

Attachment 1

U.S. Department of Energy Fiscal Year 2022 Congressional Budget Request (Excerpts)

Department of Energy

FY 2022 Congressional Budget Request



National Nuclear Security Administration

Federal Salaries and Expenses
Weapons Activities
Defense Nuclear Nonproliferation
Naval Reactors

Primary Capability Modernization Plutonium Modernization

Description

The Plutonium Modernization Program provides funding for efforts across the nuclear security enterprise to restore the Nation's capability to produce 80 pits per year (ppy). NNSA will provide additional details regarding Plutonium Modernization activities to Congressional staff through quarterly pit production briefings, as required by the Fiscal Year (FY) 2020 Energy and Water Development and Related Agencies Appropriations Act. NNSA remains committed to achieving the pit production capability goals listed in prior National Defense Authorization Act (NDAA) language on the path to 80 ppy, including the capability to produce the first war reserve pit during 2023 and the capability to produce 30 ppy during 2026.

Plutonium Modernization activities include the following:

- **Los Alamos Plutonium Modernization:** Activities include LANL Plutonium Operations, which provides for the operational expenses needed to meet pit production requirements at Los Alamos, including activities to hire, train, qualify, and retain required pit production personnel; recapitalization of equipment for War Reserve (WR) pit production; pit production process development and certification activities, tooling design and fabrication, and Plutonium Modernization's share of operational expenses for PF-4. This funding also supports manufacturing of precision plutonium devices for science-related evaluation. In FY 2022, LANL will continue process development and qualification activities to continue advancing towards producing the first WR pit during 2023. LANL Plutonium Operations also provides funding for key support services and safety management programs in PF-4, including: a radiological control program, facility and equipment maintenance, a criticality safety program, shipping and receiving, authorization basis, work control documentation, training and qualification, waste management, material handling and storage, and facility availability to maintain plutonium capabilities.

Activities within LANL Plutonium Modernization also include the LANL Plutonium Pit Production Project, 21-D-512. This project will manage capital acquisitions to increase production capability of PF-4 from 10 ppy to 30 ppy, as well as associated infrastructure investments at LANL to support pit production. FY 2022 funding will be used to develop preliminary design documentation needed for CD-2, deactivate & decommission legacy equipment in PF-4, and procure long-lead equipment.

- **Savannah River Plutonium Modernization:** Supports the establishment of a program office capability at SRS to support pit production development efforts, train and hire future production staff, and support future production and operations planning.

Additionally, the Savannah River Plutonium Processing Facility (SRPPF) project, 21-D-511, repurposes the partially completed Mixed Oxide Fuel Fabrication Facility (MFFF) to reach a capability of 50 ppy consistent with the NNSA's recommended alternative for pit production. FY 2022 activities are focused on maturing preliminary design to support CD-2, as well as site and facility preparation, and long lead procurement. Preliminary design scope includes facility Balance of Plant systems, production equipment and gloveboxes, and support infrastructure.

- **Enterprise Plutonium Support:** Provides funding for activities that support pit production across the nuclear security enterprise, including Kansas City National Security Campus (KCNSC) production of non-nuclear components, certification activities at Lawrence Livermore National Laboratory (LLNL), management of the plutonium pit Product Realization Team (PRT), and material management activities at the Nevada National Security Site (NNSS).

Highlights of the FY 2022 Budget Request

- Support pit production capability modernization in accordance with Federal law and Department of Defense requirements.
- Prove-in pit production processes and perform certification tests to support production of the first War Reserve (WR) pit during 2023.
- Continue investments to install additional production equipment and recapitalize end-of-life equipment in PF-4 to reduce pit production mission risk.

