activities for Tank 15 to meet FY 2016 Federal Facility Agreement commitments and to support timely Defense Waste Processing Facility feed. • Completed preparation of Tank 26 for bulk waste removal to support timely Defense Waste Processing Facility feed. • Operated Actinide Removal Process and Modular Caustic Side Solvent Extraction salt processing at a rate of 1.2M gallons per year. • Operated Effluent Treatment Facility at planned rate. • Operated Defense Waste Processing Facility to	• Provide site-wide services and landlord support functions for day-to-day operations. Site-wide and landlord support services are prorated across the PBSs. • Maintain Tank Farms, including evaporators, and Defense Waste Processing Facility in a safe configuration, staffed and ready for operations. • Complete all Salt Disposition Initiative activities required to support Salt Waste Processing Facility startup in December 2018. • Perform Tank Farm operation activities, including waste transfers and removals. • Process 2.45 million gallons of salt solution through Actinide Removal Process and Modular Caustic Side Solvent Extraction Unit and Tank Closure Cesium Removal. • Operate Effluent Treatment Facility at planned rate. • Operate Defense Waste Processing Facility to produce 60 to 70 canisters of vitrified high level waste. • Continue Saltstone Disposal Unit #7 design, and initiate cell construction and balance of plant. • Initiate limited design for Saltstone Disposal Units #8 and #9. • Complete Tank Closure Cesium Removal	• This increase supports the liquid waste system facility modifications (H-Tank Farm feed tank and transfer line modifications, Defense Waste Processing Facility transfer line modification, operating software modifications, and safety documentation) necessary to support startup of the Salt Waste Processing Facility.

produce 130 to 150 canisters.

- Performed planning activities for additional salt stone disposal capacity in support of Salt Waste Processing Facility startup and operation.
- Continued activities for interim storage capacity for vitrified high-level waste canisters.
- Continued preparation of Tank 10 for bulk waste removal and treatment using alternative methodology based on on-going discussions with South Carolina Department of Health and Environmental Control.

demonstration in the H-Tank Farm.

- Maintain liquid tank waste system operational to process 300,000 gallons of H Canyon waste.
- Continue activities for enhanced saltstone production.
- Continue modification to Defense Waste Processing Facility lab waste handling process to support Salt Waste Processing Facility planned production rates.
- Support planned commissioning, and start-up activities for Salt Waste Processing Facility.
- Complete Tank 10 for Bulk Waste Removal Efforts.
- Complete preparation of Tank 3 and initiate bulk waste removal.

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 project is to provide support to enable the Savannah River Site to perform its missions and cleanup objectives. Activities include Payments-In-Lieu-Of-Taxes for three South Carolina counties (Aiken, Allendale, and Barnwell); 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 project also includes activities for geological surveys and natural resource management, and DOE Lease Agreements including those with the US Army Corps of Engineers.

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$11,249	**$11,249**	**+$0**
• Supported Payments-in-Lieu-of-Taxes to Aiken, Allendale, and Barnwell counties. • Provided support to South Carolina Department of Natural Resources for technical expertise in the conduct of geological surveys and natural resource management. • Provided support to South Carolina Department of Health Environmental Control for oversight of environmental monitoring, Federal Facility Agreement, Agreement in Principle, and Site Treatment Plan. • Provided support for Georgia and South Carolina Emergency Management Support. • Supported Interagency Agreement for EPA Region 4 oversight of the Federal Facility Agreement. • Supported the Site Specific Advisory Board (SR Citizen's Advisory Board). • Supported DOE Lease Agreements such as the US Army Corps of Engineers.	• Support Payments-in-Lieu-of-Taxes to Aiken, Allendale, and Barnwell counties. • Provide support to South Carolina Department of Natural Resources for technical expertise in the conduct of geological surveys and natural resource management. • Provide support to South Carolina Department of Health Environmental Control for oversight of environmental monitoring, Federal Facility Agreement, Agreement in Principle, and Site Treatment Plan. • Provide support to Georgia and South Carolina Emergency Management Support. • Support Interagency Agreement for EPA Region 4 oversight of the Federal Facility Agreement. • Provide limited support to the Site Specific Advisory Board (SR Citizen's Advisory Board). • Support DOE Lease Agreements including those with the US Army Corps of Engineers.	• No change.

Safeguards and Security (PBS: SR-0020)

Overview

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

The Savanah River Safeguards and Security Program protects nuclear materials, sensitive weapon and nuclear material production technology, equipment, information facilities, and supports the Savannah River Site 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 310 square mile nuclear reservation.

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$128,145	**$142,314**	**+$14,169**
• Provided site-wide security services for day-to-day operations. • Operated and maintained the materials control and accountability program for special nuclear material. • Maintained appropriate uniformed protective force personnel to assure the security of special nuclear materials, facilities, and other site assets. • Operated and maintained physical security protection systems. • Ensured protection of classified and unclassified computer security. • Executed information and operational security measures, cyber security, personnel security and program management for the Savannah River Operations Office.	• Provide site-wide security services for day-to-day operations. • Operate and maintain the materials control and accountability program for special nuclear material. • Maintain appropriate uniformed protective force personnel to assure the security of special nuclear materials, facilities, and other site assets. • Operate and maintain physical security protection systems. • Ensure protection of classified and unclassified computer security. • Execute information and operational security measures, personnel security and program management for the Savannah River Operations Office. • Execute safeguards and security infrastructure upgrades and maintenance for power distribution, perimeter intrusion detection and assessment system sensors and vulnerability assessment modifications.	• The increase reflects the increased costs to maintain security posture, support for safeguards and security infrastructure upgrades and maintenance for power distribution, perimeter intrusion detection and assessment system sensors and vulnerability assessment modifications.

SR Cyber Security (PBS: SR-0025)

Overview

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

The Cyber Security Program at the Savannah River Site protects government information and technology systems in support of DOE missions executed at the Site. This PBS maintains the Savannah River Cyber Security capability and includes support for identification, assessment and protection of mission critical information and information systems according to current threat vectors and risk posture.

This scope will continue until DOE's mission at the Savannah River Site is complete.

SR Cyber Security (PBS: SR-0025)

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$0	**$22,810**	**+$22,810**
• Prior to FY 2018, Cyber Security activities were executed primarily through a Site Indirect cost pool with the remainder executed as part of the Safeguards and Security program (PBS SR-0020).	• Provide cyber security to ensure DOE information resources are identified, assessed, and protected. • Remediation of critical and high vulnerabilities that affect DOE information systems. • Implement new security technologies and replacement of security devices. • Sustainment of Level 4 Multifactor authentication for all standard and privileged users. • Provide support for classified/unclassified policy and program compliance. • Support implementation of new cyber security policy and program requirements. • Provide support for Cyber One requirements.	• Prior to FY 2018, Cyber Security activities were executed primarily through a Site Indirect cost pool with the remainder executed as part of the Safeguards and Security program (PBS SR-0020). The FY 2018 budget proposes to establish a formal Cyber Security program which will direct fund cyber activities. In FY 2016, Cyber activities executed as part of the Savannah River Site (PBS SR-0020) was $3,000,000 and it is estimated that the Cyber investment via Site Indirect cost pool was $6,500,000, for a new increase of $13,310,000. The increase reflects the addition of overhead costs to the scope executed via Site Indirect cost pools prior to FY 2018. Also reflected in the increase, is the cost EM absorbs for Cyber security scope that was previously shared with the National Nuclear Security Administration (approximately 30 percent cost sharing) when the scope was executed via Site Indirect cost pool.

Savannah River National Laboratory Crosscut

(dollars in thousands)

Savannah River National Laboratory	FY 2016 Enacted	FY 2018 Request[1]	FY 2018 vs FY 2016
Environmental Management			
Defense Environmental Cleanup			
Direct Funding -			
Savannah River	96,798	106,630	9,832
EM Headquarters	15,483	15,875	392
Office of River Protection	11,961	12,000	39
Paducah / Portsmouth	410	1,030	620
Carlsbad	1,108	1,000	-108
Oak Ridge	388	1,020	632
Richland	141	1,000	859
Los Alamos National Laboratory	128	100	-28
Idaho	59	260	201
Total	**126,476**	**138,915**	**12,439**
Indirect Funding (O&M and Utilities)[2] -			
Environmental Management	38,643	38,966	323
National Nuclear Security Administration	11,344	14,642	3,298
Off-Site	2,104	2,994	889
Total Indirect Funding	**52,092**	**56,602**	**4,510**
Site Overheads (if Funded by PBS)[3] [4]	23,042	25,420	2,378
Total O&M and Utilities (if funded by PBS)	**75,134**	**82,022**	**6,888**

[1] Numbers are estimates only.

[2] In FY 2016 and FY 2018, these funds are allocated from the Site Services Overhead Pool in the year of execution.

[3] This represents a pro forma estimate of Savannah River National Laboratory's contribution to the Site Overhead Pools should the O&M and Utilities be directly funded through a PBS.

[4] These overhead amounts represent a net-sum-zero impact to Savannah River funding. They illustrate that the Savannah River National Laboratory, when O&M and utilities are directly funded through a PBS, becomes a contributor to the site overhead pools versus a receiver from the pools. Site overhead rates will be adjusted and redistributed to account for the Savannah River National Laboratory being directly funded through a PBS.

The Savannah River National Laboratory currently executes approximately $220,000,000 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 2018 numbers noted above are estimates based on executed FY 2016 work scope.

Specifically, for the Savannah River Site, the Savannah River National Laboratory provides needed 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 NNSA and other federal agencies, the laboratory provides key technical and planning input that is crucial to National Security. Specifically for NNSA's nuclear deterrent mission, SRNL 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 DOE sites (Hanford, Paducah, Carlsbad, Oak Ridge, Los Alamos, and Idaho) through provision of programmatic and technical strategies for environmental remediation and risk reduction; development of processes to remediate high and low level wastes; technical oversight of test programs; conduct studies and development of mitigation strategies to address deleterious effects on materials used in environmental waste processes; and technical advice and technology development to address soil and groundwater radiological and chemical contamination.

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 in 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 over 60 years old and in need of restoration or replacement.

The operations and maintenance scope through the indirect funding described in the crosscut table above includes engineering, design, maintenance, and overall safe operation of the Savannah River National Laboratory physical facilities. Savannah River National Laboratory is responsible for the Laboratory Technical Area operations, radiological controls, industrial safety and hygiene, environmental compliance, waste management, safety basis documentation, project management, and maintenance programs. Savannah River National Laboratory provides internal operational capabilities and buys specialized or infrequently needed Site support services to operate safely and more efficiently. Savannah River National Laboratory is the Design Authority for technical facility infrastructure including structures, systems (e.g., electricity, water, flammable and compressed gas services, ventilation and exhaust, gloveboxes and hoods, heating and air conditioning), components and services. Savannah River National Laboratory is responsible for all environmental, waste, transportation, and safety and health aspects of the laboratory's research and development work performed in its facilities. Savannah River National Laboratory also provides operational support as needed for leased facilities. Utilities are paid with these funds.

Activities Supported by Savannah River National Laboratory Funding

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
Savannah River		
$96,798	**$106,630**	**+$9,832**
• Flowsheet development. • Groundwater remediation technologies • Used fuel evaluations. • Pu Surveillance Program – destructive and non-destructive characterization of 3013 canisters to determine that national standards are being met. • General operational facility support including material characterization, equipment troubleshooting, evaluation of chemical issues, etc. • Support for 235-F deactivation and assessment activities. • 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, grinding, 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 texting in order to demonstrate that waste tanks and processing tanks are adequately mixed.	• Develop and demonstrate flowsheets to enable Savannah River Site canyon processing. • Flowsheet development and alternatives evaluations for tank waste program. • Develop and deploy Soil and Groundwater remediation technologies • Used fuel evaluations. • Plutonium Surveillance Program – destructive and non-destructive characterization of 3013 canisters to determine national standards are being met. • General operational facility support including material characterization, statistical analyses, equipment troubleshooting, evaluation of chemical processing issues, etc. • Support for 235-F deactivation and assessment activities. • 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. • Nuclear materials packaging development and documentation.	• 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 an anticipated additional effort to support Salt Waste Processing Facility startup.

	• 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 baseline 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.	
EM Headquarters		
$15,483	**$15,875**	**+$392**
• Nuclear Materials Packaging development and certifications. • Support to HQ on revisions to DOE Order 435.1 and in support of the International Atomic Energy Agency. • Technical studies for HQ including independent technical reviews, Technology Readiness Assessments, etc. • Long term performance/durability studies of high and low level Waste Forms	• 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	• Projected increase reflects an increase in funding in the Technology Development and Deployment program with focus areas of robotics, testbed management, management of Technetium, and direct disposal options.

• 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 • Independent review and strategic development of remediation approaches at Legacy Management sites	• 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 Grant • Develop and verify protectiveness levels of alternative waste forms for management of nuclear materials (non-MOXable Plutonium)	
Office of River Protection		
$11,961	**$12,000**	**+$39**
• Waste form development & qualification – formulation of grouts and glass and the development of strategies to demonstrate compliance. • Mixing and instrumentation studies of tanks in the Waste Treatment facility 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.	• 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	• Projected increase reflects support for the startup of the facilities for Direct Feed Law Activity Waste and preparation of feed in the Tank Farms to support the initiative; and reflects a decrease in technical resolution activities for the Waste Treatment & Immobilization Plant project.

	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.	
Paducah / Portsmouth		
$410	**$1,030**	**+$620**
• Technical review for remediation design documents.	• Deploy models and technologies for remediation and closure. • Deactivation & decommissioning technology development and deployment. • Develop site specific hazard and risk profiles to enhance work planning. Improves appropriate selection of tools, techniques and work force training. Also includes stakeholder engagement. • Support resolution of subsurface contamination issues. • Participate in developing material recovery (Nickel) worksheets during the deactivation & decommissioning of cascades.	• Projected increase reflects a transition in scope from technical review and assessment to modeling and technology development and deployment focusing on groundwater remediation, solid waste disposal options, and nuclear material holdup measurements.
Carlsbad		
$1,108	**$1,000**	**-$108**
• Support Waste Isolation Pilot Plant recovery efforts.	• Provide remote inspection and robotics applications.	• Projected decrease reflects completion of support to Waste Isolation Pilot Plant recovery efforts and

	• Support operations of Waste Isolation Pilot Plant including assessments of modified procedures and protocols. • Provide engineering and chemistry support for waste packaging and storage.	transition to operation of the facility.
	Oak Ridge	
$388	**$1,020**	**+$632**
• Technical support for waste remediation.	• Deploy waste remediation technologies • Provide engineering consultation and support for EM waste treatment missions.	• Projected increase reflects a scope transition to include liquid waste treatment technologies.
	Richland	
$141	**$1000**	**+$859**
• Member of the DOE Low Level Waste Disposal Facility Federal Review Group review team for the Environmental Restoration Disposal Facility Performance Assessment.	• Member of the DOE Low-Level Waste Disposal Facility Federal Review Group review team for the Environmental Restoration Disposal Facility Performance Assessment. • 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.	• Projected increase reflects additional support for technology development and deployment for deactivation & decommissioning, in-situ groundwater management, and closure; support for development and evaluation of models for remediation decisions; and support engagement and discussions with stakeholders.
	Los Alamos National Laboratory	
$128	**$100**	**-$28**
• Nuclear materials packaging studies.	• Nuclear materials packaging studies. • Technical assistance for groundwater	• Projected decrease reflects a transition of scope away from nuclear materials studies to technical assistance

	remediation. • Technical consultation to new Los Alamos National Laboratory EM Office.	and consultation to new Los Alamos National Laboratory EM Office.
	Idaho National Laboratory		
	$59	**$260**	**+$201**
• Nuclear Materials Packaging Studies.	• Nuclear Materials Packaging Studies • Provide technical support to the Integrated Waste Treatment Unit facility in treatment of the Sodium Bearing Waste.	• Projected increase reflects support to the Integrated Waste Treatment Unit facility for treatment of the Sodium Bearing Waste.

Savannah River

Capital Summary ($K)

	Total	Prior Years	FY 2016 Enacted	FY 2018 Request	FY 2018 vs FY 2016 Enacted
Capital Operating Expenses Summary (including (Major Items of Equipment (MIE))					
Capital Asset Projects > $10M					
Plant Projects (GPP and IGPP) (<$10M)	**11,985**	**0**	**8,020**	**3,965**	**-4,055**
Total, Capital Operating Expenses	**11,985**	**0**	**8,020**	**3,965**	**-4,055**
Capital Asset Projects > $10M	0	0	0	0	0
Total, Capital Asset Projects > $10M	**0**	**0**	**0**	**0**	**0**
Plant Projects (GPP and IGPP) (Total Project Cost (TPC) <$10M)					
SRNL B-Cell Block Window Replacement (Windows #10, #11, #12, #14, #15, and #16)	8,020	0	8,020	0	-8,020
SRNL IGPPs	3,965	0	0	3,965	+3,965
Total, Plant Projects (GPP and IGPP) (Total Project Cost (TPC) <$10M	**11,985**	**0**	**8,020**	**3,965**	**-4,055**
Total, Capital Summary	**11,985**	**0**	**8,020**	**3,965**	**-4,055**

Savannah River
Construction Summary ($K)

	Total	Prior Years	FY 2016 Enacted	FY 2018 Request	FY 2018 vs FY 2016 Enacted
05-D-405, Salt Waste Processing Facility, Aiken, SC					
Total Estimate Cost (TEC)	1,677,122	1,483,122	194,000	0	-194,000
Other Project Costs (OPC)	260,983	110,983	0	150,000	+150,000
Total Project Cost (TPC) 05-D-405	**1,938,105**	**1,594,105**	**194,000**	**150,000**	**-44,000**
Saltstone Disposal Unit #6, SR (SR-0014C)					
Savannah River Tank Waste (SR-0014C)					
Total Estimate Cost (TEC)	12,280	12,280	0	0	0
Other Project Costs (OPC)	5,834	5,834	0	0	0
Subtotal, Saltstone Disposal Unit #6, SR (SR-0014C)	18,114	18,114	0	0	0
15-D-402, Saltstone Disposal Unit #6, SR (SR-0014C)					
Total Estimate Cost (TEC)	92,104	57,462	34,642	0	-34,642
Other Project Costs (OPC)	5,753	3,408	2,345	0	-2,345
Subtotal, 15-D-402, Saltstone Disposal Unit #6, SR (SR-0014C)	97,857	60,870	36,987	0	-36,987
Total Project Cost (TPC) 15-D-402	**115,971**	**78,984**	**36,987**	**0**	**-36,987**

17-D-402, Saltstone Disposal Unit #7, SR (SR-0014C)					
Total Estimate Cost (TEC)	40,000	0	0	40,000	+40,000
Other Project Costs (OPC)	5,201	0	1,201	4,000	+2,799
Total Project Cost (TPC) 17-D-401	**45,201**	**0**	**1,201**	**44,000**	**+42,799**
18-D-401, Saltstone Disposal Unit #8 and #9, SR (SR-0014C)					
Total Estimate Cost (TEC)	500	0	0	500	+500
Other Project Costs (OPC)	500	0	0	500	+500
Total Project Cost (TPC) 18-D-401	**1,000**	**0**	**0**	**1,000**	**+1,000**
18-D-402, Emergency Operations Center Replacement, SR (SR-0013)					
Total Estimate Cost (TEC)	500	0	0	500	+500
Other Project Costs (OPC)	500	0	0	500	+500
Total Project Cost (TPC) 18-D-402	**1,000**	**0**	**0**	**1,000**	**+1,000**

05-D-405
Salt Waste Processing Facility, Savannah River Site, Aiken, South Carolina
Project is for Construction Only (SR-0014C)

1. Significant Changes and Summary

Significant Changes

This Project Data Sheet is an update of the FY 2017 Congressional Project Data Sheet and does not include a new start for the budget year.

Summary

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 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.

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.

2. 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

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
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

CD-2/3A - Site Preparation, Early Construction and Long Lead Procurement
CD-3B - Early Construction and Long Lead Procurement

3. Project Cost History

(Fiscal Quarter)

	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
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

4. 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.

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 (ASME) 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 ASME 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/M&O Support, were increased. The increase in DOE/M&O 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/M&O 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.

