Weapons Activities
($K)

	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request[1]	FY 2026 Request vs FY 2025 Enacted
Weapons Activities	19,108,000	19,293,000	24,856,400	+5,563,400

Proposed Appropriation Language

For Department of Energy expenses, including the purchase, construction, and acquisition of plant and capital equipment and other incidental expenses necessary for atomic energy defense weapons 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, and the purchase of not to exceed four ambulances for replacement only, $20,074,400,000 to remain available until expended: Provided, That of such amount, $149,244,000 shall be available until September 30, 2027, for program direction.

[1]FY 2026 Request funding includes $4.782 billion in mandatory reconciliation resources for NNSA Weapons Activities.

Weapons Activities

Overview

Programs funded in the Weapons Activities appropriation support the Nation's current and future nuclear weapons stockpile, along with the nationwide infrastructure of science, technology, engineering, and production capabilities required to maintain confidence in the nuclear deterrent. Weapons Activities provides for the maintenance, refurbishment, and acquisition of nuclear weapons to ensure their safety, security, reliability, and military effectiveness; investment in scientific, engineering, and manufacturing capabilities to certify the stockpile; and manufacture of weapon components and materials. Weapons Activities also provides the maintenance and investment to enhance the responsiveness and resilience of the National Nuclear Security Administration (NNSA)'s scientific and production infrastructure. Additional details about these programs will be included in the FY 2026 Stockpile Stewardship and Management Plan (SSMP).

NNSA's Management and Operating (M&Os) contractors employ approximately 65,500 workers across the Nuclear Security Enterprise (NSE), predominantly at eight laboratories, plants, and sites, including Lawrence Livermore National Laboratory (LLNL), Sandia National Laboratories (SNL), Los Alamos National Laboratory (LANL), Nevada National Security Site (NNSS), Pantex Plant (PX), Y-12 National Security Complex (Y-12), Kansas City National Security Campus (KCNSC), and Savannah River Site (SRS). NNSA M&O partners are managed by a Federal workforce composed of civilian and military staff. The enterprise added an additional 13,000 personnel with the transfer of responsibility for management of the SRS contract from the Office of Environmental Management to NNSA.

The FY 2026 Budget Request provides a 28.8 percent increase from the FY 2025 Enacted level to execute seven simultaneous warhead modernization programs, including the B61-13 variant and the warhead for the nuclear-armed sea-launched cruise missile (SLCM-N Warhead), while coordinating with DoD to plan for future systems; continue restoring and refurbishing NNSA's weapons, component, and materials production capability, including the capability to produce no fewer than 80 pits per year as close to 2030 as possible; and enhance Stockpile Research, Technology, and Engineering capabilities, including design, certification, and assessment infrastructure, that are used every day to execute NNSA's national security missions.

Highlights and Major Changes in the FY 2026 Budget

Stockpile Management
The mission for the Stockpile Management program is to maintain a safe, secure, reliable, and effective nuclear weapons stockpile. The Stockpile Management program encompasses five major subprograms that directly support the Nation's nuclear weapons stockpile. In FY 2026, Stockpile Modernization will close out the B61-12 Life Extension Program (LEP) and W88 Alteration (ALT) 370 (funded with carryover) and transfer program management to stockpile sustainment; transition the B61-13 to Phase 6.6 (Full Scale Production); continue Phase 6.4 (Production Engineering) activities for the W80-4 LEP; continue Phase 6.3 (Development Engineering) activities for the W87-1 Modification Program; continue Phase 2A (Design Definition and Cost Study) for the W93; and transition SLCM-N Warhead to Phase 6.3 (Development Engineering). Stockpile Sustainment will execute the activities necessary to sustain a safe, secure, reliable, and effective stockpile. Additionally, Stockpile Sustainment will support planning, provisioning, and LLC (Limited Life Component) production activities, including initial activities for service life extensions, an increase in Joint Test Assembly (JTA) design and production to support extended flight-testing schedules, activities to support the transition of the B61-12 and W88 ALT 370 to Stockpile Sustainment, and the expansion of enterprise-wide digital engineering activities.

Weapons Dismantlement and Disposition (WDD) will recover critical components and materials for existing weapon programs, major modernizations, and Naval Reactors. The program will provide safe and secure dismantlement of nuclear weapons while increasing legacy component disposition improving NNSA efficiency by removing excess materials and components from constrained storage areas across the complex. Production Operations (PO) will provide site-specific, production-enabling capabilities that are required for Weapons Production activities across the enterprise. Production Operations ensures the necessary Weapons Production capabilities, including equipment, trained workforce, and tools, are available, maintained, and qualified. Specific capabilities include War Reserve component manufacturing, weapon assembly and disassembly, equipment maintenance, production data management, process improvements, and production calibration services. PO also maintains a breadth of tools and modeling capabilities to predict future production requirements and support risk reduction across stockpile services execution. Nuclear Enterprise Assurance (NEA) will prevent, detect, and mitigate potential consequences of subversion, both to the stockpile and to the associated capabilities to design, produce, and test nuclear weapons. NEA will apply a System Security Engineering

(SSE) approach that will address current and evolving adversarial threats and risks to nuclear weapons that enable responsible adoption of leading-edge technologies.

Stockpile Modernization updates the Nation's nuclear stockpile with modern components and designs while replacing aging or obsolete components to ensure continued service life as well as enhancing security and safety features.

Stockpile Sustainment
The Stockpile Sustainment program directly executes maintenance, surveillance, assessment, surety, management activities, and support of weapons until they are dismantled for all enduring weapons systems in the stockpile.

Weapons Dismantlement and Disposition
The Weapons Dismantlement and Disposition (WDD) program dismantles weapons recovering critical components and materials for NNSA missions. The program also conducts safety studies on retired systems, material characterization, legacy component disposition, and the disposal of retired weapon parts. Includes activities for technical analysis needed to dismantle and safely store weapons being removed from the stockpile.

Production Operations
The Production Operations (PO) program is a multi-weapon system manufacturing-based program that drives individual site production capabilities and capacity for the stockpile sustainment and modernization programs, including limited life component production, weapon assembly, and disassembly operations. Production Operations scope covers sustainment of labor required for weapon systems capabilities that enable individual weapon production and are not specific to one material stream.

Nuclear Enterprise Assurance (NEA)
The Nuclear Enterprise Assurance program ensures the enterprise actively manages subversion risks to the nuclear weapons stockpile and associated design, production, and testing capabilities. Digital technologies introduce new vulnerability characteristics and multiple new susceptible pathways that if compromised can produce unacceptable physical impacts to safety, the environment, weapon performance, and loss of capabilities.

Production Modernization
Production Modernization is responsible for modernizing the facilities, infrastructure, and equipment that produce materials and components to meet stockpile requirements and maintain the Nation's nuclear deterrent. The program encompasses six major subprograms that sustain the Nation's nuclear weapons stockpile.

Significant changes in the FY 2026 Request include:

1. Primary Capability Modernization's increase supports Los Alamos Pit Production equipment purchases and installation activities and the hiring, training, qualification, and retention of additional staff to support the war reserve (WR) pit production ramp-up.
2. Secondary Capability Modernization increase reflects new scope to invest in emerging risk areas at Y-12, including the Plant Lab, Assembly Disassembly facility, and General Manufacturing operations, to meet future mission demand and prevent failures or bottlenecks. It also reflects investments to reduce risk in depleted uranium and lithium operations, support depleted uranium operations beyond the 2030s, and support new necessary capabilities to produce other future weapon system components.
3. The Tritium and Defense Fuels, previously referred to as the Tritium and Domestic Uranium Enrichment (DUE), increase reflects needs for labor and material purchases for domestic uranium enrichment centrifuge development for defense applications as the program advances towards larger-scale research and development (R&D) demonstrations. Increase also reflects completion of the DUE Pilot Plant options study and the initiation of design activities for the DUE Pilot Plant.
4. The Non-Nuclear Capability Modernization (NNCM) increase reflects support for the Kansas City expansion efforts through equipment procurements and the modernization of environmental testing capabilities at Sandia National Laboratories, critical to ensuring non-nuclear components can survive Stockpile to Target Sequence environments.
5. Capability Based Investments (CBI) funding modernizes scientific and manufacturing capabilities that have degraded due to aging, broken, or outdated equipment and supporting systems.
6. The Warhead Assembly Modernization (WAM) increase reflects initiation of a new program to modernize the capabilities needed to execute warhead assembly/disassembly operations.

Primary Capability Modernization
The Primary Capability Modernization program consolidates the management of primary-stage material processing and component production capabilities in the National Nuclear Security Administration's (NNSA) nuclear security enterprise. The program includes (1) Plutonium Modernization and (2) High Explosives and Energetics (HE&E) Modernization.

Secondary Capability Modernization
The Secondary Capability Modernization program includes the strategic materials, production capabilities, facilities, and material processing operations required to produce nuclear weapon secondary stages. The program includes (1) Enriched Uranium Modernization, (2) Depleted Uranium Modernization, (3) Lithium Modernization, 4) Advanced Materials and Capabilities Modernization, (5) Mission Delivery Modernization (6) the Lithium Processing Facility (LPF), and (7) the Uranium Processing Facility (UPF).

Major Subprogram Descriptions:
Enriched Uranium Modernization stewards the United States supply of enriched uranium for Defense Programs, Defense Nuclear Nonproliferation, Naval Reactors, and Mutual Defense Agreement missions. The Program accomplishes this through ensuring material availability through uranium processing, recycle, and recovery; modernizing production capabilities and infrastructure; and developing and deploying new, safer, and resilient production technologies.

Depleted Uranium Modernization is reestablishing and modernizing lapsed capabilities so NNSA can meet imminent weapons delivery mission requirements. The Depleted Uranium Modernization program supports re-establishing a reliable supply of feedstock material, High Purity Depleted Uranium (HPDU) metal before the current inventory is exhausted. Simultaneously, the program is restarting and maintaining the equipment to produce Depleted Uranium (DU) -niobium alloy, commonly called binary, at Y-12 to meet current and future weapon component needs. The program is also modernizing the manufacturing capabilities needed to produce radiation case components. Both will need to increase capacity and reliability in existing aging facilities to meet mission deliverables. The program is also developing and deploying new production technologies that will improve work safety, increase material efficiencies, and establish a resilient radiation case production capability to meet future demands.

Lithium Modernization is modernizing and operating NNSA's enriched lithium-6 processing capabilities to provide lithium weapons components for imminent mission requirements. Lithium Modernization re-capitalizes and operates chemical purification, metal production, and other lithium recycling processes to ensure a reliable lithium material inventory able to meet yearly material requirements without necessitating hazardous and expensive enrichment.

Advanced Materials and Capabilities Modernization is developing and deploying modern production capabilities for new component technologies that will be used in future weapons. NNSA has either discontinued the legacy processes used to produce certain components due to safety concerns or has not used the process for over 30 years. These legacy materials and processes will be replaced with new technologies and materials that are less hazardous and more efficient than legacy capabilities.

Mission Delivery Modernization is modernizing Y-12 operations and facilities that affect multiple material programs including analytical chemistry operations in Building 9995 (known as the Plant Lab), General Manufacturing capability in Building 9201-1, a Manhattan Project-era facility, and the Assembly, Disassembly, Dismantlement, and Surveillance operations in Building 9204-2E. The program is also pursuing opportunities to reduce supply chain risk through the Critical Supplier Program, which leverages commercial vendor capabilities.

Modification of Reporting Requirements for Uranium Capabilities Replacement Project
Section 3123 of the FY 2024 NDAA requires DOE/NNSA to submit, concurrent with the submission of the budget of the President for FY 2025 and each fiscal year thereafter until termination, matrices on the technological maturity, scope, cost, and schedule of UPF. The following matrices are intended to meet this requirement.

> *SEC. 3123. MODIFICATION OF REPORTING REQUIREMENTS FOR URANIUM CAPABILITIES REPLACEMENT PROJECT.*
>
> *Section 3123 of the National Defense Authorization Act for Fiscal Year 2013 (Public Law 112–239; 126 Stat. 2177) is amended by striking subsection (g) and inserting the following new subsection: "(g) PROGRAM ACCOUNTABILITY MATRICES AND GAO ASSESSMENTS.— (1) REQUIREMENT.—Concurrent with the submission of the budget of the*

President (as submitted to Congress pursuant to section 1105(a) of title 31, United States Code) for fiscal year 2025 and each fiscal year thereafter until the termination date specified in paragraph (4), the Administrator for Nuclear Security shall submit to the congressional defense committees and the Comptroller General of the United States the matrices described in paragraph (2) relating to the project referred to in subsection (a). (2) MATRICES DESCRIBED.—The matrices described in this subsection are the following: (A) TECHNOLOGY MATURITY MATRIX.— A matrix that identifies key milestones, development events, and specific performance goals for the development of critical technologies relating to the project referred to in subsection (a). (B) SCOPE, COST, AND SCHEDULE MATRIX.—A matrix that identifies— (i) causes of cost growth and schedule slippage, if any, for the project referred to in subsection (a), including challenges relating to construction, procurement, and supply chain issues; (ii) the impact of such cost and schedule problems on current and planned weapons modernization efforts; and (iii) the scope, cost, and schedule of activities funded by the uranium modernization program for the period of fiscal years 2024 through 2028 as set forth in the corresponding future-years nuclear security program submitted to Congress pursuant to section 2453 of title 10, United States Code. (3) GAO ASSESSMENT.—Not later than 180 days after receiving the matrices described in paragraph (2), the Comptroller General of the United States shall— (A) assess the progress made on the project referred to in subsection (a); and (B) provide to the congressional defense committees a briefing on the results of that assessment. (4) TERMINATION.—The requirements of this subsection shall terminate on the date that is one year after the date on which the project referred to in subsection (a) is completed."

Technology Maturity Matrix -- Uranium Processing Facility (UPF), Main Process Building (MPB), and Salvage & Accountability Building (SAB) Subprojects

UPF Final Technology Readiness Report	Technology Readiness Level (TRL)-7 Definition; Technology Readiness Assessment Key Milestones and Development Events	
UPF Microwave Casting Technology Readiness Assessment (TRA) Report for TRL-7 was issued July 2017 RP-EX-801768-A018, Rev. 0	TRL-7 is achieved when a full-scale prototype is demonstrated in a relevant operational environment, in accordance with U.S. Department of Energy (DOE) Guide DOE G 413.3-4A, Technology Readiness Assessment Guide.	The TRA review team assessed the microwave casting and product data against the TRA criteria and were unanimous in the affirmative that all criteria were met for TRL-7. The TRA team concluded there continues to be a path for certification. The TRA Report for TRL-7 was issued in July 2017, and when the UPF Project achieved its original baseline approval milestone in March 2018 technologies were assessed to be at TRL-7.
	An independent TRA team was formed to evaluate Microwave Technology against established TRL-7 criteria outlined in Y17-003, Technology Readiness Assessments. The team was led by the Y-12 National Security Complex (Y-12) Chief Scientist, and included subject matter experts (SMEs) from Y-12, UPF, Lawrence Livermore National Laboratory (LLNL), Los Alamos National Laboratory (LANL), and Oak Ridge National Laboratory (ORNL).	Risks to process qualification were identified and informed the needs for further testing. This testing was essential to ensure microwave casting technology will meet Key Performance Parameters (KPPs) and Engineering Evaluation qualification requirements. Tests completed in FY 2018 and 2019 included studies aimed at minimization of high reflected power interruptions, statistical chemistry analysis, tooling improvements, and run profile optimization. Process optimization testing in FY 2018 demonstrated that plasmas could be effectively controlled and mitigated through the right combination of an argon-helium atmosphere and furnace pressure. A summary of the status of closed and open testing activities recommended by the TRA team is available in PLN YAREA-F-0069 000 02, Microwave Casting Integrated Risk Reduction Plan, dated May 2023. In FY 2024, Y-12 Development, with support from Los Alamos and Lawrence Livermore National

UPF Final Technology Readiness Report	Technology Readiness Level (TRL)-7 Definition; Technology Readiness Assessment Key Milestones and Development Events	
		Laboratories, completed additional demonstration and process method development activities using the UPF Prototype Microwave Furnace, located in the Teledyne Brown Test and Demonstration Facility. Similar activities are planned through FY 2030.
Specific Performance Goal Test Attributes (additional information available at higher classification)	**Casting Attribute**	**Basis**
Microwave Performance	**Throughput**	RP-EJ-801768-A230, (U) Casting Systems Dynamic Model Design Bases; DE-PE-801768-A042, (U) UPF Casting Systems Design Criteria
	Temperature Profile	DE-PE-801768-A042, (U) UPF Casting Systems Design Criteria
Casting Test Object Product Evaluation	**Machining - Dimensional**	DD-T802302-0036, 0050, 0051
	Soundness - Radiography	OT-OP-801768-A0004
	Chemical - Impurities	RM6K0003, Enriched Unalloyed Uranium Specification (U); For Hydrogen, RM6K0003 has only a target, TRL-7 criteria based on Design Authority agreement using historical data
	Uranium Chemical Assay Density	RM6K0003, Enriched Unalloyed Uranium Specification (U)
	Density	RM252950, Uranium (U)
	Weldability - Radiography	DD-T802302-0050, 0051

Section 3123 Uranium Processing Facility Technology Maturity Matrix

Scope, Cost, and Schedule Matrix -- Uranium Processing Facility (UPF), Main Process Building (MPB) and Salvage & Accountability Building (SAB) Subprojects	
Requirement	**Scope, Cost, and Schedule Descriptions and Factors**
N/A, Overview	• Building 9212 has historically provided highly enriched uranium (HEU) operations for the nuclear security enterprise but does not meet modern nuclear safety and security standards. • The Uranium Processing Facility (UPF) will replace Building 9212 capabilities for HEU casting, special oxide production, chemical recovery, and decontamination while incorporating modern capabilities and revised processes to increase the overall safety, security, and efficiency of HEU operations. • NNSA is maintaining Building 9212 and has taken steps to dramatically reduce the risks involved with continued production by removing material and replacing hazardous processes until UPF is available to ensure there is a reliable supply of enriched uranium capabilities. • The Level 0 Baseline Change Proposal was approved by the Deputy Secretary in December 2024 to increase the Total Project Cost to $10.35B and extend the CD-4 Completion date to January 2032.
(i) causes of cost growth and schedule slippage, if any, for the project referred to in subsection (a), including challenges relating to construction, procurement, and supply chain issues;	The cost increases and schedule delays to the UPF project codified in the Level 0 BCP were driven by a combination of external factors (contractor performance, COVID and post-COVID supply chain issues, labor shortages, and inflation) and internal factors (overly optimistic assumptions and planning estimates, insufficient forecasting). External factors also influenced increased subcontract and equipment delivery costs and timelines. NNSA acknowledges the need to improve its project management and forecasting ability. As a result, the Acting Administrator has monthly construction briefings and NNSA has provided quarterly construction briefings to Congressional committees of jurisdiction to ensure that the lines of communication on this topic remain open. A full list of causes and factors include: • Global supply chain challenges • Vendor nuclear quality infrastructure has degraded resulting in material delivery delays for key equipment • Material costs were higher than expected • Workforce availability resulted in the use of hourly and travel incentives • Inadequate intermediate and long-term planning resulted in understated costs and duration for planning packages • Late delivery of major items of equipment and material delayed construction schedules and increased Level of Effort costs • Construction subcontractor costs increased due to interface issues with craft, quantity changes and design changes • Initial cost overruns and schedule delays indicate that the contractor's priorities may have been misaligned with the customer's priorities • Fixed price subcontracts and vendors packages did not include schedule incentives or liquidated damages clauses resulting in late delivery of services and procurements • Design confirmation activities cost more and took longer than planned • Project planning, scheduling and cost estimating was weak • Inadequate cost and schedule forecasting due to failure to incorporate trends in a timely manner • Overuse of Management Reserve (MR) masked the Cost Performance Index • Frequent re-planning and under planning masked performance • COVID-19 impacts. Additional direct costs for improved social distancing and enhanced cleaning to include additional busses and drivers, staggered reporting and lunch times, and direct costs associated with COVID-19 paid leave. Inefficiencies also occurred during peak periods of COVID-19 absenteeism due

Scope, Cost, and Schedule Matrix -- Uranium Processing Facility (UPF), Main Process Building (MPB) and Salvage & Accountability Building (SAB) Subprojects	
	to time off for testing, illness, and recovery, and contact tracing. However, since the December 2024 rebaseline, activities are proceeding on schedule and within updated cost estimates.
(ii) the impact of such cost and schedule problems on current and planned weapons modernization efforts;	• Building 9212 has historically provided highly enriched uranium (HEU) operations for the nuclear security enterprise, but does not meet modern nuclear safety and security standards. • The Uranium Processing Facility (UPF) will replace Building 9212 capabilities for HEU casting, special oxide production, chemical recovery, and decontamination while incorporating modern capabilities and revised processes to increase the overall safety, security, and efficiency of HEU operations. • NNSA is maintaining Building 9212 until UPF is available to ensure there is a reliable supply of enriched uranium capabilities. • The W87-1 Modification (Mod) Program is currently relying upon Building 9212. • The W87-1 Mod Program has not realized significant negative impacts from the UPF Project's revised schedule. • The W93 program is in Phase 2a, Design Definition and Cost Study, and has not yet developed a complete design definition. Impacts from UPF Project delays cannot be adequately assessed until weapon designs are further developed and can inform facility demand requirements. • Significantly larger UPF Project delays would require extended W93 production in Building 9212, worsening inefficiencies that drive risk to the program's cost and schedule.
(iii) the scope, cost, and schedule of activities funded by the uranium modernization program for the period of fiscal years 2024 through 2028 as set forth in the corresponding future-years nuclear security program submitted to Congress pursuant to section 2453 of title 10, United States Code.	2025 Highlights • Continue activities that will allow NNSA to phase out mission dependency on Building 9212 by supporting the transition of enriched uranium capabilities into existing facilities and UPF and deactivating out-of-service systems in Building 9212. Activities include the following: o Receive startup authorization for the calciner in Building 9212 to process low-equity uranium solutions and begin operating the electrorefining capability in Building 9215 to purify uranium metal. o Conclude pre-operational testing and transition the direct chip melt front loading furnace to production in Building 9215 and advance the direct chip melt bottom loading furnace project. o Reestablish a uranium oxide-to-metal conversion capability. • Maintain working inventory levels of material to reduce safety and security risks in enduring facilities and optimize the material composition of the uranium inventory.