Weapons Activities/ Production Modernization

FY 2022 Congressional Budget Justification

21-D-511, Savannah River Plutonium Processing Facility (SRPPF)
Savannah River Site (SRS), Aiken, South Carolina
Project is for Design and Construction

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

Summary:

The FY 2022 Request for the Savannah River Plutonium Processing Facility project is \$475,000K. Critical Decision (CD)-1 is expected to be approved in June 2021. CD-0, Approve Mission Need for the “Plutonium Modular Approach,” was approved on November 25, 2015. The approved Mission Need established the requirement for a responsive infrastructure to meet plutonium pit production requirements. The FY 2022 Request provides the first NNSA bottoms-up estimate aligning the scope, cost and schedule based on a 30% design complete. The final performance baseline will be established at 90% CD-2/3 approval in FY23-24. The FY 2021 Request utilized place-holder numbers that were generated for comparison purposes only for the Analysis of Alternatives (AoA).

The SRPPF project is supported by a Plutonium Pit Production AoA completed in October 2017 and the Plutonium Pit Production Engineering Assessment (EA) completed in April 2018. Both efforts informed the NNSA’s selection of a preferred alternative on May 10, 2018 to continue to invest in Los Alamos National Laboratory for the capability to produce 30 pits per year (ppy) in 2026, and to **repurpose existing facilities at Savannah River Site to produce a capability of 50 ppy by 2030. Based on information developed to support the CD-1 milestone, NNSA has determined that achieving the required 50 war reserve ppy production rate at the Savannah River Site in 2030 is not likely.** Establishing required SRPPF pit production capacity as close as possible to 2030 remains a high priority and is required for sustaining the effectiveness of the Nation’s nuclear deterrent. Further design activities conducted in support of CD-2 will identify multiple opportunities to achieve required production capacity closer to 2030.

**Are estimated cost based on achieving 50 plutonium pit/yr after 2030?
What affect will missing production goal have on estimated cost?**

The scope, cost and schedule estimates developed for the CD-1 approval package include an estimated high end of the cost range at \$11.1B and a CD-4 schedule range of 1st Quarter FY 2032 to 4th Quarter FY 2035.

Significant Changes:

This Construction Project Data Sheet (CPDS) is an update of the Fiscal Year (FY) 2021 CPDS and is not a new start. The most recent Department of Energy (DOE) approved Critical Decision (CD) for the project is CD-0. Critical Decision (CD)-0, Approve Mission Need for the “Plutonium Modular Approach,” was approved on November 25, 2015. The approved Mission Need established the requirement for a responsive infrastructure to meet plutonium pit production requirements. The Plutonium Modular Approach Mission Need Statement was revised in March 2019 for the now titled “Savannah River Plutonium Processing Facility (SRPPF)”.

The FY 2021 request completed a conceptual design, began preliminary design, completed an Independent Cost Estimate and supported Independent Project Review teams. The FY 2022 request will continue design efforts that will commence following CD-1 approval. The SRPPF project will utilize lessons learned in acquisition and execution of similarly-sized nuclear projects. The SRPPF project includes:

- early long-lead and engineered procurements, including gloveboxes
- early site preparation, to include Demolition & Removal (D&R) required to prepare existing SRS facilities for SRPPF CD-2/3 design and construction activities, and
- phasing of appropriate SRPPF project work scope into smaller, related, complete and useable sub-projects, where individual “phased” sub-projects would be managed under the overall SRPPF CD-1 cost range and schedule range.

Preliminary planning has identified a multi-subproject construction execution approach. The acquisition approach will be refined as design matures. The specific scope, schedule and cost information for each sub-project will be defined in future submissions of this datasheet. Within each Subproject, where appropriate, a phasing approach will be applied that may include the following as necessary to optimize project schedule and cash flow:

**Weapons Activities/Production Modernization/
Construction/21-D-511, Savannah River
Plutonium Processing
Facility (SRPPF), SRS**

FY 2022 Congressional Budget Justification

3. Project Cost and Schedule

Financial Schedule

SRPPF funding will be appropriated at the Overall Project level (21-D-511) and be allocated to the subprojects in the tables below.