5. Financial Schedule

	Appropriations	Obligations	Costs
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[e]	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[e]	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[b]	N/A	N/A	197,479
FY 2013[c]	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

	Appropriations	Obligations	Costs
FY 2005	29,261	29,261	30,204
FY 2006	35,485	35,485	48,195
FY 2007	104,296	104,296	77,507
FY 2008[e]	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[b]	204,377	204,377	197,479
FY 2013[c]	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[b]	0	0	8,044
FY 2013	7,963	7,963	17,052
FY 2014[e]	N/A	N/A	18,125
FY 2015[e]	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**
Total Project Cost (TPC)			
FY 2003	4,842	4,842	0
FY 2004	51,198	51,198	11,539
FY 2005	29,261	29,261	30,204

	Appropriations	Obligations	Costs
FY 2006	57,932	57,932	70,642
FY 2007	113,344	113,344	86,555
FY 2008[ae]	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[b]	204,377	204,377	205,523
FY 2013[c]	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	140,000	140,000	149,242
FY 2020	75,000	75,000	85,000
FY 2021	8,895	8,895	19,933
Total, TPC[d]	**2,322,000**	**2,322,000**	**2,322,000**

[a] Includes a Congressional Reprogramming of $15,000,000 from the construction project (05-D-405) to Project Engineering and Design (03-D-414).
[b] FY 2012 includes a reduction in OPC funds and a corresponding increase in Total Estimated Cost funds of $34,305,510.
[c] 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.
[d] 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.
[e] 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 $2,332,000,000.

6. Details of Project Cost Estimate

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design			
Design	238,905	243,705	206,705
Contingency	0	0	37,000
Total, Design	**238,905**	**243,705**	**243,705**
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
Total, Construction	**1,372,212**	**1,367,412**	**482,199**
Total, TEC	**1,611,117**	**1,611,117**	**725,904**
Contingency, TEC	36,000	36,000	86,000
Other Project Cost (OPC)			
OPC except D&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
Total, OPC except D&D	**710,883**	**710,883**	**173,433**
Total, OPC	**710,883**	**710,883**	**173,433**
Contingency, OPC	300,100	300,100	22,000
Total, TPC	**2,322,000**	**2,322,000**	**899,337**
Total, Contingency	**336,100**	**336,100**	**108,000**

7. 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
FY 2006	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
FY 2007 Performance Baseline	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
FY 2008	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
FY 2007 Congressional Notification	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
FY 2009	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
FY 2010	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
FY 2011	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
FY 2012	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
FY 2013	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
FY 2012	TEC	1,223,162	0	0	0	0	0	0	0	1,223,162

Reprogramming	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
FY 2014	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
FY 2013 Reprograming	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
FY 2015	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
FY 2014 Notification	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
FY 2016	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
FY 2015 Reprogramming	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
FY 2017	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
FY 2018	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

8. 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

(Related Funding requirements)

(Dollars in Thousands)

	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
Total, Operations & Maintenance	85,000	74,228	1,445,000	1,268,230

9. 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.

10. 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.

15-D-402
Saltstone Disposal Unit #6, Savannah River Site, Aiken, South Carolina
Project is for Design and Construction

1. Significant Changes and Summary

Significant Changes
This Project Data Sheet is an update of the Congressional Project Data Sheet and does not include a new start for the budget year.

The purpose for the change to this project data sheet is to indicate that FY 2018 Appropriations are no longer needed as the project is projected to complete in the third quarter of FY 2017. This data sheet reduces the FY 2018 Appropriations request to zero and lowers the Total Estimated Cost and Total Project Cost accordingly.

Summary
The most recent DOE Order 413.3B Critical Decision is Critical Decision -2/3 (approval to start cell construction only) was approved on July 16, 2013, with a Total Project Cost of $143,200,000 and Critical Decision -4 of November 30, 2018.

A Federal Project Director has been assigned to this project.

This project was originally executed as an operating funded capital asset project. Beginning in FY 2015, EM requested that the Total Estimated Cost of this project be appropriated in the capital line-item construction account. This data sheet includes a full accounting of the total project cost expended in prior years.

The Saltstone Disposal Unit #6 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. The Saltstone Disposal Unit #6 project will construct a 30 million gallon reinforced concrete disposal cell and all infrastructures necessary to accept Saltstone grout produced by the Saltstone Production Facility. In FY 2014, the foundation floor of the disposal cell was completed and construction of the wall sections begun. The Total Estimated Cost funding requested in FY 2017 will be used to complete construction of the disposal cell and the balance of plant. Since the project is projected to finish in FY 2017 ahead of the performance baseline and at a cost below the performance baseline, the FY 2018 appropriation is no longer required.

2. Critical Milestone History

(fiscal quarter or date)

	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3 Disposal Cell	D&D Complete	CD-4
FY 2015	03/25/2010	06/22/2012	06/22/2012	07/16/2013	4Q FY 2013	07/16/2013	N/A	1Q FY2019
FY 2016	03/25/2010	05/03/2012	06/22/2012	07/16/2013	12/18/2013	06/18/2014	N/A	1Q FY2019
FY 2017	03/25/2010	05/03/2012	06/22/2012	07/16/2013	12/18/2013	06/18/2014	N/A	1Q FY2019
FY 2018	3/25/2010	05/03/2012	06/22/2012	07/16/2013	12/18/2013	06/18/2014	N/A	3Q 2017(P)

(P) - Projected

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
CD-1: The project originally had an approved CD-0/1 on March 25, 2010; however, the project was revised through a baseline change proposal on June 22, 2012.

(Fiscal Quarter or Date)

	Performance Baseline Validation		CD-3 Balance of Plant	
FY 2015	07/16/2013		2QFY2014	
FY 2016	07/16/2013		06/17/2014	
FY 2017	07/16/2013		06/17/2014	
FY 2018	07/16/2013		06/17/2014	

CD-3 Disposal Cell – Approval to start disposal cell construction only
CD-3 Balance of Plant - Approval to start remaining project construction

3. Project Cost History

(Fiscal Quarter)

	TEC, Design	TEC, Construction	TEC, Total	OPC Except D&D	OPC, D&D	OPC, Total	TPC
FY 2015	20,458	107,170	127,628	15,572	N/A	15,572	143,200
FY 2016[a]	10,617	117,317	127,934	15,266	N/A	15,266	143,200
FY 2017	10,617	117,317	127,934	15,266	N/A	15,266	143,200
FY 2018[b]	10,617	101,344	111,961	15,266	N/A	15,266	127,227

[a] When the FY 2015 Project Data Sheet was drafted, Saltstone Disposal Unit #6 Project was operationally funded for FY 2011 through FY 2014 and there was not a division between Total Estimated Cost and Other Project Cost funds. When the FY 2015 Project Data Sheet was created, errors were made when separating these categories.
[b] The project is projected to complete in 3Q 2017 and therefore will not need FY 2018 appropriations resulting in a decrease in the TEC and TPC by the original projected FY 2018 appropriation.

4. Project Scope and Justification

Scope
The Saltstone Disposal Unit #6 project will design and construct a 30 million gallon reinforced concrete disposal cell and all necessary infrastructure to accept Saltstone grout produced by the Saltstone Production facility. Infrastructure includes Saltstone grout line, drain water return line, power, monitoring instrumentation, drain wells, cameras and ventilation systems.

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. 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 Units will be constructed in coordination with salt processing production rates.

The need date for all Saltstone Disposal Units are recorded in the Savannah River Site 'Liquid Waste System Plan.' 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., changes in technology, facility availability, etc.).

In 2012, a value engineering study concluded that building 'Mega' cells could take advantage of economies of scale by reducing the total concrete and steel needed to build 72 small cells (2.9 million gallon capacity), which was the previous plan, as opposed to 8 large cells.

The project contingency is based upon previous experience and risks associated with adapting 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.

5. Financial Schedule

(dollars in thousands)

	Appropriations	Obligations	Costs
Total Estimated Cost (TEC)			
Prior Operating Funding			
Design			
FY 2011	N/A	N/A	539
FY 2012	N/A	N/A	4,423
FY 2013	N/A	N/A	3,180
FY 2014	N/A	N/A	2,475
Total, Operating Funded Design	**N/A**	**N/A**	**10,617**
Construction			
FY 2013	N/A	N/A	1,662
FY 2014	N/A	N/A	26,089
FY 2015	N/A	N/A	1,374
Total, Operating Funded Construction	**N/A**	**N/A**	**29,125**
Total, Prior Operating Funding	**39,742**	**39,742**	**39,742**
Specifically Appropriated Funding			
Construction			
FY 2015	N/A	N/A	30,000
FY 2016	N/A	N/A	34,642
FY 2017	N/A	N/A	7,577
FY 2018	N/A	N/A	0
Total, Specifically Appropriated Construction	N/A	N/A	72,219
Total, Specifically Appropriated Funding	**72,219**	**72,219**	**72,219**

(dollars in thousands)

	Appropriations	Obligations	Costs
TEC			
FY 2011	539	539	539
FY 2012	4,423	4,423	4,423
FY 2013	7,318	7,318	4,842
FY 2014	27,462	27,462	28,564
FY 2015	30,000	30,000	31,374
FY 2016	34,642	34,642	34,642
FY 2017	7,577	7,577	7,577
FY 2018[a]	0	0	0
Total, TEC	**111,961**	**111,961**	**111,961**
Other Project Cost (OPC)			
OPC			
FY 2011	140	140	133
FY 2012	4,278	4,278	4,064
FY 2013	1,416	1,416	1,345
FY 2014	714	714	678
FY 2015	2,694	2,694	2,624
FY 2016	2,345	2,345	2,345
FY 2017	3,679	3,679	4,077
FY 2018	0	0	0
Total, OPC	**15,266**	**15,266**	**15,266**
Total Project Cost (TPC)			
FY 2011	679	679	672
FY 2012	8,701	8,701	8,487
FY 2013	8,734	8,734	6,187
FY 2014	28,176	28,176	29,242
FY 2015	32,694	32,694	33,998
FY 2016	36,987	36,987	36,987
FY 2017	11,256	11,256	11,654
FY 2018[a]	0	0	0
Total, TPC	**127,227**	**127,227**	**127,227**

[a] FY 2018 Appropriations are not needed as the project is projected to complete in 3Q 2017.

6. Details of Project Cost Estimate

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design			
Design	10,617	10,617	N/A
Contingency	0	0	N/A
Total	**10,617**	**10,617**	**N/A**
Construction			
Building & Site Work	101,344	94,286	N/A
Contingency	0	23,031	N/A
Total, Construction	**101,344**	**117,317**	**N/A**
Total, TEC	**111,961**	**127,934**	**N/A**
Contingency, TEC	0	23,031	N/A
Other Project Cost (OPC)			
OPC			
Conceptual Design	3,976	3,976	N/A
Start-Up	9,373	7,836	N/A
Other OPC	1,917	1,917	N/A
Contingency, OPC	0	1,537	
Total, OPC except D&D	**15,266**	**15,266**	**N/A**
Total, TPC	**127,227**	**143,200**	**143,200**
Total, Contingency	**0**	**24,568**	**32,902[a]**

[a] Project was baselined as an operating project and, as an operating project, the baseline consisted of only the TPC and the contingency.

7. Schedule of Appropriation Requests

($K)

Request		Prior Years	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	Outyears	Total
FY 2015	TEC	41,414	34,642	34,110	17,462	0	0	0	0	127,628
	OPC	8,907	2,694	2,626	1,345	0	0	0	0	15,572
	TPC	50,321	37,336	36,736	18,807	0	0	0	0	143,200
FY 2016[a]	TEC	39,742	30,000	34,642	23,550	0	0	0	0	127,934
	OPC	6,548	2,694	2,345	3,679	0	0	0	0	15,266
	TPC	46,290	32,694	36,987	27,229	0	0	0	0	143,200
FY 2017	TEC	39,742	30,000	34,642	21,313	2,237	0	0	0	127,934
	OPC	6,548	2,694	2,345	3,679	0	0	0	0	15,266
	TPC	46,290	32,694	36,987	24,992	2,237	0	0	0	143,200
	TEC	39,742	30,000	34,642	7,577	0	0	0	0	111,961

FY 2018 [b]	OPC	6,548	2,694	2,345	3,679	0	0	0	15,266
	TPC	46,290	32,694	36,987	11,256	0	0	0	127,227

[a] When the FY 2015 Project Data Sheet was drafted, Saltstone Disposal Unit 6 Project was operationally funded for FY 2011 through FY 2014 and there was not a division between TEC and OPC funds. When the FY 2015 Project Data Sheet was created, errors were made when separating these categories.
[b] Since the project is projected to finish in FY2017 ahead of the performance baseline and at a cost below the performance baseline, the FY 2018 appropriation is no longer required and the Total Estimated Cost and Total Project Cost is reduced by the FY 2018 appropriation amount documented in the FY 2016 and FY 2017 Project Data Sheet.

8. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	11/30/2018
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	700	700	3,500	3,500
Maintenance	37	37	185	185
Total, Operations & Maintenance	737	737	3,685	3,685

9. D&D Information

Area	Square Feet

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.

10. Acquisition Approach

The overall Acquisition approach is to continue to build Saltstone Disposal Unit #6 at the Savannah River Site in Z-Area using Savannah River Remediation as the Prime Contractor to manage overall Saltstone Disposal Unit design and construction including procurement actions and subcontracts, as necessary tank design, tank installation, and Balance of Plant services and infrastructure necessary to make the tank fully operational to receive Saltstone grout in accordance with the Liquid Waste System Plan.

The construction of the disposal cell was awarded to small business under a firm fixed fee subcontractor managed by Savannah River Remediation. The majority of the balance of plant work scope is also planned to be a firm fixed fee subcontract with the exception of facility tie-in and installation of safety significant equipment.

17-D-402
Saltstone Disposal Unit #7, Savannah River Site, Aiken, SC (SR-0014C)
Project is for Design and Construction

1. Significant Changes and Summary

Significant Changes

This Construction Project Data Sheet is an update of the FY 2017 Congressional Construction Project Data Sheet and does not include a new start for the budget year.

Summary

The most recent DOE Order 413.3B approved Critical Decision is -0, which was approved on February 19, 2016, with a preliminary cost range of $110,000,000 to $170,000,000 and Critical Decision -4 of first quarter of FY 2022.

Critical Decision -3A, Site preparation, Cell and Balance of Plant design will start with design funding in FY 2017 in support of site preparation field activities, which will require construction funding in FY 2018.

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.

2. 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

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

(Fiscal Quarter or Date)

	Performance Baseline Validation	CD-3A		
FY 2017	TBD	TBD		
FY 2018	1QFY2018	4QFY2017		

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

3. Project Cost History

(Fiscal Quarter)

	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

Note: Numbers are only estimates and are consistent with the high end of the cost range.

4. 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 ft. in diameter, 43 ft. high, 32 million 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 clean-up 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.

5. Financial Schedule

(dollars in thousands)

	Appropriations	Obligations	Costs
Design			
FY 2017	N/A	N/A	5,500
FY 2018	N/A	N/A	3,471
Total, Design	**N/A**	**N/A**	**8,971**
Construction			
FY 2018	N/A	N/A	36,529
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
Outyears	TBD	TBD	TBD
Total, TEC	**TBD**	**TBD**	**TBD**
OPC			
FY 2016	1,201	1,201	1,201
FY 2017	1,404	1,404	1,404
FY 2018	4,000	4,000	4,000
Outyears	TBD	TBD	TBD
Total, OPC	**TBD**	**TBD**	**TBD**
Total Project Cost (TPC)			
FY 2016	1,201	1,201	1,201
FY 2017	6,904	6,904	6,904
FY 2018	44,000	44,000	44,000
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.

6. 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**	**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**
Total, OPC	**TBD**	**TBD**	**N/A**
Total, Contingency	**TBD**	**TBD**	**N/A**
	TBD		
Total, TPC	**TBD**	**TBD**	**N/A**
Total, Contingency	**TBD**	**TBD**	**N/A**

7. Schedule of Appropriation Requests

Request		Prior Years	FY 2016	FY 2017	FY 2018	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	1,404	4,000	TBD	TBD
	TPC	0	1,201	6,904	44,000	TBD	TBD

8. 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	N/A	TBD	N/A
Maintenance	TBD	N/A	TBD	N/A
Total, Operations & Maintenance	TBD	N/A	TBD	N/A

9. Required D&D Information

Area	Square Feet

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.

10. 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. Significant Changes and Summary

Significant Changes

This Construction Project Data Sheet is new and includes a new start for the budget year.

Summary

The most recent DOE Order 413.3B approved Critical Decision is Critical Decision -0, which was approved on March 17, 2017, with a preliminary cost range of $225,000,000 to $350,000,000 and Critical Decision -4 of second quarter of FY 2024.

A Critical Decision -1 approval is planned to occur by the fourth quarter of FY 2017. 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.

2. 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

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

3. Project Cost History

	(Fiscal Quarter)						
	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

4. 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 ft. in diameter, 43 ft. high, 32 million gallon cylindrical large tank disposal cells based on American Water Works Association (AWWA) 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 clean-up 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.

5. Financial Schedule

(dollars in thousands)

	Appropriations	Obligations	Costs
Design			
FY 2018	N/A	N/A	500
Outyears	N/A	N/A	TBD
Total, Design	**N/A**	**N/A**	**TBD**
Construction			
Outyears	N/A	N/A	TBD
Total, Construction	**N/A**	**N/A**	**TBD**
TEC			
FY 2018	500	500	500
Outyears	TBD	TBD	TBD
Total, TEC	**TBD**	**TBD**	**TBD**
OPC			
FY 2018	500	500	500
TBD	TBD	TBD	TBD
Total, OPC	**TBD**	**TBD**	**TBD**
Total Project Cost (TPC)			
FY 2018	1,000	1,000	1,000
Outyears	TBD	TBD	TBD
Total, TPC	**TBD**	**TBD**	**TBD**

6. Details of Project Cost Estimate

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design			
Design	TBD	N/A	N/A
Contingency	TBD	N/A	N/A
Total, Design	**TBD**	**N/A**	**N/A**
Construction			
Site Preparation	N/A	N/A	N/A
Equipment	N/A	N/A	N/A
Other Construction	TBD	N/A	N/A
Contingency	TBD	N/A	N/A

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
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	N/A	N/A	N/A
Conceptual Planning	TBD	N/A	N/A
Conceptual Design	TBD	N/A	N/A
Start-up	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**
Total, OPC	**TBD**	**N/A**	**N/A**
Total, Contingency	**TBD**	**N/A**	**N/A**
Total, TPC	**TBD**	**N/A**	**N/A**
Total, Contingency	**TBD**	**N/A**	**N/A**

7. Schedule of Appropriation Requests

Request		Prior Years	FY 2018	Outyears	Total
FY 2018	TEC	0	500	TBD	TBD
	OPC	0	500	TBD	TBD
	TPC	0	1,000	TBD	TBD

8. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	TBD
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)

	Annual Costs		Life Cycle Costs	
COST ESTIMATED PER SALTSTONE DISPOSAL UNIT	Current Total Estimate	Previous Total Estimate	Current Total Estimate	Previous Total Estimate
Operations	TBD	N/A	TBD	TBD
Maintenance	TBD	N/A	TBD	TBD
Total, Operations & Maintenance	TBD	N/A	TBD	TBD

9. D&D Information

Area	Square Feet

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.

10. 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 CD-2. 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-402
Emergency Operations Center Replacement, Savannah River Site, Aiken, South Carolina
Project is for Design and Construction (SR-0013)

1. Significant Changes and Summary

Significant Changes

This Construction Project Data Sheet is new and includes a new start for the budget year.

Summary

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.

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.

2. 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

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

3. 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

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.

4. Project Scope and Justification

Scope

The scope of this project is to design and construct modern, 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. The new facilities must maintain the current level of functionality as well as enhance capabilities to meet current compliance standards.

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 an HVAC 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 NFPA 1221; Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems; and NFPA 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 NFPA 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.

5. Financial Schedule

(Dollars in thousands)

	Appropriations	Obligations	Costs
Design			
FY 2018	N/A	N/A	500
Outyears	N/A	N/A	TBD
Total, Design	**N/A**	**N/A**	**TBD**
Construction			
Outyears	N/A	N/A	TBD
Total, Construction	**N/A**	**N/A**	**TBD**
TEC			
FY 2018	500	500	500
Outyears	TBD	TBD	TBD
Total, TEC	**TBD**	**TBD**	**TBD**
OPC			
FY 2017	500	500	500
FY 2018	500	500	500
Outyears	TBD	TBD	TBD
Total, OPC	**TBD**	**TBD**	**TBD**
Total Project Cost (TPC)			
FY 2017	500	500	500
FY 2018	1,000	1,000	1,000
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.