Scope, Cost, and Schedule Matrix -- Uranium Processing Facility (UPF), Main Process Building (MPB) and Salvage & Accountability Building (SAB) Subprojects	
	• Continue to implement a strategy to optimize limited space in enriched uranium facilities. • Develop, sustain, and increase the reliability of uranium analytical and manufacturing capabilities to reduce risks. • Extend the operational life of enduring enriched uranium facilities. • Reduce material inventory, deactivate systems, and process and disposition of legacy materials to phase out mission dependency on Building 9212.
	Upcoming Key Milestones Initiate work to fabricate and install equipment in Building 9215 to expand the chip processing capacity. Advance the direct electrolytic reduction technology, which, with the electrorefining process, will provide the capability to convert uranium oxide to purified metal at Y-12. Qualify the viability of casting enriched uranium parts using microwave technology, which is efficient and will improve the quality of the enriched uranium metal supply. Maintain Target Working Inventory, the minimum amount needed, within enduring facilities to enhance the safety of existing facilities that will be operational through the 2040s. Bridge the gap and reduce the risk of an oxide-to-metal conversion capability. Optimize quantity and quality of purified metal production. Update Y-12 facility capabilities to accommodate UPF needs. Enriched Uranium Modernization Program (Uranium Modernization) budget based on the Presidential Budget Request for FY 2026: $ 356,823

Tritium and Defense Fuels Program
The Tritium Modernization and The Defense Fuels program is responsible for producing tritium and supplying unobligated low-enriched uranium to support national security needs. The program includes *(1) Tritium Sustainment and Modernization and (2) The Defense Fuels Program.*

Tritium Sustainment and Modernization operates the national capability for producing tritium. The program irradiates tritium-producing burnable absorber rods (TPBARs) to produce new tritium while maintaining a flexible supply chain capability and capacity to meet national security requirements. NNSA produces tritium by irradiating TPBARs in two Tennessee Valley Authority (TVA) reactors during standard 18-month operating cycles. Produced tritium is extracted from the TPBARs at the Tritium Extraction Facility (TEF) at SRS. The tritium inventory supports limited-life component exchanges of tritium reservoirs that are deployed in the stockpile. The program establishes tritium production schedules based on detailed computational models and annual tritium projections to maintain required tritium inventories including reserve quantities. Production planning takes into consideration the material that is constantly being recovered and recycled from deployed reservoirs including those from weapon dismantlement. The program also supports tritium science and technology initiatives to maintain a reliable tritium supply chain.

The Defense Fuels (DF) Program, previously referred to as the Domestic Uranium Enrichment (DUE) Program, is responsible for ensuring a reliable supply of unobligated enriched uranium for defense mission requirements including low-enriched uranium (LEU) for tritium production and highly enriched uranium (HEU) for naval nuclear propulsion. Since 2013, the United States has lacked the capability to produce enriched uranium free of peaceful use obligations (i.e., unobligated). NNSA currently possesses sufficient unobligated LEU for tritium production through the early 2040s and sufficient unobligated HEU for naval nuclear propulsion into the 2050s. The DF Program has extended the availability of its unobligated LEU supply through the early 2040s by down-blending HEU considered not suitable for weapons use.

The DF Program must establish a new domestic uranium enrichment capability to provide new material beyond these need dates. The Program intends to meet these defense mission requirements by incrementally deploying an enrichment capability using one or more gas centrifuge technologies, including the smaller-scale Domestic Uranium Enrichment Centrifuge Experiment (DUECE) being developed at Oak Ridge National Laboratory (ORNL), and the AC100 large centrifuge.

Non-Nuclear Capability Modernization

The Non-Nuclear Capability Modernization (NNCM) program executes modernization projects to ensure the enduring availability of non-nuclear capabilities for multiple weapon systems. Non-nuclear components provide critical warhead functions using a wide range of components, including radiation-hardened microelectronics, neutron generators, gas transfer systems, power sources, electrical assemblies, cables, connectors, structural elements, pads/cushions, and a multitude of other parts that are incorporated into the systems that support or weaponize the NEP. The NNCM program modernizes the extensive suite of infrastructure and equipment required to support the non-nuclear component lifecycle inclusive of design, development, qualification, production, and surveillance. These capabilities ensure that components can survive environments encountered throughout the stockpile to the target sequence and over the life of the weapon.

The NNCM program also executes long-term planning and OPC activities to modernize production capabilities for non-nuclear components through line-item projects, including the Power Sources Capability (PSC), Product Realization Infrastructure for Stockpile Modernization (PRISM), MESA Photolithography Capability (MPC), and Microelectronic Components Capability (MC2) projects.

Capability Based Investments

The Capability Based Investments (CBI) program funds active risk mitigation projects, primarily capital equipment procurements, to reduce risks to core enterprise capabilities extending beyond any single weapon system need. These projects address capability gaps across all eight NNSA sites in weapon production, development, surveillance, and certifications. CBI prioritizes the highest risk to mission needs with emphasis on addressing single point failures, choke points, discontinued or failed equipment, and pivotal enabling capabilities. CBI projects are discrete, short-duration, and non-complex to allow for rapid response to emerging risks.

Warhead Assembly Modernization

The Warhead Assembly Modernization (WAM) program modernizes the capabilities needed to execute warhead assembly/disassembly operations for weapons modernization, surveillance, and dismantlement programs. The WAM program is responsible for modernization activities supporting multiple weapon programs. WAM identifies and implements cross cutting enhancements that provide benefit to all weapon operations executed at Pantex to ensure future mission demand can be achieved.

Stockpile Research, Technology, and Engineering

Stockpile Research, Technology, and Engineering (SRT&E) conducts the nuclear weapons design, certification and assessment activities of the NNSA. The program provides the foundation for science-based stockpile decisions; delivers advanced capabilities to support Department of Defense (DoD) requirements and counter emerging threats; and innovates across the nuclear security enterprise to improve productivity, efficiency, and responsiveness. These activities ensure confidence in the nuclear stockpile of today and tomorrow. Key activities supported by the SRT&E science-based include the annual assessment and report to the President and Congress regarding the condition of the United States nuclear weapons stockpile. It supports experimental facilities, modeling and simulation codes and computational hardware, and subject matter expertise to design new systems, conduct analysis of foreign systems, and support Stockpile Management programs of record and stockpile surveillance. Material and component innovation and maturation provides the basis for a responsive enterprise and enables the development and maturation of new materials, physics and engineering models, technologies, and processes to modernize our nuclear systems and production complex. Rapid capability development is essential to provide timely delivery of advanced systems and capabilities to meet DoD emerging requirements. Key activities include integrating design and production across the enterprise under the stockpile responsiveness program and with the integrated demonstrator program, delivering new capabilities to Stockpile Management that have been tested and evaluated under relevant environments in a system context. SRT&E funding also supports Phase 1 studies within the nuclear weapon development cycle. Finally, SRT&E capabilities support all nuclear security missions, including the nuclear deterrent, nonproliferation, and counterterrorism. They are leveraged throughout the interagency as well by partners in the DoD, the Intelligence Community, homeland security, and the State Department.

The subprograms are:

1. Assessment Science (AS)
2. Engineering and Integrated Assessments (EIA)
3. Inertial Confinement Fusion (ICF)
4. Advanced Simulation and Computing (ASC)
5. Weapon Technology and Manufacturing Maturation (WTMM)

Assessment Science

The Assessment Science (AS) program provides the knowledge and expertise needed to maintain confidence in the nuclear stockpile. Capabilities developed and maintained in the AS program support the entire nuclear security enterprise. The AS program provides: (1) the scientific underpinnings required to conduct annual assessments of weapon performance and the certification of Life Extension Programs (LEPs); (2) the scientific insight to inform our understanding on the impacts of surveillance findings to ensure the nuclear stockpile remains safe, secure, and effective; and (3) the core technical expertise required to be responsive to technical developments and geopolitical drivers. AS also facilitates the assessment of current weapon and weapon component lifetimes, the development and qualification of modern materials and manufacturing processes, the exploration of concepts for component reuse, and the development of modern safety concepts for sustainment.

Engineering and Integrated Assessments

The Engineering and Integrated Assessments program is responsible for ensuring system survivability in present and future stockpile-to-target sequences (STS) and ensures a responsive nuclear deterrent through collaborative partnerships, proactive integration to include prototyping activities, and assessments. This program supports four key mission areas: (1) strengthening the science, technology, and engineering base; (2) providing tools for qualifying weapon components and certifying weapons without nuclear explosive testing; (3) supporting annual stockpile assessments through improved weapons surveillance technologies and warhead component aging assessments; and (4) providing capabilities that accelerate the nuclear weapons acquisition process.

Inertial Confinement Fusion

The ICF program provides High Energy Density (HED) science capabilities and expertise that support research and testing across the breadth of the Stockpile Stewardship Program (SSP). ICF meets the immediate and emerging HED science needs to support today's deterrent while advancing R&D capabilities required to meet future deterrent needs. Since most of the energy in a nuclear weapon detonation is generated by matter in the HED regime, understanding the behavior of matter and energy in this regime is critical to understanding and predicting the performance of both nuclear weapon primaries and secondaries as well as the response of weapon components to extreme hostile radiation environments.

Advanced Simulation and Computing

The Advanced Simulation and Computing (ASC) program provides high-end simulation capabilities (e.g., modeling codes, computing platforms, and supporting infrastructure) to meet the requirements of the SSP. Modeling the complexity of nuclear weapons systems is essential to maintaining confidence in the performance of our stockpile. The ASC program provides the weapon codes that provide the integrated assessment capability supporting annual assessment and future sustainment program qualification and certification of the stockpile. ASC's capabilities inform decision-making related to the sustainment of the nuclear stockpile. The program also coordinates with NNSA and other government agencies, including the Intelligence Community, to support nonproliferation, emergency response, nuclear forensics, and attribution activities. Artificial Intelligence for Nuclear Deterrence (AI4ND) is requested in FY 2026. This new reporting line within Advanced Simulation and Computing (ASC) will create a focused thrust to develop and deploy artificial intelligence and machine learning capabilities into stockpile stewardship mission areas. AI4ND will seek to partner with the US AI industry to utilize commercial solutions where possible, as well as creating methods to tailor and tune commercial tools for national security use cases.

Weapon Technology and Manufacturing Maturation

The Weapon Technology and Manufacturing Maturation (WTMM) program is responsible for developing agile, affordable, assured, and responsive technologies and capabilities for nuclear stockpile sustainment and modernization to enable Defense Programs' mission success. The efforts enable evolving stockpile and production capabilities away from legacy systems and processes, providing for resilience, and laying the foundation for future success of the nuclear security enterprise. Includes Rapid Capability development activities essential to provide timely delivery of advanced systems to DoD to meet emerging requirements. Key activities include integrating design and production across the NSE under the Stockpile Responsiveness Program and with the Integrated Demonstrator Program. This approach allows new capabilities to be delivered to Stockpile Management that have been tested and evaluated under relevant environments in a system context. Rapid capability activities will include efforts to address urgent deterrent needs, execute at least two concurrent rapid development activities, and invest in responsive commercial flight-testing capabilities. The core areas of work in FY 2026 include agile, assured, and affordable technologies; partnership with stakeholders to meet stockpile and customer requirements; qualification and certification; developing a skilled technical workforce and establishing enhanced capabilities.

Academic Programs
The challenges of modernizing the nuclear stockpile demands a strong and robust base of national expertise and educational opportunities in specialized technical areas that uniquely contribute to nuclear stockpile stewardship. Academic Programs is designed to invest in science and engineering disciplines of critical importance to NNSA's nuclear security enterprise. Disciplines include nuclear science, radiochemistry, materials at extreme conditions, high energy density science, advanced manufacturing, and high-performance computing. The program's multi-university Centers of Excellence, fellowships, awards, and other funding opportunities offer an introduction to the mission and people in national laboratories. These relationships are instrumental to establishing a workforce pathway that strengthens the future enterprise.

Infrastructure and Operations (I&O)
The Infrastructure and Operations program maintains, operates, and modernizes the NNSA infrastructure in a safe, secure, and cost-effective manner to support all NNSA programs. The program also plans, prioritizes, and constructs mission-enabling facilities and infrastructure.

The Operations of Facilities program provides the funding required to operate NNSA facilities in a safe and secure manner. Operations of Facilities is fundamental to achieving NNSA's plutonium, uranium, tritium, lithium, high explosives, and other mission objectives.

The Safety and Environmental Operations program provides funding to support the Department's Nuclear Criticality Safety Program (NCSP) subprogram, Nuclear Safety Research and Development (NSR&D) subprogram, Packaging subprogram, Nuclear Materials Integration (NMI) subprogram, and Environmental Operations (EO) subprogram.

The Maintenance and Repair of Facilities program (Maintenance) provides direct-funded maintenance activities across the NNSA enterprise for the recurring day-to-day work required to sustain and preserve NNSA facilities. These efforts include predictive, preventive, and corrective maintenance activities to maintain facilities, property, assets, systems, roads, and vital safety systems. The Recapitalization program (formerly Infrastructure and Safety) is key to modernizing NNSA's infrastructure. The Recapitalization program modernizes NNSA infrastructure by prioritizing investments including the acquisition of new facilities or discrete projects to improve the condition and extend the life of structures, capabilities, and systems. Recapitalization investments help achieve operational efficiencies and reduce safety, security, environmental, and program risk.

Infrastructure and Operations line-item construction projects are critical to revitalizing the infrastructure. These projects will replace obsolete, unreliable facilities and infrastructure to reduce safety and program risk while improving responsiveness, capacity, and capabilities.

Secure Transportation Asset
The Secure Transportation Asset (STA) supports safe, secure transport of the Nation's nuclear weapons, weapon components, and special nuclear material throughout the NSE. Nuclear weapon modernization programs, limited-life component exchanges, surveillance, dismantlement, nonproliferation activities, and experimental programs rely on STA activities to ensure safe, secure, and on-schedule transport. The FY 2026 Request supports modernizing and sustaining STA transportation assets, including life extension of the Safeguards Transporter until it is replaced by the Mobile Guardian Transporter; vehicle sustainment; replacement armored tractors, escort, and support vehicles; upgrades of the Tractor Control Unit to improve communications and security; and continued development and testing of the Mobile Guardian Transporter. The first Mobile Guardian Transporter production unit is planned for completion as close to FY 2029 as possible and will begin a phased in approach to replace the current Safeguard Transporter. Program Direction resources in this account provide salaries and expenses for the secure transportation workforce, including Federal Agents.

Defense Nuclear Security
The Office of Defense Nuclear Security (DNS) leads, develops, and implements the NNSA security program to enable its nuclear security enterprise (NSE) missions. DNS protects NNSA personnel, facilities, nuclear weapons, and special nuclear materials from a full spectrum of threats, ranging from minor security incidents to acts of terrorism, at its national laboratories, production plants, processing facilities, and the Nevada National Security Site. Employing more than 2,200 Protective Force officers, DNS secures more than 6,000 buildings and protects more than 65,500 personnel. Today, the program is charting a course of transformative change necessary to ensure DNS's mission-enabling function keeps pace with the increasing work scope across all elements of the NNSA mission set into future years.

The FY 2026 request includes the transfer of Savannah River Site's Safeguards and Security (S&S) mission to NNSA from the Office of Environmental Management (DOE-EM), and funding to support key security programs across all S&S functional areas to implement a risk-based, layered protection strategy at sites. It supports increased security needs from known mission growth across the NSE, including pit production at Los Alamos National Laboratory (LANL), Kansas City expansion efforts, and Uranium Processing Facility testing and transition to operations. In addition, the request continues to support the initiative to replace the aging Argus system with a modern security system (Caerus), continuous improvement initiatives through the Center for Security Technology, Analysis, Response, and Testing (CSTART) and Physical Security Center of Excellence (PSCOE) activities, and capability to adapt to rapidly evolving technologies. This request also includes funding for continued efforts to recapitalize security infrastructure through Security Infrastructure Revitalization Program (SIRP) projects, addressing critical security systems and related security infrastructure and equipment refresh needs.

Information Technology and Cybersecurity
The IT and Cybersecurity program supports IT and cybersecurity services and solutions, which include continuous monitoring, cloud-based technologies, and enterprise security technologies (i.e., identity, credential, and access management). The program ensures and enables the availability of a secure infrastructure for mission activities and information sharing for NNSA and its mission partners. The FY 2026 Request enables the development and execution of integrated IT initiatives that provide an effective and secure technology infrastructure across the enterprise.

Legacy Contractor Pensions and Settlement Payments
This budget line includes funding for the Requa settlement reached in 2019 as well as DOE's annual reimbursement made to the University of California (UC) Retirement Plan (UCRP) for former UC employees and annuitants who worked at the Lawrence Livermore National Laboratory (LLNL) and Los Alamos National Laboratory (LANL).

The *Requa* lawsuit involved UC employees of LLNL who retired prior to the Laboratory's transition to a new contractor on October 1, 2007. The retirees had been receiving health insurance through a UC health plan but when the LLNL contract transitioned to LLNS, the employees were offered health insurance through the new LLNL contractor, leading the retirees to file a lawsuit seeking reinstatement into the UC health plan. The parties settled the lawsuit in 2019, and a final judgment was issued in April 2020. NNSA agreed, pursuant to the legacy UC-LLNL Contract, to provide UC a portion of the total costs to settle the lawsuit, over a period of seven years through FY 2026. NNSA's responsibility for FY 2026 is $4,000,000.

This budget line also continues to include the Weapons Activities share of the DOE's annual reimbursement made to the University of California (UC) Retirement Plan (UCRP) for former UC employees and annuitants who worked at the Lawrence Livermore National Laboratory (LLNL) and Los Alamos National Laboratory (LANL). The annual reimbursement is based on the actuarial valuation report and an annual assessment provided by UC and is covered by the terms described in the contracts. These contracts are paid through the Legacy Contractor Pensions and settlement payments line item.

The Weapons Activities share of these costs in the FY 2026 Budget is $51,706,000.

Entry Level Hires
NNSA supports a variety of programs to help train and recruit the next generation of leaders in managing the nuclear stockpile, nonproliferation, nuclear security, and international security, such as the NNSA Graduate Fellowship Program (NGFP) and the Minority Serving Institutions Partnership Program (MSIPP). These programs foster the pipeline of qualified professionals who will sustain expertise in these areas through future employment within the NNSA nuclear security enterprise. In FY 2026, the Weapons Activities appropriation projects providing $5,500,000 for NGFP support and development activities.

DOE Working Capital Fund (WCF) Support
NNSA Weapons Activities appropriation projected contribution to the DOE WCF for FY 2026 is $46,024,000. This funding covers certain shared enterprise activities including managing enterprise-wide systems, data, and telecommunications and supporting the integrated acquisition environment.

Weapons Activities
Funding by Congressional Control ($K)

	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request	FY 2026 Request vs. FY 2025 Enacted ($)	FY 2026 Request vs. FY 2025 Enacted (%)
Stockpile Management					
Stockpile Modernization					
B61-12 LEP	449,850	27,500	16,000	-11,500	-41.8%
B61-13	52,000	16,000	49,357	33,357	208.5%
W88 ALT 370	178,823	63,700	0	-63,700	-100.0%
W80-4 LEP	1,009,929	1,194,750	1,259,048	64,298	5.4%
SLCM-N Warhead	70,000	100,000	272,316	172,316	172.3%
W87-1 Modification Program	1,068,909	1,016,331	649,096	-367,235	-36.1%
W93 Program	389,656	455,776	806,797	351,021	77.0%
Total, Stockpile Modernization	3,219,167	2,874,057	3,052,614	178,557	6.2%
Stockpile Sustainment	1,276,578	1,376,260	1,720,200	343,940	25.0%
Weapons Dismantlement and Disposition	56,000	56,000	82,367	26,367	47.1%
Production Operations	710,822	816,567	1,020,243	203,676	24.9%
Nuclear Enterprise Assurance	66,614	75,002	117,193	42,191	56.3%
Total, Stockpile Management	**5,329,181**	**5,197,886**	**5,992,617**	**794,731**	**15.3%**
Production Modernization					
Primary Capability Modernization					
Plutonium Modernization					
Los Alamos Plutonium Modernization					
Los Alamos Pit Production	833,100	984,611	982,263	-2,348	-0.2%
21-D-512 Los Alamos Plutonium Pit Production Project, LANL	670,000	470,000	670,000	200,000	42.6%
15-D-302 TA-55 Reinvestments Project Phase 3, LANL	30,000	39,475	7,942	-31,533	-79.9%
07-D-220-04 Transuranic Liquid Waste Facility, LANL	0	0	5,865	5,865	0.0%
04-D-125 Chemistry and Metallurgy Research Replacement Project, LANL	227,122	0	50,000	50,000	0.0%
Total, Los Alamos Plutonium Modernization	1,760,222	1,494,086	1,716,070	221,984	14.9%
Savannah River Plutonium Modernization					
Savannah River Pit Production	62,764	75,332	207,486	132,154	175.4%
21-D-511 Savannah River Plutonium Processing Facility, SRS	1,000,235	800,000	1,726,000	926,000	115.8%
Total, Savannah River Plutonium Modernization	1,062,999	875,332	1,933,486	1,058,154	120.9%
Enterprise Pit Production Support	87,779	121,964	145,094	23,130	19.0%
Total, Plutonium Modernization	2,911,000	2,491,382	3,794,650	1,303,268	52.3%
High Explosives & Energetics					
High Explosives & Energetics	93,558	131,675	196,023	64,348	48.9%
21-D-510 HE Synthesis Formulation and Production, PX	83,000	0	0	0	0.0%
15-D-301 HE Science & Engineering Facility, PX	101,356	15,000	0	-15,000	-100.0%
Total, High Explosives & Energetics	277,914	146,675	196,023	49,348	33.6%
Total, Primary Capability Modernization	3,188,914	2,638,057	3,990,673	1,352,616	51.3%