Overall Project (21-D-511-01 through 21-D-511-05)

(Dollars in Thousands)

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
FY 2021	216,896	216,896	216,896
FY 2022	325,000	TBD	TBD
Total Design	TBD	TBD	TBD
Construction			
FY 2021	25,000 ^a	25,000	25,000
FY 2022	120,000 ^b	TBD	TBD
Total Construction	TBD	TBD	TBD
Total Estimated Costs (TEC)			
FY 2021	241,896	241,896	241,896
FY 2022	445,000	TBD	TBD
Outyears	TBD	TBD	TBD
Total TEC	TBD	TBD	TBD
Other Project Costs (OPC)			
FY 2019	91,313	91,313	39,328
FY 2020	219,900	219,900	143,744
FY 2021	110,000	110,000	110,000
FY 2022	30,000	TBD	TBD
Outyears	TBD	TBD	TBD
Total OPC	TBD	TBD	TBD
Total Project Costs (TPC)^c			
FY 2018	0	0	0
FY 2019	91,313	91,313	39,328
FY 2020	219,900 ^d	219,900	143,744

^a FY 2021 Funds re-allocated from TEC design to TEC construction to support CD-3A starts in 4Q FY2021.

^b FY 2022 TEC Design / TEC Construction split represents current best estimate and will be revised following CD-1 approval.

^c TPC outyear funding profile is modeled after the proposed profile in the 2018 Plutonium Pit Production Engineering Assessment (EA). Outyear TEC/OPC splits represent current best estimate and will be revised following CD-1 approval.

^d Appropriated funds shown for FY18, FY19 and FY20 were appropriated in the Plutonium Sustainment Program to support planning and design activities for the plutonium strategy.

**Weapons Activities/Production Modernization/
Construction/21-D-511, Savannah River
Plutonium Processing
Facility (SRPPF), SRS**

	Budget Authority (Appropriations)	Obligations	Costs
FY 2021	351,896	351,896 ^c	351,896 ^a
FY 2022	475,000	TBD	TBD
Outyears	9,961,891	TBD	TBD
Grand Total	11,100,000^b	TBD	TBD

Utilities, Site, and Infrastructure Subproject (21-D-511-01)

(Dollars in Thousands)

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
FY 2021	TBD	TBD	TBD
Total Design	TBD	TBD	TBD
Construction			
FY 2021	TBD	TBD	TBD
Total Construction	TBD	TBD	TBD
Total Estimated Costs (TEC)			
FY 2021	TBD	TBD	TBD
Total TEC	TBD	TBD	TBD
Other Project Costs (OPC)			
FY 2021	TBD	TBD	TBD
Total OPC	TBD	TBD	TBD
Total Project Costs (TPC)			
FY 2021	TBD	TBD	TBD
Grand Total	TBD	TBD	TBD

^a Values shown for FY 2021 are forecast. FY 2021 began under Continuing Resolution.

^b This value does not represent the CD-1 approved high end of the range.

Main Process Buildings (MEB) Subproject (21-D-511-02)

(Dollars in Thousands)

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
FY 2021	TBD	TBD	TBD
Total Design	TBD	TBD	TBD
Construction			
FY 2021	TBD	TBD	TBD
Total Construction	TBD	TBD	TBD
Total Estimated Costs (TEC)			
FY 2021	TBD	TBD	TBD
Total TEC	TBD	TBD	TBD
Other Project Costs (OPC)			
FY 2021	TBD	TBD	TBD
Total OPC	TBD	TBD	TBD
Total Project Costs (TPC)			
FY 2021	TBD	TBD	TBD
Grand Total	TBD	TBD	TBD

Administration Buildings Subproject (21-D-511-03)

(Dollars in Thousands)

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
FY 2021	TBD	TBD	TBD
Total Design	TBD	TBD	TBD
Construction			
FY 2021	TBD	TBD	TBD
Total Construction	TBD	TBD	TBD
Total Estimated Costs (TEC)			
FY 2021	TBD	TBD	TBD
Total TEC	TBD	TBD	TBD
Other Project Costs (OPC)			
FY 2021	TBD	TBD	TBD
Total OPC	TBD	TBD	TBD
Total Project Costs (TPC)			

Weapons Activities/Production Modernization/
Construction/21-D-511, Savannah River
Plutonium Processing
Facility (SRPPF), SRS