6. Details of Project Cost Estimate

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design			
Design	TBD	N/A	N/A
Contingency	TBD	N/A	N/A
Total, Design	**TBD**	**N/A**	**N/A**

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Construction			
Site Preparation	TBD	N/A	N/A
Equipment	TBD	N/A	N/A
Other Construction	TBD	N/A	N/A
Contingency	TBD	N/A	N/A
Total, Construction	**TBD**	**N/A**	**N/A**
Total, TEC	**TBD**		
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
Start-Up	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**
Total, OPC	**TBD**		
Contingency, OPC	TBD	N/A	N/A
Total, TPC	**TBD**	**N/A**	**N/A**
Total, Contingency	**TBD**	**N/A**	**N/A**

7. Schedule of Appropriation Requests
($K)

Request		Prior Years	FY 2017	FY 2018	Outyears	Total
FY 2018	TEC	0	0	500	TBD	TBD
	OPC	0	500	500	TBD	TBD
	TPC	0	500	1,000	TBD	TBD

8. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	4Q FY2022
Expected Useful Life (number of years)	TBD
Expected Future Start of D&D	N/A

(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
Maintenance	TBD	N/A	TBD	N/A
Total, Operations & Maintenance	TBD	N/A	TBD	N/A

9. D&D Information

The new area being constructed in this project is replacing existing facilities; however, the costs of D&D 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 D&D.

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

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.

Lawrence Livermore National Laboratory

Overview

Lawrence Livermore National Laboratory is a National Nuclear Security Administration (NNSA) 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 NNSA 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 NNSA. 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 NNSA. 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 2020. 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 2018 Budget Request

The majority of activities scheduled for FY 2018 are in support of the development of remedial solutions for contamination at Building 812, Building 850, and Building 865.

FY 2017 - FY 2018 Key Milestones/Outlook

- (September 2017) Initiate preparation of Building 865 Remedial Investigation/Feasibility Study and 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 and/or Remedial Investigation/Feasibility Study development.
- (September 2018) 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 NNSA. 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 NNSA'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 2016 Enacted	FY 2017 Annualized CR[1]	FY 2018 Request	FY 2018 vs FY 2016
Defense Environmental Cleanup				
NNSA Sites				
Lawrence Livermore National Laboratory				
VL-FOO-0013B-D / Solid Waste Stabilization and Disposition Support - Lawrence Livermore National Laboratory (Defense)	238	238	275	+37
VL-LLNL-0031 / Soil and Water Remediation-Lawrence Livermore National Laboratory - Site 300	1,128	1,125	900	-228
Subtotal, Lawrence Livermore National Laboratory	**1,366**	**1,363**	**1,175**	**-191**

[1] The FY 2017 Annualized CR amounts reflect the P.L. 114-254 continuing resolution level annualized to a full year. 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)

	FY 2018 vs FY 2016
Defense Environmental Cleanup	
NNSA Sites	
Lawrence Livermore National Laboratory	
VL-FOO-0013B-D / Solid Waste Stabilization and Disposition Support - Lawrence Livermore National Laboratory (Defense)	
• Increase in cost of oversight grant with California Regional Water Quality Board.	+37
VL-LLNL-0031 / Soil and Water Remediation-Lawrence Livermore National Laboratory - Site 300	
• Decrease reflects completion of studies/characterization.	-228
Total, Lawrence Livermore National Laboratory	**-191**

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 NNSA 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 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$238	**$275**	**+$37**
• 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.	• 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.	• Increase in cost of oversight grant with California Regional Water Quality Board.

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 NNSA.

The FY 2018 strategy for the EM Site 300 Soil and Groundwater Cleanup Project includes:

- Meeting regulatory and DOE milestones and Federal Facility Agreement deliverables.
- Monitoring groundwater to provide an indication of changes in plume size and extent that could impact human health, and to provide data to support the Remedial Investigation/Feasibility Study development for the Building 812/Operable Unit 9.
- Evaluating additional characterization data obtained at Buildings 812, 850, and 865 and providing information to the regulators to support characterization completion concurrence and/or Remedial Investigation/Feasibility Study development.
- Continuing 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.
- Continuing the in situ bioremediation treatability study to support remedial alternative screening and selection for perchlorate contamination in Building 850 groundwater and initiating the Focused Remedial Investigation/Feasibility Study.
- Initiating preparation of the Building 865 Remedial Investigation/Feasibility Study and the Focused Remedial Investigation/Feasibility Study for perchlorate contamination at Building 850.

Soil and Water Remediation-Lawrence Livermore National Laboratory - Site 300 (PBS: VL-LLNL-0031)

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$1,128	**$900**	**-$228**
• Finalized Building 812/Operable Unit 9 Characterization Work Plan. • Initiated Building 812/Operable Unit 9 Gamma Surface Soil Survey. • Initiated Treatability Study for Enhanced *In Situ* Bioremediation of Perchlorate in Groundwater at Building 850/Operable Unit 5.	• 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. • Evaluate additional characterization data obtained at Buildings 812, 850, and 865 and provide information to the regulators to support characterization completion concurrence and/or Remedial Investigation/Feasibility Study development. • 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. • Continue the *in situ* bioremediation treatability study to support remedial alternative screening and selection for perchlorate contamination in Building 850 groundwater and initiate the Focused Remedial Investigation/Feasibility Study. • Initiate Proposed Plan for remedies at preparation of the Building 865 Remedial Investigation/Feasibility Study and the Focused Remedial Investigation/Feasibility Study for perchlorate contamination in groundwater at Building 850.	• Decrease reflects completion of studies/characterization.

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 or other offsite disposal locations for mixed low-level waste.

Since 1989, the Environmental Management program at Los Alamos National Laboratory has been comprised of activities to address the characterization and cleanup of environmental media (i.e., soil and groundwater), disposition of legacy waste, and decontamination and 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 which 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 which outlines required groundwater and soil remediation on site. The Environmental Management program is currently 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 Consolidated Business Center), until a follow-on contract will be transitioned in FY 2018.

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 current 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 operational events that led to the suspension of the Waste Isolation Pilot Plant operations and the subsequent identification of the breached container contributing to the radiological release having 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 was 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 Assistance 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 are 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 is requiring 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 have been established as part of FY 2016 operations and will serve as the prelude to planned treatment of the nitrate salt bearing waste stream in FY 2017.

In September 2014, the Secretary of Energy directed the Office of Environmental Management and the National Nuclear Security Administration to transition the management and oversight of the legacy environmental cleanup activities at Los Alamos solely to the Office of Environmental Management. This is a bridge contract with Los Alamos National Security, LLC, (the existing contractor) to continue with the environmental clean-up workscope until a new acquisition strategy can be implemented in FY 2018.

Highlights of the FY 2018 Budget Request

By the end of FY 2018, nitrate salt bearing waste will be treated, rendering the waste safe for continued storage and future disposal at the Waste Isolation Pilot Plant. 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 2018 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 2018. 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.

Remediation activities on some public and Los Alamos County properties will be completed during FY 2018. The FY 2018 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 2017 and FY 2018 Key Milestones/Outlook

- (September 2017) Continue evaluation for the recommendation related to the disposition of 33 shafts remote-handled transuranic waste
- (September 2017) Complete the investigation of hexavalent chromium contamination of the groundwater beneath Mortandad and Sandia Canyons including field and bench-scale testing and plume control interim measures
- (September 2017) Submit Certificates of Completion for historical town sites in the Los Alamos Canyon
- (September 2017) Complete supplemental investigation reports pairing risk assessments with eight older investigation results
- (September 2017) Install three wells associated with Chromium interim measures activities
- (September 2018) Complete Remediated Nitrate Salt and Un-remediated Nitrate Salt processing
- (September 2018) Complete the Corrective Measures Evaluation Report for the Chromium interim Measure
- (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.

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 2018 scope will be planned and executed according to the new, renegotiated Consent Order to be issued by New Mexico Environment Department.

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, Settlement Agreement and Stipulated Final Order (Chromium) 2007, and 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 commitments to meet the framework agreement, a decision was made to ship 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 event at the Waste Isolation Pilot Plant, shipments were curtailed. This essentially stranded this waste at Waste Control Specialist 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 break down 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. 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 which is due to the Texas Commission on Environmental Quality by December of 2017. 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 FAR-based bridge contract with Los Alamos National Security, LLC. The contract performance period is expected to run through September 30, 2017. The feasibility study will be completed in FY 2018. EM is continuing its management transition by implementing its acquisition strategy for award of a competitive contract(s) for performance of legacy environmental cleanup beginning in FY 2018. This acquisition process is anticipated to require two years to implement.

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-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 which 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 2016 Enacted	FY 2017 Annualized CR[1]	FY 2018 Request	FY 2018 vs FY 2016
Defense Environmental Cleanup				
NNSA Sites				
Los Alamos National Laboratory				
VL-FAO-0101 / Miscellaneous Programs and Agreements in Principle	3,394	3,387	3,394	0
VL-LANL-0013 / Solid Waste Stabilization and Disposition-LANL Legacy	80,583	80,430	66,436	-14,147
VL-LANL-0030 / Soil and Water Remediation-LANL	99,570	99,381	121,799	+22,229
VL-LANL-0040-D / Nuclear Facility D&D-LANL (Defense)	1,453	1,450	0	-1,453
Subtotal, Los Alamos National Laboratory	**185,000**	**184,648**	**191,629**	**+6,629**

[1] The FY 2017 Annualized CR amounts reflect the P.L. 114-254 continuing resolution level annualized to a full year. 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)

	FY 2018 vs FY 2016
Defense Environmental Cleanup	
Los Alamos	
EMLA Cleanup Activities	
VL-LANL-0013 / Solid Waste Stabilization and Disposition-LANL Legacy	
• Decrease reflects completion of corrective actions necessary to support resumption of operations of processing lines at Waste Characterization Reduction Repackaging Facility, Dome 231, Dome 375, and Building 412 for the nitrate salt drums.	-14,147
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 on June 24, 2016.	+22,229
VL-LANL-0040-D / Nuclear Facility D&D-LANL (Defense)	
• Decrease reflects transfer of nuclear facility deactivation and decommissioning activities to PBS VL-LANL-0030 to enable integration of deactivation and decommissioning and remediation planning, consistent with the campaign approach reflected in the renegotiated Consent Order which was signed on June 24, 2016.	-1,453
EMLA Community and Regulatory Support	
VL-FAO-0101 / Miscellaneous Programs and Agreements in Principle	
• No change.	0
Total, Los Alamos National Laboratory	**+6,629**

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 2016 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 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$80,583	**$66,436**	**-$14,147**
• 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 and in fulfillment of Framework Agreement milestones. • Completed corrective actions necessary to support resumption of operations of processing lines at Waste Characterization Reduction Repackaging Facility, Dome 231,	• 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. • Support continued staging of a portion of transuranic waste inventory at an offsite commercial facility, pending the shipment to the Waste Isolation Pilot Plant.	• Decrease reflects completion of corrective actions necessary to support resumption of operations of processing lines at Waste Characterization Reduction Repackaging Facility, Dome 231, Dome 375, and Building 412 for the nitrate salt drums.

Dome 375 and Building 412.
- Planned and developed/planned for treatment of 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.

- Continue management and disposition of mixed low-level waste/low-level waste and transuranic waste per regulatory agreement with the State of New Mexico.
- Conduct safe operations of processing lines at Waste Characterization Reduction Repackaging Facility.
- Treat nitrate salt bearing wastes in fulfillment of the Nitrate Salt Bearing Waste Isolation Plan. This is the extremely unique and challenging waste stream involved in the February 2014 radiological release at the Waste Isolation Pilot Plant.
- 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.
- Complete fulfillment of Corrective Actions and associated workscope in the Final Stipulated Settlement issued by New Mexico Environment Department and in response to the DOE Accident Investigation Board report.
- Provide funding to support transuranic waste characterization activities such as Visual Examination, Real Time Radiography, Non Destructive Assay, Dose to Curie Conversion, and Flammable Gas Analysis.

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 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$99,570	**$121,799**	**+$22,229**
• 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	• 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,	• 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 on June 24, 2016.

monitoring, mitigation and reporting 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 implement required changes.
- Initiated and completed design for the remedy for Material Disposal Area C.
- Completed the Investigation Report and Corrective Measures Evaluation of Material Disposal Area T in support of obtaining final regulatory remedy selection.
- Completion of 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.
- Conducted Three Mile Canyon investigation and remediation.
- Continued of 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.
- Began project development activities for removal of General Tanks at Technical Area-21 as a DOE radiological removal action.
- Conducted design activities on the Hexavalent Chromium Pump and Treat Remedy line-item construction project for remediation of Santa Fe, and San ll Defonso Pueblo), sediment 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 additional investigation of near surface water impacts on Material Disposal Area T.
- Complete Town site cleanup of solid waste management units from the 1940s and 1950s production sites.
- 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.
- Continue activities associated with groundwater investigation including tracer deployment and cross-well testing for high explosives plume in Cañon de Valle (RDx).

chromium contamination in Mortandad and Sandia canyons.

Nuclear Facility D&D-LANL (Defense) (PBS: VL-LANL-0040-D)

Overview

This PBS is within the Defense Environmental Cleanup appropriation.

There are several facilities excess to the DOE mission at the Los Alamos National Laboratory, including structures at Technical Area-21 and Technical Area-54 that require decommissioning and decontamination, in order to complete the EM mission at the Los Alamos National Laboratory and to maintain compliance with the renegotiated New Mexico Environment Department Consent Order. Due to shift in planning and execution during the bridge contract period and follow-on acquisition(s), Los Alamos National Laboratory found that the decontamination and decommissioning scope for Technical Area-21 would be more efficient when incorporated into the Technical Area-21 Campaign in VL-LANL-0030. Los Alamos will be able to perform the demolition related scope in tandem with soil remediation leading to the ultimate release of the property back to Los Alamos County.

Beginning in FY 2018, activities previously included in this PBS for decontamination and decommissioning have been integrated intoVL-LANL-0030, 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.

Nuclear Facility D&D-LANL (Defense) (PBS: VL-LANL-0040-D)

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$1,453	**$0**	**-$1,453**
• Continued decontamination and decommissioning activities for process-contaminated facilities at Technical Area-21 which are co-located in the footprint of the structures. • Continued demolishing the balance of plant facilities at Technical Area-21.	• No activities planned as Los Alamos National Laboratory will integrate into Technical Area-21 decontamination and decommissioning scope into the Technical Area-21 Campaign scope in PBS VL-LANL-0030.	• Decrease reflects transfer of nuclear facility deactivation and decommissioning activities to PBS VL-LANL-0030 to enable integration of deactivation and decommissioning and remediation planning, consistent with the campaign approach reflected in the renegotiated Consent Order which was signed on June 24, 2016.

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.

Miscellaneous Programs and Agreements in Principle (PBS: VL-FAO-0101)

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$3,394	**$3,394**	**$0**
• Supported the Regional Coalition activities. • Supported the Natural Resource Damage Assessment including preliminary assessment development and Trustee Council activities. • Supported the Los Alamos Pueblo Program to develop and implement environmental monitoring programs for air, soil, and water and establish an independent monitoring program.	• Continue the Regional Coalition activities. • Continue the Natural Resource Damage Assessment and Trustee Council activities. • Continue the Los Alamos Pueblo Program to continue environmental monitoring programs for air, soil, and water and establish an independent monitoring program.	• No change.

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 waste, hazardous low-level 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 2018 Budget Request

The EM Nevada Program FY 2018 budget supports continued progress towards risk-informed closure of 868 remaining subsurface contaminated groundwater and eight contaminated soils sites; post-closure monitoring and maintenance; operation of a waste disposal facility that accepts waste from across the DOE complex; 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.

FY 2017 and FY 2018 Key Milestones/Outlook

PBS VL-NV-0030:

- (Recurring Annual Milestone) Submit Annual Underground Test Area Post-Closure Report to the State
- (Recurring Annual Milestone) Submit Annual Resource Conservation and Recovery Act Post-Closure Report to the State
- (Recurring Annual Milestone) Submit Annual Tonopah Test Range Post-Closure Report to the State
- (Recurring Annual Milestone) Submit Annual Non-Resource Conservation and Recovery Act Post-Closure Report to the State
- (April 2017) Submit Corrective Action Unit 573 Alpha Contaminated Sites Closure Report to the State
- (May 2017) Submit Corrective Action Unit 97 Yucca Flat Corrective Action Decision Document/Corrective Action Plan to the State
- (June 2017) Submit Corrective Action Unit 568 Area 3 Plutonium Dispersion Sites Closure Report to the State
- (August 2017) Submit Corrective Action Unit 415 Project 57 Closure Report to the State
- (September 2017) Submit Corrective Action Unit 101/102 Pahute Mesa Phase II Data Completion Presentation #3 to the State
- (October 2017) Provide Corrective Action Unit 97 Yucca Flat Model Evaluation Pump Test Decision Presentation to the State
- (December 2017) Provide Corrective Action Unit 97 Yucca Flat Model Evaluation Data Presentation to the State
- (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
- (September 2018) Submit Corrective Action Unit 101/102 Pahute Mesa Phase II Data Completion Presentation #4 to the State

PBS VL-NV-0080:

- (September 2017) Continue disposal of low-level waste and mixed low-level waste; continue audits and certification programs; and maintain facilities and documents.
- (September 2018) Continue disposal of low-level waste and mixed low-level waste; continue audits and certification programs; and maintain facilities and documents.

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 Nevada National Security Site is conducted through the issuance and execution of contracts to large and small businesses. 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 contract at the Nevada National Security Site is a Management and Operating contract with National Security Technologies, LLC, and is managed by NNSA. The contract had a base performance period of 2006 to 2011 with award term options granted through FY 2016. Work Authorizations are placed to cover EM work under the NNSA Management and Operating contract. This contract includes the EM-funded operation of the waste disposal facilities and some environmental cleanup scope. The current Management and Operating contract expires on May 31, 2017. Planning for the follow-on contract is in progress and the new contract is expected to be awarded in the near future.

A second prime contract is in place to support environmental characterization and remediation activities at EM Nevada sites 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 one-year options.

The first option period (October 1, 2015 – September 30, 2016) was exercised on September 17, 2015 and the second option period (October 1, 2016 – September 30, 2017) was exercised on September 23, 2016.

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 waste and mixed low-level 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 1,000 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.

- Underground test area 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 2016 Enacted	FY 2017 Annualized CR[1]	FY 2018 Request	FY 2018 vs FY 2016
Defense Environmental Cleanup				
NNSA Sites				
Nevada				
VL-NV-0030 / Soil and Water Remediation-Nevada	38,560	38,487	37,537	-1,023
VL-NV-0080 / Operate Waste Disposal Facility-Nevada	20,996	20,956	18,021	-2,975
VL-NV-0100 / Nevada Community and Regulatory Support	2,829	2,824	4,578	+1,749
Subtotal, Nevada	**62,385**	**62,267**	**60,136**	**-2,249**

[1] The FY 2017 Annualized CR amounts reflect the P.L. 114-254 continuing resolution level annualized to a full year. 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)

	FY 2018 vs FY 2016
Defense Environmental Cleanup	
NNSA Sites	
Nevada	
VL-NV-0030 / Soil and Water Remediation-Nevada	
• Decrease reflects reduced field activities in the Underground Test Area activity (primarily drilling activities).	-1,023
VL-NV-0080 / Operate Waste Disposal Facility-Nevada	
• Decrease reflects the near completion of a new mixed low-level waste disposal unit.	-2,975
VL-NV-0100 / Nevada Community and Regulatory Support	
• Increase reflects funding needed to support scope of work consistent with the Agreement-in-Principle and the Memorandum of Understanding grants with the State of Nevada and the addition of local tribal interaction support.	+1,749
Total, Nevada	**-2,249**

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 1000 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 1,100 contaminated industrial-type 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 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$38,560	**$37,537**	**-$1,023**
Groundwater Remediation: • Continued progress toward closure of approximately 900 subsurface contaminated groundwater sites. • Completed Corrective Action Unit 98 Frenchman Flat closure activities. • Completed drilling and development of one characterization well in Corrective Action Unit 101/102 Pahute Mesa. • Completed Corrective Action Units 101/102	Groundwater Remediation: • Complete annual post-closure sampling and monitoring for Corrective Action Unit 98 Frenchman Flat. • Complete annual data collection and sampling of all groundwater Corrective Action Units not closed. • Complete external peer review for Corrective Action Unit 99 Rainier Mesa. • Continue model evaluation activities for	• Decrease reflects reduced field activities in the Underground Test Area activity (primarily drilling activities).