	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request	FY 2026 Request vs. FY 2025 Enacted $	FY 2026 Request vs. FY 2025 Enacted %
Secondary Capability Modernization					
Secondary Capability Modernization	666,914	770,353	1,107,186	336,833	43.7%
18-D-690 Lithium Processing Facility, Y-12	210,770	210,000	65,000	-145,000	-69.0%
06-D-141 Uranium Processing Facility, Y-12	810,000	800,000	730,000	-70,000	-8.8%
Total, Secondary Capability Modernization	1,687,684	1,780,353	1,902,186	121,833	6.8%
Tritium and Defense Fuels Program					
Tritium and Defense Fuels Program	592,992	581,738	688,384	106,646	18.3%
18-D-650 Tritium Finishing Facility, SRS	35,000	0	50,000	50,000	0.0%
Total, Tritium and Defense Fuels Program	627,992	581,738	738,384	156,646	26.9%
Non-Nuclear Capability Modernization					
Non-Nuclear Capability Modernization	166,990	141,300	221,588	80,288	56.8%
26-D-511 MESA Photolithography Capability (MPC), SNL	0	0	40,000	40,000	0.0%
26-D-510 Product Realization Infrastructure for Stockpile Modernization (PRISM), LLNL	0	0	15,000	15,000	0.0%
22-D-513 Power Sources Capability, SNL	37,886	50,000	115,000	65,000	130.0%
Total, Non-Nuclear Capability Modernization	204,876	191,300	391,588	200,288	104.7%
Capability Based Investments	156,462	153,244	177,996	24,752	16.2%
Warhead Assembly Modernization					
Warhead Assembly Modernization	0	34,000	59,336	25,336	74.5%
Total, Warhead Assembly Modernization	0	34,000	59,336	25,336	74.5%
Total, Production Modernization	**5,865,928**	**5,378,692**	**7,260,163**	**1,881,471**	**35.0%**
Stockpile Research, Technology, and Engineering					
Assessment Science					
Assessment Science	836,557	862,609	1,179,959	317,350	36.8%
26-D-512 LANSCE Modernization Project (LAMP), LANL	0	0	20,000	20,000	0.0%
24-D-513 Z-pinch Experimental Underground System (ZEUS) Test Bed Facilities Improvement (ZTBFI), NNSS	80,000	0	72,000	72,000	0.0%
17-D-640 U1a Complex Enhancements Project, NNSS	126,570	73,083	150,000	76,917	105.2%
Total, Assessment Science	1,043,127	935,692	1,421,959	486,267	52.0%
Engineering and Integrated Assessments					
Engineering and Integrated Assessments	409,532	425,765	566,777	141,012	33.1%
26-D-513 Combined Radiation Environments for Survivability Testing, SNL	0	0	52,248	52,248	0.0%
Total, Engineering and Integrated Assessments	409,532	425,765	619,025	193,260	45.4%
Inertial Confinement Fusion					
Inertial Confinement Fusion	690,000	699,830	738,206	38,376	5.5%

26-D-514 NIF Enhanced Fusion Yield Capability, LLNL	0	0	26,000	26,000	0.0%
Total, Inertial Confinement Fusion	690,000	699,830	764,206	64,376	9.2%
Advanced Simulation and Computing	830,000	850,000	989,995	139,995	16.5%
Weapon Technology and Manufacturing Maturation	307,745	286,489	420,279	133,790	46.7%
Total, Stockpile Research, Technology, and Engineering	**3,280,404**	**3,197,776**	**4,215,464**	**1,017,688**	**31.8%**
Academic Programs	**122,000**	**115,000**	**94,000**	**-21,000**	**-18.3%**
Infrastructure and Operations					
Operating					
Operations of Facilities	1,053,000	1,378,725	1,722,000	343,275	24.9%
Safety and Environmental Operations	139,114	154,970	194,360	39,390	25.4%
Maintenance and Repair of Facilities	708,000	919,600	1,391,000	471,400	51.3%
Recapitalization	609,665	741,671	1,284,179	542,508	73.1%
Total, Operating	2,509,779	3,194,966	4,591,539	1,396,573	43.7%
Mission Enabling Construction					
25-D-511 PULSE New Access, NNSS	0	5,000	48,000	43,000	860.0%
25-D-510 Plutonium Mission Safety & Quality Building, LANL	0	48,500	0	-48,500	-100.0%
24-D-510 Analytic Gas Laboratory, PX	0	36,000	0	-36,000	-100.0%
23-D-517 Electrical Power Capacity Upgrade, LANL	75,000	70,000	85,000	15,000	21.4%
Total, Mission Enabling Construction	75,000	159,500	133,000	-26,500	-16.6%
Total, Infrastructure and Operations	**2,584,779**	**3,354,466**	**4,724,539**	**1,370,073**	**40.8%**
Secure Transportation Asset					
Operations and Equipment	239,008	236,160	299,541	63,381	26.8%
Program Direction	118,056	118,056	149,244	31,188	26.4%
Total, Secure Transportation Asset	**357,064**	**354,216**	**448,785**	**94,569**	**26.7%**
Defense Nuclear Security					
Operations & Maintenance	988,385	1,030,085	1,245,418	215,333	20.9%
17-D-710 West End Protected Area Reduction Project, Y-12	50,000	54,000	0	-54,000	-100.0%
Total, Defense Nuclear Security	**1,038,385**	**1,084,085**	**1,245,418**	**161,333**	**14.9%**
Information Technology and Cybersecurity	578,379	598,379	811,208	212,829	35.6%
Legacy Contractor Pensions and Settlement Payments	65,452	12,500	64,206	51,706	413.6%
Subtotal, Weapons Activities	**19,221,572**	**19,293,000**	**24,856,400**	**5,563,400**	**28.8%**
Use of Prior Year Balances	-113,572	0	0	0	0.0%
Total, Weapons Activities	**19,108,000**	**19,293,000**	**24,856,400**	**5,563,400**	**28.8%**

FY 2026 Integrated Priorities
The report accompanying the House Appropriations Committee fiscal year (FY) 2023 appropriations bill, H.R. 117-394, reiterated the requirement for an annual report detailing the Integrated Priorities for the Department of Energy's National Nuclear Security Administration's (DOE/NNSA) Weapons Activities.

> *The fiscal year 2021 Act directed the NNSA to provide with its budget request an Integrated Priorities Report (IPR). The report NNSA submitted does not meet the Committee's direction. In light of NNSA's increasing and highly interdependent workload, which requires significant and sustained investments to reconstitute key capabilities and materials, recapitalize infrastructure and construct new facilities, and modernize cyber and physical security, the Committee considers the IPR critical to its oversight role. NNSA is directed to provide an IPR that meets the direction in the fiscal year 2021 Act not later than 15 days after enactment of this Act and with the annual budget request thereafter.*

This section is intended to convey the requested FY 2026 Integrated Priorities information.
The overarching mission for DOE/NNSA's Weapons Activities is to deliver warheads that meet military requirements. To do this, DOE/NNSA must design, manufacture, certify, transport, maintain, and assess warheads for a safe, secure, reliable, and effective nuclear deterrent. NNSA carries out this mission to maintain and modernize the nuclear stockpile through the application of unparalleled science, technology, engineering, and manufacturing capabilities.

DOE/NNSA is currently recapitalizing much of the nuclear security enterprise to include both the production and design, certification, and assessment infrastructure that supports the stockpile. This multi-decade process involves making informed decisions to renew, replace, or retire facilities based on delivery demands and the enterprise's ability to execute. Completing this process will bring the nuclear weapons complex up to date with modern safety, environmental, and equipment standards; provide capacity for the current Program of Record and any additions required by the Nuclear Weapons Council; and allow DOE/NNSA to sustain and evolve our science and engineering infrastructure. Priorities and schedules for this recapitalization effort are derived in large part from warhead delivery schedules established with the Department of Defense (DoD). As the United States executes nuclear modernization efforts across all legs of the Triad, DOE/NNSA is diligently working to fulfill current DoD needs and posture the nuclear security enterprise to be resilient and adaptive to emerging requirements.

Accomplishing the Weapons Activities' mission requires the capabilities to:

- Maintain the current stockpile by executing annual surveillance, annual assessments, and exchange of limited life components;
- Design and manufacture or procure each warhead component (e.g., pits, high explosives, detonators, secondaries, canned subassemblies, radiation cases, non-nuclear components, safety and security systems);
- Assess whether manufactured components are of "War Reserve" quality;
- Assess warheads against requirements under all stockpile-to-target sequence (STS) conditions;
- Perform research to develop advanced technologies that will meet evolving requirements;
- Safely and securely transport weapons, components, and special materials;
- Develop and maintain a workforce of stockpile experts whose judgment is an essential part of mission execution and foundational to the credibility of the deterrent;
- Defend the nuclear security enterprise against cyber and supply chain attacks; and
- Defend the nuclear security enterprise against physical attacks.

Weapons Activities Prioritization
DOE/NNSA prioritizes specific elements of Weapons Activities with regard for the interdependencies across multiple portfolios and across the nuclear security enterprise in both the current execution year and the programming year, as well as the outyears. The prioritization of activities in each portfolio reflects a managed risk approach that considers many factors, including construction, supply chain, and staffing challenges. Emerging requirements with aggressive timelines necessitate rapid deployment of technologies, which can create technology maturation risks in project execution, especially for new capabilities. DOE/NNSA must identify and mitigate risks of potential single point failures in its systems in a timely manner to ensure ongoing work meets deliverable requirements. As risks are identified and sometimes realized, priorities must shift to implement mitigations. DOE/NNSA also continues to actively manage its carryover balances and considered its budget request in recognition of existing balances available to support FY 2026 work scope.

The FY 2026 President's Budget Request for Weapons Activities is needed to successfully execute seven warhead modernization programs simultaneously; continue restoring production capability, including the capability to produce 80 plutonium pits per year (ppy) on the timelines necessary to support the stockpile; continue modernizing design, assessment, certification, and production infrastructure; and maintaining the scientific tools and capabilities that are used every day to execute DOE/NNSA programs.

The FY 2026 request is fully informed by current warhead production needs and is aligned with DoD requirements to ensure the U.S. nuclear deterrent continues to be safe, secure, reliable, and effective. The FY 2026 request focuses on the following Weapons Activities prioritized efforts aligned under a portfolio management structure to ensure that DOE/NNSA has all the required capabilities to design, build, deliver, maintain, and assess a safe, secure, reliable, and militarily effective nuclear stockpile in support of the Nation's nuclear deterrent.

- **Sustain the nuclear stockpile:** The FY 2026 President's Budget Request prioritizes stockpile maintenance activities that, if delayed, would cause operational issues. DOE/NNSA is prioritizing stockpile sustainment activities to execute maintenance, limited life component exchanges (LLCE), minor alterations, surveillance, assessment, surety studies and capability development, and management activities for all weapons systems in the stockpile, including the B61, W76, W78, W80, B83, W87, and W88. The FY 2026 funding request will be applied to activities including:
  - Surveillance program activities for all weapon systems using data collected from flight tests, laboratory tests, and component evaluations to assess stockpile reliability, performance, and safety;
  - Annual Assessment activities for all weapon systems, including in-depth testing and analysis of systems, subsystems, and components;
  - Development, qualification, production, and delivery of all limited life components (LLCs) for stockpile systems;
  - Design, development, qualification, and production of weapon surety capabilities to ensure U.S. weapons are safe, secure, and remain under positive control;
  - Continue implementation of enhanced capability shipping configurations;
  - Product realization development, digital engineering application development and deployment, aircraft compatibility, and multi weapons system (MWS) activities, including products supporting surveillance, reliability, maintenance, product realization, nuclear explosive safety, and use control across both the current and modernized stockpile;
  - Joint Test Assembly (JTA) flight test vehicle development and production;
  - Expansion of the Nuclear Enterprise Assurance program across each of the eight NNSA sites to actively manage subversion risks.

- **Execute warhead modernization programs:** The requested funding supports the current stockpile modernization activities (seven simultaneous major warhead modernization or acquisition programs) to meet production schedules and DoD requirements. Funding requested for FY 2026 reflects resources prioritized for:
  - B61-12 Life Extension Program (LEP): Continue producing spare components and pursuing program closeout activities.
  - B61-13: Begin Phase 6.6, First Production, activities to replace a subset of planned B61-12s with the B61-13. The B61-13 will take advantage of the current, established production capabilities supporting the B61-12 and deliver B61-13 weapons to DoD in support of delivery dates.
  - W88 Alteration (Alt) 370: Conclude Phase 6.6, Full-Scale Production, activities and transition from modernization to sustainment following delivery of final W88 Alt 370 weapons to DoD in support of delivery dates.
  - W80-4 LEP: Continue with Phase 6.4, Production Engineering, activities for the W80-4 LEP in support of the Air Force Long Range Stand-Off (LRSO) program, including joint testing.
  - W87-1 Modification Program: Continue Phase 6.3, Development Engineering, advancing technology and manufacturing readiness levels for system components, maturing their designs in preparation for the system baseline design review, and performing joint testing with the Air Force Sentinel and Mk21A programs.
  - W93 Program: Following completion of Phase 2, transition to and continue Phase 2a, Feasibility Study, efforts to ascertain and down-select major subsystem designs and components.
  - Sea-Launched Cruise Missile – Nuclear (SLCM-N WARHEAD) Warhead Program: Begin Phase 6.3, Development Engineering, activities to advance technology and manufacturing readiness levels for system components and mature their designs in preparation for the system baseline design review.

- **Weapon Dismantlement and Disposition**: The requested funding supports the current stockpile and modernization program through material and component reuse from dismantled weapons. The program provides critical components and material for the stockpile, production modernization, and other stakeholders (e.g., Naval Reactors).

- **Reestablish and modernize production infrastructure and capabilities:** The FY 2026 budget request supports continued efforts to modernize the facilities, infrastructure, and equipment that produce the materials and components necessary to meet stockpile requirements and maintain the Nation's nuclear deterrent. DOE/NNSA seeks to prioritize investments to best mitigate risk and position the nuclear security enterprise's infrastructure to be as adaptable and resilient as possible to meet current and future DoD production requirements.

- **Plutonium Pit Production:** Projects and activities associated with reestablishing necessary pit production capabilities remain DOE/NNSA's highest infrastructure priority in FY 2026. The Office of Production Modernization funds the equipment, facilities, and personnel required to reestablish the Nation's capability to produce 80 ppy on the timelines required to support the deterrent. FY 2026 funding will support process development and qualification activities to continue toward establishing the capacity to produce no fewer than 30 ppy at LANL and no fewer than 50 ppy at SRS. The priority actions for plutonium pit production in FY 2026 are:

  - Applying resources to the Los Alamos Pit Production line to continue to support engineering evaluations in concert with increased equipment purchases/installation activities and the hiring, training, and qualification of additional staff to support the WR pit production ramp-up.
  - Increasing funding for the Los Alamos Plutonium Pit Production Project (LAP4) and included subprojects to support equipment installation, and continue the removal of legacy equipment in PF-4, among other ongoing subprojects in support of rate production.
  - Pursuing activities at SRS to support final design of the overall SRPPF project, continued execution of the Administrative Building Subproject, and beginning full-scope construction of the Main Processing Building and the High Fidelity Training, and Operations Center subprojects.

- **Modernization and production programs for other materials and components:** In FY 2026, DOE/NNSA will prioritize production of materials and components to address the critical needs of the deployed stockpile, ongoing modernization programs, and capacity to adapt to future deterrent needs. This includes tritium production in support of the nuclear weapons stockpile and other national programs; establishing a new domestic uranium enrichment capability; modernizing uranium operations, enabling delivery of canned subassemblies and components needed to maintain the stockpile and supporting the U.S. Navy's nuclear propulsion program; maintaining production of enriched lithium components; supporting qualification of high explosives; and modernizing production of non-nuclear components required for both the active stockpile and warhead modernization programs.
  - Funding requested for the Uranium Processing Facility (UPF) reflects continued priority given to completing this important project. DOE/NNSA continues to mitigate impacts caused by the delay in the completion of UPF, which has now been rebaselined.
  - FY 2026 funds will prioritize investments sustaining the reliability, resiliency, and flexibility of the tritium supply chain along with extracting tritium from irradiated Tritium Producing Burnable Absorber Rods, irradiating TPBARs in reactors, procuring long lead components, and other operations for continued tritium production. Funds will also support activities to subcontract with an external architect/engineering firm to advance overall facility design for the Tritium Finishing Facility (TFF) at SRS.
  - Funding for Defense Fuels will continue to support strategies to accelerate demonstration and deployment of uranium enrichment technologies.
  - Lithium production is realizing impacts from decaying infrastructure and will use FY 2026 funds towards re-establishment of metal production capabilities and to ensure critical mission delivery until an enduring capability can be realized. To meet immediate and enduring lithium needs, NNSA is executing a comprehensive strategy to reduce facility risk and relocate capabilities over the near-, medium-, and long-term. The program is executing targeted infrastructure mitigations, accelerating technology maturation efforts to streamline the production process, leveraging partnerships with commercial industry, and pursuing more cost-effective approaches to construction. This strategy emphasizes a multi-pronged approach that is more responsive to cost and schedule conditions and provides more flexible options to meet mission requirements.
  - NNSA continues to advance capabilities to provide and procure high explosives (HE) needs. While select materials are procured through DoD partners at Holston Army Ammunition Plant, an explosives hub in Tennessee, NNSA is also working to establish internal capabilities to meet needs. The High Explosive Synthesis, Formulation, and Production (HESFP) facility, funded in FY 2026 using prior-year carryover, will replace 11 deteriorating WWII-era formulation facilities at Pantex, enabling responsiveness to HE supply chain risks and single-point failures while providing a capability to rapidly iterate on new formulations for future strategic warhead systems. The HESFP facility is needed to provide a centralized internal production capability for HE material. These HE materials, such as boosters and non-main charge products that are solely produced at Pantex, are required to meet the HE production demands of the future stockpile.

- **Sustain and advance the research, technology, and engineering required for the design, assessment, and certification of the strategic nuclear deterrent:** The FY 2026 funding request supports capability sustainment for designing new materials, technology, production processes, and systems for current and future stockpile needs; assessing the stockpile's current condition annually through scientific investigation to establish confidence in its safety, security, and reliability; and certifying new and modified components and systems as they enter the stockpile through vigorous testing in normal, abnormal, and hostile environments. The funding request maintains the science and technology base throughout the Nuclear Security Enterprise and is leveraged across Defense Programs, other NNSA missions, and interagency partners, like the DoD and the Intelligence Community. Integrated priorities in FY 2026 include:
  - Experiments focused on design and production requirements for validation of modernized weapons designs including the milestones identified in the National Plutonium Aging Strategy.
  - Development of new binder formulation options for insensitive high explosives.
  - Support for new and advanced diagnostics for subcritical experiments and hydrodynamic test execution.
  - Achieving critical decision milestone 1 for the Combined Radiation Effects Survivability Testing (CREST) facility and beginning preliminary design.
  - Support for the first NNSA exascale computer's (El Capitan) classified operations; maintaining facility upkeep, code modernization, and system recapitalization; and continuing to support increased simulation workloads for the nuclear weapons mission.
  - Technology development and maturation for warhead modernization programs, including technologies that will be integrated into current and future programs of record, as well as production capabilities that will help revamp the manufacturing capacity of the NSE. Funding will also support the next generation radiation-hardened microelectronics package (CMOS8) is necessary for future system concepts.
  - Support for mission-critical activities at multiple facilities, including JASPER, Los Alamos Neutron Science Center (LANSCE), National Ignition Facility (NIF), TA-55 gas gun, and requisite plutonium shots on Z machine; and the planning, design and construction for Combined Radiation Environments for Survivability Testing (CREST), a new reactor facility.

- **Assessing Concepts to Meet Future Threats:** FY 2026 funds requested for Studies and Assessments will support development of concepts to fill potential deterrence gaps and meet future threats with modern U.S. nuclear capabilities. NNSA will continue efforts in response to the Nuclear Weapons Council-directed Phase 1 Concept Assessments for Hard and Deeply Buried Targets (HDBT) defeat and Next Generation Re-entry Capabilities (NGRC). In FY 2026, NNSA will complete the multi-year Phase 1 assessment for NGRV and continue the multi-year Phase 1 for HDBT defeat. Both Concept Assessments will expand the option space beyond legacy approaches to the stockpile, and ready programs for feasibility and design reviews should it be determined that new modernization programs be necessary to meet future DoD requirements, pending congressional authorization and appropriation. NNSA, in conjunction with DoD, will identify warhead function needs, evaluate potential weapon design concepts against technical and programmatic risks, and determine designed-informed approaches.

- **Address gaps in experimental and computational capabilities:** FY 2026 funds requested for the Stockpile Research Technology and Engineering account will also support continued implementation of the Enhanced Capabilities for Subcritical Experiments (ECSE) portfolio and the initiation of the LANSCE Modernization Project (LAMP) and NIF Enhanced Yield Capability (EYC) project. These capabilities will enable essential stockpile stewardship activities for many years. The three major projects that make up ECSE, Advanced Sources and Detectors (ASD-Scorpius), Z-pinch Experimental Underground System (ZEUS) Test Bed Facilities Improvement project, and the U1a Complex Enhancements Project will provide essential capabilities for underground subcritical experiments at the Nevada National Security Site's PULSE facility. LAMP will modernize the front end of the accelerator to address this single point of failure for the facility, allowing the facility to continue to support mission critical experiments. EYC will increase the fusion yield at NIF, providing a unique tool to address the stockpile stewardship mission and ensure confidence in an evolving and aging nuclear arsenal. In addition to the these high-priority projects, the FY 2026 request supports investment in key diagnostic and pulsed power activities as well as development of high-priority experimental platforms and materials.

- **Secure transport of nuclear materials and warheads:** Funding requested for the Secure Transportation Asset (STA) provides mission-essential agent equipment, maintenance, modification, and replacement of the transportation fleet, and aviation services in support of prioritized shipment operations. Efforts include modernization and sustainment of transportation assets, such as the Mobile Guardian Transporter (MGT), and supports training, equipment, minor construction and facility maintenance, and salaries for Federal Agents and the transportation workforce. Secure transportation activities must maintain assets to sustain convoy safety and security to support missions based on changing customer needs and current and future threats. STA is facing continuing hiring and sustainment challenges within the FA workforce. STA executes three Nuclear Material Courier Basic courses each year and continues to implement initiatives to attract, hire, and maintain the FA workforce to fully support the Nuclear Security Enterprise.

- **Uphold strong proactive maintenance and recapitalization programs:** FY 2026 funding in Infrastructure and Operations supports the plans, prioritization, and construction of facilities and infrastructure to support all DOE/NNSA programs, with the exception of new complex-construction projects, which are funded by the programs. The FY 2026 Request provides funding for activities to enable plutonium pit production, expand capacity at the Kansas City National Security Campus, and address infrastructure modernization throughout the complex.
    - Resources will also continue to be applied to recapitalization projects to improve the condition and extend the design life of structures, capabilities, and systems to meet program demands; reduce future operating costs by replacing older facilities with new, more efficient facilities; and reduce safety, security, environment, and program risk.
- **Implement and modernize physical security systems and measures across the complex:** The FY 2026 Request prioritizes mission-enabling security support for all NNSA sites, sustains the progress of the 10-year Security Infrastructure Revitalization Program, maintains modernization efforts for next-generation counter uncrewed aircraft systems, and invests in Physical Security System of the Future research, design, testing, and evaluation to reduce traditional labor costs. Mission growth across the complex continues to drive the need for increased security resources.
- **Sustain and improve information technology systems and cybersecurity to meet directives and other requirements:** FY 2026 funds for Information Technology (IT) and Cybersecurity will be used to provide the nuclear security enterprise's workforce with a more modern and secure set of capabilities including unified communication, agile cloud infrastructure, and next-generation collaboration services. Funds will support deployment of emerging technology, leading-edge operational technology, continued cyber technology and security upgrades, and applying artificial intelligence/machine learning to improve supply chain security processes and inform risk-based decisions.