	Budget Authority (Appropriations)	Obligations	Costs
FY 2021	TBD	TBD	TBD
Grand Total	TBD	TBD	TBD

Safeguards and Security Subproject (21-D-511-04)

(Dollars in Thousands)

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
FY 2021	TBD	TBD	TBD
Total Design	TBD	TBD	TBD
Construction			
FY 2021	TBD	TBD	TBD
Total Construction	TBD	TBD	TBD
Total Estimated Costs (TEC)			
FY 2021	TBD	TBD	TBD
Total TEC	TBD	TBD	TBD
Other Project Costs (OPC)			
FY 2021	TBD	TBD	TBD
Total OPC	TBD	TBD	TBD
Total Project Costs (TPC)			
FY 2021	TBD	TBD	TBD
Grand Total	TBD	TBD	TBD

Training and Operations Center Subproject (21-D-511-05)

(Dollars in Thousands)

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
FY 2021	TBD	TBD	TBD
Total Design	TBD	TBD	TBD
Construction			
FY 2021	TBD	TBD	TBD
Total Construction	TBD	TBD	TBD
Total Estimated Costs (TEC)			
FY 2021	TBD	TBD	TBD
Total TEC	TBD	TBD	TBD

Weapons Activities/Production Modernization/
Construction/21-D-511, Savannah River
Plutonium Processing
Facility (SRPPF), SRS

	Budget Authority (Appropriations)	Obligations	Costs
Other Project Costs (OPC)			
FY 2021	TBD	TBD	TBD
Total OPC	TBD	TBD	TBD
Total Project Costs (TPC)			
FY 2021	TBD	TBD	TBD
Grand Total	TBD	TBD	TBD

4. Details of Project Cost Estimate

Overall Project (21-D-511-01 through 21-D-511-05)

(Budget Authority in Thousands of Dollars)

	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
Construction	TBD	TBD	N/A
Contingency	TBD	TBD	N/A
Total Construction	TBD	TBD	N/A
Other TEC (if any)			
Cold Startup	TBD	TBD	N/A
Contingency	TBD	TBD	N/A
Total, Other TEC	TBD	TBD	N/A
Total Estimated Cost	TBD	TBD	N/A
<i>Contingency, TEC</i>	<i>TBD</i>	<i>TBD</i>	<i>N/A</i>
Other Project Cost (OPC)			
OPC except D&D			
R&D	TBD	0	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

Weapons Activities/Production Modernization/
Construction/21-D-511, Savannah River
Plutonium Processing
Facility (SRPPF), SRS

Notes:

- 1) Current Total Estimate is 140% greater than the Previous Total Estimate.
- 2) Total Project Cost appears to have no basis; line items in preceding tables is to be determined (TBD).
- 3) Total Contingency (a.k.a. project cost overruns) are to be determined.
- 4) The Current Total Estimate does not represent the approved "high end of the range".

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total, OPC	TBD	TBD	N/A
<i>Contingency, OPC</i>	TBD	TBD	N/A
Total Project Cost	\$11,100,000^a	\$4,590,000	N/A
Total Contingency (TEC+OPC)	TBD	TBD	N/A

Utilities, Site, and Infrastructure Subproject (021-D-511-01)

(Budget Authority in Thousands of Dollars)

	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	TBD	N/A	N/A
Equipment	TBD	N/A	N/A
Construction	TBD	N/A	N/A
Contingency	TBD	N/A	N/A
Total Construction	TBD	N/A	N/A
Other TEC (if any)			
Cold Startup	TBD	N/A	N/A
Contingency	TBD	N/A	N/A
Total, Other TEC	TBD	N/A	N/A
Total Estimated Cost	TBD	N/A	N/A
<i>Contingency, TEC</i>	TBD	N/A	N/A
Other Project Cost (OPC)			
OPC except D&D			
R&D	TBD	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

^a This value does not represent the CD-1 approved high end of the range.

**Weapons Activities/Production Modernization/
 Construction/21-D-511, Savannah River
 Plutonium Processing
 Facility (SRPPF), SRS**