Pahute Mesa flow and transport model presentations.
- Continued annual sampling activities in the Underground Test Area.
- Continued Corrective Action Units 101/102 Pahute Mesa hydrologic and geologic analysis.
- Completed drilling of three Model Evaluation Wells in Corrective Action Unit 97 Yucca Flat.
- Initiated Corrective Action Unit 97 Yucca Flat Corrective Action Decision Document/Corrective Action Plan.
- Initiated mandatory Corrective Action Unit 98 Frenchman Flat post-closure monitoring.

Soil Remediation:
- Completed closure activities for four contaminated soil sites: Corrective Action Unit 411 Double Tracks, Corrective Action Unit 412 Clean Slate I and Corrective Action Unit 541, Small Boy (which has two sites).
- Initiated characterization activities for two contaminated soils sites: Corrective Action Unit 413 Clean Slate II and Corrective Action Unit 414 Clean Slate III.
- Initiated closure activities for 18 contaminated soils 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).
- 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.

closure for Corrective Action Unit 97 Yucca Flat.
- Continue hydrologic and geologic data analysis activities including groundwater flow and transport modeling for Corrective Action Units 101/102 Pahute Mesa.

Soil Remediation:
- Complete characterization activities for six contaminated soil sites (Corrective Action Unit 576 Miscellaneous Radiological Sites and Debris).
- Complete corrective action and closure activities for one contaminated soil site (Corrective Action Unit 413 Clean Slates II).
- Initiate corrective action planning activities for one contaminated soil site (Corrective Action Unit 414 Clean Slates III).
- Continue air monitoring and studies for soil remediation.

Industrial Sites:
- Continue post-closure monitoring of soils and industrial-type sites.

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 waste and mixed low-level 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 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$20,996	**$18,021**	**-$2,975**
• 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. • Continued audits and waste certification reviews in support of generator programs to ensure compliance with the Nevada National Security Site Waste Acceptance Criteria. • 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. • Completed closure of the waste disposal cells in the original 92 acre portion of the Area 5 Radioactive	• 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. • Continue audits and waste certification reviews in support of generator programs to ensure compliance with the Nevada National Security Site Waste Acceptance Criteria. • Support cleanup activities across the DOE complex by providing disposal capacity and services for up to 1.2 million cubic feet of low-level and mixed low-level radioactive waste. • Support disposition of two experimental spheres stored at Area 5, which requires the Nevada National Security Site to transport the spheres off-site for size reduction.	• Decrease reflects the near completion of a new mixed low-level waste disposal unit.

Waste Management Complex.	• Continue operation of the Resource Conservation and Recovery Act mixed low-level waste disposal cell. • Complete a new mixed low-level waste disposal cell (Cell 25), which is fully compliant with Resource Conservation and Recovery Act regulations and supports the forecasted needs of the DOE complex.

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; Consent Order fee; and a grant with the State of Nevada to perform programmatic oversight and environmental and natural resource planning.

Nevada Community and Regulatory Support (PBS: VL-NV-0100)

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$2,829	**$4,578**	**+$1,749**
▪ Provided support for State of Nevada regulatory oversight of the Nevada National Security Site. ▪ 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.	• Provide support for State of Nevada regulatory oversight of EM Nevada Program work at the Nevada National Security Site. • 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. • Provide funds for the low-level waste fee agreement. • Provide support for local tribal interactions.	• Increase reflects funding needed to support scope of work consistent with the Agreement-in-Principle and the Memorandum of Understanding grants with the State of Nevada and the addition of local tribal interaction support.

Sandia National Laboratory

Overview

The Sandia National Laboratories-New Mexico site is located in 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, or mixed waste.

Sandia National Laboratories' approach 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 are baselined to transfer to the National Nuclear Security Administration (NNSA) landlord at the end of FY 2017. All Environmental Restoration activities are regulated by the Compliance Order on Consent signed by DOE, the Sandia Corporation and New Mexico Environment Department.

Highlights of the FY 2018 Budget Request

In FY 2018, 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. Weight-of-Evidence field studies and additional groundwater characterization, which may require the installation of up to six new monitoring wells, will be implemented at the Burn Site Area of Concern. Eight additional groundwater wells and additional characterization are expected at the Tijeras Arroyo Groundwater Area of Concern. More importantly, at the Technical Area-V Groundwater Area of Concern, FY 2018 funding is needed to support the Interim Measure / Treatability Study using In-Situ Bioremediation.

FY 2017 and FY 2018 Key Milestones/Outlook

- (December 2016) Submit the Current Conceptual Model and Corrective Measures Evaluation Report for the Tijeras Arroyo Groundwater Area of Concern, in coordination with DOE/EM and the New Mexico Environment Department
- (December 2016) Complete installation of two monitoring wells at the Technical Area-V Groundwater Area of Concern
- (March 2017) Conduct aquifer pumping test at the Burn Site Groundwater Area of Concern
- (May 2017) Present Burn Site aquifer pumping test results to the New Mexico Environment Department, and the New Mexico Environment Department selects path forward
- (May 2018) (If necessary) Complete installation of new monitoring wells at the Burn Site Groundwater Area of Concern.
- (May 2018) Complete Interim Measure / Treatability Study *Phase 1* injection at the Technical Area-V Groundwater Area of Concern
- (September 2018) (If necessary) Complete installation of new monitoring wells at the Tijeras Arroyo Groundwater Area of Concern

Regulatory Framework

The regulatory driver for completing this work is the Compliance Order on Consent signed by DOE, the Sandia Corporation and 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 groundwater characterization has been completed, the 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 NNSA’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.

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 recommending monitored natural attenuation was submitted to New Mexico Environment Department in November 2016 and these reports are undergoing review. It is anticipated that additional monitoring wells will be required at Tijeras Arroyo prior to regulatory closure.

A phased characterization program, starting with 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, it is estimated that 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 contractor at Sandia National Laboratories-New Mexico is Sandia Corporation, a Management and Operating contractor that is a subsidiary of the Lockheed Martin Company. On May 1, 2017 the Management and Operating contract will pass to the National Technology & Engineering Solutions of Sandia, a wholly owned subsidiary of Honeywell International, Inc. These contracts are overseen and managed by NNSA.

EM work at Sandia National Laboratories-New Mexico is performed under Work Authorizations against NNSA's Management and Operating contract with Sandia Corporation.

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. It is assumed that regulatory closure of the five soil sites will be completed in FY 2017. Three additional soil release sites are considered "deferred active-mission" sites.

The status and FY 2018 closure goals are: (1) Burn Site Groundwater Area of Concern – based on a verbal recommendation from the New Mexico Environment Department and site knowledge, it is planned that the New Mexico Environment Department will require six additional monitoring wells and that these wells will be installed in FY 2018; (2) Tijeras Arroyo Groundwater Area of Concern – based on the low density of monitoring wells (27 wells in 1.8 square miles), it is estimated that the New Mexico Environment Department requires eight additional monitoring wells and that these wells are installed in FY 2018; and (3) Technical Area-V Groundwater Area of Concern, Phase 1 injection will be completed in FY 2017 as a part of the phased Interim Measure / Treatability Study.

Sandia Site Office

Funding ($K)

	FY 2016 Enacted	FY 2017 Annualized CR[1]	FY 2018 Request	FY 2018 vs FY 2016
Defense Environmental Cleanup				
NNSA Sites				
Sandia National Laboratories				
VL-SN-0030 / Soil and Water Remediation-Sandia	2,500	2,495	2,600	+100

[1] The FY 2017 Annualized CR amounts reflect the P.L. 114-254 continuing resolution level annualized to a full year. 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)

	FY 2018 vs FY 2016
Defense Environmental Cleanup	
NNSA Sites	
Sandia National Laboratories	
VL-SN-0030 / Soil and Water Remediation-Sandia	
• Increase is necessary to continue Interim Measure / Treatability Study at Technical Area-V, and installation of additional monitoring wells at the Burn Site and Tijeras Arroyo Groundwater Areas of Concern.	+100
Total, Sandia Site Office	**+100**

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 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 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$2,500	**$2,600**	**+$100**
• Submitted Mixed Waste Landfill Long-term Monitoring and Maintenance Plan to the New Mexico Environmental Department. • Submitted Burn Site Groundwater Well Installation Report to New Mexico Environmental Department after completion of fieldwork (four new wells). • Submitted Groundwater Well Installation Report on Soil Sites 8/58 and 68 to New Mexico Environmental Department after completion of fieldwork (five new wells). • Performed slug tests for Soil Sites 8/58 and 68.	• Conduct Weight-of-Evidence field studies and install six additional groundwater characterization wells at the Burn Site to meet the compliance milestone of submitting the Burn-Site Groundwater Current Conceptual Model/Corrective Measure Evaluation Report to the New Mexico Environmental Department. • Install up to eight additional groundwater characterization wells at the Tijeras Arroyo Groundwater Area of Concern, as required by the New Mexico Environmental Department. • Continue field work implementation of the Interim Measure/Treatability Study at Technical Area-V Groundwater Area, including completion of the Phase 1 injection activities.	• Increase is necessary to continue Interim Measure / Treatability Study at Technical Area-V, and installation of additional monitoring wells at the Burn Site and Tijeras Arroyo Groundwater Areas of Concern.

- 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

Cleanup of 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. The Separations Process Research Unit operations 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.

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. 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, removed most of the radiological source material term from the buildings, and restarted decommissioning activities in January 2013, 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 that clean-up 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 on-going mediation case.

Highlights of the FY 2018 Budget Request

The FY 2018 budget request of $1,800,000 enables the Separations Process Research Unit site to complete decontamination and decommissioning of two nuclear facilities (Buildings G2 and H2), including tank sludge, tanks, tank vaults, and an adjoining pipe tunnel, and pay for verification and closeout costs associated with the end of the project.

FY 2017 – FY 2018 Key Milestones/Outlook

- (December 2017) Complete H2 and G2 building demolition work.
- (December 2017) Complete Slab (H2)/soil remediation.
- (June 2018) Complete cleanup of land area (soil).
- (July 2018) Contractor demobilize.
- (September 2018) Project will complete verification sampling, with Oak Ridge Institute for Science and Education sampling and verification of cleanup standards being met.
- (September 2018) Contractor closeout complete.
- (September 2018) Critical Decision-4 package submitted to Headquarters.
- (September 2018) Land Transfer back to Naval Reactors.

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. Since this time, the contractor has 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.

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.

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.

Transuranic waste treatment, packaging, certification, however, 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.

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 is not compliant with Waste Isolation Pilot Project requirements for disposal.
- 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 2016 Enacted	FY 2017 Annualized CR[1]	FY 2018 Request	FY 2018 vs FY 2016
Defense Environmental Cleanup				
NNSA Sites				
Separations Processing Research Unit				
VL-SPRU-0040 / Nuclear Facility D&D-Separations Process Research Unit	0	0	1,800	+1,800

[1] The FY 2017 Annualized CR amounts reflect the P.L. 114-254 continuing resolution level annualized to a full year. 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)

	FY 2018 vs FY 2016
Defense Environmental Cleanup	
NNSA Sites	
Separations Processing Research Unit	
VL-SPRU-0040 / Nuclear Facility D&D-Separations Process Research Unit	
• Increase in funding provides for contractor demobilization and closeout activities associated with returning the land and facilities to the site landlord, Naval Reactors.	+1,800
Total, Separations Process Research Unit	**+1,800**

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. FY 2014 funding will be utilized to provide payment for any contract claims to address changes attributable to the Government.

Nuclear Facility D&D-Separations Process Research Unit (PBS: VL-SPRU-0040)

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$0	**$1,800**	**+$1,800**
• Completed the North Field contaminated soil cleanup (15 acres remediated). • Initiated construction of enclosures over remaining portions of H2 and G2 structure to support decontamination and decommissioning activities. • Obtained Environmental Protection Agency approval for construction of stacks for tent enclosures.	• Demobilize contractor in preparation for project completion. • Complete contractor closeout. • Submit Critical Decision-4 to Headquarters. • Transfer land back to Naval Reactors.	• Increase in funding provides for contractor demobilization and closeout activities associated with returning the land and facilities to the site landlord, Naval Reactors.

West Valley

Overview

The 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, in a form suitable for transportation and disposal, the high-level waste;
- 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;
- 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 2018 Budget Request

The major activities planned for the West Valley Demonstration Project for FY 2018 focus on starting demolition of the Vitrification Facility; continuing with removal of head-end cell drums of transuranic waste from the Main Plant Process Building to an interim, on-site storage facility; continuing decommissioning of the Main Plant Process Building; and continuing infrastructure upgrades to ensure uninterrupted support to remaining mission activities.

FY 2017 & FY 2018 Key Milestones/Outlook

- (June 2018) Complete low-level waste treatment facility demolition/removal/restoration
- (July 2018) Complete asbestos containing material removal on the Main Plant Process Building roof piping and ducts
- (July 2018) Complete deactivation of chemical process cell and chemical crane room in Main Plant Process Building
- (August 2018) Complete demolition and removal of equipment shelter and condensers in waste tank farm
- (September 2018) 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) required 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.
- 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 the 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 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 9, 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 nationwide 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 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.

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 Processing Building (the original reprocessing facility) to a new on-site interim storage facility. The Main Plant Processing 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 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 2016 Enacted	FY 2017 Annualized CR[1]	FY 2018 Request	FY 2018 vs FY 2016
Defense Environmental Cleanup				
Safeguards and Security				
OH-WV-0020 / Safeguards and Security-West Valley	2,591	2,586	2,784	+193
Cyber Security				
OH-WV-0025 / WV Cyber Security	0	0	314	+314
Total, Defense Environmental Cleanup	**2,591**	**2,586**	**3,098**	**+507**
Non-Defense Environmental Cleanup				
West Valley Demonstration Project				
OH-WV-0013 / Solid Waste Stabilization and Disposition-West Valley	7,938	7,923	9,853	+1,915
OH-WV-0040 / Nuclear Facility D&D-West Valley	51,275	51,178	50,732	-543
Subtotal, West Valley Demonstration Project	**59,213**	**59,101**	**60,585**	**+1,372**
Total, West Valley Demonstration Project	**61,804**	**61,687**	**63,683**	**+1,879**

[1] The FY 2017 Annualized CR amounts reflect the P.L. 114-254 continuing resolution level annualized to a full year. 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)

	FY 2018 vs FY 2016
Defense Environmental Cleanup	
Cyber Security	
OH-WV-0025 / WV Cyber Security	
• Prior to FY 2018, Cyber Security activities were executed as part of the overall Safeguards and Security program. The FY 2018 budget proposes to establish a formal Cyber Security program which will direct fund cyber activities within a unique PBS.	+314
Safeguards and Security	
OH-WV-0020 / Safeguards and Security-West Valley	
• Increase in funding is due to additional security police. The security augmentation is to address changing security posture based upon security assessments completed in FY 2016.	+193
Non-Defense Environmental Cleanup	
West Valley Demonstration Project	
OH-WV-0013 / Solid Waste Stabilization and Disposition-West Valley	
• Increase reflects additional funds to support dispositioning of all industrial, low-level waste and mixed low-level waste, to include packaging and preparing waste for off-site shipment and disposal.	+1,915
OH-WV-0040 / Nuclear Facility D&D-West Valley	
• No significant change.	-543
Total, West Valley Demonstration Project	**+1,879**

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

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$2,591	**$2,784**	**+$193**
• Provided physical and cyber security by an on-site guard force to ensure the Department's information resources are identified and protected. • Continued program management to oversee the security program, including training and qualifications for the West Valley Demonstration Project.	• Provide physical security with an on-site guard force to ensure the Department's information resources are identified and protected. • Continue program management to oversee the security program including training and qualifications for the West Valley Demonstration Project.	• Increase in funding is due to additional security police. The security augmentation is to address changing security posture based upon security assessments completed in FY 2016.

WV Cyber Security (PBS: OH-WV-0025)

Overview

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

The Cyber Security Program at the West Valley Demonstration Project protects government information and technology systems to support the cleanup of this spent fuel reprocessing facility.

This scope will continue until DOE's mission at the West Valley Demonstration Project is complete.

WV Cyber Security (PBS: OH-WV-0025)

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$0	**$314**	**+$314**
• Prior to FY 2018, Cyber Security activities were executed as part of the site overhead cost.	• Provide physical security with an on-site guard force to ensure the Department's information resources are identified and protected. • Continue program management to oversee the security program including training and qualifications for the West Valley Demonstration Project.	• Prior to FY 2018, Cyber Security activities were executed as part of the overall Safeguards and Security program. The FY 2018 budget proposes to establish a formal Cyber Security program which will direct fund cyber activities within a unique PBS.

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 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$7,938	**$9,853**	**+$1,915**
• Processed, shipped and disposed of legacy mixed low-level waste to be in compliance with the Site Treatment Plan. • Processed, shipped and disposed of legacy and remediation low-level waste. • Size-reduced and packaged remote-handled and contact-handled transuranic waste for onsite storage. • Prepared documentation to support a waste determination for the Concentrator Feed Make-up Tank and the Melter Feed Hold Tank.	• Process, ship and dispose of legacy low-level waste. • Process, ship and dispose of newly generated mixed low-level waste. • Process, ship and dispose of newly generated low-level waste. • Process and store legacy transuranic waste. • Process and store newly generated transuranic waste.	• Increase reflects additional funds to support dispositioning of all industrial, low-level waste and mixed low-level waste, to include packaging and preparing waste for off-site shipment and disposal.

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 and 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 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$51,275	**$50,732**	**-$543**
• Maintained site services. • Continued deactivation of highly contaminated cells in the Main Plant Process Building. • Initiated removal of excess ancillary facilities. • Continued deactivation of Vitrification Facility.	• Maintain Site Services. • Continue deactivation of the Main Plant Process Building. • Continue removal of excess ancillary facilities. • Continue with major infrastructure upgrades, such as replacing failing electrical and natural gas systems. • Initiate demolition of the Vitrification Facility. • Maintain the underground storage tanks, the Nuclear Regulatory Commission-Licensed Disposal Area, and the Permeable Treatment Wall. • Manage and maintain site infrastructure. • Conduct environmental monitoring.	• No significant change.

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 2 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 Brookhaven Graphite Research Reactor primary and secondary cooling air. The stack is no longer needed. Demolition 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 2018 Budget Request

The FY 2018 budget request of $2,000,000 enables the Department to continue planning activities for the High Flux Beam Reactor stack demolition, which is required by FY 2020.

FY 2017 & FY 2018 Key Milestones/Outlook

Actions to complete the stack demolition (in order to meet the Record of Decision requirements) include the following:

- Remedial Design and Remedial Action Work Plan preparation, review, and approval.
- Award remediation contract and provide contract and project management.
- Initiate removal and disposal of exhaust stack (Building 705).

Strategic Management

The Department will continue planning activities for the High Flux Beam Reactor 100-meter stack demolition scheduled to be completed no later than 2020.

Brookhaven National Laboratory

Funding ($K)

	FY 2016 Enacted	FY 2017 Annualized CR[1]	FY 2018 Request	FY 2018 vs FY 2016
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

[1] The FY 2017 Annualized CR amounts reflect the P.L. 114-254 continuing resolution level annualized to a full year. 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)

	FY 2018 vs FY 2016
Non-Defense Environmental Cleanup	
Small Sites	
Brookhaven National Laboratory	
BRNL-0041 / Nuclear Facility D&D-High Flux Beam Reactor	
• Increase supports planning for the demolition activities for the High Flux Beam Reactor.	+2,000
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. 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 demolition 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 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$0	**$2,000**	**+$2,000**
• 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.] EM remains responsible for completing Brookhaven's High Flux Beam Reactor stack demolition by FY 2020, as required by the Record of Decision.	• Continue planning activities for the High Flux Beam Reactor 100-meter Stack demolition, which is scheduled to be completed no later than 2020.	• Increase supports planning for the demolition activities for the High Flux Beam Reactor.

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 facilities within Area IV of the Santa Susana Field Laboratory owned by The Boeing Company. 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 two radiological facilities, two sodium facilities, and other miscellaneous structures. Current activities at the site involve characterization and investigation to support development of an Environmental Impact Statement; decontamination and decommissioning of the remaining structures; remediation of soil and groundwater contamination; and closure.

ETEC 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 The Boeing Company.

Direct maintenance and repair at the Energy Technology Engineering Center site is estimated to be $220,000.

Highlights of the FY 2018 Budget Request

The Energy Technology Engineering Center's FY 2018 request will enable the site to continue progress toward completion of cleanup, including initiating decontamination and decommissioning and conducting soil remediation. Planned progress on required cleanup activities may be impacted due to the final Environmental Impact Statement and Record of Decision.