Stockpile Management

Overview

The mission for the Stockpile Management program is to maintain a safe, secure, reliable, and effective nuclear weapons stockpile. The Stockpile Management program encompasses five major subprograms that directly support the Nation's nuclear weapons stockpile.

Stockpile Modernization will provide close out of the B61-12 Life Extension Program (LEP) and W88 Alteration (ALT) 370 and transfer program management to stockpile sustainment; the B61-13 will enter Phase 6.6 (*Full Scale Production*); continue Phase 6.4 (*Production Engineering*) activities for the W80-4 LEP; continue Phase 6.3 (*Development Engineering*) activities for the W87-1 Modification Program; continue Phase 2A (*Design Definition and Cost Study*) for the W93; and commence Phase 6.3 (*Development Engineering*) for the warhead for the nuclear-armed, sea-launched cruise missile (SLCM-N Warhead).

Stockpile Sustainment will execute the activities necessary to sustain a safe, secure, reliable, and effective stockpile. Additionally, Stockpile Sustainment will support planning, provisioning, and LLC (Limited Life Component) production activities, including initial activities for service life extensions, an increase in Joint Test Assembly (JTA) design and production to support extended flight testing schedules, activities to support the transition of the B61-12 and W88 ALT 370 to Stockpile Sustainment, and the expansion of Nuclear Security Enterprise (NSE)-wide digital engineering activities.

Weapons Dismantlement and Disposition (WDD) will recover critical components and materials for existing weapon programs, major modernizations, and Naval Reactors. The program will provide safe and secure dismantlement of nuclear weapons while increasing legacy component disposition improving National Nuclear Security Administration (NNSA) efficiency by removing excess materials and components from constrained storage areas across the complex.

Production Operations (PO) will provide site-specific, production-enabling capabilities that are required for Weapons Production activities across the Nuclear Security Enterprise. Production Operations ensures the necessary Weapons Production capabilities, including equipment, trained workforce, and tools, are available, maintained, and qualified. Specific capabilities include War Reserve component manufacturing, weapon assembly and disassembly, equipment maintenance, production data management, process improvements, and production calibration services. PO also maintains a breadth of tools and modeling capabilities to predict future production requirements and support risk reduction across stockpile services execution.

Nuclear Enterprise Assurance (NEA) will prevent, detect, and mitigate potential consequences of subversion, both to the stockpile and to the associated capabilities to design, produce, and test nuclear weapons. NEA will apply a System Security Engineering (SSE) approach that will address current and evolving adversarial threats and risks to nuclear weapons that enable responsible adoption of leading edge technologies.

Stockpile Management
Funding ($K)

Italics denotes reporting level	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request	FY 2026 Request vs. FY 2025 Enacted $	FY 2026 Request vs. FY 2025 Enacted %
Stockpile Management					
Stockpile Modernization					
B61-12 LEP	449,850	27,500	16,000	-11,500	-41.8%
B61-13	52,000	16,000	49,357	33,357	+208.5%
W88 ALT 370	178,823	63,700	0	-63,700	-100.0%
W80-4 LEP	1,009,929	1,194,750	1,259,048	64,298	5.4%
SLCM-N Warhead	70,000	100,000	272,316	172,316	172.3%
W87-1 Modification Program	1,068,909	1,016,331	649,096	-367,235	-36.1%
W93 Program	389,656	455,776	806,797	351,021	77.0%
Total, Stockpile Modernization	**3,219,167**	**2,874,057**	**3,052,614**	**178,557**	**6.2%**
Stockpile Sustainment					
B61 Stockpile Systems	*132,930*	*159,276*	*261,200*	*101,924*	*64.0%*
W76 Stockpile Systems	*205,309*	*232,378*	*242,379*	*10,001*	*4.3%*
W78 Stockpile Systems	*110,409*	*90,390*	*109,538*	*19,148*	*21.2%*
W80 Stockpile Systems	*69,285*	*76,767*	*94,781*	*18,014*	*23.5%*
B83 Stockpile Systems	*30,877*	*17,164*	*22,440*	*5,276*	*30.7%*
W87 Stockpile Systems	*125,470*	*123,057*	*140,360*	*17,303*	*14.1%*
W88 Stockpile Systems	*120,364*	*150,669*	*216,236*	*65,567*	*43.5%*
Multi-Weapon Systems	*481,934*	*526,559*	*633,266*	*106,707*	*20.3%*
Total, Stockpile Sustainment	**1,276,578**	**1,376,260**	**1,720,200**	**343,940**	**25.0%**
Weapons Dismantlement and Disposition	**56,000**	**56,000**	**82,367**	**26,367**	**47.1%**
Production Operations	**710,822**	**816,567**	**1,020,243**	**203,676**	**24.9%**
Nuclear Enterprise Assurance	**66,614**	**75,002**	**117,193**	**42,191**	**56.3%**
Total, Stockpile Management	**5,329,181**	**5,197,886**	**5,992,617**	**794,731**	**15.3%**

Overview

Stockpile Modernization is engaged in the modernization of the U.S. nuclear stockpile, including major alterations, modification of existing nuclear weapons as well as providing new warhead capabilities, to ensure the nuclear deterrent remains safe, secure, reliable and effective to current requirements and resilient to meet pacing threats. The NNSA carries out the update of the Nation's nuclear stockpile following joint NNSA-DoD Phase 6.X (modernization of existing stockpile weapons) or Phase X (new acquisition programs) weapons acquisition process guidelines to conduct and manage modernization activities for existing and new weapons. NNSA, in conjunction with DoD, executes stockpile modernization following the Phase X/6.X process guidelines, which provide a framework to conduct and manage refurbishment activities for potentially new or existing weapons. Phase 1/6.1 (Concept Assessment) should provide sufficient information for the Nuclear Weapons Council (NWC) to authorize Phase 2/6.2 (Feasibility Study and Design Options). Follow-on phases include Phase 2A/6.2A (Design Definition and Cost Study), Phase 3/6.3 (Development Engineering), Phase 4/6.4 (Production Engineering), Phase 5/6.5 (First Production) and Phase 6/6.6 (Full-Scale Production). For the purposes of this justification, the term "refurbishment" refers to all nuclear weapon major alterations and modifications, including Life Extension Programs (LEP).

Description

B61-12 LEP

The B61-12 LEP refurbishes, reuses, or replaces all the bomb's nuclear and non-nuclear components to extend the service life of the B61 by at least 20 years and to improve the bomb's safety, effectiveness, and security. This life extension program addresses all age-related issues of the bomb, and enhances its reliability, field maintenance, safety, and use control. With these upgrades and the addition of an Air Force-supplied Tail Kit Assembly, the B61-12 LEP will consolidate and replace three B61 weapon designs: 3, 4, and 7. The B61-12 LEP has greater accuracy, provided by the modern tail kit, with no overall change in military characteristics. In June 2016, NNSA authorized the program to transition into Phase 6.4. At the gate review in September 2020, with a follow-on memorandum in November 2020, NNSA authorized the program to transition into Phase 6.5 and the Air Force conducted Final Design Review and Acceptance Group (FDRAAG). In FY 2022, NNSA achieved system level First Production Unit (FPU) at the Pantex Plant. In June of 2022, the NWC authorized the B61-12 LEP program to enter Phase 6.6. The program will transition to sustainment in FY 2026.

B61-13

The B61-13 is a modern variant of the B61 nuclear gravity bomb. The B61-13 includes modern safety, security, and accuracy features of the B61-12 and replaces some of the B61-7s in the current stockpile. The program will transition to sustainment in FY 2028.

W88 ALT 370

The W88 ALT 370 Program extends the W88 lifetime by modernizing the arming, fuzing, and firing (AF&F) assembly, improving surety, and incorporating a lightning arrestor connector. It also provides required logistical spares for sustaining the life of the system. During development, the arming and fuzing portion of the AF&F assembly was designed to be forward compatible with Air Force fuze requirements, maintaining joint capability during production. The maintenance programs for neutron generator (NG) and gas transfer system (GTS) replacement receive funding under W88 Stockpile Systems. Limited Life Component (LLC) replacement is being performed concurrently with the ALT 370 conversion. In November 2014, the NWC authorized replacement of the Conventional High Explosive (CHE) and associated materials on the W88 in parallel with ALT 370 activities, referred to as CHE Refresh. The CHE Refresh scope is included in the W88 ALT 370 Program and leveraged existing tests to the maximum extent possible to minimize costs and reduce logistical impacts to the Navy. In February 2017, NNSA authorized the program to transition into Phase 6.4. Phase 6.5 authorization occurred in November 2020, and NNSA completed the reentry body assembly FPU in July 2021. The NWC formally accepted the W88 ALT 370 as a standard stockpile item in December 2021 and authorized entrance to Phase 6.6 in June 2022. The last production unit of the reentry body assembly is planned for September 2025 with the program transition to sustainment (including REST [Retrofit Evaluation System Test] and closeout activities) planned for FY 2026. The program has sufficient carryover to complete remaining activities.

W80-4 LEP

The W80-4 LEP extends the life of the legacy W80 warhead for use in the Air Force Long Range Stand-Off (LRSO) cruise missile. The LRSO is the replacement for the current, aging Air-Launched Cruise Missile (ALCM). The life extension program will integrate the warhead with the replacement missile platform and address warhead component aging concerns as well as military requirements for reliability, service life, field maintenance, and surety. The program established key design requirements for this LEP to include using insensitive high explosives for the primary, enhancing surety, and developing the warhead/missile interface in parallel with the Air Force. In February 2019, the NWC approved the W80-4 LEP transition to Phase 6.3 in support of the Air Force LRSO missile program. Due to delays associated with staffing and technical issues, the NWC formally approved a warhead FPU shift from FY 2025 to FY 2027 on June 29, 2022. This shift maintains margin between NNSA FPU and Air Force Initial Operational Capability (IOC), providing NNSA high confidence of supporting Air Force LRSO weapon IOC early in the 2030s. Phase 6.4 Production Engineering started in Q2 FY 2023.

SLCM-N Warhead
The SLCM-N Warhead will provide the warfighter with a sea-launched cruise missile capability using the W80 warhead family. IOC is planned for no later than September 2034, as directed by Congress. The aggressive program schedule dictates a design selection that highly leverages fielded weapon designs and requires limited testing and analysis to validate that the design meets all requirements. Scope includes design, development, qualification, production, and surveillance of the chosen option, along with all necessary attributes of a fielded system (e.g., trainers, handling gear, spares). The chosen design will be aligned with other Navy coincident programs for the replacement of the limited-life Gas Transfer System and Neutron Generator components. The NWC authorized entrance to Phase 6.2 in FY 2024, and the program is forecasting authorization to enter Phase 6.3 in FY 2026.

W87-1 Modification Program
The W87-1 Modification Program will replace the W78 warhead and support fielding on the Air Force Sentinel missile system. The W78 is one of the oldest warheads in the stockpile and the W87-1 Modification Program provides improvement in warhead security, safety, and use control. The W87-1 Modification Program is based on a modified design of the W87-0 and will be fielded in the Mk21A reentry vehicle. The FPU is planned for the early 2030s.

W93 Program
The W93 Program was established to meet requirements set by the DoD to augment Navy forces with a survivable weapon deployable on the Ohio-class and Columbia-class submarines. The W93 program modernization activity uses a joint NNSA-DoD Phase 1-7 acquisition process which encompasses the Life-Cycle Acquisition for new nuclear weapon design, development, production, sustainment, and dismantlement activities. In FY 2022 the W93 program concluded Phase 1 that evaluated warhead architectures and available technologies against potential range of desired attributes, draft military characteristics, and known constraints. In FY 2023, work commenced on Phase 2 to further refine design and production concepts. In FY 2024, the program began to conduct technical trade analyses, evaluating component down-selects based on refined Military Characteristics, NNSA and DoD requirements, resources, and timelines. FY 2025 feasibility assessments will not only inform the NNSA W93 system architecture but will also inform DoD development activities associated with the Mk7 reentry body. The W93 is planned to be deployed on the Mk7 reentry body. The W93 and Mk7 teams are collaborating with the United Kingdom in a parallel design, development, and production of the A21 program.

Highlights of the FY 2026 Budget Request

B61-12 LEP
- Complete component production and overbuilds to support the B61-13 modernization program.

B61-13
- Continue Ultimate User (UU) builds at Pantex.
- Begin weapon delivery to DoD.

W88 ALT 370
- Continue coordinating closely with the Navy to ensure a fully integrated schedule of hardware needs and deliveries.
- Execute REST surveillance scope.

W80-4 LEP
- Continue Phase 6.4 Production Engineering activities with many components initiating Qualification Evaluation (QE) lots.
- Complete System Complete Engineering Release (CER).

- Execute Final Qualification/Certification Testing.
- Execute LRSO Joint Testing.
- Complete System Final Design Review (FDR).
- Complete System Assembly/Disassembly Pre-Pilot Production Gate.
- Complete Peer Review Weapons Response (Authorization Basis).
- Submit Documented Safety Analysis (DSA) for approval.
- Initiate System Nuclear Explosive Safety Study (finishes FY 2027).
- Complete Phase 6.4 activities and all component QE scope.
- Execute early component production and life of program buys.

SLCM-N Warhead
- Obtain authorization to enter Phase 6.3, Development Engineering.
- Begin executing Phase 6.3 activities.
- Complete the System Conceptual Design Review.

W87-1 Modification Program
- Continue component baseline design reviews.
- Conduct joint testing with Air Force and Mk21A programs.
- Continue Phase 6.3 and advance design maturity and manufacturing readiness levels, and progress component and sub-system designs in preparation for the System Baseline Design Review.
- Complete System Baseline Design Review.

W93 Program
- Support early development activities for CSA, Mechanisms, FSA, AF&F Subsystem, COTS and Material Procurements, and Test and Evaluation.
- Complete the System Conceptual Design Review (CDR).
- Complete the Systems Requirements Review.
- Complete Phase 2A, including the Phase 2A report and the Weapon Design and Cost Report (WDCR).
- Obtain Phase 3 Authorization from the Nuclear Weapons Council.
- Perform system technologies down selection.
- Perform DoD Mk7 aeroshell design and qualification.
- Integrate Navy D5LE2 Sea-Launched Ballistic Missile with the DoD.
- Conduct experimental test campaigns; hydrodynamic, ground, and flight tests.
- Complete United Kingdom (UK) parallel test campaign for design, development, and production of A21.

Stockpile Modernization ($178.557 million)
- Overall, the increase represents a ramp up for the W80-4 LEP to achieve FPU in FY 2027, funding to support SLCM-N Warhead transition to Phase 3 and continued full support of the W93 in Phase 2A.
- **B61-12 LEP (-$11.500 million)**
  The decrease represents alignment with the program close-out plan.
- **B61-13 LEP (+$33.357 million)**
  The increase represents the NNSA's plan to achieve DoD requirements and support full-scale production.
- **W88 ALT 370 (-$63.700 million)**
  The decrease represents program ramping down and transitioning to stockpile sustainment.
- **W80-4 LEP (+$64.298 million)**
  The increase represents support to the W80-4 development efforts on all weapon components needed to meet the FY 2027 FPU date, supports additional units, and ensures a smooth transition from development to rate production.
- **SLCM-N Warhead (+$172.316 million)**
  The increase represents work scope associated with Phase 6.3 activities.
- **W87-1 Modification Program (-$367.235 million)**
  The decrease represents a one-time use of carryover to fund FY 2026 activities.
- **W93 Program (+$351.021 million)**
  The increase represents schedule acceleration to meet the planned FPU, as well as transition to Phase 3 activities.

Stockpile Sustainment

Overview

The Stockpile Sustainment program directly executes maintenance, limited life component exchanges (LLCE), minor alterations, surveillance, assessment, surety studies and capability development, and management activities for all enduring weapons systems in the stockpile. The program includes the B61, W76, W78, W80, B83, W87, W88, and Multi-Weapon Systems (MWS). As required by 50 United States Code (USC) Section 2525, safety, security, and effectiveness assessments are performed to determine whether the systems can continue to be certified without the need for an underground nuclear explosive testing.

Current U.S. nuclear weapons and associated delivery systems

Warheads—Strategic Ballistic Missile Platforms					
Type [a]	***Description***	***Carrier***	***Laboratories***	***Mission***	***Military***
W78	Reentry vehicle warhead	Minuteman III Intercontinental Ballistic Missile	LANL/SNL	Surface to surface	Air Force
W87-0	Reentry vehicle warhead	Minuteman III Intercontinental Ballistic Missile	LLNL/SNL	Surface to surface	Air Force
W76-0/1/2	Reentry body warhead	Trident II D5 Strategic Weapon System (Submarine Launched Ballistic Missile)	LANL/SNL	Underwater to surface	Navy
W88	Reentry body warhead	Trident II D5 Strategic Weapon System (Submarine Launched Ballistic Missile)	LANL/SNL	Underwater to surface	Navy
Bombs—Aircraft Platforms					
Type [a]	***Description***	***Carrier***	***Laboratories***	***Mission***	***Military***
B61-7	Strategic bomb	B-2 bomber	LANL/SNL	Air to surface	Air Force
B61-11	Strategic bomb	B-2 bomber	LANL/SNL	Air to surface	Air Force
B61-12	Strategic & Non-strategic bomb	F-15, F-16, F-35A, B-2 bomber, certified NATO aircraft	LANL/SNL	Air to surface	Air Force/ Select NATO forces
B83-1	Strategic bomb	B-2 bomber	LLNL/SNL	Air to surface	Air Force
Warheads—Cruise Missile Platforms					
Type [a]	***Description***	***Carrier***	***Laboratories***	***Mission***	***Military***
W80-1	Air-launched cruise missile strategic weapon	B-52 bomber	LLNL/SNL	Air to surface	Air Force
LANL = Los Alamos National Laboratory LLNL = Lawrence Livermore National Laboratory NATO = North Atlantic Treaty Organization SNL = Sandia National Laboratories					

Description

B61 Stockpile Systems

The B61 gravity bombs are aircraft-delivered and deployed by the Air Force. The B61 gravity bomb family includes three modifications, B61 -7/-11, and the most recently fielded modification, the B61-12. The B61 program directly executes weapon maintenance, limited life component exchanges, minor alterations, surveillance, assessment, capability development and management activities for B61 gravity bombs.

---

[a] The suffix associated with each warhead or bomb type (*e.g.*, "-0/1" for the W76) represents the multiple modifications associated with the respective weapon.

W76 Stockpile Systems
The W76-0/1/2 are integrated into the Trident II D5 Strategic Weapon System as part of the Submarine-Launched Ballistic Missile (SLBM) force. The W76 family includes three modifications, the W76-0/Mk4, W76-1/Mk4A, and W76-2/Mk4A. This program directly executes weapon maintenance, limited life component exchanges, minor alterations, surveillance, assessment, capability development and management activities for the W76 warheads.

W78 Stockpile Systems
The W78/ Mk12A re-entry vehicle is deployed on the Minuteman III (MMIII) Intercontinental Ballistic Missile (ICBM). This program directly executes weapon maintenance, limited life component exchanges, minor alterations, surveillance, assessment, capability development and management activities for the W78 warheads. This weapon will be replaced by the W87-1.

W80 Stockpile Systems
The W80 warhead is used in the Air Launched Cruise Missile (ALCM) deployed by the Air Force. This program executes weapon maintenance activities, limited life component exchanges, minor alterations, surveillance, assessment, capability development and management activities for the sustainment of the W80-1.

B83 Stockpile Systems
The B83 is an aircraft-delivered, strategic gravity bomb deployed by the Air Force. This program directly executes weapon maintenance, limited life component exchanges, minor alterations, surveillance, assessment, capability development and management activities until all B83 gravity bombs are retired and dismantled, pursuant to Presidential guidance.

W87-0 Stockpile Systems
The W87-0/Mk21 re-entry vehicle is deployed on the Minuteman III ICBM and will be deployed on the Sentinel ICBM. This program directly executes weapon maintenance, limited life component exchanges, minor alterations, surveillance, assessment, capability development and management activities for the W87-0 warheads. It also supports development and qualification activities for Sentinel integration.

W88 Stockpile Systems
The W88 is integrated into the Trident II D5 Strategic Weapon System as part of the Submarine-Launched Ballistic Missile (SLBM) force. This program directly executes weapon maintenance, limited life component exchanges, minor alterations, surveillance, assessment, capability development and management activities for the W88 warheads.

Multi-Weapon Systems
Multi-Weapon Systems (MWS) is a multi-weapon, multi-site product-based program that enhances the integration and efficiency of the NNSA's nuclear security enterprise (NSE). The activities within MWS are cross-cutting among sites and/or weapons or cannot be funded by specific weapons programs due to classification restrictions. This program provides multi-weapon products to the NNSA NSE supporting surveillance, reliability, maintenance, product realization, digital engineering, nuclear explosive safety, military liaison, integrated surety architecture, and use control for both the current and modernized stockpile.

Major activities within each area
(1) **Weapon Maintenance:** Includes production of limited-life components (LLCs) including gas transfer systems (GTS), neutron generators (NG), and other designated limited-life components as required by guidance and directive schedules, day-to-day stockpile maintenance and repair activities, production, and delivery of components for each weapon type, refurbishment, and replacement of aging components to sustain stockpile life and rebuilds.
(2) **Weapon Surveillance:** Includes Joint Test Assembly (JTA) flight test vehicle and ground testbed builds, new material laboratory and flight tests, retrofit evaluation system laboratory and flight tests, stockpile laboratory tests, stockpile flight tests, quality evaluations, special testing, and component and material evaluation to support assessment of the safety, security, and effectiveness of the nuclear weapons stockpile. Data from these tests contribute to the Annual Assessment Reports and the Report on Stockpile Assessments to the President.
(3) **Weapon Assessment:** Includes activities associated with management of fielded weapon systems. Provides systems and component engineering support, support to planning, resolution, and documentation of stockpile finding investigations (SFIs) to include assessment of root cause, extent of condition, and impact to system effectiveness or safety. Also includes activities associated with planning, developing, and updating the technical basis for the

materials, components, and weapons and performing the weapon assessments. Finally, this includes activities associated with preparation, writing, and coordination of Annual Assessment Reports (AARs) and Weapon Reliability Reports (WRRs), as well as activities needed to assess/resolve system-specific weapon response issues and to provide support to the Nuclear Explosive Safety Study Groups (NESSGs) and the Nuclear Weapon System Surety Groups (NWSSGs) as required. Within MWS, activities in this area include use control studies and assessment, as well as surety capability design, development, qualification, production, and integration for the legacy and modern stockpile.

(4) Development Studies/Capability Improvements: Includes activities associated with improvements in surveillance capabilities, technical basis improvements in support of weapon service life extensions, weapon specific technology maturation for insertion or replacement, JTA development/refresh, and system/surety studies.

(5) Weapon Program Planning/Support: Includes activities associated with management of fielded weapon systems. Provides systems and component engineering support for planning, issue resolution, and documentation. Within MWS, included are those activities needed to operate, maintain, and develop products, tools, and applications supporting enterprise product realization through an integrated digital environment and activities associated with external production liaison missions, weapon response, nuclear explosive safety, and technical basis.

Highlights of the FY 2026 Budget Request

Stockpile Sustainment – NNSA plans to continue to execute this as a single portfolio with visibility into lower-level program elements.

- Complete development, qualification, production, and delivery of all scheduled LLCs for the enduring systems. LLCs include gas transfer systems (GTS), neutron generators (NG), and alteration kits delivered to sustain the nuclear weapons stockpile.
- Conduct surveillance program activities for all weapon systems using data collection from flight tests, laboratory tests, and component evaluations to assess stockpile reliability, performance, and safety.
- Conduct Annual Assessment activities for all weapon systems including the in-depth testing and analysis of systems, subsystems, and components.
- Analyze, evaluate, and close high priority Stockpile Finding Investigations (SFI) in accordance with the currently approved plans.
- Analyze and execute legacy component builds on legacy equipment for life of program needs.
- Develop and deploy digital engineering and digital product realization capabilities.
- Implement Nuclear Weapon Information Management (NWIT) risk management framework.

B61

- Integrate the B61-12 into stockpile sustainment.
- Continue procurements and production of B61-12 GTS second cycle and Joint Test Assembly (JTA) components for transition activities.
- Execute increased surveillance activities for B61 portfolio to account for the B61-12 entering the stockpile (component testing/D&Is/flight and lab testing).
- Continue B61 high explosive (HE) qualification activities.
- Continue production of B61 Multi-Application Transportation Attachment Devise (MTAD) ISA components for planned maintenance cycles.
- Begin execution of activities supporting the B61-12 stockpile service life extension.
- Conduct alteration (ALT) 375 activities.
- Begin production activities of the electronic assembly (EA2) for B61-12 planned maintenance.
- Execute the B61-12 insensitive high explosive qualification activities that support life of program requirements.
- Implement Nuclear Weapons Information Technology (NWIT) risk management framework.

W76

- Produce GTS for W76-1/-2.
- Conduct development for the new W76-1 Joint Test Assembly-3 (JTA3) flight test body, an engineering refresh of the existing instrumented W76-1 JTA1.
- Continue development and qualification activities and initiate production readiness for ALT 939 ISA implementation on the W76 -1/-2.
- Execute Phase 6.5 of the W76-1/2 Mk4B development and qualification program.
- Complete first production units for both the W76-1 and W76-2 Mk4B retrofit.

- Prepare for and conduct D5 life extension two (LE2) systems requirements review.

W78
- Conduct W78 repair activities.
- Maintain lifetime sustainment studies for the W78 program.
- Procure and produce additional JTA hardware, to support Minuteman III (MMIII) flight test extension.
- Produce LLC components for W78 stockpile sustainment.
- Conduct a weapon response refresh supporting nuclear explosive operations.

W80
- Commence W80-4 transition to stockpile activities.
- Execute ALT 369 surveillance production activities for the W80-1 program.
- Continue W80-1 high explosive performance assessments and modeling verification.
- Execute abnormal thermal evaluation testing.
- Conduct planning for W80-1 ISA Enhanced Capability Shipping Configuration (ECSC).

B83
- Continue execution of electrostatic discharge (Phase IV) quantitative analysis for B83 weapon response.
- Execute B83 surveillance activities.

W87
- Execute W87-0 NG retrofit, repairs and rebuild activities.
- Develop and produce stockpile and JTA hardware, including firing set assemblies (FSA) and Canned Subassembly Simulator (CSASim) for the W87-0.
- Maintain lifetime sustainment studies for the W87-0 program.
- Continue integration of W87-0 with the Air Force Sentinel program and the Mk21 Fuze.
- Produce W87-0 ground and flight test hardware to support Sentinel missile integration and qualification.
- Support Air Force execution of MMIII to Sentinel transition for W87-0.

W88
- Produce GTS and NG for W88 ALT 370 to support stockpile sustainment.
- Complete 1E38 Detonator Lot 3811 for the W88.
- Prepare for and conduct D5LE2 systems requirements review.
- Conduct non-destructive evaluations of canned subassemblies (CSAs).
- Execute surveillance, assessment, and sustainment activities for the W88 ALT 370.
- Execute ALT 376 CSA conversion planning, development, and production readiness.

MWS
- Sustain current product realization digital tools foundational to all sustainment and modernization programs.
- Modernize digital engineering (DE) capabilities and associated engineering practices to deliver an integrated, NSE-wide digital engineering thread and associated engineering performance improvements.
- Manage ISA logistics hub operations for NNSA transportation in accordance with requirements and schedules.
- Sustain and recapitalize multi-system ISA components.
- Sustain and modernize multi-system code management systems.
- Provide base technical capabilities for evaluating stockpile returns.
- Deliver weapon reliability reporting to the Department of Defense.
- Sustain and modernize multi-system surveillance testers via the Surveillance Tester Sustainment Initiative.
- Complete engineering support to qualify a third centrifuge at the Weapons Evaluation Test Laboratory (WETL) Pantex.
- Provide engineering support for Tonopah Test Range radar recapitalization.
- Conduct multi-system use control system studies and assessments.
- Design, develop, qualify, and produce surety capabilities aligned with weapon schedules and enduring stockpile refresh opportunities.
- Manage weapon logistics and accountability, including sustaining and modernizing logistics and accountability digital tools.

- Characterize commercial off-the-shelf electronic components for inclusion in sustainment and modernization programs via the Electronic Parts Program.
- Provide multi-system weapon response and nuclear explosive safety analysis capabilities ensuring safe nuclear explosive operations.
- Provide multi-system Design Agency support resident at Production Agencies to quickly resolve sustainment and modernization challenges.

Stockpile Sustainment (+$343.940 million)
The information for each weapon system within stockpile sustainment is being provided for transparency. Overall, the increase is largely driven by the initiation of activities necessary to extend the service life of the current stockpile weapons, development and deployment of improved digital engineering capabilities, the implementation of nuclear weapon information technology (NWIT) risk management framework, and the continued development and sustainment of surety studies and capabilities.

B61
The increase represents execution of the B61-12 transition to Stockpile Sustainment. This increase supports additional surveillance, maintenance, and technical basis improvements in support of directed weapon service life extensions and the qualification of new high explosives.

W76
The increase represents an increase in Joint Test Assembly 3 (JTA3) assets, D5LE2 System Requirements Review, increased LLCE production, and experimental flight test body development in support of technical basis surveillance and assessment activities. It also represents increased planning and provisioning activities to support directed weapon service life extension.

W78
The increase represents additional JTA production and associated component builds to support extended MMIII flight testing. It also represents increased planning and provisioning activities to support directed weapon service life extension.

W80
The increase represents additional maintenance requirements, the initiation of NWIT activities, and initial activities supporting W80-4 transition to Stockpile Sustainment.

B83
The increase represents execution of electrostatic discharge quantitative analysis for B83 weapon response.

W87
The increase represents neutron generator material procurement and component builds, flight test hardware development and production, and firing set production. It also represents increased planning and provisioning activities to support directed weapon service life extension.

W88
The increase represents the addition of W88 ALT 376 maintenance activities and additional surveillance requirements required to sustain the W88 ALT 370. It also represents increased planning and provisioning activities to support directed weapon service life extension.

MWS
The increase represents expanding digital engineering capabilities for product realization efficiencies to include design agency specific and production agency specific capabilities; increased surveillance requirements as new weapons enter the stockpile; electronic component characterization; multi-weapon ISA logistics, maintenance, and sustainment, designing and developing new cryptographic equipment to meet NSA requirements for the code management system.

Weapons Dismantlement and Disposition

Overview

The Weapons Dismantlement and Disposition (WDD) program recovers critical components and materials for existing weapons programs, major modernizations, Naval Reactors, and improves nuclear security enterprise efficiency by removing excess materials and components from constrained classified and hazardous storage spaces. The program will provide safe and secure dismantlement of nuclear weapons and components and continue increasing legacy component disposition.

Description

Weapons Dismantlement and Disposition (WDD) is a critical element of NNSA's integrated effort to transform the enterprise and the stockpile. Specific activities include weapons disassembly, recycling of material and hardware for stockpile programs, disposition of retired warhead system components, and ensuring components are available for safety testing. Other supporting activities specific to retired warheads include conducting hazard assessments, issuing safety analysis reports, conducting laboratory and production plant safety studies, and declassification and sanitization of component parts. WDD focuses on the safe and secure dismantlement of excess nuclear weapons and components. The WDD program has four major activities:

(1) **Disassembly** – WDD enables the dismantlement of weapons and canned subassemblies and is a significant supplier of material for future nuclear weapons production and Naval Reactors.
(2) **Component Disposition** – WDD identifies material streams for permanent disposition of weapon components.
(3) **Retired Systems Management** – WDD enables safety studies that ensure weapons in the stockpile awaiting dismantlement remain safe while in DoD custody.
(4) **Component Characterization** – WDD ensures that all potential hazards contained in weapon components are characterized to allow the weapons complex to safely work with individual weapon components.

Highlights of the FY 2026 Budget Request

- Execute a weapon dismantlement program consistent with the priorities established in the NNSA production and planning directive.
- Provide enriched uranium, lithium, and components to stockpile programs and external customers.
- Execute legacy component disposition improving NNSA efficiency by removing excess materials and components from constrained storage areas across the complex.
- Complete Known State First Dismantlement Unit (FDU).

Weapons Dismantlement and Disposition (+$26.367 million)

- The increase is necessary to ensure continued weapon dismantlement activities providing key materials and components to stockpile programs while increasing legacy component disposition that is negatively impacting operations at the production plants. The increase executes significantly deferred legacy component disposition improving NNSA efficiency by removing excess materials and components from constrained storage areas across the complex and expanding legacy high explosive disposition activities at Pantex. The increase also represents refined critical component recovery requirements for stockpile programs including the W76.

Production Operations

Overview

Productions Operations is a multi-weapon system manufacturing-based program that drives individual site production capabilities and capacity for stockpile sustainment and modernization programs, including limited life component production and weapon assembly and disassembly operations. Production Operations scope covers sustainment of labor required for weapon systems capabilities that enable individual weapon production and are not specific to one material stream. Production Operations also provides production equipment maintenance and calibration services for manufacturing operations to meet DoD War Reserve requirements. Facility major modernization and construction activities are not part of this budget subprogram and are covered in other parts of the Weapons Activities account.

Production Operations:
Provides the base manufacturing workforce capabilities (e.g., engineering, manufacturing, quality assurance) and capacity for modernization and enduring stockpile production, weapon assembly, weapon disassembly required to meet NNSA schedules and meet DoD delivery schedules.

Supports the development, qualification, and production of Neutron Generator Assemblies (NGA) shippable items and shelf-life units; in addition, manufactures detonators and detonator cable assemblies.

Expands engineering and quality assurance processes for response to increased non-nuclear component production requirements.

Maintains New Brunswick Laboratory (NBL) support to international safeguards, and nonproliferation programs by producing nuclear reference materials (RMs) and conducting proficiency testing exercises. NBL provides uranium, plutonium, and thorium materials to calibrate measurement equipment for quality control, method development, and a variety of research areas.

Description

Production Operations provides a multifaceted, skilled labor force, focusing on engineering and manufacturing labor, quality assurance, and programmatic equipment maintenance support for the manufacturing base that enables the individual site capability and capacity to sustain NNSA's production mission. Production Operations also refreshes and replaces production capabilities and supports programmatic equipment maintenance to improve efficiency and ensure manufacturing operations meet future DoD requirements. Production Operations requires close coordination with several NNSA Offices to ensure the correct capabilities are in place on time to support stockpile demands.

Production Operations major activities include the following:

- **Engineering & Integration** – Activities associated with the Process and Documentation for the development and production of components.
- **Supplier, Shipping, and Material Management** – Activities associated with the support for vendors, packaging, shipping, transportation, and site logistics and storage.
- **Production Equipment Maintenance** – Activities associated with general, corrective, and preventative maintenance of programmatic equipment.
- **Manufacturing Capability Sustainment** – Activities that enable the design, development, and production of components.
- **Equipment and Material Procurement** – Activities associated with the purchasing of equipment & material, and SNM Accountability and Control.
- **Program Management** – Activities required to support, manage, control, and report on overall program.
- **Modeling & Analysis** – Activities associated with site commodity/capacity analysis to support Defense Programs demand excursions and/or course of actions.
- **New Brunswick Laboratory** – Activities that support the storage, packing, shipping, and routine maintenance of Certified Reference Materials.

Highlights of the FY 2026 Budget Request

- Increase critical skilled labor and address attrition to maintain Stockpile Modernization scope and schedules.

- Completion of final unit testing/qualification for Savannah River Site's new Mass Spectrometer.
- Ensure support to maintain multiple product lines within the Detonator Production Enterprise for the weapon systems and associated alteration programs.
- Maintain the Neutron Generator Enterprise to ensure production for an average of ~950 units per year.
- Increase support of Production Equipment Maintenance (PEM) and critical spare procurements.
- Supporting Occupancy projects in B23N as part of KC STEP.

Production Operations (+$203.676 million)

- The increase represents the expanded requirements critical to the engineering and quality assurance processes responsive to the increased non-nuclear component production demands and Programmatic Equipment Maintenance; the requirements for equipment service contracts, procurement of critical spare parts, tooling, & equipment that reduces risk of increasing equipment failures and production downtime; continued support of KCSTEP Projects in B23N; the requirements to support production factory floor fleet vehicles ; and an increase to critical skilled labor to address attrition, maintain Stockpile Modernization scope and schedules.

Nuclear Enterprise Assurance

Overview

The Nuclear Enterprise Assurance (NEA) program actively manages subversion risks to nuclear weapons and associated design, production, and testing capabilities throughout the weapons acquisition process. NEA enables the responsible use of digital technologies in the modernization of weapons, facilities, and engineering capabilities, by preventing, detecting, and mitigating potential consequences of subversion in digital technologies, the supply chain, and other threat pathways. NEA includes technical and governance activities for the assurance of components integral to weapon systems, operational technologies directly related to weapons, and capabilities that cross-cut multiple weapons programs.

Description

Nuclear Enterprise Assurance ensures the Nuclear Security Enterprise (NSE) actively manages subversion risks to the nuclear weapons stockpile and associated design, production, and testing capabilities from all subversion threat pathways. Of particular concern, digital technologies introduce new vulnerability characteristics and multiple new susceptible pathways that, if compromised, can produce unacceptable physical impacts to safety, the environment, weapon performance, and loss of capabilities. NEA enables risk-managed adoption of leading-edge technologies to meet emerging military requirements and reduce modernization schedules and costs. NEA maintains a team of multi-disciplinary experts who perform rapid assessments, develop tools and assurance methods, and provide recommended mitigations. Close coordination is maintained across NNSA and other agencies to stay informed of current threats and best practices.

NEA focuses on technical, governance, and integration activities for the assurance of nuclear weapons, nuclear weapon enabling capabilities, and crosscutting functions and programs. The NEA program is organized around four major activities:

(1) **Assurance Evaluations and Recommendations –** Cross-site, multi-disciplinary teams of subject matter experts from all NNSA sites who rapidly perform vulnerability risk assessments; develop and mature assurance methods; and provide recommended mitigations and implementation plans across NNSA programs. These activities also address non-program-specific NEA risks (e.g., supply chain integrity) through cross-cutting capabilities and process development.

(2) **Tools and Capabilities** – Cross-cutting and non-program-specific tools and capabilities that assist in vulnerability discovery, consequence analysis, and mitigation implementation.

(3) **Policy, Requirements, and Oversight** – Activities include developing and informing NNSA and DOE policies, orders, and directives to ensure integrated governance and compliance with federal law; coordination with DoD and other government partners; and establishing quantifiable metrics to assess the performance of NEA policies, requirements, and NSE execution.

(4) **Workforce Standards** – Creates standards and processes for NSE-wide NEA awareness, training, and skills development. Activities include integrating systems security engineering into weapons development and associated design, production, and testing capabilities throughout the NSE.

Highlights of the FY 2026 Budget Request

- Execute a comprehensive strategy for inventorying the range of systems that are potentially at risk in the operational technology (OT) and nuclear weapons information technology (NWIT) environments as per FY 2024 National Defense Authorization Act (NDAA) section 3113.
- Address most critical subversion risks as determined by mission impact at all NNSA labs, plants, and sites.
- Mature countersubversion tools, capabilities, and assurance standards.
- Institutionalize NEA policy, training, and qualification programs across NNSA.
- Mature NEA training and qualification programs for the workforce.

Nuclear Enterprise Assurance (+$42.191 million)

- The increase represents the execution of a comprehensive strategy for inventorying the range of systems that are potentially at risk in the operational technology and nuclear weapons information technology environments as per FY 2024 National Defense Authorization Act (NDAA) section 3113. This increase will provide the necessary resources for NNSA labs, plants, and sites to each form a cross-functional OT assurance teams responsible for inventorying and characterizing the highest priority OT systems at risk of subversion as outlined in the OT assurance strategy.

Stockpile Management
Capital Equipment Summary
($K)

	Total	Prior Years	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request	Outyears Total
Capital Equipment (> $500K)						
Total Non-MIE Capital Equipment (TEC <$10M)	N/A	N/A	41,157	42,021	42,904	N/A
Automated Reservoir Management System (ARMS) 3, SRS	46,600	0	0	0	0	46,600
9201-5N Dye Pent/Ultrasonic Tanks, Y-12	18,000	0	0	18,000	0	0
9204-2E High Temperature Ovens (Final Assembly), Y-12	18,000	0	18,000	0	0	0
9998 Direct Caster #2, Y-12	11,516	0	11,516	0	0	0
Component Canning Box, Y-12	15,000	0	0	0	0	15,000
DSW 9215 EU Jig Borer, Y-12	13,500	0	0	2,000	0	11,500
Solution Heat Treat Furnace, Y-12	18,000	0	18,000	0	0	0
Total, Capital Equipment	**140,616**	**0**	**88,673**	**62,021**	**42,904**	**61,600**

Production Modernization

Overview

The Production Modernization program is responsible for modernizing the facilities, infrastructure, and equipment that produce materials and components to meet stockpile requirements and maintain the Nation's nuclear deterrent. The program encompasses six major subprograms that sustain and modernize the base production capabilities for the Nation's nuclear weapons stockpile.

Primary Capability Modernization
The Primary Capability Modernization program manages primary-stage material processing and component production capabilities in the National Nuclear Security Administration's (NNSA) Nuclear Security Enterprise (NSE). The program includes (1) Plutonium Modernization and (2) High Explosives and Energetics (HE&E) Modernization.

Secondary Capability Modernization
The Secondary Capability Modernization program includes the strategic materials, production capabilities, facilities, and material processing operations required to produce nuclear weapon secondary stages. The program includes (1) Enriched Uranium Modernization, (2) Depleted Uranium Modernization, (3) Lithium Modernization, 4) Advanced Materials and Capabilities Modernization, (5) Mission Delivery Modernization (6) the Lithium Processing Facility (LPF), and (7) the Uranium Processing Facility (UPF).

Tritium and Defense Fuels Program (formerly Tritium and Domestic Uranium Enrichment)
The Tritium and Defense Fuels (DF) program consists of two parts: (1) Tritium Modernization produces, recovers, and recycles tritium to support national security requirements and (2) DF will reestablish a reliable supply of unobligated enriched uranium to support future U.S. national security needs, including tritium production and nuclear naval propulsion requirements. The DF Program was previously referred to as the Domestic Uranium Enrichment (DUE) Program.

Non-Nuclear Capability Modernization
The Non-Nuclear Capability Modernization (NNCM) program modernizes the capabilities needed for the design, qualification, production, and surveillance of non-nuclear components for all weapon systems. NNCM activities include modernizing existing equipment and infrastructure, developing new capabilities, providing additional capacity, and implementing strategies to increase efficiency.

Capability Based Investments
The Capability Based Investments (CBI) program executes projects for equipment, tools, supporting facilities, and infrastructure directly related to enduring, multi-program weapon activity capabilities, mission deliverables, and reduction of programmatic risks across the NSE.

Warhead Assembly Modernization
The Warhead Assembly Modernization (WAM) program modernizes the capabilities needed to execute warhead assembly/disassembly operations for weapon modernization, surveillance, and dismantlement programs.

Line-Item Construction
Production Modernization line-item construction projects are critical to revitalizing the program-specific capabilities that directly support the nuclear weapons programs. These projects ensure the strategic material industrial base necessary for stockpile modernization is constructed for the NSE and will provide the base materials for component production. These projects will also replace obsolete, unreliable facilities and infrastructure to reduce safety and program risk while improving responsiveness, capacity, and capabilities necessary to support the U.S. nuclear deterrent.