FY 2017 & FY 2018 Key Milestones/Outlook

- (2017) Continue to work on the final court-ordered Environmental Impact Statement.
- (2017) Complete and submit the groundwater remedial investigation plan.
- (2018) Initiate decontamination and decommissioning planning documents for the remaining DOE-owned buildings in Area IV.

Regulatory Framework

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. 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 in May 2007. 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 ongoing and are nearing

completion. Based on the 2010 Administrative Order on Consent that DOE and the California Department of Toxic Substances Control signed for soil cleanup, and due to information now available from site characterization, the Department published an Amended Notice of Intent to prepare an Environmental Impact Statement in February 2014.

The Resource Conservation and Recovery Act groundwater cleanup is regulated by the California Department of Toxic Substance Control and is being performed 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.

Contractual Framework

North Wind Incorporated is the contractor performing general environmental monitoring, surveillance and maintenance. Under the contract there are options for decontamination and decommissioning, which may be exercised after the Environmental Impact Statement and Record of Decision determine the scope of work.

Strategic Management

The Department will work aggressively 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 2016 Enacted	FY 2017 Annualized CR[1]	FY 2018 Request	FY 2018 vs FY 2016
Non-Defense Environmental Cleanup				
Small Sites				
Energy Technology Engineering Center				
CBC-ETEC-0040 / Nuclear Facility D&D-Energy Technology Engineering Center	10,459	10,439	9,000	-1,459

[1] The FY 2017 Annualized CR amounts reflect the P.L. 114-254 continuing resolution level annualized to a full year. 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)

	FY 2018 vs FY 2016
Non-Defense Environmental Cleanup	
Small Sites	
Energy Technology Engineering Center	
CBC-ETEC-0040 / Nuclear Facility D&D-Energy Technology Engineering Center	
• Decrease in funding due to issuance of the final Environmental Impact Study and subsequent Record of Decision.	-1,459
Total, Energy Technology Engineering Center	**-1,459**

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 ETEC 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 a site-wide Environmental Impact Statement and issuance of the associated Record of Decision. The 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 the demolition of remaining structures. The site will then be transferred to The Boeing Company, which owns the land.

Nuclear Facility D&D-Energy Technology Engineering Center (PBS: CBC-ETEC-0040)

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$10,459	**$9,000**	**-$1,459**
• Performed ongoing program support and landlord services. • Supported Resource Conservation and Recovery Act facility investigation program for groundwater including sampling, analysis, and report preparations. • Prepared required supporting information for	• Perform ongoing program support and operational services. • Issue the Record of Decision. • Submit groundwater final remedy in compliance with the Consent Order with the State of California. • Initiate decontamination and decommissioning	• Decrease in funding due to issuance of the final Environmental Impact Study and subsequent Record of Decision.

completion of a court ordered Environmental Impact Statement.

- Completed the Chemical Data Summary Report, as required in the 2010 agreement with the State of California.

planning of remaining structures and soil remediation based on the Record of Decision.

Moab

Overview

The cleanup of the Moab site will support 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 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.

Highlights of the FY 2018 Budget Request

The FY 2018 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 2017 & FY 2018 Key Milestones/Outlook

- (September 2017) Excavate, transport, and dispose of approximately 450,000 tons of tailings and excavate a portion of the disposal cell.
- (September 2018) Excavate, transport, and dispose of approximately 450,000 tons of tailings and excavate a portion of the disposal cell.

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 removing and transporting waste from the site by rail was awarded to Portage, Inc. on a fixed unit rate and cost reimbursement contract from October 1, 2016, through September 30, 2021. There are no options under this contract. North Wind Group acquired Portage, Inc. in January 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)

	FY 2016 Enacted	FY 2017 Annualized CR[1]	FY 2018 Request	FY 2018 vs FY 2016
Defense Environmental Cleanup				
Cyber Security				
CBC-Moab-0025 / Moab Cyber Security	0	0	315	+315
Non-Defense Environmental Cleanup				
Small Sites				
Moab				
CBC-MOAB-0031 / Soil and Water Remediation-Moab	38,644	38,571	35,000	-3,644
Total, Moab	**38,644**	**38,571**	**35,315**	**-3,329**

[1] The FY 2017 Annualized CR amounts reflect the P.L. 114-254 continuing resolution level annualized to a full year. 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)

	FY 2018 vs FY 2016
Defense Environmental Cleanup	
Cyber Security	
CBC-Moab-0025 / Moab Cyber Security	
• Prior to FY 2018, Cyber Security activities were executed as part of the site overhead cost. The FY 2018 budget proposes to establish a formal Cyber Security program which will direct fund cyber activities. In FY 2016, it is estimated that the Cyber investment out of overhead was $272,000, for a net increase of $42,000.	+315
Non-Defense Environmental Cleanup	
Small Sites	
Moab	
CBC-MOAB-0031 / Soil and Water Remediation-Moab	
• Decrease reflects reduced shipping schedule of mill tailings (from 4 trains/week to 2 trains/week) effective on May 2016.	-3,644
Total, Moab	**-3,329**

Moab Cyber Security (PBS: CBC-Moab-0025)

Overview

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

The Cyber Security Program at the Moab site protects government information and technology systems to support the remediation of radioactive uranium mill tailings, mill debris, contaminated ground water, and contaminated vicinity properties at the former Atlas Minerals Corporation uranium ore processing site.

This scope will continue until DOE's mission at the Moab site is complete.

Moab Cyber Security (PBS: CBC-Moab-0025)

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$0	**$315**	**+$315**
• Prior to FY 2018, Cyber Security activities were executed as part of the site overhead cost.	• Provide cyber security to ensure DOE information resources are identified and protected.	• Prior to FY 2018, Cyber Security activities were executed as part of the site overhead cost. The FY 2018 budget proposes to establish a formal Cyber Security program which will direct fund cyber activities. In FY 2016, it is estimated that the Cyber investment out of overhead was $272,000, for a net increase of $42,000.

Soil and Water Remediation-Moab (PBS: CBC-MOAB-0031)

Overview

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

The project scope is to remediate 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 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$38,644	**$35,000**	**-$3,644**
• Conducted Moab and Crescent Junction sites operation and maintenance. • Operated interim remedial action for contaminated groundwater. • Placed tailings into the disposal cell and placed a portion of the interim cell cover. • Excavated tailings and transport from millsite to the disposal cell (582,000 tons in FY 2016 or 8,350,000 tons cumulative). • Performed operations and maintenance of the materials handling system and infrastructure. • Excavated a portion of the disposal cell.	• Conduct Moab and Crescent Junction sites operation and maintenance. • Operate interim remedial action for contaminated groundwater including extracting 4 million gallons and diverting/injecting 6.5 million gallons of freshwater • Excavate tailings and transport from mill site to the disposal cell (up to 450,000 tons). • Perform operations and maintenance of the materials handling system and infrastructure. • Place tailings into the disposal cell. • Continue excavation of a portion of Phase 3 of the disposal cell.	• Decrease reflects reduced shipping schedule of mill tailings (from 4 trains/week to 2 trains/week) effective on May 2016.

Other Sites

Overview

In supporting the Department of Energy to meet the challenges of the nation's Manhattan Project and Cold War 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 2018. 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 (i.e., 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. 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 funding becomes available. There is no FY 2018 funding requested for additional efforts.

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. 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). 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 will support Phase II of the decommissioning and decontamination activities. This facility is owned by the University of Arkansas and the Department has no environmental liability at this facility. There is no FY 2018 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 Consolidated Business Center provides defense post-closure administrative and litigation support for the Fernald, Rocky Flats, and other small sites. 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 Separations Process Research Unit, and the Energy

Technology Engineering Center. The EM Consolidated Business Center also serves as the lead EM office for new cleanup contract acquisitions needed to support the EM program mission.

Highlights of the FY 2018 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)

	FY 2016 Enacted	FY 2017 Annualized CR[1]	FY 2018 Request	FY 2018 vs FY 2016
Defense Environmental Cleanup				
Closure Sites				
Closure Sites Administration				
CBC-0100-FN / CBC Post Closure Administration - Fernald	1,300	1,298	1,000	-300
CBC-0100-RF / CBC Post Closure Administration - Rocky Flats	3,589	3,582	3,889	+300
Subtotal, Closure Sites Administration	**4,889**	**4,880**	**4,889**	**0**
Non-Defense Environmental Cleanup				
Small Sites				
DOE-Sponsored Facilities (per P.L. 112-74)				
CBC-LBNL-0040 / Decontamination and Decommissioning-Lawrence Berkeley National Laboratory	17,000	16,967	0	-17,000
Southwest Experimental Fast Oxide Reactor (SEFOR)				
SEFOR / SEFOR	9,500	9,482	0	-9,500
Total, Small Sites	**26,500**	**26,449**	**0**	**-26,500**
Total, Other Sites	**31,389**	**31,329**	**4,889**	**-26,500**

[1] The FY 2017 Annualized CR amounts reflect the P.L. 114-254 continuing resolution level annualized to a full year. 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)

	FY 2018 vs FY 2016
Defense Environmental Cleanup	
Closure Sites	
Closure Sites Administration	
CBC-0100-FN / CBC Post Closure Administration - Fernald	
• Decrease reflects planned contract closeout activities.	-300
CBC-0100-RF / CBC Post Closure Administration - Rocky Flats	
• Increase reflects an escalation of costs for litigation support and classification requirements.	+300
Non-Defense Environmental Cleanup	
Small Sites	
DOE-Sponsored Facilities (per P.L. 112-74)	
CBC-LBNL-0040 / Decontamination and Decommissioning-Lawrence Berkeley National Laboratory	
• No funding is requested in FY 2018.	-17,000
Southwest Experimental Fast Oxide Reactor (SEFOR)	
SEFOR / SEFOR	
• No funding is requested in FY 2018.	-9,500
Total, Other Sites	**-26,500**

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 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$1,300	**$1,000**	**-$300**
• Funded the Fernald Workers II class action lawsuit and contract closeout at the Fernald closure site.	• Fund the Fernald Workers II expert panel and medical monitoring. • Support contract closeout activities at the Fernald closure site.	• Decrease reflects planned contract closeout activities.

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 the labor for the vault classifiers.

CBC Post Closure Administration - Rocky Flats (PBS: CBC-0100-RF)

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$3,589	**$3,889**	**+$300**
• Funded the ongoing Rocky Flats Closure Project's legal requirements and court orders for the Cook and Stone cases using prior year funds. • Funded the Rocky Flats records vault lease and records management costs using carryover funds.	• Fund the ongoing Rocky Flats Closure Project's legal requirements and court orders for the Cook case. • Fund the Rocky Flats records vault lease and records management costs. • Fund Workers' Compensation claims, Contract Closeout, and other litigation support for the Small Sites.	• Increase reflects an escalation of costs for litigation support and classification requirements.

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 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$17,000	**$0**	**-$17,000**
• Completed Phase I deactivation, and demolition of Buildings 5, 16 and 16A. • Completed removal of the Building 5 concrete slab and 95% of the contaminated soil. • 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.	• No activities planned.	• No funding is requested in FY 2018.

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 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$9,500	**$0**	**-$9,500**
• Provided technical support/assistance to the University of Arkansas for deactivation and decommissioning under Arkansas environmental regulations and standards.	• No activities planned.	• No funding is requested in FY 2018.

Excess Facilities

Overview

The Request includes $225 million for a targeted effort to accelerate deactivation and decommissioning (D&D) 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 (LLNL) in Livermore, California, and the Y-12 National Security Complex (Y-12) in Oak Ridge, Tennessee, in FY 2016. In addition, NNSA and EM received funding in FY 2017 to begin characterization and stabilization activities for facilities at LLNL and Y-12.

Highlights of the FY 2018 Budget Request

The FY 2018 Congressional Budget request addresses DOE excess facilities by funding a targeted, stand-alone effort to accelerate D&D of high-risk facilities not currently in the EM portfolio at the Y-12 complex and Lawrence Livermore National Laboratory. DOE's disposition effort will stabilize degraded relatively higher-risk facilities, characterize their hazards and conditions, remove hazardous materials, place them in the lowest risk condition possible, and eliminate the risk posed by these facilities demolishing them and disposing of the resulting waste. 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. D&D activities at the selected facilities will be funded upfront rather than incrementally within the $225 million requested for FY 2018 and will be managed efficiently and effectively to ensure accelerated completion.

Below is a list of the Y-12 and Lawrence Livermore facilities that are part of this effort in rough priority order by site. DOE will continue necessary analyses and planning activities in FY 2017 and initiate D&D activities in FY 2018.

<u>Y-12 National Security Complex</u>

- Biology Complex which includes six buildings
- Alpha-4 Building 9201-4 COLEX Process Equipment
- Beta-4 Classified Tool Storage Facility Building 9720-24
- Critical Experiment Facility Building 9213

<u>Lawrence Livermore National Laboratory</u>

- Pool Type Reactor Building 280
- MARS E-Beam Facility Building 175
- Heavy Elements Facility Building 251

Excess Facilities

Funding ($K)

	FY 2016 Enacted	FY 2017 Annualized CR[1]	FY 2018 Request	FY 2018 vs FY 2016
Defense Environmental Cleanup				
Excess Facilities				
EM-EF-0040 / Excess Facilities	0	0	225,000	+225,000

[1] The FY 2017 Annualized CR amounts reflect the P.L. 114-254 continuing resolution level annualized to a full year. 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)

	FY 2018 vs FY 2016
Defense Environmental Cleanup	
Excess Facilities	
EM-EF-0040 / Excess Facilities	
• Increase supports a targeted effort to upfront fund D&D activities at selected excess high-risk contaminated facilities at Y-12 and the Lawrence Livermore National Laboratory that are not in the current project inventory of the Environmental Management program.	+225,000
Total, Excess Facilities	**+225,000**

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 D&D.

The FY 2018 Budget provides $225 million for D&D of selected high-risk facilities at Y-12 and the Lawrence Livermore National Laboratory to ensure substantial risk reduction within four years. The Y-12 buildings are from the Manhattan Project era and include hazards ranging from industrial hygiene issues (i.e., mold, accumulation of rodent/avian excrement, accumulation of water, spalling concrete, inoperable lights, etc.). to fairly extensive amounts of contamination. In addition, the mission changes and physical 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 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$0	**$225,000**	**+$225,000**
• No Activity.	• Complete required analyses and planning to enable D&D activities in FY 2018. • Begin D&D activities on the top priority selected Y-12 and Lawrence Livermore National Laboratory facilities.	• Increase supports a targeted effort to upfront fund D&D activities at selected excess high-risk contaminated facilities at Y-12 and the Lawrence Livermore National Laboratory that are not in the current project inventory of the Environmental Management program.

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 effort led by the EM Consolidated Business Center in conjunction with NNSA. Strategic Sourcing Initiative is an initiative whereby materials such as concrete, steel, etc., 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. EM's Strategic Sourcing savings goal for fiscal year 2016 was $36,700,000. This goal was surpassed, achieving a total savings of $59,400,000 for the fiscal year. EM's Strategic Sourcing savings goal for FY 2017 is $38,100,000. A total savings of $18,900,000 has currently been achieved for the fiscal year.

Minority Serving Institutions Partnership Program

In FY 2010, EM began managing the Minority Serving Institution Partnership Program for the Department to achieve the DOE goals of the partnership. This includes aligning the processes and outcomes with the departmental mission in order to develop the needed skills and talent for DOE's enduring technical workforce at its laboratories and production plants, and to enhance research and education in science, technology, engineering, and mathematics at under-represented colleges and universities.

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).

Innovation and Technology Development

In FY 2018, the Innovation and Technology Development 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 2018 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 radioactive test beds 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.

Headquarters Cybersecurity

EM Headquarters Cybersecurity is responsible for evaluating all Plan of Action and Milestones and risk that exist within the EM enterprise. EM's focus is providing cybersecurity services for all EM field site General Support Systems, National Security Systems and Industrial Controls systems.

EM recognizes its responsibilities in meeting current cyber initiatives and their statutory and policy requirements. EM works in coordination with the Department through existing governance structures to satisfy requirements for the Federal Information Technology Reform Act, the Framework for Improving Critical Infrastructure Cybersecurity developed by the National Institute of Standards and Technology, Government-wide programs initiatives such as Information Security Continuous Monitoring and the High Value Assets program.

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 April 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)

	FY 2016 Enacted	FY 2017 Annualized CR[1]	FY 2018 Request	FY 2018 vs FY 2016
Defense Environmental Cleanup				
Program Support				
Mission Support				
EM-HBCU-0100 / Minority Serving Institution Partnerships Program	8,000	7,985	6,000	-2,000
HQ-MS-0100 / Policy, Management, and Technical Support	6,979	6,966	6,979	0
HQ-WCF-0100 / Working Capital Fund Activities	0	0	22,109	+22,109
Subtotal, Mission Support	**14,979**	**14,951**	**35,088**	**+20,109**
Technology Development and Deployment				
Mission Support				
HQ-TD-0100 / Innovation and Technology Development	20,000	19,962	0	-20,000
Cyber Security				
HQ-0025 / HQ Cyber Security	0	0	8,085	+8,085
Innovation and Technology Development				
Mission Support				
HQ-TD-0100 / Innovation and Technology Development	0	0	25,000	+25,000
Total, Defense Environmental Cleanup	**34,979**	**34,913**	**68,173**	**+33,194**
Non-Defense Environmental Cleanup				
Mercury Storage Facility				
Mission Support				
HQ-MSF / Mercury Storage Facility	1,300	1,298	0	-1,300
Uranium Enrichment Decontamination and Decommissioning				

[1] The FY 2017 Annualized CR amounts reflect the P.L. 114-254 continuing resolution level annualized to a full year. These amounts are shown only at the congressional control level and above, below that level, a dash (-) is shown.

	FY 2016 Enacted	FY 2017 Annualized CR[1]	FY 2018 Request	FY 2018 vs FY 2016
Fund				
U/Th Reimbursements				
Mission Support				
HQ-UR-0100 / Reimbursements to Uranium/Thorium Licensees	32,959	32,959	30,000	-2,959
Total, Mission Support	**69,238**	**69,170**	**98,173**	**+28,935**

The FY 2018 Request is proposing that the Congressional Control and PBS title be changed from "Technology Development and Deployment" to "Innovation and Technology Development." This title change reflects EM's revised focus on the overall vision and direction of the technology program; and EM's desire to more accurately portray the program's investment in use-inspired technological advancement, infusion of the state-of-the-art in mission activities, and exploitation of innovative solutions to reduce the overall environmental liability associated with legacy nuclear cleanup.

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.