Production Modernization
Funding ($K)

	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request	FY 2026 Request vs FY 2025 Enacted $	FY 2026 Request vs FY 2025 Enacted %
Production Modernization					
Primary Capability Modernization					
Plutonium Modernization					
Los Alamos Plutonium Modernization					
Los Alamos Pit Production	833,100	984,611	982,263	-2,348	-0.2%
21-D-512 Los Alamos Plutonium Pit Production Project, LANL	670,000	470,000	670,000	200,000	42.6%
15-D-302 TA-55 Reinvestments Project Phase 3, LANL	30,000	39,475	7,942	-31,533	-79.9%
07-D-220-04 Transuranic Liquid Waste Facility, LANL	0	0	5,865	5,865	0.0%
04-D-125 Chemistry and Metallurgy Research Replacement Project, LANL	227,122	0	50,000	50000	0.0%
Total, Los Alamos Plutonium Modernization	**1,760,222**	**1,494,086**	**1,716,070**	**221,984**	**14.9%**
Savannah River Plutonium Modernization					
Savannah River Pit Production	62,764	75,332	207,486	132,154	175.4%
21-D-511 Savannah River Plutonium Processing Facility, SRS	1,000,235	800,000	1,726,000	926,000	115.8%
Total, Savannah River Plutonium Modernization	**1,062,999**	**875,332**	**1,933,486**	**1,058,154**	**120.9%**
Enterprise Pit Production Support	**87,779**	**121,964**	**145,094**	**23,130**	**19.0%**
Total, Plutonium Modernization	2,911,000	2,491,382	3,794,650	1,303,268	52.3%
High Explosives & Energetics					
High Explosives & Energetics	93,558	131,675	196,023	64,348	48.9%
21-D-510 HE Synthesis Formulation and Production, PX	83,000	0	0	0	0.0%
15-D-301 HE Science & Engineering Facility, PX	101,356	15,000	0	-15,000	-100.0%
Total, High Explosives & Energetics	277,914	146,675	196,023	49,348	33.6%
Total, Primary Capability Modernization	**3,188,914**	**2,638,057**	**4,990,673**	**1,352,616**	**51.3%**

Secondary Capability Modernization					
Secondary Capability Modernization	666,914	770,353	1,107,186	336,833	43.7%
18-D-690 Lithium Processing Facility, Y-12	210,770	210,000	65,000	-145,000	-69.0%
06-D-141 Uranium Processing Facility, Y-12	810,000	800,000	730,000	-70,000	-8.8%
Total, Secondary Capability Modernization	**1,687,684**	**1,780,353**	**1,902,186**	**121,833**	**6.8%**
Tritium and Defense Fuels Program[1]					
Tritium and Defense Fuels Program[a]	592,992	581,738	688,384	106,646	18.3%
18-D-650 Tritium Finishing Facility, SRS	35,000	0	50,000	50,000	0.0%
Total, Tritium and Defense Fuels Program	***627,992***	***581,738***	***738,384***	***156,646***	***26.9%***
Non-Nuclear Capability Modernization					
Non-Nuclear Capability Modernization	166,990	141,300	221,588	80,288	56.8%
26-D-511 MESA Photolithography Capability (MPC), SNL	0	0	40,000	40,000	0.0%
26-D-510 Product Realization Infrastructure for Stockpile Modernization (PRISM), LLNL	0	0	15,000	15,000	0.0%
22-D-513 Power Sources Capability, SNL	37,886	50,000	115,000	65,000	130.0%
Total, Non-Nuclear Capability Modernization	**204,876**	**191,300**	**391,588**	**200,288**	**104.7%**
Capability Based Investments	**156,462**	**153,244**	**177,996**	**24,752**	**16.2%**
Warhead Assembly Modernization					
Warhead Assembly Modernization	0	34,000	59,336	25,336	74.5%
Total, Warhead Assembly Modernization	**0**	**34,000**	**59,336**	**25,336**	**74.5%**
Total, Production Modernization	**5,865,928**	**5,378,692**	**7,260,163**	**1,881,471**	**35.0%**

[1] Congressional control title change requested for FY 2026 to Tritium and Defense Fuels Program from Tritium and Domestic Uranium Enrichment.

Production Modernization
Primary Capability Modernization

Description
The Plutonium Modernization program provides funding for efforts across the NSE 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, in line with the Joint Explanatory Statement accompanying the Fiscal Year (FY) 2020 Energy and Water Development and Related Agencies Appropriations Act. NNSA remains committed to achieving the pit production capability goals on the path to 80 ppy, including the capability to produce not less than 30 ppy at Los Alamos National Laboratory (LANL).

Plutonium Modernization activities include the following:

- **Los Alamos Plutonium Modernization**: Activities include Los Alamos Pit Production, which provides for the operational expenses needed to meet pit production requirements at LANL, including activities to hire, train, qualify, and retain required pit production personnel; recapitalization of equipment for war reserve (WR) pit production; pit production process qualification and certification activities for new equipment being installed; plutonium material supply chain activities; tooling design and fabrication; and Plutonium Modernization's share of operational expenses for PF-4. This funding also supports the manufacturing of precision plutonium devices for science-related evaluation. Los Alamos Pit Production also funds key enabling activities and safety management programs in PF-4, including a radiological control program, programmatic equipment maintenance, a criticality safety program, shipping and receiving, authorization basis, work control documentation, training and qualification, legacy disposition, waste management, material, recycle, recovery and storage support to plutonium supply chain activities, and facility availability to maintain plutonium capabilities.

  Los Alamos Plutonium Modernization also includes four line-item projects at LANL. The Los Alamos Plutonium Pit Production Project (LAP4), 21-D-512, funds capital acquisitions required to increase production capacity at PF-4 from ten (10) ppy to 30 ppy, as well as associated infrastructure investments at LANL to support pit production. Funds for the TA-55 Reinvestment Project, Phase 3, 15-D-302, pay for construction activities to modernize fire alarm panels providing a vital safety function in PF-4. Funding for the Transuranic Liquid Waste Facility (TLW), 07-D-220-04, project supports finalizing the construction of a new hazard category 3 nuclear facility to house processing equipment capable of treating transuranic (TRU) liquid waste, a TRU liquid influent storage, and necessary utilities. Funds for the Chemistry and Metallurgy Research Replacement Project, 04-D-125, pay for construction activities to improve TA-55 and PF-4 personnel and vehicular ingress/egress, levels of worker preparation/staging and warehousing for relocated Analytical Chemistry and Materials Characterization (AC/MC) operations and personnel, and procurement and installation of equipment.

- **Savannah River Plutonium Modernization**: Supports the continued establishment of a program office at Savannah River Site (SRS) to enable pit production development efforts, train and hire future production staff, and support future production and operations planning. Program plans and processes will continue to be developed and matured across 13 functional areas to support production competency. Until the High-Fidelity Training and Operations Center (HFTOC) training center is fully operational, SRS will use existing facilities at SRS, LANL, and Lawrence Livermore National Laboratory (LLNL) to conduct and support training activities. Workforce development activities will continue including engagement with LANL through the Knowledge Transfer program and with LANL and LLNL through the Mutual Support program, as well as expansion of university engagement to increase opportunities specific to workforce needs.

  Additionally, the Savannah River Plutonium Processing Facility (SRPPF) project, 21-D-511, repurposes the partially completed Mixed Oxide Fuel Fabrication Facility (MFFF) to achieve a production capability of 50 ppy consistent with the NNSA's recommended alternative for pit production.

- **Enterprise Pit Production Support:** Provides funding for activities that support pit production across the NSE, including Kansas City National Security Campus (KCNSC) production for non-nuclear components, certification activities, management of the plutonium pit Product Realization Team (PRT) at LLNL, plutonium material supply chain activities at Pantex (PX), and material management and supporting staging activities at the Nevada National Security Site (NNSS).

Highlights of the FY 2026 Budget Request

- Support pit production capability modernization in accordance with Department of Defense (DoD) requirements.
- Install additional production equipment and recapitalize end-of-life equipment in PF-4 to reduce pit production mission risk.
- Perform certification work required to qualify new equipment for WR production.
- Hire, train, and qualify staff to ramp up future pit production.
- Improve PF-4 vault facilities efficiency through inventory work-off and optimization of footprint to support the transition to plutonium production and improve Material at Risk (MAR) posture.
- Chemistry and Metallurgy Research (CMR) de-inventory activities in support of the CMR Facility Exit Strategy.
- Provide storage/staging and inventory management capabilities in support of the plutonium pit production mission.
- Execute Device Assembly Facility (DAF) Enhanced Staging Program to provide staging support to pit production.
- Mature the SRS Plutonium Modernization Program, to include expanded knowledge transfer and training.
- Invest in the SRS Machine Training Center (MTC) to support production competency and modern manufacturing development ahead of SRPPF project completion.
- Invest in the Weapons Support Building (WSB), formerly known as the Waste Solidification Building, to support operations, training, and competency development.
- Obtain CD-2/3 for SRPPF and start full-scale construction of Main Process Buildings and HFTOC Subprojects.
- Complete the design of the SRPPF project; execute SRPPF site preparation, long-lead procurements, and construction of SRPPF Administrative Building Subproject.

Los Alamos Plutonium Modernization (+$221.984 million)

- **Los Alamos Pit Production**
  Funding will support the pace of equipment purchases and installation activities and the hiring, training, qualification, and retention of additional staff needed to support the war reserve (WR) pit production ramp-up. Rate production will increase to 30 ppy as soon as FY 2028 while also completing construction activities in PF-4. Establishes limited funding for development and certification activities for pits for the W93 program to support First Production Unit (FPU) in the 2030s.
- **21-D-512 Plutonium Pit Production Project, LANL**
  Increase funds the project plans for baselined subprojects and pre-CD-2 project plan for the training center.
- **15-D-302 TA-55 Reinvestments Project, Phase 3, LANL**
  Decreased funding needed consistent with the project funding profile. FY 2026 is the final year of funding, as the project will reach CD-4 in FY 2027.
- **07-D-220-04 Transuranic Liquid Waste Facility, LANL**
  Increase provides final construction funding necessary to achieve CD-4 in FY 2027.
- **04-D-125 Chemistry and Metallurgy Research Replacement Project, LANL**
  Increase reflects use of balances in FY 2025 to achieve CD-2/3 baseline approval and begin construction on the PEI2 subproject. FY 2026 funding will continue procurement and construction for PEI2.

Savannah River Plutonium Modernization (+$1,058.154 million)

- **Savannah River Pit Production**
  Increase supports additional modern manufacturing requirements across people, plant, process, and procedure necessary to build production competency, establish the pit production capability, and optimize the schedule from SRPPF CD-4 approval to full rate production to meet DoD requirements.
- **21-D-511 Savannah River Plutonium Processing Facility, SRS**
  Increase supports two subprojects as they near design completion and one subproject in construction, as well as activities associated with long-lead procurements and site preparation to accelerate and reduce risk to overall project schedule.

Enterprise Pit Production Support (+$23.130 million)

- Increase supports minor construction projects at the NNSS Device Assembly Facility (DAF); modernization of equipment at LLNL needed for continued support for pit production and certification; continued non-nuclear component production at the KCNSC; and plutonium material supply chain activities at Pantex (PX).

Primary Capability Modernization
High Explosives and Energetics

Description
The High Explosives and Energetics (HE&E) program is responsible for the production of high explosives (HE) and energetic materials required for an effective stockpile, including the main charge, boosters, detonators, actuators, timer/drivers, spin rockets, and the materials necessary to achieve nuclear weapon safety and security.

The HE&E modernization program will do the following:
- Manage the HE&E supply chain risk portfolio to ensure an internal nuclear security enterprise and external vendor base to maintain, manufacture, and deploy Mark Quality HE and energetics in support of weapons production.
- Define and monitor the qualification standards of HE and energetic material.
- Support the future development and production of novel HE and energetic material.
- Define and ensure infrastructure capital investment strategies meet both HE&E material and component requirements to sustain and modernize the stockpile.

Highlights of the FY 2026 Budget Request
- Procure energetic material to meet the production needs of the B61-12, W80-4, W87-1, and W93.
- Stabilize the supply chain and enable material/manufacturing maturation, where needed, to meet the energetic material requirements of the current and future stockpile modernization programs.
- Develop, at the pilot scale, an alternate vendor for the manufacturing of a drop-in replacement binder for FK-800 for future insensitive high explosive (IHE) production requirements.
- Refine manufacturing techniques for new HE and mock formulations.
- Develop Triaminotrinitrobenzene (TATB) synthesis and optimize capability at the Naval Surface Warfare Center, Indian Head Division.
- Reconstitute legacy production materials, such as titanium hydride and potassium perchlorate (THKP) and Recrystallized pentaerythritol tetranitrate (PETN).
- Complete main works final acceptance and readiness verification activities for HE Science & Engineering (HESE) facility.
- Procure first WR lots of polymer-bonded explosives (PBX) 9502 with new TATB.
- Receive final lot of FK-800 binder through the Federal Direct contract with 3M prior to 3M ceasing production of all per- and polyfluoroalkyl substances (PFAS) materials.
- Initiate in-situ monitoring and process control upgrades at Holston to achieve more reliable production of both PBX 9502 and PBX 9501.
- Execute predevelopment production for the W93 main charge.

High Explosives and Energetics (+$49.348 million)
- **High Explosives and Energetics**
  Increase reflects synthesis facility construction completion at the Naval Surface Warfare Center - Indian Head Division and commencement of optimization activities, vendor qualification for a new FK-800 binder replacement, amplified responsibilities for the W93, process maturation and development efforts for new molecules, and bay modifications at PX.
- **15-D-301 HE Science & Engineering Facility, PX**
  Decrease consistent with the planned completion of construction activities.

Description

The Secondary Capability Modernization program maintains, reconstitutes, and upgrades capabilities and capacity to provide a robust, flexible, and responsive capability to produce the secondary stage of a nuclear weapon by:

- Assuring a continuous and reliable supply of nuclear weapon components and strategic materials.
- Undertaking construction and acquisition projects to house processes in facilities that can support forecasted requirements.
- Extending the life of existing facilities and equipment.
- Maturing and inserting new production technologies for better, safer, more efficient processes.
- Partnering with commercial industry to accelerate capability deployment and reduce production risk.

Enriched Uranium Modernization stewards the United States supply of enriched uranium for Defense Programs, Defense Nuclear Nonproliferation, Naval Reactors, and Mutual Defense Agreement missions. The Program accomplishes this through ensuring material availability through uranium processing, recycle, and recovery; modernizing production capabilities and infrastructure; and developing and deploying new, safer, and resilient production technologies.

Building 9212, an 80-year-old Manhattan Project era facility located at Y-12, contains the most hazardous enriched uranium operations and does not meet modern nuclear safety and security standards. The Enriched Uranium Modernization program is decreasing mission dependency on Building 9212 by transitioning capabilities into enduring Y-12 facilities and the Uranium Processing Facility (UPF). The program is leveraging these capability relocations to modernize by deploying new technologies to reduce costs and improve manufacturing processes for nuclear weapon materials.

The program supplies the current stockpile with purified enriched uranium metal, while supporting the transition of new capabilities (e.g., Microwave Casting, Electrorefining, and Direct Chip Melt) into the new and enduring facilities. It is also contracting with a commercial vendor to bridge an oxide-to-metal capability gap, reducing risk during a period of significant technology transition at Y-12 and increasing the resiliency and responsiveness of enriched uranium operations.

Depleted Uranium Modernization is reestablishing and modernizing lapsed capabilities so NNSA can meet imminent weapons delivery mission requirements. The Depleted Uranium Modernization program supports re-establishing a reliable supply of feedstock material, High Purity Depleted Uranium (HPDU) metal, before the current inventory is exhausted. Simultaneously, the program is restarting and maintaining the equipment to produce Depleted Uranium (DU) -niobium alloy, commonly called binary, at Y-12 to meet current and future weapon component needs. The program is also modernizing the manufacturing capabilities needed to produce radiation case components. Both HPDU and binary production will need to increase capacity and reliability in existing aging facilities to meet mission deliverables. The program is also developing and deploying new production technologies that will improve work safety, increase material efficiencies, and establish a resilient radiation case production capability to meet future demands.

Lithium Modernization is modernizing and operating NNSA's enriched lithium-6 processing capabilities to provide lithium weapons components for imminent mission requirements. Lithium Modernization re-capitalizes and operates chemical purification, metal production, and other lithium recycling processes to ensure a reliable lithium material inventory able to meet yearly material requirements without necessitating hazardous and expensive enrichment.

Lithium operations currently take place in Building 9204-2 (Beta-2) at Y-12, an aging facility which is Y-12's number one infrastructure risk. NNSA is executing a comprehensive strategy to reduce facility risk and relocate capabilities over the immediate-, medium-, and long-term. The program is executing targeted infrastructure mitigations, accelerating technology maturation efforts to streamline the production process, leveraging partnerships with commercial industry, and pursuing more cost-effective approaches to construction. This strategy emphasizes a multi-pronged approach that is more responsive to cost and schedule conditions and provides more flexible options to meet mission requirements.

Advanced Materials and Capabilities Modernization is developing and deploying modern production capabilities for new component technologies that will be used in future weapons. NNSA has either discontinued the legacy processes used to produce certain components due to safety concerns or has not used the process for over 30 years. These legacy materials and processes will be replaced with new technologies and materials that are less hazardous and more efficient than legacy capabilities.

Mission Delivery Modernization is modernizing Y-12 operations and facilities that affect multiple material programs including analytical chemistry operations in Building 9995 (known as the Plant Lab), General Manufacturing capability in Building 9201-1, a Manhattan Project-era facility, and the Assembly, Disassembly, Dismantlement, and Surveillance operations in Building 9204-2E. The program is also pursuing opportunities to reduce supply chain risk through the Critical Supplier Program, which leverages commercial vendor capabilities.

Highlights of the FY 2026 Budget Request
- Maintain castable inventory of enriched uranium; modernize production capabilities and infrastructure; and deploy new, safer, and resilient production technologies to phase out mission dependency on Y-12's Building 9212.
- Establish an enriched uranium oxide-to-metal conversion capability and begin operations at a commercial vendor to bridge a capability gap.
- Support a long-term reliable HPDU supply chain to address the potential run out date in FY 2029 which is on the critical path for the entire Depleted Uranium Modernization program.
- Produce and maintain sufficient lithium material supply.
- Advance the technology readiness level for safer, more-efficient lithium processing capabilities.
- Maintain and recapitalize lithium processing equipment in Y-12's Beta-2 facility to reduce the risk of single-point failures.
- Continue to mature Special Materials technologies to reach the next technology readiness levels and manufacturing readiness levels required for production.
- Modernize the analytical chemistry, general manufacturing, and assembly and disassembly operations.
- Execute procurements and refine models and plans to modernize equipment and infrastructure in Y-12's Buildings 9204-2E and 9201-1.

Secondary Capability Modernization (+$121.833 million)
- **Secondary Capability Modernization**
  Increase reflects significant new scope to address recently realized risks in Y-12's Manhattan Project-era Beta-2 facility. The increased funding will support immediate sustainment of the current lithium capabilities at Y-12 and relocation of capabilities out of Beta-2 over the near-, medium-, and long-terms, including expanded use of commercial industry partnerships.

  Increase also reflects funds needed to procure HPDU before the current inventory is exhausted in the near future, while the program develops a long term HPDU conversion capability. It also supports investments in new capabilities necessary to produce future weapon system components, and capacity increases to meet upcoming demand.

- **18-D-690 Lithium Processing Facility, Y-12**
  Decrease reflects a revised strategy to address enduring lithium processing capabilities, following unacceptable cost and schedule growth in the LPF project. Funding will support re-design to focus on more cost effective solutions to powder production, forming, machining, and inspection capabilities.

- **06-D-141 Uranium Processing Facility, Y-12**
  Decrease consistent with baselined project requirements.

Production Modernization
Tritium and Defense Fuels Program

Description

Tritium Sustainment and Modernization operates the national capability for producing tritium. The program irradiates tritium-producing burnable absorber rods (TPBARs) to produce new tritium while maintaining a flexible supply chain capability and capacity to meet national security requirements. NNSA produces tritium by irradiating TPBARs in two Tennessee Valley Authority (TVA) reactors during standard 18-month operating cycles. Produced tritium is extracted from the TPBARs at the Tritium Extraction Facility (TEF) at SRS. The tritium inventory supports limited-life component exchanges of tritium reservoirs deployed in the stockpile. The program establishes tritium production schedules based on detailed computational models and annual tritium projections to maintain required tritium inventories, including reserve quantities. Production planning takes into consideration the material constantly being recovered and recycled from deployed reservoirs, including those from weapon dismantlement. The program also supports tritium science and technology initiatives to maintain a reliable tritium supply chain.

The Defense Fuels (DF) Program is responsible for ensuring a reliable supply of unobligated enriched uranium for defense mission requirements, including low-enriched uranium (LEU) for tritium production and highly enriched uranium (HEU) for naval nuclear propulsion. Since 2013, the United States has lacked the capability to produce enriched uranium free of peaceful use obligations (i.e., unobligated). NNSA currently possesses sufficient unobligated LEU for tritium production through the early 2040s and sufficient unobligated HEU for naval nuclear propulsion into the 2050s. The DF Program has extended the availability of its unobligated LEU supply through the early 2040s by down-blending HEU considered not suitable for weapons use. The DF Program must establish a new domestic uranium enrichment capability to provide new material beyond these need dates. The Program intends to meet these defense mission requirements by incrementally deploying an enrichment capability using one or more gas centrifuge technologies, including the smaller-scale Domestic Uranium Enrichment Centrifuge Experiment (DUECE) being developed at Oak Ridge National Laboratory (ORNL), and the AC100 large centrifuge.

The Tritium Finishing Facility (TFF) project at the Savannah River Site will recapitalize tritium infrastructure that supports scheduled shipments of gas transfer systems to the Department of Defense (DoD). Due to turnover in key personnel and resource constraints across the SRS, the TFF project funding was strategically paused in 2023. During the funding pause, remaining project funds were used to complete the Site Preparation and Warehouse subproject (CD-4 approved March 10, 2025) and to advance TFF finishing equipment designs. n FY 2026, TFF is funded at $50M to subcontract with an architect/engineering firm to advance the TFF design. NNSA will continue to monitor the condition of existing infrastructure and invest, where necessary, to reduce risk and avoid disruption of DoD carryover schedules.

Highlights of the FY 2026 Budget Request

- Maintain a purified tritium supply national security needs.
- Maintain tritium supply chain capability and capacity including technology development and insertion.
- Commence irradiation of up to 2,304 TPBARs in Watts Bar Nuclear Reactor Unit 1 (WBN1) Cycle 21.
- Execute additional component procurements and TPBAR assemblies to satisfy assured production requirements.
- Conduct seven extractions at the TEF.
- Disposition helium-3 byproduct for U.S. Government needs.
- Refurbish or replace tritium processing equipment consistent with the preventative maintenance plan, i.e. system sustainment plan (PSSP).
- Execute research and development activities supporting extraction, recycle and recovery, risk mitigation activities, and technology maturation and insertion efforts.
- Return isotopic separation equipment at SRS to operation at its original capacity after maintenance and repair.
- Begin mini-thermal cycling absorption process (TCAP) prototype development to prove out product and waste gas processing at TEF.
- Complete 60 percent design work on the remaining five TFF finishing equipment systems.
- Commence activities to acquire an external architectural/engineering firm to bring the facility design activities to 90 percent design complete.
- Award Phase 1 contract for design, licensing, long-lead procurements and site preparation for the DUECE centrifuge Pilot Plant
- Award Phase 1 contract for design, licensing, facility upgrades, manufacturing and operations demonstration for an AC100 centrifuge deployment demonstration.

- Continue down-blending HEU not suitable for weapons use to extend the need date for LEU for tritium production.

Tritium and Defense Fuels Program (+$156.646 million)
- Increase supports the award of two contracts – DUECE centrifuge Pilot Plant Phase 1, which includes design, licensing and site preparation and AC100 centrifuge Deployment Phase 1, which includes design, licensing, manufacturing and operations demonstrations.
- The award of the Pilot Plant Phase 1 and AC100 Deployment Phase 1 contracts marks the program's transition from planning to execution of its enrichment strategy.

18-D-650 Tritium Finishing Facility, SRS: Increase supports activities to acquire an external architect/engineering firm to advance facility design.

Production Modernization
Non-Nuclear Capability Modernization

Description

The Non-Nuclear Capability Modernization (NNCM) program executes modernization projects to ensure the enduring availability of non-nuclear capabilities for multiple weapon systems. Non-nuclear components provide critical warhead functions using a wide range of components, including radiation-hardened microelectronics, neutron generators, gas transfer systems, power sources, electrical assemblies, cables, connectors, structural elements, pads/cushions, and a multitude of other parts that are incorporated into the systems that support or weaponize the nuclear explosives package (NEP). The NNCM program modernizes the extensive suite of infrastructure and equipment required to support the non-nuclear component lifecycle inclusive of design, development, qualification, production, and surveillance. These capabilities ensure that components can survive environments encountered throughout the stockpile to the target sequence and over the life of the weapon.

The NNCM program also executes long-term planning and other project cost (OPC) activities to modernize production capabilities for non-nuclear components through line-item projects, including the Power Sources Capability (PSC), Product Realization Infrastructure for Stockpile Modernization (PRISM), MESA Photolithography Capability (MPC), and Microelectronic Components Capability (MC2) projects.

Highlights of the FY 2026 Budget Request

- Complete two projects of the Kansas City Short Term Expansion Plan (KCSTEP).
- Procure long-lead items for the second phase of the Kansas City Non-Nuclear Expansion Transformation (KCNExT) and accelerate future phases.
- Procure fabrication tools and equipment to enable continued manufacturing of warhead strategic radiation-hardened (WSRH) microelectronics at the MESA complex for the nuclear weapon stockpile.
- Develop techniques for recladding Annular Core Research Reactor fuel rods to preserve surveillance and qualification testing capabilities and protect nuclear fuel for future use in the Combined Radiation Environments for Survivability Testing (CREST) Complex.
- Phase 2 refurbishment of SNL's SATURN capability which tests component survivability against X-Ray effects.
- Support for the Electronic Parts Program to reduce risk of using commercial off-the-shelf parts in weapons modernization programs.
- Procure production tools and equipment to enable the manufacturing of Neutron Generators for the nuclear weapons stockpile.
- Complete fielding of dual-path thermal spray production capability needed to meet the requirements of weapon modernization systems.
- Continue strategic sourcing mitigations targeting distressed commodities and vendors and implement commodity strategies that reduce overall supply chain risks.
- Continue implementation of an enterprise-wide effort for early identification of at-risk materials and development of solutions to mitigate supply chain interruptions.
- Continue programmatic equipment acquisition and maintenance for Accelerators (including SATURN and HERMES), Major Environmental Test Facilities (METF), Material Sciences, and Electrical Sciences at SNL.
- Continue construction on the SNL PSC Project.
- Initiate design for the PRISM and MPC line-item projects.
- Initiate the Analysis of Alternatives (AoA) for the MC2 project.

Non-Nuclear Capability Modernization (+$200.288 million)

- **Non-Nuclear Capability Modernization**
  Increase reflects procurement of long-lead items for the second phase of KCNExT and acceleration of future phases.
- **26-D-511 MESA Photolithography Capability (MPC), SNL**
  Increase reflects initiation of preliminary and final design.
- **26-D-510 Product Realization Infrastructure for Stockpile Modernization (PRISM)**
  Increase reflects initiation of preliminary and final design.
- **22-D-513 Power Sources Capability, SNL**
  Increase consistent with the project plan to baseline and begin CD-3 construction activities.

Production Modernization
Capability Based Investments

Description

The Capability Based Investments (CBI) program funds active risk mitigation projects, primarily capital equipment procurements, to reduce risks to core enterprise capabilities extending beyond any single weapon system need. These projects address capability gaps across all eight (8) NNSA sites in weapon production, development, surveillance, and certifications. CBI prioritizes the highest risk to mission needs with emphasis on addressing single point failures, choke points, discontinued or failed equipment, and pivotal enabling capabilities. CBI projects are discrete, short-duration, and non-complex to allow for rapid response to emerging risks.

Highlights of the FY 2026 Budget Request

- **Capability Based Investments (+$24.752 million)**
  Increase reflects additional projects to support equipment capabilities past useful life, addressing single point failures, or needed to provide additional capacity to support NSE mission needs.
  Table I shows the planned CBI projects to be executed with FY 2026 funding based on the status of enterprise infrastructure as of May 2025. This plan may need to be updated before the FY 2026 execution year to respond to changing infrastructure conditions and requirements.

Table I

National Nuclear Security Administration Capability Based Investments Planned FY 2026 Recapitalization Projects - As of May 2025		
Site	**Project Name**	**FY 2026 Allocation ($K)**
KCNSC	Special Application Machining Modernization	3,234
	Gas Transfer Systems Production Modernization	4,859
	Analytical Laboratory Modernization	998
	Assembly and Electrical Fabrication Modernization	3,999
	Subtotal, Kansas City National Security Campus	**13,090**
LLNL	BLDG 226 Power Service Upgrade	4,750
	Detonation and Dynamic Diagnostic Deployment Portfolio	3,000
	STS Environmental Capabilities Portfolio	3,600
	Static and Dynamic Enhanced Radiography Portfolio	4,500
	Stockpile & AAR Equipment Recapitalization	6,000
	NEP Material Science and Engineering Characterization	2,000
	Manufacturing, Assembly, and Tooling Recapitalization	2,000
	Programmatic Equipment Consolidation	2,000
	Subtotal, Lawrence Livermore National Laboratory	**27,850**
LANL	PF-4 Trolley Bus Bar Phase II Installation and D&D	3,077
	DARHT Axis 1 Component Replacement	3,500
	NCERC PLANET Upgrade including Hydraulic System	1,619
	Standards and Cal: Demo and Installation of a Mod Lab for CMM	1,000
	Sigma Foundry Vacuum Manifold	4,555
	LANSCE Klystron Test Bed	8,200
	DARHT Repair Facility Equipment	3,436
	TCAP Tritium Recycle	5,000
	Subtotal, Los Alamos National Laboratory	**30,387**
NNSS	DPF Mission Support	4,000
	PULSE Chilled Water Upgrade (Expansion Tank and Metering Devices)	2,500
	NNSS Equipment Modernization	1,500
	PULSE Capability Expansion	1,500
	SCE Diagnostics Equipment	2,000
	Subtotal, Nevada National Security Site	**11,500**

Site	Project Name	FY 2026 Allocation ($K)
PNNL	Plutonium Metallurgy and Processing Science (PuMPS) capability upgrade	650
	Non-destructive evaluation capability enhancement	500
	318 Laser System Procurement	1,500
	Subtotal, Pacific Northwest National Laboratory	**2,650**
PX	Bay 3 Demo of Equipment (Supporting the PIM Installation)	1,100
	12-94 Facility Modifications Supporting the EV Chamber	4,400
	Additive Manufacturing Printer	2,500
	Subtotal, Pantex Plant	**8,000**
SNL	Reactors/Accelerators Data Acquisition Upgrades	3,435
	Primary Standards Lab Equipment Recapitalization	600
	2nd WETL Centrifuge Replacement	4,354
	Electrical Sciences Amplifier Upgrades	5,015
	Subtotal, Sandia National Laboratories	**13,404**
SRS	Mass Spectrometer Replacements	1,500
	Replace Environmental Chambers 2 & 3	3,000
	Replace HAOM Inert Met Lab Scanning Electron Microscope	4,300
	Use Atom Probe Tomography (ATP) to Evaluate Bonded Surfaces	2,000
	Subtotal, Savannah River Site	**10,800**
SRNL	SRNL Micro-TCAP for ZEUS DPF at NNSS	1,988
	Subtotal, Savannah River National Lab	**1,988**
Y-12	225kV Microfocus CT	4,000
	Leak Tank Portfolio	8,900
	Subtotal, Y-12 National Security Complex	**12,900**
HQ	Planning, Program Management, and Strategic Reserves	41,867
	Corporate Reserves	3,560
	Grand Total, Capability Based Investments	**177,996**

Production Modernization
Warhead Assembly Modernization

Description
The Warhead Assembly Modernization (WAM) program modernizes the capabilities needed to execute warhead assembly/disassembly operations for weapons modernization, surveillance, and dismantlement programs. The WAM program is responsible for modernization activities supporting multiple weapon programs. WAM identifies and implements cross cutting enhancements that provide benefit to all weapon operations executed at Pantex to ensure future mission demand can be achieved.

Warhead Assembly Modernization activities include the following:
- Implement production modernization strategies to increase capacity and resiliency for weapon assembly and disassembly.
- Modernize storage infrastructure for non-nuclear components to accelerate delivery of weapons systems.
- Modernize processes and technologies that increase efficiency in weapon assembly and disassembly operations.
- Provide equipment and infrastructure to enable new technology insertion.
- Modernize critical equipment and capabilities that enable weapon assembly operations.
- Execute planning and OPC activities for future major infrastructure projects supporting weapon assembly operations.

Highlights of the FY 2026 Budget Request
- Implement equipment solutions to support increased build-ahead lead times for weapon modernization components.
- Complete facility design to implement a new in-house nickel-plating capability for production of warhead assembly tooling.
- Procure metrology and calibration equipment to expand capability and capacity for warhead assembly operations.
- Execute process improvements to increase weapon assembly & disassembly capacity.
- Execute conceptual design and reviews for a modular approach to address the Material Staging Capability mission need.
- Procure physical storage enhancement solutions for tooling and production supplies.
- Execute planning and OPC activities for the Future Weapons Assembly and Disassembly and Main Charge Assembly Capability Facilities.

- **Warhead Assembly Modification (+$25.336 million)**
  Increase reflects execution of matured project plans to modernize warhead assembly operations.

Capital Equipment Summary ($K)

	Total	Prior Years	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request	Outyears Total
Capital Equipment (> $500K)						
Total Non-MIE Capital Equipment (TEC <$10M)	N/A	N/A	236,468	241,434	246,504	N/A
Basement Radiography Upgrades, LANL	20,972	20,376	0	596	0	0
CNC Lathe (90%), LANL	22,558	13,361	0	9,197	0	0
Drill and Press D&D and Replacement, LANL	33,744	744	0	0	0	33,000
Electrorefining Line MC&A GB, LANL	23,669	2,355	2,000	19,314	0	0
Final Machining #2 (Previously T-Base #1 Replacement), LANL	52,376	32,938	5,000	14,438	0	0
Foundry Immersion Density, LANL	18,756	8,907		9,849	0	0
Foundry Upgrades Parts Staging (Previously Foundry Upgrades Phase 3), LANL	27,567	24,142	0	3,425	0	0
Heat Treat (90%), LANL	20,459	2,807	0	17,652	0	0
Hot Inspection (Dimensional Inspection Box) (Previously Hot Inspection Phase 2), LANL	15,438	10,969	0	4,469	0	0
Load Frame Installation, LANL	25,510	19,690	0	5,820	0	0
Machining Parts Staging #2, LANL	16,192	2,735	13,457	0	0	0
Metal Recovery System, LANL	35,000	0	0	0	0	35,000
MRR Open Front Hood Install, LANL	17,048	350	0	0	16,698	0
Subassembly Installation, LANL	19,360	2,087	9,354	7,919	0	0
TRU Waste Glovebox Project, LANL	18,942	15,101	0	3,841	0	0
Turnings Consolidation glovebox (Previously Install new turnings consolidation glovebox), LANL	21,527	519	2,500	18,508	0	0
10kg Firing Tank for HESF, LLNL	12,000	0	0	0	0	12,000
DAF End of Life equipment replacement, LLNL	19,594	0	0	0	0	19,594
DAF Pit Certification support gloveboxes, LLNL	24,703	0	0	0	24,703	0
DAF pit residue processing gloveboxes, LLNL	24,755	0	0	0	0	24,755
DAF SCE assembly equipment, LLNL	21,843	0	0	0	0	21,843
DAF SCE part fabrication equipment, LLNL	16,000	0	0	0	0	16,000

	Total	Prior Years	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request	Outyears Total
High Volume Production Special Equipment Installation, LLNL	10,438	0	0	0	0	10,438
Diffusion Furnace Replacements (Qty 5), SNL	19,740	0	0	0	0	19,740
Flexible Production Stepper (previously I-line Multiple Wafer Size Stepper (ASML1 Replacement)), SNL	10,000	0	0	0	0	10,000
FSI Track Replacement (3 of 4) (previously FSI-TEL Track (ASML5)), SNL	10,000	0	0	0	10,000	0
FSI Track Replacement (4 of 4), SNL	10,000	0	0	0	0	10,000
I-Line Stepper Replacement (2 of 2), SNL	10,000	0	0	0	0	10,000
Tonopah Test Range Radar #1, SNL	10,250	0	10,250	0	0	0
Tonopah Test Range Radar #2, SNL	10,250	0	10,250	0	0	0
Spare Tritium Extraction Furnace, formerly Tritium Extraction Facility (TEF) Spare Furnace, SRS	24,000	0	0	0	0	24,000
9201-01 Laser Cutting System, Y-12	12,600	0	0	0	0	12,600
Calciner, Y-12	162,800	128,100	21,200	13,500	0	0
Deuterium Gas Production, Y-12	33,000	0	0	0	0	33,000
Electrolytic Cell Scrubbers, Y-12	30,000	0	0	0	30,000	0
Electrorefining, Y-12	110,500	101,000	5,500	4,000	0	0
30 Inch Warm Isostatic Press, LLNL	11,250				11,250	0
Direct Chip Melt Bottom Loading Furnace: Chip Compaction (formerly Bottom Loading Furnace), Y-12	109,400	3,600	10,400	10,800	36,100	48,400
Direct Chip Melt Bottom Loading Furnace: Compacted Chip Processing: (formerly Bottom Loading Furnace), Y-12	326,000	79,000	12,300	15,300	0	219,400
DUM Direct Cast Production Furnace Execution (formerly Direct Casting Production Furnace), Y-12	23,000	12,000	11,000	0	0	0
DUM Foundry 2nd Vacuum Arc Remelt (VAR) Furnace, Y-12	23,000	0	0	23,000	0	0
DUM Rolling Annealing Furnace Installation, Y-12	20,960	10,960	10,000	0	0	0

	Total	Prior Years	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request	Outyears Total
DUM Rolling Building 9215 High Temperature Salt Bath 350B Installation, Y-12	12,800	12,800	0	0	0	0
GMM 9201-01 Hydroform, Y-12	15,000	0	0	0	0	15,000
Machine Capability Lathe #2, Y-12	10,000	0	10,000	0	0	0
Machine Capability Lathe #3, Y-12	12,000	0	1,500	10,500	0	0
Machine Capability Lathe #4, Y-12	14,000	0	0	1,500	12,500	0
Quality Ops Modernization (QOM) 5N 2 MeV Modular Linatron #1 Replace, Y-12	10,000	0	0	0	0	10,000
QOM 5N 2 MeV Modular Linatron #2 Replace, Y-12	10,000	0	0	0	0	10,000
QOM 5N Dye Pen Station modernization, Y-12	11,500	0	0	0	0	11,500
QOM Beta 2E Radiography 2 MEV Unit, Y-12	32,800	0	0	0	0	32,800
QOM Beta 2E Radiography 9 MEV Unit, Y-12	17,600	0	0	0	0	17,600
SM Equipment Project (formerly SM Design and Balance of Plant MIE), Y-12	30,000	2,000	28,000	0	0	0
Total, Capital Equipment	**N/A**	**N/A**	**399,179**	**435,061**	**387,755**	**656,770**

21-D-512 Los Alamos Plutonium Pit Production Project (LAP4)
Los Alamos National Laboratory (LANL)
Los Alamos, New Mexico
Project is for Design and Construction

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

Summary:

The Fiscal Year (FY) 2026 Request for the Los Alamos Plutonium Pit Production Project (LAP4) is $670,000,000 of Total Project Cost (TPC), which includes $568,079,000 of Total Estimated Cost (TEC) and $101,921,000 of Other Project Cost (OPC). The FY 2026 request includes funds to finish design activities on the 30 Reliable Equipment Installation (30R) and Training and Development Center (TDC) subprojects; and to continue construction activities in the Decontamination and Demolition (D&D), 30 Base Equipment Installation (30B), and the West Entry Control Facility (WECF) subprojects; and to start construction activities on the 30R and TDC subprojects.

LAP4 includes the procurement of equipment and systems and is a contributor to support a baseline production increase from ten plutonium pits per year (ppy) at LANL to not less than 30 ppy, and to provide equipment and infrastructure necessary to support the reliable and timely provision of strategic weapons systems' primary components to strategic defense missions.

Critical Decision (CD)-1, *Approve Alternative Selection and Cost Range*, was approved April 27, 2021, with a TPC cost range of $2,700,000,000 - $3,900,000,000. The full project TPC will not be determined until all the subprojects are baselined at CD-2/3 approval. Both TEC and OPC activities will be funded through this line-item.

Per DOE O 413.3B, any cost savings realized from a LAP4 subproject will be returned to the LAP4 Total Project contingency pool for use, as needed after approval of a baseline change, in other LAP4 subprojects.

Significant Changes:

This Construction Project Data Sheet (CPDS) is an update of the FY 2025 CPDS and does not include a new start for the budget year. The Critical Milestone History and cost tables represent the current approved planning basis of LAP4. Project documentation has been developed to reflect the 30 Diamond (30D) Strategy, with National Nuclear Security Administration (NNSA) recently completing its review. The proposed change control action to implement the 30D strategy is currently being evaluated by DOE. The 30D Strategy is an execution strategy that optimally sequences both programmatic and project activities to achieve the 30 pit per year (PPY) capacity at LANL as soon as possible. Outyear funding amounts may be revised in future budget requests as NNSA baselines the subprojects in accordance with DOE O 413.3B and as final designs are completed.

NNSA's current TPC forecast has increased by $416 million from the previous CPDS, and the project completion date remains the same. NNSA continues to assess the impacts on the TPC and the CD-4 date especially as the project implements the baseline changes to move to the 30D strategy and is currently applying parametric estimates to the 30R subproject. Factors such as longer glovebox fabrications durations, higher resource rates, and ongoing challenges with executing work within an operating nuclear facility are being worked into the project's Baseline Change Proposals (BCPs) and into the 30R parametric estimate and are the drivers of the increase in the cost estimate. The project will further characterize impacts associated with current conditions as the remaining subprojects develop baselines at CD-2/3.

Specific details on the LAP4 subprojects are listed below.

D&D Subproject (21-D-512-01): The D&D subproject has continued construction (removal of gloveboxes and equipment) and the associated support activities like development of Integrated Work Documents and work control documents for future D&D efforts. The D&D subproject has an established performance measurement baseline with a TPC of $529,000,000 and a schedule completion date of March 2027. The NNSA is in the process of reviewing a BCP estimated at $539,000,000 to align to the 30D strategy. The TPC and CD-4 will be adjusted as the new information gets approved.

30B Subproject (21-D-512-02): Achieved CD-3A, *Approve Long-Lead Procurements* on January 3, 2022, with a TPC of $72,000,000 and a completion date of 3Q FY 2024. Achieved CD-3B, *Approve Long-Lead Procurements* on August 5, 2022, with a TPC of $43,000,000 and a completion date of 3Q FY 2024. The 30B subproject reached 90 percent design completion, established a performance baseline (CD-2), and approved start of construction (CD-3) on January 19, 2023, with a TPC of $1,864,126,000 and CD-4 approval planned in August 2030. NNSA is in process of reviewing a BCP estimated at $2,235,000,000 of TPC to align to the 30D strategy. The TPC and CD-4 will be adjusted as the new information gets approved.

30R Subproject (21-D-512-03): Achieved CD-3A, *Approve Long-Lead Procurements* package on March 29, 2023, with a TPC of $99,000,000 and a completion date of 1Q FY 2026. Currently at CD-1 with a TPC of $2,813,227,000, the final design – except for the Product Development Line scope – was completed December 2024, and establishing a performance baseline (CD-2) and approving start of construction (CD-3) has intentionally been shifted to no sooner than December 2025 as the focus will be on 30B and in alignment with the 30D strategy. The long-lead procurement activities will continue as the NNSA is currently evaluating an additional CD-3X activity, and will ultimately mitigate the delays associated with fabrications prior to achieving CD-2/3.

TDC Subproject (21-D-512-04): Currently at CD-1 with a TPC of $450,000,000, the TDC subproject anticipates final design completion, establishing a performance baseline (CD-2), and approving start of construction (CD-3) in August 2026.

WECF Subproject (21-D-512-05): The WECF subproject achieved CD-3A, *Approve Long-Lead Procurements* package on December 15, 2023, with a cost of $27,800,000 and a completion of 1Q FY 2025. Final design is complete and the NNSA approved the performance baseline (CD-2) and start of construction (CD-3) on January 3, 2025 for a TPC of $209,000,000 and CD-4 of September 13, 2029. The increase in the TPC above the CD-1 range is based on the construction bids exceeding the government estimates that were developed prior to abnormally high levels of escalation for construction during the peak COVID periods.

A Federal Project Director has been assigned to the project.