Mission Support

Funding ($K)

	FY 2016 Enacted	FY 2017 Annualized CR[1]	FY 2018 Request	FY 2018 vs FY 2016
Defense Environmental Cleanup				
Program Support				
Mission Support				
HQ-MS-0100 / Policy, Management, and Technical Support	6,979	6,966	6,979	0
EM-HBCU-0100 / Minority Serving Institution Partnerships Program	8,000	7,985	6,000	-2,000
HQ-WCF-0100 / Working Capital Fund Activities	21,318	0	22,109	+791
Subtotal, Mission Support	**36,297**	**14,951**	**35,088**	**-1,209**
Innovation and Technology Development				
Mission Support				
HQ-TD-0100 / Innovation and Technology Development	20,000	19,962	25,000	+5,000
Cyber Security				
HQ-0025 / HQ Cyber Security	6,325	0	8,085	+1,760
Total, Defense Environmental Cleanup	**62,622**	**34,913**	**68,173**	**+5,551**
Non-Defense Environmental Cleanup				
Mercury Storage Facility				
Mission Support				
HQ-MSF / Mercury Storage Facility	1,300	1,298	0	-1,300
Uranium Enrichment Decontamination and Decommissioning Fund				
U/Th Reimbursements				
Mission Support				
HQ-UR-0100 / Reimbursements to Uranium/Thorium Licensees	32,959	32,959	30,000	-2,959

[1] The FY 2017 Annualized CR amounts reflect the P.L. 114-254 continuing resolution level annualized to a full year. These amounts are shown only at the congressional control level and above, below that level, a dash (-) is shown

	FY 2016 Enacted	FY 2017 Annualized CR[1]	FY 2018 Request	FY 2018 vs FY 2016
Total, Mission Support	**96,881**	**69,170**	**98,173**	**+1,292**

Explanation of Major Changes ($K)

	FY 2018 vs FY 2016
Defense Environmental Cleanup	
Innovation and Technology Development	
Mission Support	
HQ-TD-0100 / Innovation and Technology Development	
• Increase supports ramp-up of activities related to high-impact technology areas related to Technetium-99, mercury, the creation and operation of test beds, radiation-hardened robotics, and integration of advanced tooling for enhanced worker safety and productivity.	+5,000
Program Support	
EM-HBCU-0100 / Minority Serving Institution Partnerships Program	
• Reduction reflects shift to higher priority cleanup activities.	-2,000
HQ-MS-0100 / Policy, Management, and Technical Support	
• No change.	0
HQ-WCF-0100 / Working Capital Fund Activities	
• Increase reflects Working Capital Fund cost estimates for business lines such as A-123 internal controls, corporate business systems, copying services, CyberOne, financial statement audits, interagency transfers, mail and transportation, pension studies, project management career development program, printing and graphics, and procurement management.	+791
Cyber Security	
HQ-0025 / HQ Cyber Security	
• Prior to FY 2018, the HQ Cyber Security activities were executed through site assessments. The FY 2018 budget proposes to fund cyber security activities directly, to include the HQ Cyber Security. In FY 2016, HQ Cyber Security activities were estimated at $6,325,000, for a net increase of $1,760,000. The increase supports efforts to meet evolving cyber security threats.	+1,760
Non-Defense Environmental Cleanup	
Mercury Storage Facility	
HQ-MSF / Mercury Storage Facility	
• Decrease reflects $0 funding requested in FY 2018.	-1,300
Uranium Enrichment Decontamination and Decommissioning Fund	

	FY 2018 vs FY 2016
U/Th Reimbursements	
HQ-UR-0100 / Reimbursements to Uranium/Thorium Licensees	
• Decrease reflects progress in reimbursement of eligible costs to licensees.	-2,959
Total, Mission Support	**+1,292**

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 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$6,979	**$6,979**	**+$0**
• Provided support for DOE's Strategic Sources Initiative to purchase commodities through a supply chain framework, which results in cost avoidance on purchases. • Supported for EM's Traineeship Program that focuses on Subsurface Contaminant Migration and Remediation and Project Management for Nuclear-Hazardous Waste Management Projects. • 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. • Provided expertise in the areas of safety, health and security, emergency management, quality assurance, nuclear criticality safety, and risk 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.	• Continue support for DOE's Strategic Sources Initiative to purchase commodities through a supply chain framework, which results in cost avoidance on purchases. • 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. • Continue to provide expertise in the areas of safety, health and security, emergency management, quality assurance, nuclear criticality safety, and risk management. • Continue to provide 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. • 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	▪ No change.

- 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.

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 Partnership Program to attract, develop, and retain the technical workforce at its national laboratories and production plants required to execute its mission.

Goals for this partnership include:

- Increase number of Minority Serving Institution students who graduate with Science, Technology, Engineering, and Mathematics 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 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$8,000	**$6,000**	**-$2,000**
• 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.	• 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.	• Reduction reflects shift to higher priority cleanup activities.

Working Capital Fund Activities (PBS: HQ-WCF-0100)

Overview

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 Budget Request provides funds for Working Capital Fund 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 PBS: HQ-PDWCF-0100.

Working Capital Fund Activities (PBS: HQ-WCF-0100)

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$23,318	**$22,109**	**+791**
• Prior to FY 2018, Working Capital Fund activities executed as part of the EM Cleanup dollars across the complex included 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), CyberOne, financial statement audits, interagency transfers, mail and transportation, pension studies, project management career development program, printing and graphics, and procurement management.	• Provides funds for Working Capital Fund 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.	• Increase reflects Working Capital Fund cost estimates for business lines such as A-123 internal controls, corporate business systems, copying services, CyberOne, financial statement audits, interagency transfers, mail and transportation, pension studies, project management career development program, printing and graphics, and procurement management.

Innovation and Technology Development (PBS: HQ-TD-0100)

Overview

This program is within the Defense Environmental Cleanup appropriation.

The Innovation and Technology Development program (formerly Technology Development and Deployment program) will incorporate several new initiatives and objectives such as increased engagement with colleges and universities, international partners, cooperation and collaboration with technologists in other federal agencies, participation on other federal technology programs, and process intensification; the goal being to maximize the use of public funds.

The EM Innovation and Technology Development 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 safely. 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 2018 budget increase addresses strategic need for investing in fundamental research and seeking high-impact, 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-Impact technologies are aimed at those that are outside the day-to-day program, target big challenges, and could result in breakthroughs. This includes pursuing options to resolve high impact areas needing near-term solutions. Current high impact areas are Technetium-99 challenge, mercury challenge, Cesium-137 and Strontium-90 challenge, EM Test Beds, and Enhanced Worker Safety. High impact 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 2018 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-impact, game-changing, and disruptive solutions.

In FY 2018, investments in fundamental research will also 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. Basic scientific research may lead to high-impact, game-changing, disruptive solutions and may also provide insight on ways to improve existing environmental processes and facility operations. EM's technology portfolio will leverage and harness the expertise, resources, and capabilities of US universities and colleges. Academia will support EM in three 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; and (3) as incubators and pipelines for EM's future workforce.

EM will engage with international partners and federal technologists 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 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 Impact 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 Cesium-137 and Strontium-90, which represent the bulk of the radioactivity in the radioactive liquid tank waste. Advances in processing and handling of these materials will allow for alternatives that can reduce the EM life cycle. 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 in the planning and execution of work (EM's science of safety initiative).

Technetium Challenge

Among radioactive constituents present in tank waste, select facilities undergoing decommissioning, and in the environment, Technetium-99 presents a unique challenge because of its moderately high radiotoxicity, its long half-life (211,000 years), and its complex chemical behavior. Because Technetium-99 is produced as a fission product in reactors, and is a by-product from nuclear weapons production activities, understanding and managing it is a challenge to EM. At Hanford, the inventory of Technetium-99 is about 27,000 curies, with about 26,500 curies contained in the waste tanks and about 1,000 curies in the sediments and soils. At the Savannah River Site, there is about 41,500 curies of Technetium-99, of which only about 1,400 has been treated and immobilized as glass or saltstone.

Storage, separation, capture and immobilization must address multiple chemical species and their behavior. The four areas of focus are for the Technetium-99 challenge: (1) characterization (inventory, source terms, distribution, and speciation); (2) mathematical and computational modeling for simulating and predicting Technetium-99 behaviors; (3) treatment options for waste processing and environmental remediation; and (4) disposition (acceptable waste forms and end states).

Mercury Challenge

Approximately 3% of the 11 million kilograms of elemental mercury used from 1950 to 1963 for lithium isotope separation processes at the Y-12 National Security Complex in Oak Ridge, Tennessee, was lost to the air, to the soil and rock under facilities, to impregnation of the building substrate (concrete) itself, and to East Fork Poplar Creek, which originates onsite. Remediation of the mercury contamination at the Y-12 National Security Complex as well as in East Fork Poplar Creek is a critical element of EM's cleanup effort. Mercury cleanup poses significant technical and regulatory challenges and can benefit from development of new tools and approaches for eliminating sources and remediating environmental media and ecosystems. Regulatory approval of mercury cleanup plans may be difficult to secure without clear evidence of effective remedial methods based on mature technologies. Technology development activities must focus on in-situ mercury treatment, mercury source zone identification and characterization, ecological impacts, and improved conceptual and numerical models of mercury fate and transport.

The remediation of mercury will focus on demonstrating novel in-situ stabilization processes for mercury-contaminated soil. Modules for surface water and mercury biogeochemistry modeling will be developed to optimize the Oak Ridge site's mercury remediation strategy. Additional testing will be performed to determine other effects of in-situ remediation methods. Associated initiatives to address the identification, mitigation, and prevention for releasing mercury (including vapors) during decontamination and decommissioning are also included.

Additionally, mercury has recently been measured in higher than historical amounts in the liquid tank waste at the Savannah River Site, posing challenges and complications for the treatment of this waste. In particular, high levels of monomethyl mercury were measured in the Tank 50 feed to saltstone. Compensatory and corrective measures have been taken and included a reassessment of the overall system knowledge, a ranking and prioritization of critical information and technology gaps, and an assessment of removal and disposal options.

The filling of technology gaps is aimed at mitigating and managing mercury contamination to facilitate efficient, cost-effective treatment of the tank waste.

Cesium and Strontium Challenge

EM manages a number of waste streams, including cesium/strontium capsules at the Hanford Site and calcine waste at the Idaho National Laboratory that lack a disposal pathway. At Hanford's Waste Encapsulation and Storage Facility, 1,335 stainless steel capsules of Cesium-137 (74 million curies) and 601 capsules of Strontium-90 (32 million curies) are in underwater storage in a pool about 13 feet deep. At Idaho National Laboratory, there are 43 stainless steel bins (cylindrical storage vessels) within which about 4,400 cubic meters or 5.5 million kilograms of calcine waste (liquid high level waste that was converted into a granular solid using a thermal process referred to as calcination resulting in a 7 to 1 volume reduction) is stored. EM is exploring disposition paths for these wastes.

Test Bed Capability

The EM test bed capability is a programmatic capability that provides physical and virtual reality platforms (test beds) to demonstrate innovative tooling, treatment technologies and processes, and other technical solutions at existing EM nuclear facilities, assets resources. The EM test beds provide researchers and technologists with the unique ability to conduct research and technology demonstrations:

- By using actual radioactive, radiochemical (mixed) waste, and/or nuclear materials;
- In radiologically controlled areas, such as radiation areas, contamination areas and airborne radioactivity areas;
- In non-radiologically controlled areas in DOE nuclear facilities, industrial facilities, and/or in relevant environments; and
- Using live virtual constrictive and virtual reality tools to simulate EM facilities and environments.

For some technologies, such as robotics, sensors, and virtual reality, worker-oriented test bed demonstrations will be conducted at facilities where work is being performed and by the workers themselves. Several test beds are currently being pursued and/or implemented. For example, EM has established a test bed at the Hanford Site to demonstrate the feasibility of treatment and disposal of LAW using commercial technologies and existing regulatory pathways. The test bed will also be used to demonstrate the removal of cesium using an ion exchange process that incorporates a new spherical resorcinol-formaldehyde resin.

Enhance Worker Safety

Rooted in the EM mission is the principle to preserve and improve the safety of the workforce (the science of safety). Scientific and technological advancements will be infused and integrated into planning and execution of work in a manner that improves safety. EM will collaborate with the workforce in the development and deployment of technological advancements to improve worker safety. The development of detection and abatement technologies for exposure to chemical vapors is a near-term focus for improvements to worker safety; this will also lead to improved work efficiency. To address high hazard, high consequence work, EM is actively promoting the use of advanced robotics as a key enabling technology and is pursuing technologies to control worker exposure to radiation and chemicals.

This investment is in the area of robotics and semi-autonomous systems that are needed for remote access in nuclear, chemical, and other high-hazard facilities that are inaccessible, restricted to human entry by size and configuration, or otherwise preclude the safe and direct entry by workers. EM is placing emphasis on the application of robotics for: (1) handling of high-hazard, high-consequence (i.e., chemical, biological, radiological, and nuclear) materials and waste, (2) performing worker/operator tasks that are dirty (contaminated, toxic, nuisance), dull (routine, labor-intensive, repetitive, mundane), and dangerous (pose significant occupational hazards); (3) easing the performance of worker/operator tasks

that are physically demanding on or stressful to human body or are otherwise ergonomically challenging; (4) performing tasks that are beyond human abilities; (5) improving the ability to respond to and recover from unplanned events or operational emergencies; and (6) improving the safety, quality, efficiency, and productivity of facility and environmental operations.

Mission Enablers

In FY 2018, EM will 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 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-impact, game-changing, and disruptive solutions.

State-of-the-Art Tooling

This investment provides for the use of new and novel tooling and techniques for non-destructive testing and evaluation. Specifically, radiation hardened/tolerant acoustic, optical, radiographic, thermographic, electromagnetic, and other tooling and methods for non-destructive sensing, detecting, monitoring, measuring, characterizing, and assaying a wide variety of radiological, chemical, environmental, and physical parameters are sought. This includes *in-situ* tools and techniques.

Innovation in imaging, surveying, mapping, and 3D rendering is also sought. Radiation hardened/tolerant tooling and methods for the generation of graphical depictions and representations as well as virtual replications, simulations and models of the real world provide for critical information for mission execution.

Enhanced capabilities in data analytics are needed to improve decision making, uncertainty and risk reduction, design intent and basis, and mathematical and computational model validation and verification.

Enhanced capabilities in data mining are needed to sort through huge data sets to: identify undiscovered patterns, trends and tendencies; identify new correlations and relationships; and potentially lead to new discoveries and insights on the transformations, interdependencies, and interactions of radiological and chemical contaminants.

Enhanced capabilities in mathematical modeling and computation fluid dynamics are needed for highly complex mechanical, environmental and ecological systems. This includes tailoring the fundamentals of advanced computing to the problems and issues in waste processing, remediation, contaminant fate and transport, performance assessment, and composite analyses. Enhancement of specific architectures, development of solution-focused algorithms, and tailored applications require further investigation. Verification and validation of codes, software quality assurance, and stakeholder and regulatory acceptance are critical to this enhanced capability of computer-based simulation and prediction.

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$20,000	**$25,000**	**+$5,000**
Tank Waste • Developed the technical basis to identify, evaluate, and recommend cost-effective and environmentally-acceptable strategies and technologies to characterize, mitigate, and manage Technetium-99 in tank waste, including removal of Technetium-99 processing recycle streams. • Developed predictive tools to predict and demonstrate the performance of alternate waste forms, support the Cementitious Barrier's Partnership, continue long-term glass studies, and developed improved capabilities such as computational fluid dynamic tools to optimize slurry mixing and transport waste loading including investigation and development of novel mixing methods. • Pursued technical efforts to develop strategies and technologies to understand, evaluate, optimize scale, and accelerate tank waste characterization and continued development of targeted cleaning methods thus enabling waste processing and tank closure schedules to be accelerated and costs reduced. • Identified, developed, evaluated, and	• Continue to fund projects in that support innovations and enhancements in the areas of tank waste and nuclear waste management, soil and groundwater remediation, and deactivation and decommissioning activities. • Provide additional funding 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: Technetium-99 • Validate Technetium-99 mass balance for integrated disposal facility acceptance • Complete development of non-pertechnetate sensor • Develop Technetium-99 biogeochemical remediation approaches Mercury • Complete pre-demolition and demolition assessment for efficacy of debris sorting to segregate mercury-bearing waste • Complete development of caps, reactive liners, and chemical amendments for mercury disposal cells Cesium-137 and Strontium-90 • Start and complete Savannah River Site tank	• Increase supports ramp-up of activities related to high-impact technology areas related to Technetium-99, mercury, the creation and operation of test beds, radiation-hardened robotics, and integration of advanced tooling for enhanced worker safety and productivity.

demonstrated near-source tank separations, treatment and removal technologies for mercury and radionuclides of interest for possible development at the Hanford and/ or Savannah River Sites.

- Began efforts to demonstrate that a commercially available ion exchange technology for removing Cesium-137 can be technically modified to treat the Savannah River Site highly radioactive waste tanks. Use of the technology will accelerate tank closure.

Nuclear Waste Management and Disposition

- Built on previous aging management efforts to monitor safe storage of Spent Nuclear Fuel. New Technology will support requirements for the Nuclear Regulatory Commission license.
- Conducted deep borehole field test.

Soil and Groundwater Remediation

- Supported the utilization of Advanced Simulation Capability for Environmental Management (initially at the Los Alamos National Laboratory, the Savannah River Site, and the Nevada National Security Site).
- Tested and demonstrated the multi-agency exit strategy for pump and treat systems.
- Completed pilot demonstration of a new paradigm for a long-term monitoring using master geochemical variables.
- Completed the initial laboratory-scale evaluations of in-situ stabilization methods for elemental mercury in soil.
- Completed update of the conceptual model for mercury contamination at the Oak Ridge closure cesium removal demonstration project

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
- Start robotic test bed demonstration robotics at Savannah River Site H-Canyon air exhaust tunnel inspection

Reservation.

Deactivation and Decommissioning

- Developed the prerequisite level of project plans to facilitate and initiate development of next generation remote and robotic platforms and smart tooling systems to improve efficiency of decontamination and demolition operations.
- Continued development/testing of the GrayQb 3-D Radiation Mapping Device to validate and provide real time intensity and location readouts. Developed and tested automated digital non-destructive assay methods optimization resulting in near-real time defensible data.
- Develop and test advanced coatings and materials to significantly reduce/eliminate radiolysis effects in radiological waste containment bags.
- Conducted final testing and sought commercialization of incombustible agents and fixatives with delivery systems for remote decontamination operations.
- Developed, tested and conducted a pilot project, installing reliable sensors and remote network systems for long-term monitoring of containment release and movement from permanently entombed deactivated and decommissioned facilities.
- Continued with further application of the in situ decommissioning Sensor Network at entombed and/or facilities awaiting entombment to establish data to augment the existing compliance monitoring network.

HQ Cyber Security (PBS: HQ-0025)

Overview

HQ Cyber Security provides services such as Site Test and Evaluations, Information Security Continuous Monitoring, Incident Response, Penetration Testing, and enterprise license purchasing. The EM-specific activities has developed expert, centralized resources to comply with the Federal Information Security Management Act, Office of Management and Budget, National Institute of Standards and Technology, and Departmental, requirements.

EM HQ Cyber Security is responsible for evaluating all Plan of Action & Milestones and risk that exist within the EM enterprise. EM's focus is providing cybersecurity services for all General Support Systems, National Security Systems and Industrial Controls systems

HQ Cyber Security (PBS: HQ-0025)

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$6,325	**$8,085**	**+1,760**
• Prior to FY 2018, Cyber Security activities were executed as part of the site overhead cost.	• Implement cybersecurity services to comply with the Federal Information Security Management Act, Office of Management and Budget, National Institute of Standards and Technology, and Departmental requirements.	• Prior to FY 2018, the HQ Cyber Security activities were executed through site assessments. The FY 2018 budget proposes to fund cyber security activities directly, to include the HQ Cyber Security. In FY 2016, HQ Cyber Security activities were estimated at $6,325,000, for a net increase of $1,760,000. The increase supports efforts to meet evolving cyber security threats.

Mercury Storage Facility (PBS: HQ-MSF)

Overview

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

This PBS supports the planning, construction and operation of a long-term management and storage facility for elemental. The scope of this PBS also includes all supporting infrastructure and support functions for the long-term management and storage facility for elemental mercury.

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, directs DOE to designate and construct at least one facility for the long-term management and storage of elemental Mercury generated within the United States. The Act directs DOE to designate a Mercury storage facility(ies) and be ready to accept custody of elemental Mercury and begin storage operations by January 1, 2019. DOE has analyzed the storage of up to 10,000 metric tons of elemental Mercury in a facility(ies) constructed and operated in accordance with the Solid Waste Disposal Act, as amended by 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.

Mercury Storage Facility (PBS: HQ-MSF)

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$1,300	**$0**	**-$1,300**
• Supported preparation of a Report to Congress. • Conducted requisite environmental reviews. • Conducted design and planning activities.	• No activities.	• Decrease reflects $0 funding requested in FY 2018.

Uranium/Thorium Reimbursements (PBS: HQ-UR-0100)

Overview

This PBS can be found within the Uranium Enrichment D&D Fund appropriation in 2016 and the mandatory United States Enrichment Corporation Fund proposal in 2017.

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 2015, 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 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$32,959	**$30,000**	**-$2,959**
• 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. • Continued to provide payment to licensees of approved but unpaid claims from FY 2015 and prior.	• 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. • Continue to provide payment to licensees of approved but unpaid claims from FY 2017 and prior.	• Decrease reflects progress in reimbursement of eligible costs to licensees.

Title X of the Energy Policy Act of 1992: Uranium/Thorium Reimbursement Program
Status of Payments through Fiscal Year 2015 and Estimated Maximum Program Liability
($ Thousands) [a]

Licensees	Total Payments FY 1994-FY 2015	Approved but Unpaid Claim Balances After FY 2015 Payments	Maximum Remaining Program Liability Including Estimated Costs in Approved Plans for Subsequent Remedial Action
Uranium			
American Nuclear Corp. Site			
American Nuclear Corporation	820	0	0
State of Wyoming	1,280	1	826
Atlantic Richfield Company[b]	32,306	0	0
Atlas Corporation/Moab Mill Reclamation Trust[b]	9,694	0	0
Cotter Corporation	3,170	241	3,460
Dawn Mining Company	10,703	4,960	8,448
Homestake Mining Company	55,731	10,113	87,676
Pathfinder Mines Corporation	10,785	5	292
Petrotomics Company[b]	2,850	0	0
Rio Algom Mining LLC[c]	41,943	3,582	6,138
Tennessee Valley Authority	16,353	8,777	8,777
Umetco Minerals Corporation-CO	57,372	18,094	32,545
Umetco Minerals Corporation-WY	21,164	3,895	5,683
Western Nuclear, Incorporated	32,145	586	1,484

Licensees	Total Payments FY 1994-FY 2015	Approved but Unpaid Claim Balances After FY 2015 Payments	Maximum Remaining Program Liability Including Estimated Costs in Approved Plans for Subsequent Remedial Action
Subtotal, Uranium	**296,316**	**50,254**	**155,329**
Thorium			
West Chicago[d]	356,980	27,908	41,968
Subtotal, Thorium	**356,980**	**27,908**	**41,968**
Total, Uranium and Thorium	**653,296**	**78,162**	**197,297**

[a] Pending the enactment of an FY 2017 appropriation, the above table will be updated.

[b] Reimbursements have been completed to the Atlantic Richfield Company, the licensees of the Moab site, and the Petrotomics Company.

[c] Formerly Quivira Mining Company.

[d] 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 2016	FY 2017	FY 2018
Performance Goal (Measure)	**Depleted and Other Uranium (DU&U) Packaged for Disposition - A cumulative number of metric tons of DU and U packaged in a form suitable for disposition**		
Target	97,256 metric tons	88,721 metric tons	113,721 metric tons
Result	Not Met - 80,221	TBD	TBD
Endpoint Target	This metric has a life cycle estimate of 838,031 metric tons.		
Performance Goal (Measure)	**Enriched Uranium Packaged - A cumulative number of certified containers packaged and ready for long-term storage**		
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.		
Performance Goal (Measure)	**High Level Waste Packaged for Final Disposition - A cumulative total of high level waste canisters packaged for disposition.**		
Target	4,393 canisters of high level waste	4,426 canisters of high level waste	4,543 canisters of high level waste
Result	Not Met - 4,374	TBD	TBD
Endpoint Target	This measure has a life cycle estimate of 24,858 canisters.		
Performance Goal (Measure)	**Liquid Waste Eliminated - A cumulative volume of radioactive liquid waste (including other forms such as sludge) eliminated from inventory.**		
Target	7,426 thousand gallons	7,684 thousand gallons	8,362 thousand gallons
Result	Not Met - 7,342	TBD	TBD
Endpoint Target	This metric has a life cycle estimate of 102,045 thousands of gallons.		

Performance Goal (Measure)	**Liquid Waste Tanks Closed - A cumulative total of liquid waste tanks closed.**		
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.		

Performance Goal (Measure)	**Material Access Areas Eliminated - A cumulative number of Material Access Areas, (i.e., a high security location which contains special nuclear material) closed.**		
Target	34 Material Access Areas Eliminated	30 Material Access Areas Eliminated	30 Material Access Areas Eliminated
Result	Not Met - 30	TBD	TBD
Endpoint Target	This metric has a life cycle estimate of 35 Material Access Areas eliminated.		

Performance Goal (Measure)	**Spent Nuclear Fuel Packaged for Final Disposition - A cumulative total of heavy metal mass of spent nuclear fuel packaged and ready for final disposition.**		
Target	2,130 metric tons of heavy metal	2,131 metric tons of heavy metal	2,132 metric tons of heavy metal
Result	Met - 2,130	TBD	TBD
Endpoint Target	This metric has a life cycle estimate of 2,452 metric tons of heavy metal.		

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 2016	FY 2017	FY 2018
Performance Goal (Measure)	**Legacy and Newly Generated LLW and Mixed LLW Disposed - The cumulative amount of legacy and newly generated low-level and mixed low-level waste disposed.**		
Target	1,337,349 cubic meters	1,340,981 cubic meters	1,354,278 cubic meters
Result	Not Met - 1,330,550	TBD	TBD
Endpoint Target	This metric has a life cycle estimate of 1,589,543 cubic meters disposed.		

Performance Goal (Measure)	**Transuranic Waste Dispositioned - A cumulative total of cubic meters of transuranic (TRU) waste (consisting of Remote Handled TRU and Contact Handled TRU) dispositioned.**		
Target	102,026 cubic meters	103,750 cubic meters	104,750 cubic meters
Result	Met - 103,442	TBD	TBD
Endpoint Target	This metric has a life cycle estimate of 151,748 cubic meters		

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 2016	FY 2017	FY 2018
Performance Goal (Measure)	**Geographic Sites Completed - A cumulative number of sites completed. A site in its entirety is complete when active remediation has been completed in accordance with the terms and conditions of cleanup agreements (e.g., records of decision and permits). Stewardship or non-EM activities may be ongoing after site completion.**		
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.		
Performance Goal (Measure)	**Industrial Facilities Completed - A cumulative number of industrial facilities completed.**		
Target	2,119 facilities	2,162 facilities	2,206 facilities
Result	Met - 2,144	TBD	TBD
Endpoint Target	This metric has a life cycle estimate of 4,243 facilities.		
Performance Goal (Measure)	**Nuclear Facilities Completed - A cumulative number of nuclear facilities completed.**		
Target	160 facilities	157 facilities	158 facilities
Result	Not Met - 151	TBD	TBD
Endpoint Target	This metric has a life cycle estimate of 488 facilities.		
Performance Goal (Measure)	**Radioactive Facilities Completed - A cumulative number of radioactive facilities completed.**		
Target	581 facilities	577 facilities	587 facilities
Result	Not Met - 567	TBD	TBD
Endpoint Target	This metric has a life cycle estimate of 961 facilities.		

Performance Goal (Measure)	**Remediation Completed - Remediation work at a cumulative total of release sites completed. A release site is considered complete after regulatory approval is obtained and no additional EM resources are required except for long-term stewardship.**		
Target	8,340 release sites	8,205 release sites	8,294 release sites
Result	Not Met - 8,159	TBD	TBD
Endpoint Target	This metric has a life cycle estimate of 11,666 release sites.		

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 nuclear weapons environmental legacy 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 2018 Budget Request

EM maintains a safe and secure posture in the EM complex, while maximizing the investment in cleanup activities. The FY 2018 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
- Special nuclear material consolidation, stabilization, and disposition
- Transuranic and mixed/low-level waste disposition
- Soil and groundwater remediation
- Excess facilities deactivation and decommissioning

The Richland Operation Office, Office of River Protection, Savannah River, Idaho, Portsmouth and Paducah, and Carlsbad 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.

Although EM made progress in hiring these critical positions across the complex, the attrition rate of employees is offsetting the full-time equivalent (FTE) usage. EM has seen an increase of retirements over the past several years as EM's current attrition rate increased to 7 percent and is not expected to decrease as the average age of EM employees is 52 years of age. EM hired 17 Recent Graduates in FY 2015-16 to address short and long-term needs in our Mission Critical Occupations that include engineering and physical science. These hires were assigned to duty stations across the EM complex.

EM funds the second largest portion to the Department's Working Capital Fund. FY 2018 estimates include inflation increases to many business lines, particularly to corporate business systems, building occupancy, and telecommunications. EM's share of the total Working Capital Fund increase from FY 2016 to FY 2018 is $2,024,000.

In the FY 2018 Budget Request, funding for EM's share of the Working Capital Fund is partially funded in Program Direction and the remainder in Mission Support. Program Direction funds services such as building occupancy, corporate business systems (only flexible spending account {FSA} and subsidy for Energy employees transit {SEET}), 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 FSA & SEET), 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 PBS HQ-WCF-0100, Working Capital Fund Activities.

Funding ($K)
Program Direction Summary

	FY 2016 Enacted	FY 2017 Annualized CR[1]	FY 2018 Request	FY 2018 vs FY 2016
Headquarters Working Capital Fund				
Other Related Expenses	0	0	15,665	+15,665
Carlsbad				
Salaries and Benefits	11,548	11,548	11,120	-428
Travel	428	428	380	-48
Other Related Expenses	50	50	1,050	+1,000
Total, Carlsbad	**12,026**	**12,026**	**12,550**	**+524**
Idaho				
Salaries and Benefits	7,231	7,231	7,136	-95
Travel	170	170	150	-20
Support Services	85	85	80	-5
Other Related Expenses	50	50	350	+300
Total, Idaho	**7,536**	**7,536**	**7,716**	**+180**
Oak Ridge				
Salaries and Benefits	11,959	11,959	11,733	-226
Travel	303	303	220	-83
Support Services	74	74	745	+671
Other Related Expenses	300	300	2,600	+2,300
Total, Oak Ridge	**12,636**	**12,636**	**15,298**	**+2,662**
Portsmouth/Paducah Project Office				
Salaries and Benefits	10,807	10,807	10,630	-177
Travel	238	238	350	+112
Support Services	1,098	1,098	1,250	+152
Other Related Expenses	200	200	1,500	+1,300
Total, Portsmouth/Paducah Project Office	**12,343**	**12,343**	**13,730**	**+1,387**
Richland				
Salaries and Benefits	37,000	37,000	36,341	-659
Travel	368	368	370	+2
Support Services	1,545	1,545	1,000	-545
Other Related Expenses	300	300	2,960	+2,660
Total, Richland	**39,213**	**39,213**	**40,671**	**+1,458**
River Protection				
Salaries and Benefits	25,817	25,817	27,980	+2,163
Travel	613	613	400	-213
Support Services	2,490	2,490	1,250	-1,240
Other Related Expenses	300	300	2,500	+2,200
Total, River Protection	**29,220**	**29,220**	**32,130**	**+2,910**

[1] The FY 2017 Annualized CR amounts reflect the P.L. 114-254 continuing resolution level annualized to a full year. These amounts are shown only at the congressional control level and above, below that level, a dash (-) is shown.

	FY 2016 Enacted	FY 2017 Annualized CR[1]	FY 2018 Request	FY 2018 vs FY 2016
Savannah River				
Salaries and Benefits	42,740	42,740	41,776	-964
Travel	507	507	525	+18
Support Services	2,644	2,644	1,250	-1,394
Other Related Expenses	300	300	2,800	+2,500
Total, Savannah River	**46,191**	**46,191**	**46,351**	**+160**
Small Sites				
Salaries and Benefits	5,150	5,150	4,786	-364
Travel	169	169	130	-39
Support Services	467	467	460	-7
Other Related Expenses	50	50	1,000	+950
Total, Small Sites	**5,836**	**5,836**	**6,376**	**+540**
Nevada Site Office				
Salaries and Benefits	2,796	2,796	2,566	-230
Travel	83	83	80	-3
Support Services	76	76	50	-26
Other Related Expenses	5	5	160	+155
Total, Nevada Site Office	**2,960**	**2,960**	**2,856**	**-104**
Los Alamos Site Office				
Salaries and Benefits	5,234	5,234	4,478	-756
Travel	144	144	125	-19
Support Services	231	231	300	+69
Other Related Expenses	50	50	200	+150
Total, Los Alamos Site Office	**5,659**	**5,659**	**5,103**	**-556**
Field				
Salaries and Benefits	160,282	160,282	158,546	-1,736
Travel	3,023	3,023	2,730	-293
Support Services	8,710	8,710	6,385	-2,325
Other Related Expenses	1,605	1,605	30,785	+29,180
Total, Field	**173,620**	**173,620**	**198,446**	**+24,826**
Headquarters Operations				
Salaries and Benefits	51,993	51,484	51,244	-749
Travel	1,911	1,911	1,770	-141
Support Services	12,921	12,921	19,860	+6,939
Other Related Expenses	14,360	14,333	1,500	-12,860
Total, Headquarters Operations	**81,185**	**80,649**	**74,374**	**-6,811**
Consolidated Business Center				
Salaries and Benefits	21,325	21,325	20,810	-515
Travel	591	591	500	-91
Support Services	4,930	4,930	3,955	-975
Other Related Expenses	300	300	1,915	+1,615
Total, Consolidated Business Center	**27,146**	**27,146**	**27,180**	**+34**

	FY 2016 Enacted	FY 2017 Annualized CR[1]	FY 2018 Request	FY 2018 vs FY 2016
Environmental Management				
Salaries and Benefits	233,600	233,091	230,600	-3,000
Travel	5,525	5,525	5,000	-525
Support Services	26,561	26,561	30,200	+3,639
Other Related Expenses	16,265	16,238	34,200	+17,935
Total, Environmental Management	**281,951**	**281,415**	**300,000**	**+18,049**
Full Time Equivalents	**1,460**	**1,460**	**1,400**	**-60**

Support Services and Other Related Expenses

	FY 2016 Enacted	FY 2017 Annualized CR[1]	FY 2018 Request	FY 2018 vs FY 2016
Support Services				
Technical Support				
Feasibility of Design Considerations	3,140	3,140	3,570	+430
System Definition	69	69	79	+10
Economic and Environmental Analysis	4,713	4,713	5,358	+645
Test and Evaluation Studies	62	62	71	+9
Surveys or Reviews of Technical Operations	7,305	7,305	8,306	+1,001
Total, Technical Support	**15,289**	**15,289**	**17,384**	**+2,095**
Management Support				
Directives Management Studies	1,596	1,596	1,814	+218
Automatic Data Processing	1,520	1,520	1,728	+208
Training and Education	163	163	186	+23
Analysis of DOE Management Processes	590	590	671	+81
Reports and Analyses Management and General Administrative Support	7,403	7,403	8,417	+1,014
Total, Management Support	11,272	11,272	12,816	+1,544
Total, Support Services	26,561	26,561	30,200	+3,639
Other Related Expenses				
Rent to GSA	589	589	6,887	+6,298
Rent to Others	59	59	552	+493
Communication, Utilities, Misc.	436	436	2,125	+1,689

[1] The FY 2017 Annualized CR amounts reflect the P.L. 114-254 continuing resolution level annualized to a full year. These amounts are shown only at the congressional control level and above, below that level, a dash (-) is shown.

	FY 2016 Enacted	FY 2017 Annualized CR[1]	FY 2018 Request	FY 2018 vs FY 2016
Printing and Reproduction	5	5	60	+55
Other Services	509	509	5,214	+4,705
Training	120	120	1,370	+1,250
Purchases from Gov. Accounts	49	49	462	+413
Operation and Maintenance of Equipment	40	40	375	+335
Supplies and Materials	75	75	350	+275
Equipment	122	122	1,140	+1,018
Working Capital Fund	14,261	14,234	15,665	+1,404
Total, Other Related Expenses	**16,265**	**16,238**	**34,200**	**+17,935**

Activities and Explanation of Changes

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
$281,951	**$284,335**	**+$2,384**
Salaries and Benefits $233,600	**$230,600**	**-$3,000**
Supported Federal salaries and benefits for EM's planned FTE level of 1,460.	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 Federal pay raise and increased benefits contributions for EM's 1,400 FTEs. A decrease of 60 Federal employees from FY 2016.
Travel $5,525	**$5,000**	**-$525**
Maintained travel level in compliance with Executive Order 13589. EM scrutinized 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. Includes travel costs associated with the EM/HC Management and Performance Shared Service Center.	Decrease reflects reduced FTE level.
Support Services $26,561	**$30,200**	**+$3,639**
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	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	Increase reflects inflation and sustains current support services.

facilities occupied by EM staff.	maintenance of facilities occupied by EM staff.	
Other Related Expenses **$16,265**	**$18,535**	**+$2,270**
EM funded items such as the field rent, utilities, communications, building and ground maintenance, site-wide health services, and the Working Capital Fund. EM continued efficiencies for the reintegration of Federal staff to Government-owned facilities.	Funds Federal training, supplies, and information technology equipment as well as field rent, communications and utilities. Provides for expenses for those FTEs in EM/Human Capital Management and Performance Shared Service Center. EM will continue efficiencies for the reintegration of Federal staff to Government-owned facilities.	Reflects increased funding needed to support field rent and communications/utilities, training, supplies, and information technology equipment (+$17,935,000). The FY 2016 comparable Other Related Expenses was $2,004,000 resulting in a net increase of $16,531,000.

Activities and Explanation of Changes

FY 2016 Enacted		FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
	$0	**$15,665**	**+$15,665**
Other Related Expenses	**$0**	**$15,665**	**+$15,665**
		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.	Increase reflects the establishment of a Working Capital Fund PBS. A stand-alone PBS for the Working Capital Fund is being established with the work being shifted out to provide clear transparency into the Working Capital Fund requirements. The FY 2016 Working Capital Fund investment was $14,261,000 resulting in a net increase of $1,404,000 associated with inflation increases to many business lines, particularly to corporate business systems, building occupancy, and telecommunications.

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 2016 Enacted	FY 2018 Planned Cost
Carlsbad	15,966	26,668
Energy Technology Engineering Center	220	220
Idaho National Laboratory	23,177	24,132
Moab	542	800
Oak Ridge	70,721	45,459
Pacific Northwest National Laboratory	0	0
Paducah	18,032	39,488
Portsmouth	50,693	41,407
Richland Operations Office	48,357	64,398
Office of River Protection	79,090	103,756
Savannah River	139,503	156,499
Total, Direct-Funded Maintenance and Repair	**446,301**	**502,827**

Costs for Indirect-Funded Maintenance and Repair (including Deferred Maintenance Reduction)

	FY 2016 Enacted	FY 2018 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	5,156	5,451
Paducah	0	0
Portsmouth	32,660	25,168
Richland Operations Office	0	0
Office of River Protection	0	0
Savannah River	41,113	44,947
Total, Indirect-Funded Maintenance and Repair	**78,929**	**75,566**

Environmental Management Research and Development
Research and Development ($K)

	FY 2016 Enacted	FY 2018 Request	FY 2018 vs FY 2016
Basic	0	0	0
Applied	7,524	9,240	+1,716
Development	15,276	18,760	+3,484
Subtotal, R&D	22,800	28,000	+5,200
Equipment	0	0	0
Construction	0	0	0
Total, R&D	**22,800**	**28,000**	**5,200**

Environmental Management
Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR)

	FY 2016 Enacted Transfer	FY 2018 Request Projected Transfer	FY 2018 vs FY 2016
Headquarters			
SBIR	600	800	+200
STTR	90	135	+45
Oak Ridge			
SBIR	84	96	+12
STTR	13	14	+1
Total, SBIR	**684**	**896**	**+212**
Total, STTR	**103**	**149**	**+46**

Safeguards and Security and Cyber Security by Activity
($K)

	FY 2016 Enacted	FY 2017 Annualized CR[1]	FY 2018 Request	FY 2018 vs FY 2016
Carlsbad				
Protective Forces	3,173	3,167	4,200	+1,027
Physical Security Systems	526	525	680	+154
Security Investigations	63	0	60	-3
Program Management	253	253	260	+7
Subtotal, Carlsbad	**4,015**	**3,945**	**5,200**	**+1,185**
Cyber Security	845	843	1,270	+425
Total, Carlsbad	**4,860**	**4,788**	**6,470**	**+1,610**
Oak Ridge				
Protective Forces	7,606	7,592	12,534	+4,928
Physical Security Systems	740	739	1,180	+440
Information Security	266	265	885	+619
Personnel Security	585	784	1,000	+415
Material Control and Accountability	451	0	608	+157
Program Management	414	413	293	-121
Subtotal, Oak Ridge	**10,062**	**9,793**	**16,500**	**+6,438**
Cyber Security	1,766	1,763	1,105	-661
Total, Oak Ridge	**11,828**	**11,556**	**17,600**	**+5,772**
Paducah				
Protective Forces	8,758	8,774	6,000	-2,758
Physical Security Systems	0	0	4,249	+4,249
Information Security	2,539	2,475	1,000	-1,539
Personnel Security	0	0	800	+800
Program Management	0	0	2,000	+2,000
Subtotal, Paducah	**11,297**	**11,249**	**14,049**	**+2,752**
Cyber Security	1,919	1,915	1,507	-412
Total, Paducah	**13,216**	**13,164**	**15,556**	**+2,340**

[1] The FY 2017 Annualized CR amounts reflect the P.L. 114-254 continuing resolution level annualized to a full year. These amounts are shown only at the congressional control level and above, below that level, a dash (-) is shown.

	FY 2016 Enacted	FY 2017 Annualized CR[1]	FY 2018 Request	FY 2018 vs FY 2016
Portsmouth				
Protective Forces	9,390	9,372	5,884	-3,506
Physical Security Systems	0	0	4,297	+4,297
Information Security	0	0	829	+829
Personnel Security	222	458	603	+381
Security Investigations	509	0	300	-209
Program Management	371	370	800	+429
Subtotal, Portsmouth	**10,492**	**10,200**	**12,713**	**+2,221**
Cyber Security	0	0	1,546	+1,546
Total, Portsmouth	**10,492**	**10,200**	**14,259**	**+3,767**
Richland				
Protective Forces	31,971	31,910	56,619	+24,648
Physical Security Systems	10,857	10,836	6,120	-4,737
Information Security	1,013	1,011	1,077	+64
Personnel Security	2,281	2,577	2,448	+167
Security Investigations	191	0	250	+59
Material Control and Accountability	1,579	1,576	1,053	-526
Program Management	9,398	9,380	8,033	-1,365
Subtotal, Richland	**57,290**	**57,290**	**75,600**	**+18,310**
Cyber Security	8,211	8,065	6,390	-1,821
Total, Richland	**65,501**	**65,355**	**81,990**	**+16,489**
Savannah River				
Protective Forces	90,538	90,409	95,802	+5,264
Physical Security Systems	14,557	14,850	22,134	+7,577
Information Security	1,342	1,339	1,745	+403
Personnel Security	4,369	4,861	5,660	+1,291
Security Investigations	305	0	560	+255
Material Control and Accountability	2,331	2,514	3,509	+1,178
Program Management	11,160	11,000	12,514	+1,354
Transportation	276	300	390	+114
Subtotal, Savannah River	**124,878**	**125,273**	**142,314**	**+17,436**
Cyber Security	3,267	3,261	22,810	+19,543
Total, Savannah River	**128,145**	**128,534**	**165,124**	**+36,979**

	FY 2016 Enacted	FY 2017 Annualized CR[1]	FY 2018 Request	FY 2018 vs FY 2016
West Valley Demonstration Project				
Protective Forces	2,023	2,019	2,525	+502
Program Management	244	244	259	+15
Subtotal, West Valley Demonstration Project	**2,267**	**2,263**	**2,784**	**+517**
Cyber Security	324	323	314	-10
Total, West Valley Demonstration Project	**2,591**	**2,586**	**3,098**	**+507**
Headquarters				
Cyber Security	0	0	8,085	+8,085
Total, Headquarters	**0**	**0**	**8,085**	**+8,085**
Total, Safeguards and Security and Cyber Security	**236,633**	**236,183**	**312,502**	**+75,869**

Safeguards and Security and Cyber Security ($K)

	FY 2016 Enacted	FY 2017 Annualized CR[1]	FY 2018 Request	FY 2018 vs FY 2016
Protective Forces	153,459	153,243	183,564	+30,105
Physical Security Systems	26,680	26,950	38,660	+11,980
Information Security	5,160	5,090	5,536	+376
Personnel Security	7,457	8,680	10,511	+3,054
Security Investigations	1,068	0	1,170	+102
Material Control and Accountability	4,361	4,090	5,170	+809
Program Management	21,840	21,660	24,159	+2,319
Transportation	276	300	390	+114
Subtotal, Safeguards and Security	**220,301**	**220,013**	**269,160**	**+48,859**
Cyber Security	16,332	16,170	43,342	+27,010
Total, Safeguards and Security	**236,633**	**236,183**	**312,502**	**+75,869**

UED&D Fund Deposit

Overview

Established in 1992, the Uranium Enrichment Decontamination and Decommissioning Fund (UED&D Fund) pays, subject to appropriation, the decontamination and decommissioning costs of the Department of Energy's gaseous diffusion plants in Tennessee, Ohio, and Kentucky. The Energy Policy Act of 1992 authorized annual UED&D Fund contributions that came from both fees on domestic utilities and annual Congressional defense appropriations. The authorization of these fees and Government contributions to the Fund expired in 2007. The Department of Energy's UED&D Fund report to Congress (February 216) provided the most recent fund analysis. At the end of FY2014, the UED&D Fund balance was $3.4 billion. The Department's analysis concluded that the UED&D Fund would have a shortfall of up to $19.2 billion based on best available information on total remaining cleanup costs and expected deposits. Without additional deposits, the Department estimated that the UED&D Fund would be exhausted in FY 2022.

There are two inactive, legacy accounts with unavailable balances from DOE's commercial uranium enrichment activities: Uranium Supply and Enrichment Activities ($861 million) and the United States Enrichment Corporation Fund ($1.6 billion). The Administration proposes to transfer these balances to the UED&D Fund. The proposed transfers reflect the ongoing need to decontaminate, decommission, and remediate the uranium processing facilities.

Highlights of the FY 2018 Budget Request

This Fund is responsible for maintaining, decontaminating, decommissioning, and remediating uranium processing facilities. This includes the environmental management responsibilities at the nation's three gaseous diffusion plants at Paducah, Kentucky; Portsmouth, Ohio; and Oak Ridge, Tennessee.

As the cleanup and decommissioning at the gaseous diffusion plants progresses, the risk and hazard to human health and the environment is greatly reduced. In addition, as cleanup is completed, the financial resources needed to maintain site infrastructure will be reduced.

Department Of Energy

FY 2018 Congressional Budget

Funding By Appropriation By Site

($K)

Defense Environmental Cleanup	FY 2016 Enacted	FY 2017 Annualized CR	FY 2018 Request
Carlsbad Area Office			
Program Direction			
Carlsbad	12,026	12,026	12,550
Safeguards and Security			
Waste Isolation Pilot Plant	4,860	4,788	5,200
Total, Carlsbad Area Office	**16,886**	**16,814**	**17,750**
Consolidated Business Center			
Program Direction			
Consolidated Business Center	32,982	32,982	33,556
Total, Consolidated Business Center	**32,982**	**32,982**	**33,556**
East Tennessee Technology Park (K25)			
Safeguards and Security			
Oak Ridge Reservation	11,828	11,556	16,500
Total, East Tennessee Technology Park (K25)	**11,828**	**11,556**	**16,50**
Energy Technology Engineering			
Center Oak Ridge			
Nuclear Facility D & D, ETTP	0	0	0
Total, Energy Technology Engineering Center	**0**	**0**	**0**
Fernald Environmental			
Management Project Closure			
Fernald	1,300	1,298	1,00
Total, Fernald Environmental Management Project	**1,300**	**1,298**	**1,00**
Hanford Site			
Hanford Site			
Central Plateau Remediation	632,179	630,977	644,500
River Corridor & Other Cleanup Operations	270,710	270,195	58,692
Total, Hanford Site	**902,889**	**901,172**	**703,192**
Safeguards and Security			
Richland/Hanford Site	65,501	65,355	75,600
Total, Hanford Site	**968,390**	**966,527**	**778,792**
Idaho National Laboratory			
Idaho National Laboratory			
Idaho Community and Regulatory Support	3,000	2,994	3,200
Idaho Clean-up and Waste Disposition	393,000	392,253	347,026
Total, Idaho National Laboratory	**396,000**	**395,247**	**350,226**
Total, Idaho National Laboratory	**396,000**	**395,247**	**350,226**

Department Of Energy

FY 2018 Congressional Budget

Funding By Appropriation By Site

($K)

Defense Environmental Cleanup	FY 2016 Enacted	FY 2017 Annualized CR	FY 2018 Request
Idaho Operations Office			
Program Direction			
Idaho	7,536	7,536	7,716
Total, Idaho Operations Office	**7,536**	**7,536**	**7,716**
Lawrence Livermore National Laboratory			
NNSA Sites			
NNSA Sites	1,128	1,125	900
Total, Lawrence Livermore National Laboratory	**1,128**	**1,125**	**900**
Los Alamos National Laboratory			
NNSA Sites			
NNSA Sites	181,606	181,261	188,235
Total, Los Alamos National Laboratory	**181,606**	**181,261**	**188,235**
Miamisburg Site			
Closure Sites			
Miamisburg	0	0	0
Total, Miamisburg Site	**0**	**0**	**0**
Moab Site			
Cyber Security			
Cyber Security	0	0	315
Total, Moab Site	**0**	**0**	**315**
Nevada Field Office			
Program Direction			
Nevada	2,960	2,960	2,856
NNSA Sites			
NNSA Sites	23,825	23,780	22,599
Total, Nevada Field Office	**26,785**	**26,740**	**25,455**
Nevada National Security Site			
NNSA Sites			
NNSA Sites	38,560	38,487	37,537
Total, Nevada National Security Site	**38,560**	**38,487**	**37,537**
NNSA Albuquerque Complex			
Program Direction			
Los Alamos	5,659	5,659	5,103
NNSA Sites			
NNSA Sites	3,632	3,625	3,669
Total, NNSA Albuquerque Complex	**9,291**	**9,284**	**8,772**

Department Of Energy

FY 2018 Congressional Budget

Funding By Appropriation By Site

($K)

Defense Environmental Cleanup	FY 2016 Enacted	FY 2017 Annualized CR	FY 2018 Request
Oak Ridge National Laboratory			
Oak Ridge Reservation			
Nuclear Facility D & D, ORNL	45,900	45,813	48,110
U233 Disposition Program	35,895	35,827	33,784
Total, Oak Ridge Reservation	**81,795**	**81,640**	**81,894**
Total, Oak Ridge National Laboratory	**81,795**	**81,640**	**81,894**
Oak Ridge Office			
Oak Ridge Reservation			
Nuclear Facility D & D, Y-12	9,400	9,382	22,100
Program Direction			
Oak Ridge	12,636	12,636	15,298
Total, Oak Ridge Office	**22,036**	**22,018**	**37,398**
Oak Ridge Reservation			
Oak Ridge Reservation			
Clean-up and Disposition	74,597	74,455	66,632
Cyber Security			
Cyber Security	0	0	1,105
Total, Oak Ridge Reservation	**74,597**	**74,455**	**67,737**
Oak Ridge Reservation (Off-Site)			
Oak Ridge Reservation			
ORR Community and Regulatory Support	4,400	4,392	4,605
Total, Oak Ridge Reservation (Off-Site)	**4,400**	**4,392**	**4,605**
Office of River Protection			
Office of River Protection			
Tank Farm Activities	649,000	647,766	713,311
Waste Treatment Plant	690,000	688,688	698,000
Total, Office of River Protection	**1,339,000**	**1,336,454**	**1,411,311**
Program Direction			
Office of River Protection	29,220	29,220	32,130
Total, Office of River Protection	**1,368,220**	**1,365,674**	**1,443,441**
Paducah Gaseous Diffusion Plant			
Program Direction			
Paducah/Portsmouth	12,343	12,343	13,730
Safeguards and Security			
Paducah	13,216	13,164	14,049
Cyber Security			
Cyber Security	0	0	1,507
Total, Paducah Gaseous Diffusion Plant	**25,559**	**25,507**	**29,286**

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FY 2018 Congressional Budget

Funding By Appropriation By Site

($K)

Defense Environmental Cleanup	FY 2016 Enacted	FY 2017 Annualized CR	FY 2018 Request
Portsmouth Gaseous Diffusion Plant			
Safeguards and Security			
Portsmouth	10,492	10,200	12,713
Cyber Security			
Cyber Security	0	0	1,546
Total, Portsmouth Gaseous Diffusion Plant	**10,492**	**10,200**	**14,259**
Richland Operations Office			
Hanford Site			
Community and Regulatory Support	19,701	19,664	13,000
Office of River Protection			
Tank Farm Activities	75,000	74,857	93,000
Program Direction			
Richland	39,213	39,213	40,671
Cyber Security			
Cyber Security	0	0	6,390
Total, Richland Operations Office	**133,914**	**133,734**	**153,061**
Rocky Flats Site			
Closure Sites			
Rocky Flats	3,589	3,582	3,889
Total, Rocky Flats Site	**3,589**	**3,582**	**3,889**
Sandia National Laboratories			
NNSA Sites			
NNSA Sites	2,500	2,495	2,600
Total, Sandia National Laboratories	**2,500**	**2,495**	**2,600**
Savannah River Operations Office			
Savannah River Sites			
Community and Regulatory Support	11,249	11,228	11,249
Program Direction			
Savannah River	46,191	46,191	46,351
Safeguards and Security			
Savannah River Site	128,145	128,534	142,314
Total, Savannah River Operations Office	**185,585**	**185,953**	**199,914**

Department Of Energy

FY 2018 Congressional Budget

Funding By Appropriation By Site

($K)

Defense Environmental Cleanup	FY 2016 Enacted	FY 2017 Annualized CR	FY 2018 Request
Savannah River Site			
Savannah River Sites			
Site Risk Management Operations	413,652	426,404	0
Radioactive Liquid Tank Waste Stabilization and Disposition	783,520	768,492	787,758
Nuclear Material Management	0	0	323,482
Environmental Cleanup	0	0	159,978
Total, Savannah River Sites	**1,197,172**	**1,194,896**	**1,271,218**
Cyber Security			
Cyber Security	0	0	22,810
Total, Savannah River Site	**1,197,172**	**1,194,896**	**1,294,028**
Separations Process Research Unit			
NNSA Sites			
NNSA Sites	0	0	1,800
Total, Separations Process Research Unit	**0**	**0**	**1,800**
Washington Headquarters			
Program Direction			
Headquarters	81,185	80,649	90,039
Program Support			
Program Support	14,979	14,951	35,088
Technology Development			
Technology Development	20,000	19,962	0
Mission Innovation and Technology			
Mission Innovation and Technology	0	0	25,000
Cyber Security			
Cyber Security	0	0	8,085
Excess Facilities			
Excess Facilities	0	0	225,000
Total, Washington Headquarters	**116,164**	**115,562**	**383,212**
Waste Isolation Pilot Plant			
Waste Isolation Pilot Plant			
Operation and Maintenance	299,978	299,408	316,571
Cyber Security			
Cyber Security	0	0	1,270
Total, Waste Isolation Pilot Plant	**299,978**	**299,408**	**317,841**

Department Of Energy

FY 2018 Congressional Budget

Funding By Appropriation By Site

($K)

Defense Environmental Cleanup	FY 2016 Enacted	FY 2017 Annualized CR	FY 2018 Request
West Valley Demonstration Project			
Safeguards and Security			
West Valley	2,591	2,586	2,784
Cyber Security			
Cyber Security	0	0	314
Total, West Valley Demonstration Project	**2,591**	**2,586**	**3,098**
Y-12 Site Office			
Oak Ridge Reservation			
Nuclear Facility D & D, Y-12	66,058	65,932	29,369
OR Technology Development and Deployment	2,800	2,795	3,000
Total, Oak Ridge Reservation	**68,858**	**68,727**	**32,369**
Total, Y-12 Site Office	**68,858**	**68,727**	**32,369**
Total, Defense Environmental Cleanup	**5,289,742**	**5,279,686**	**5,537,186**

Department Of Energy

FY 2018 Congressional Budget

Funding By Appropriation By Site

($K)

Non-Defense Environmental Cleanup	FY 2016 Enacted	FY 2017 Annualized CR	FY 2018 Request
Brookhaven National Laboratory			
Small Sites			
Small Sites	0	0	2,000
Total, Brookhaven National Laboratory	**0**	**0**	**2,000**
East Tennessee Technology Park (K25)			
Small Sites			
Oak Ridge – ETTP	6,000	5,989	0
Total, East Tennessee Technology Park (K25)	**6,000**	**5,989**	**0**
Energy Technology Engineering Center			
Small Sites			
Small Sites	10,459	10,439	9,000
Total, Energy Technology Engineering Center	**10,459**	**10,439**	**9,000**
Hanford Site			
Fast Flux Test Reactor Facility			
Fast Flux Test Reactor Facility	2,562	2,557	2,240
Total, Hanford Site	**2,562**	**2,557**	**2,240**
Idaho National Laboratory			
Small Sites			
Small Sites	5,919	5,907	9,000
Total, Idaho National Laboratory	**5,919**	**5,907**	**9,000**
Lawrence Berkeley National Laboratory			
Small Sites			
Small Sites	17,000	16,967	0
Total, Lawrence Berkeley National Laboratory	**17,000**	**16,967**	**0**
Miamisburg Site			
Small Sites			
Small Sites	9,500	9,482	0
Total, Miamisburg Site	**9,500**	**9,482**	**0**
Moab Site			
Small Sites			
Small Sites	38,644	38,571	35,000
Total, Moab Site	**38,644**	**38,571**	**35,000**
Paducah Gaseous Diffusion Plant			
Gaseous Diffusion Plants			
Gaseous Diffusion Plants	52,886	52,785	49,964
Total, Paducah Gaseous Diffusion Plant	**52,886**	**52,785**	**49,964**

Department Of Energy

FY 2018 Congressional Budget

Funding By Appropriation By Site

($K)

Non-Defense Environmental Cleanup	FY 2016 Enacted	FY 2017 Annualized CR	FY 2018 Request
Portsmouth Gaseous Diffusion Plant			
Gaseous Diffusion Plants			
Gaseous Diffusion Plants	51,517	51,419	50,611
Total, Portsmouth Gaseous Diffusion Plant	**51,517**	**51,419**	**50,611**
Washington Headquarters			
Mercury Storage Facility			
Mercury Storage Facility	1,300	1,298	0
Total, Washington Headquarters	**1,300**	**1,298**	**0**
West Valley Demonstration Project			
West Valley Demonstration Project			
West Valley Demonstration Project	59,213	59,101	60,585
Total, West Valley Demonstration Project	**59,213**	**59,101**	**60,585**
Total, Non-Defense Environmental Cleanup	**255,000**	**254,515**	**218,400**

Department Of Energy

FY 2018 Congressional Budget

Funding By Appropriation By Site

($K)

Uranium Enrichment Decon. & Decom. Fund	FY 2016 Enacted	FY 2017 Annualized CR	FY 2018 Request
East Tennessee Technology Park (K25)			
Uranium Enrichment D&D Fund			
Pension & comm & Reg Suport Oak Ridge	16,856	16,856	19,274
Oak Ridge	194,673	194,673	145,726
Total, Uranium Enrichment D&D Fund	**211,529**	**211,529**	**165,000**
Total, East Tennessee Technology Park (K25)	**211,529**	**211,529**	**165,000**
Paducah Gaseous Diffusion Plant			
Uranium Enrichment D&D Fund			
Pens & Comm & Reg Support Paducah	2,375	2,375	2,386
Paducah Gaseous Diffusion Plant	199,925	199,925	202,297
Total, Uranium Enrichment D&D Fund	**202,300**	**202,300**	**204,683**
Total, Paducah Gaseous Diffusion Plant	**202,300**	**202,300**	**204,683**
Portsmouth Gaseous Diffusion Plant			
Uranium Enrichment D&D Fund			
Pens & Comm & Reg Support Portsmouth	1,795	1,795	1,795
Portsmouth Gaseous Diffusion Plant	225,166	318,431	351,271
Total, Uranium Enrichment D&D Fund	**226,961**	**320,226**	**353,066**
Total, Portsmouth Gaseous Diffusion Plant	**226,961**	**320,226**	**353,066**
Washington Headquarters			
U/TH Reimbursements			
U/TH Reimbursements	32,959	32,959	30,000
Total, Washington Headquarters	**32,959**	**32,959**	**30,000**
Total, Uranium Enrichment Decon. & Decom. Fund	**673,749**	**767,014**	**752,749**

GENERAL PROVISIONS – DEPARTMENT OF ENRGY
(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 a contract covered by the Federal Acquisition Regulation;

(C) issue a letter of intent to make an allocation, award, or Agreement in excess of the limits in subparagraph (A) or (B); or

(D) 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 2018 until the enactment of the Intelligence Authorization Act for fiscal year 2018.

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. Uranium Lease and Take-Back Revolving Fund.—There is hereby established in the Treasury of the United States a fund to be known as the "Uranium Lease and Take-Back Revolving Fund" (the Fund), which shall be available without fiscal year limitation, for Department of Energy expenses, including the purchase, construction, and acquisition of plant and capital equipment and other expenses necessary in carrying out section 3173 of the National Defense Authorization Act for Fiscal Year 2013. For initial capitalization, there is appropriated $1,000,000 to the Fund. Notwithstanding 31 U.S.C. 3302, revenues received under section 3173 of such Act in this and subsequent fiscal years shall be credited to the Fund to be available for carrying out the purposes of the Fund without further appropriation. Funds collected in fiscal year 2018 shall be credited as offsetting collections to the Fund, so as to result in a final fiscal year 2018 appropriation from the general fund estimated at not more than $0.

SEC. 309. 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. 310. 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. 311. 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 2018. Proceeds from sales under this section shall be deposited into the general fund of the Treasury during fiscal year 2018.

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).