Critical Milestone History:

LAP4 (21-D-512)

Fiscal Quarter or Date

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	D&D Complete	CD-4
FY 2021	11/25/2015	4Q FY 2020	1Q FY 2021	4Q FY 2022	4Q FY 2022	4Q FY 2022	2Q FY 2024	4Q FY 2028
FY 2022	11/25/2015	4Q FY 2020	04/27/2021	2Q FY 2023	1Q FY 2023	2Q FY 2023	N/A	4Q FY 2028
FY 2023	11/25/2015	03/08/2021	04/27/2021	4Q FY 2024	3Q FY 2024	4Q FY 2024	N/A	4Q FY 2028
FY 2024	11/25/2015	03/08/2021	04/27/2021	3Q FY 2025	3Q FY 2025	3Q FY 2025	N/A	4Q FY 2031
FY 2025	11/25/2015	03/08/2021	04/27/2021	4Q FY 2026	4Q FY 2026	4Q FY 2026	N/A	4Q FY 2032
FY 2026	11/25/2015	03/08/2021	04/27/2021	4Q FY 2026	4Q FY 2026	4Q FY 2026	N/A	4Q FY 2032

D&D Subproject (21-D-512-01)

Fiscal Quarter or Date

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	CD-4
FY 2023	11/25/2015	03/08/2021	04/27/2021	11/18/2021	2Q FY 2022	11/18/2021	2Q FY 2027
FY 2024	11/25/2015	03/08/2021	04/27/2021	11/18/2021	07/20/2022	11/18/2021	2Q FY 2027
FY 2025	11/25/2015	03/08/2021	04/27/2021	11/18/2021	07/20/2022	11/18/2021	2Q FY 2027
FY 2026	11/25/2015	03/08/2021	04/27/2021	11/18/2021	07/20/2022	11/18/2021	2Q FY 2027

30B Subproject (21-D-512-02)

Fiscal Quarter or Date

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	CD-4
FY 2023	11/25/2015	03/08/2021	04/27/2021	1Q FY 2023	4Q FY 2022	1Q FY 2023	4Q FY 2026
FY 2024	11/25/2015	03/08/2021	04/27/2021	01/19/2023	4Q FY 2023	01/19/2023	4Q FY 2030
FY 2025	11/25/2015	03/08/2021	04/27/2021	01/19/2023	3Q FY 2024	01/19/2023	4Q FY 2030
FY 2026	11/25/2015	03/08/2021	04/27/2021	01/19/2023	3Q FY 2024	01/19/2023	4Q FY 2030

Fiscal Year	CD-3A	CD-3B
FY 2022	2Q FY 2022	N/A
FY 2023	01/03/2022	N/A
FY 2024	01/03/2022	08/05/2022
FY 2025	01/03/2022	08/05/2022
FY 2026	01/03/2022	08/05/2022

CD-3A – Approve Long-Lead Procurements – Gloveboxes, enclosures, and equipment
CD-3B – Approve Long-Lead Procurements – Gloveboxes, enclosures, and equipment

30R Subproject (21-D-512-03)

Fiscal Quarter or Date

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	CD-4
FY 2023	11/25/2015	03/08/2021	04/27/2021	1Q FY 2024	4Q FY 2023	1Q FY 2024	4Q FY 2028
FY 2024	11/25/2015	03/08/2021	04/27/2021	4Q FY 2024	1Q FY 2025	4Q FY 2024	4Q FY 2031
FY 2025	11/25/2015	03/08/2021	04/27/2021	1Q FY 2025	1Q FY 2025	1Q FY 2025	4Q FY 2032
FY 2026	11/25/2015	03/08/2021	04/27/2021	1Q FY 2026	4Q FY 2025	1Q FY 2026	4Q FY 2032

Fiscal Year	CD-3A
FY 2023	1Q FY 2023
FY 2024	3Q FY 2023
FY 2025	03/29/2023
FY 2026	03/29/2023

CD-3A – Approve Long-Lead Procurements – Gloveboxes, enclosures, and equipment

TDC (21-D-512-04)

	Fiscal Quarter or Date						
Fiscal Year	**CD-0**	**Conceptual Design Complete**	**CD-1**	**CD-2**	**Final Design Complete**	**CD-3**	**CD-4**
FY 2023	11/25/2015	03/08/2021	04/27/2021	4Q FY 2024	3Q FY 2024	4Q FY 2024	4Q FY 2028
FY 2024	11/25/2015	03/08/2021	04/27/2021	3Q FY 2025	3Q FY 2025	3Q FY 2025	4Q FY 2030
FY 2025	11/25/2015	03/08/2021	04/27/2021	4Q FY 2026	4Q FY 2026	4Q FY 2026	4Q FY 2030
FY 2026	11/25/2015	03/08/2021	04/27/2021	4Q FY 2026	4Q FY 2026	4Q FY 2026	4Q FY 2030

WECF Subproject (21-D-512-05)

	Fiscal Quarter or Date						
Fiscal Year	**CD-0**	**Conceptual Design Complete**	**CD-1**	**CD-2**	**Final Design Complete**	**CD-3**	**CD-4**
FY 2023	11/25/2015	03/08/2021	04/27/2021	2Q FY 2023	4Q FY 2022	2Q FY 2023	2Q FY 2026
FY 2024	11/25/2015	03/08/2021	04/27/2021	3Q FY 2024	3Q FY 2024	3Q FY 2024	4Q FY 2028
FY 2025	11/25/2015	03/08/2021	04/27/2021	4Q FY 2024	3Q FY 2024	4Q FY 2024	4Q FY 2028
FY 2026	11/25/2015	03/08/2021	04/27/2021	01/03/2025	10/17/2024	01/03/2025	4Q FY 2029

Fiscal Year	CD-3A
FY 2025	12/15/2023
FY 2026	12/15/2023

CD-3A – Approve Long-Lead Procurements – Early minor site work and equipment

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 Alternative Selection and Cost Range
CD-2 – Approve Performance Baseline
Final Design Complete – Estimated/Actual date the project design will be/was complete(d)
CD-3 – Approve Start of Construction
CD-4 – Approve Start of Operations or Project Closeout

Project Cost History
LAP4 (21-D-512)

($K)

Fiscal Year	TEC, Design	TEC, Construction	TEC, Total	OPC	OPC, Total	TPC
FY 2021	116,900	79,100	196,000	30,000	30,000	226,000[1]
FY 2022	456,000	3,035,000	3,491,000	404,000	404,000	3,895,000[2]
FY 2023	489,897	3,005,340	3,495,237	399,763	399,763	3,895,000[2]
FY 2024	555,285	3,525,496	4,080,781	649,094	649,094	4,729,875[3]
FY 2025	483,407	4,350,888	4,834,295	615,394	615,394	5,449,689[3]
FY 2026	485,859	4,363,933	4,849,792	1,015,561	1,015,561	5,865,353[3]

D&D Subproject (21-D-512-01)

($K)

Fiscal Year	TEC, Design	TEC, Construction	TEC, Total	OPC	OPC, Total	TPC
FY 2023	22,689	459,695	482,384	46,616	46,616	529,000
FY 2024	22,689	459,695	482,384	46,616	46,616	529,000
FY 2025	22,684	459,700	482,384	46,616	46,616	529,000
FY 2026	22,684	459,700	482,384	46,616	46,616	529,000

30B Subproject (21-D-512-02)

($K)

Fiscal Year	TEC, Design	TEC, Construction	TEC, Total	OPC	OPC, Total	TPC
FY 2023	212,626	1,599,990	1,812,616	213,384	213,384	2,026,000
FY 2024	204,894	1,268,160	1,473,054	391,072	391,072	1,864,126
FY 2025	120,449	1,397,697	1,518,146	345,980	345,980	1,864,126
FY 2026	120,449	1,397,697	1,518,146	345,980	345,980	1,864,126

30R Subproject (21-D-512-03)

($K)

Fiscal Year	TEC, Design	TEC, Construction	TEC, Total	OPC	OPC, Total	TPC
FY 2023	163,074	517,871	680,945	79,055	79,055	760,000
FY 2024	236,194	1,369,857	1,606,051	150,698	150,698	1,756,749
FY 2025	236,194	2,089,671	2,325,865	150,698	150,698	2,476,563
FY 2026	236,194	2,026,335	2,262,529	550,698	550,698	2,813,227

[1] The project cost history amounts for FY 2021 reflected only funding requested in that budget year; TPC is not indicative of the total project cost.
[2] The TPC reflects the top of the CD-1 cost range.
[3] NNSA continues to assess the impacts on the TPC and the CD-4 date. Over time the schedule and cost estimates have increased due to refinement of scope during design, and partially accounting for parametric estimates on 30R in advance of having a fully developed baseline estimates. NNSA/LANL is currently refining scope in light of the project reaching the threshold of requiring a CD-1R. Additionally, other contributing factors include escalation, longer glovebox fabrication durations, and ongoing challenges with executing work within an operating nuclear facility.

TDC Subproject (21-D-512-04)

($K)

Fiscal Year	TEC, Design	TEC, Construction	TEC, Total	OPC	OPC, Total	TPC
FY 2023	71,185	331,947	403,132	46,868	46,868	450,000
FY 2024	71,185	331,947	403,132	46,868	46,868	450,000
FY 2025	83,757	307,983	391,740	58,260	58,260	450,000
FY 2026	83,757	307,983	391,740	58,260	58,260	450,000

WECF Subproject (21-D-512-05)

($K)

Fiscal Year	TEC, Design	TEC, Construction	TEC, Total	OPC	OPC, Total	TPC
FY 2023	20,323	95,837	116,160	13,840	13,840	130,000
FY 2024	20,323	95,837	116,160	13,840	13,840	130,000
FY 2025	20,323	95,837	116,160	13,840	13,840	130,000
FY 2026	22,775	172,218	194,993	14,007	14,007	209,000

2. Project Scope and Justification

Scope

The project scope includes the further repurposing of spaces within the existing LANL Plutonium Facility 4 (PF-4) and Sigma facility, beyond the scope of repurposing in the Chemistry and Metallurgy Research Replacement (CMRR) project, including removal of previously installed equipment and support systems as necessary to accommodate new pit production equipment. Scope includes design, construction, and installation of processing equipment, support systems, utilities infrastructure, physical infrastructure, and security features to reach the capability to produce 30 ppy. PF-4 is an operating Hazard Category (HC)- 2, Security Category 1 Nuclear Facility. Sigma is a radiological support facility. PF-4 and supporting capabilities need to be modified to achieve the required pit production capability/capacity.

The LAP4 project is composed of the five subprojects identified below.

D&D Subproject (21-D-512-01)
Decontamination and demolition of gloveboxes and programmatic equipment in PF-4 in preparation for installation of pit production equipment. The scope as originally baselined encompasses waste characterization, D&D, size reduction, removal, waste handling, and disposition.

30B Subproject (21-D-512-02)

A major contributor of pit production enclosures and programmatic equipment procurement and installation to support pit production capacity of a base of 30 ppy at 50 percent confidence. The scope as originally baselined encompasses designing, procuring, installing, testing, transitioning to operations (TTO), and hot startup of new gloveboxes and associated equipment in PF-4. To support reduced project and program risk, long-lead procurement and fabrication of enclosures and process equipment was approved on January 3, 2022, with a cost of $72M. Additional long lead procurement and site preparation was approved on August 5, 2022, with a cost of $43M. Advanced procurement of the long-lead equipment integrates with the approval of CD-2/3 on January 19, 2023, enabling installation to proceed immediately after the approval of the performance baseline. Installation of the long-lead procurement will proceed as the remainder of the 30B enclosures and equipment are fabricated. This tailored approach minimizes impacts to program operations and increases construction efficiencies. Additionally, temporary 80,000 sq ft of warehouse space has been provided for the pre-staging of equipment for setup, testing, and assembly, prior to final installation.

30R Subproject (21-D-512-03)
Pit production enclosures and programmatic equipment procurement and installation to support pit production capacity of 30 ppy reliably. The scope encompasses designing, procuring, installing, testing, transitioning to operations (TTO), and hot startup of new gloveboxes and associated equipment in PF-4 and the Sigma facility. The 30R subproject expands the capability and capacity to provide 30 war reserve ppy to the stockpile at a 90 percent confidence using a single shift. To support reduced project and program risk, long-lead procurement and fabrication of enclosures and process equipment

was approved on March 29, 2023, with a cost of $99M, and is expected to be complete in 1Q FY 2026. Advanced procurement of the long-lead equipment integrates with the anticipated approval of CD-2/3 in December of 2026, enabling installation to proceed immediately after the approval of the performance baseline. Installation of the long-lead procurement will proceed as the remainder of the 30R enclosures and equipment are fabricated. This tailored approach minimizes impacts to program operations and increases construction efficiencies.

TDC Subproject (21-D-512-04)
The Training capability will ensure that production personnel can effectively receive approximately 700,000 required annual staff training hours for initial and annual training, including certification to fully satisfy skill and qualification requirements. The Development capability will support the enduring pit production mission by providing facilities and space for process improvement and development in a non-nuclear environment. The two nonnuclear capabilities require 75,000 net square feet and are briefly summarized below. Design activities are underway and CD-2/3 approval followed by final design completion is anticipated in Q4 FY 2026.

- Nuclear worker training laboratories for glovebox operator and fissile material handler fundamentals training and process worker requalification training. The requalification training laboratories will have a dual purpose to also support production process and technology development activities.
- Unclassified Training areas including classrooms, computer-based training rooms, a training records management center and training staff office space.
- Classified Training areas including classrooms, conference rooms, auditorium/lecture hall, classified records management and storage, facility control system simulation area, cold machine shop, a glovebox equipment pre-installation testing area, and a classified parts vault-type room.

WECF Subproject (21-D-512-05)
The Technical Area (TA)-55 WECF is required to accommodate the additional 800 workers per day entering the property protection area at TA-55 projected to implement the 30 ppy mission. This projected increase effectively doubles the workforce entrance control processing demand. The new WECF, like the existing East ECF, must be a DOE-compliant personnel screening facility which maintains integrity of the protected area at TA-55 to enable safe and secure environment for manufacturing operations and support the required 24/7 schedule. To support reduced project and program risk, long-lead procurement was approved on December 15, 2023, with a cost of $28M. Final design is complete and CD-2/3 was approved on January 3, 2025.

Justification
The NNSA's ability to produce pits in the required quantities established by the Nuclear Weapons Council (NWC) is an essential component of the nuclear deterrent. An Analysis of Alternatives (AoA) was conducted after CD-0, in accordance with the requirements of Office of Management and Budget (OMB) Circular A-11. The NNSA Administrator selected a preferred alternative on May 10, 2018, to continue pit production investments to reach the 30 ppy capability at LANL, and to repurpose facilities at the Savannah River Site (SRS) to produce 50 pits per year.

Sustained and reliable pit production at LANL additionally requires a commensurate increase in infrastructure and support facilities to accommodate the increased activity in a nuclear facility with a diversified mission portfolio. Resources necessary to operate and maintain a sustained and substantial production capacity drives a critical need for training infrastructure, which is included in this project. Increased ingress and egress of production personnel is also essential, and this project includes a new personnel access point/facility into Technical Area-55, which encloses the plutonium facilities.

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.* Funds appropriated under the Plutonium Modernization Program and described in this data sheet may be used for contracted support services to the Federal Project Director and to conduct independent reviews of design and construction for LAP4.

Key Performance Parameters (KPPs)
The KPPs represent the minimum acceptable performance that the project must achieve. Key Performance Parameters were developed as part of the CD-1 approval and will be finalized for CD-2 approval.

Preliminary Key Performance Measures
D&D: Complete turnover, to facility operations, of the space and infrastructure of D&D items in PF-4 identified in the LAP4 Program Requirement Document (PRD), Appendix B.
D&D: Complete disposition and removal of decommissioned, demolished, and removed equipment waste from TA-55 under LAP4.
30B KPP1: Complete turnover to operations and equipment hot testing (as applicable) of the minimum equipment necessary for 30 war reserve PPY.
30B KPP2: Complete turnover to operations and equipment hot testing (as applicable) of the remaining equipment to support 30 war reserve PPY with moderate confidence.
30R: Complete equipment hot testing and turnover of all 30 ppy reliable equipment and structures, systems, and components in PF-4 and Sigma identified in the LAP4 PRD, Appendix B, to Weapons Production for initiation of Process Prove-in activities.
LAP4 Infrastructure: Training and Development Center will receive beneficial occupancy to allow operations.
WECF KPP1: Construct facility and proved infrastructure to increase pedestrian throughput capacity at TA-55 for 800 workers.
WECF KPP2: Provide sufficient entry control equipment for 12 access points.
WECF KPP1: Provide a facility that meets Department of Energy Order (DOE O) 473.1A Physical Protection Program.

3. Financial Schedule

Total Project (21-D-512)

($K)

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
Prior Years - FY 2023	446,919	446,919	251,010
FY 2024[a]	-19,551	-19,551	136,127
FY 2025	55,794	55,794	78,101
FY 2026	2,697	2,697	20,621
Total Design	**485,859**	**485,859**	**485,859**
Construction			
Prior Years - FY 2023	556,399	556,399	300,248
FY 2024	631,551	631,551	307,156
FY 2025	351,081	351,081	473,612
FY 2026	565,382	565,382	417,521
Outyears	2,259,520	2,259,520	2,865,396
Total Construction	**4,363,933**	**4,363,933**	**4,363,933**
TEC			
Prior Years - FY 2023	1,003,318	1,003,318	551,258
FY 2024	612,000	612,000	443,283
FY 2025	406,875	406,875	551,713
FY 2026	568,079	568,079	438,142
Outyears	2,259,520	2,259,520	2,865,396
Total TEC	**4,849,792**	**4,849,792**	**4,849,792**
Other Project Costs (OPC)			
Prior Years - FY 2023	220,916	220,916	71,380
FY 2024	53,000	53,000	1,480
FY 2025	63,125	63,125	81,781
FY 2026	101,921	101,921	87,359
Outyears	576,599	576,599	773,561
Total, OPC	**1,015,561**	**1,015,561**	**1,015,561**
Total Project Costs (TPC)			
Prior Years - FY 2023	1,224,234	1,224,234	622,638
FY 2024[b]	665,000	665,000	444,763
FY 2025	470,000	470,000	633,494
FY 2026	670,000	670,000	525,501
Outyears	2,836,119	2,836,119	3,638,957
Total TPC	**5,865,353**	**5,865,353**	**5,865,353**

[1] Costs for 30B design in FY 2024 were less than planned, so the project shifted the additional funding to construction, keeping overall TEC funding unchanged.

[2] In FY 2024, $5 million of AY 2024 funding was reprogrammed from 21-D-512 Los Alamos Pit Production Project, LANL to the Los Alamos Plutonium Operations program at LANL. The financial table reflects this reprogramming and is $5M less than the FY2024 enacted of $670M.

D&D Subproject (21-D-512-01)

($K)			
	Budget Authority (Appropriations)	**Obligations**	**Costs**
Total Estimated Cost (TEC)			
Design			
Prior Years - FY 2023	22,684	22,684	22,684
Total Design	**22,684**	**22,684**	**22,684**
Construction			
Prior Years - FY 2023	265,705	265,705	171,773
FY 2024	92,000	92,000	70,059
FY 2025	58,840	58,840	86,099
FY 2026	23,155	23,155	69,000
Outyears	20,000	20,000	62,769
Total Construction	**459,700**	**459,700**	**459,700**
TEC			
Prior Years - FY 2023	288,389	288,389	194,457
FY 2024	92,000	92,000	70,059
FY 2025	58,840	58,840	86,099
FY 2026	23,155	23,155	69,000
Outyears	20,000	20,000	62,769
Total TEC	**482,384**	**482,384**	**482,384**
Other Project Costs (OPC)			
Prior Years - FY 2023	12,591	12,591	7,740
FY 2024	6,000	6,000	0
FY 2025	15,000	15,000	8,881
FY 2026	13,025	13,025	13,000
Outyears	0	0	16,995
Total, OPC	**46,616**	**46,616**	**46,616**
Total Project Costs (TPC)			
Prior Years - FY 2023	300,980	300,980	202,197
FY 2024	98,000	98,000	70,059
FY 2025	73,840	73,840	94,980
FY 2026	36,180	36,180	82,000
Outyears	20,000	20,000	79,764
Total TPC	**529,000**	**529,000**	**529,000**

30B Subproject (21-D-512-02)

($K)	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
Prior Years - FY 2023	204,894	204,894	111,706
FY 2024[a]	-84,445	-84,445	8,743
Total Design	**120,449**	**120,449**	**120,449**
Construction			
Prior Years - FY 2023	249,732	249,732	128,475
FY 2024	451,445	451,445	201,456
FY 2025	166,096	166,096	268,600
FY 2026	291,463	291,463	258,100
Outyears	238,961	238,961	541,066
Total Construction	**1,397,697**	**1,397,697**	**1,397,697**
TEC			
Prior Years - FY 2023	454,626	454,626	240,181
FY 2024	367,000	367,000	210,199
FY 2025	166,096	166,096	268,600
FY 2026	291,463	291,463	258,100
Outyears	238,961	238,961	541,066
Total TEC	**1,518,146**	**1,518,146**	**1,518,146**
Other Project Costs (OPC)			
Prior Years - FY 2023	170,972	170,972	27,714
FY 2024	46,998	46,998	51
FY 2025	42,030	42,030	72,700
FY 2026	85,980	85,980	72,700
Outyears	0	0	172,815
Total, OPC	**345,980**	**345,980**	**345,980**
Total Project Costs (TPC)			
Prior Years - FY 2023	625,598	625,598	267,895
FY 2024	413,998	413,998	210,250
FY 2025	208,126	208,126	341,300
FY 2026	377,443	377,443	330,800
Outyears	238,961	238,961	713,881
Total TPC	**1,864,126**	**1,864,126**	**1,864,126**

[1] Costs for 30B design in FY 2024 were less than planned, so the project shifted the additional funding to construction, keeping overall TEC funding unchanged.

30R Subproject (21-D-512-03)

($K)	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
Prior Years - FY 2023	183,858	183,858	102,995
FY 2024	29,542	29,542	103,811
FY 2025	22,794	22,794	29,388
Total Design	**236,194**	**236,194**	**236,194**
Construction			
Prior Years - FY 2023	40,962	40,962	0
FY 2024	37,558	37,558	28,760
FY 2025	65,745	65,745	43,520
FY 2026	101,964	101,964	15,640
Outyears	1,780,106	1,780,106	1,938,415
Total Construction	**2,026,335**	**2,026,335**	**2,026,335**
TEC			
Prior Years - FY 2023	224,820	224,820	102,995
FY 2024[a]	67,100	67,100	132,571
FY 2025	88,539	88,539	72,908
FY 2026	101,964	101,964	15,640
Outyears	1,780,106	1,780,106	1,938,415
Total TEC	**2,262,529**	**2,262,529**	**2,262,529**
Other Project Costs (OPC)			
Prior Years - FY 2023	12,405	12,405	12,405
FY 2024	0	0	0
FY 2025	5,895	5,895	0
FY 2026	257	257	0
Outyears	532,141	532,141	538,293
Total, OPC	**550,698**	**550,698**	**550,698**
Total Project Costs (TPC)			
Prior Years - FY 2023	237,225	237,225	115,400
FY 2024[a]	67,100	67,100	132,571
FY 2025	94,434	94,434	72,908
FY 2026	102,221	102,221	15,640
Outyears	2,312,247	2,312,247	2,476,708
Total TPC	**2,813,227**	**2,813,227**	**2,813,227**

[1] In FY 2024, $5 million of AY 2024 funding was reprogrammed from 21-D-512 Los Alamos Pit Production Project, LANL to the Los Alamos Plutonium Operations program at LANL. The financial table reflects this reprogramming and is $5M less than the FY2024 enacted of $670M.

TDC Subproject (21-D-512-04)

($K)

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
Prior Years - FY 2023	15,160	15,160	0
FY 2024	32,900	32,900	14,423
FY 2025	33,000	33,000	48,713
FY 2026	2,697	2,697	20,621
Total Design	**83,757**	**83,757**	**83,757**
Construction			
FY 2025	0	0	0
FY 2026	104,000	104,000	35,000
Outyears	203,983	203,983	272,983
Total Construction	**307,983**	**307,983**	**307,983**
TEC			
Prior Years - FY 2023	15,160	15,160	0
FY 2024	32,900	32,900	14,423
FY 2025	33,000	33,000	48,713
FY 2026	106,697	106,697	55,621
Outyears	203,983	203,983	272,983
Total TEC	**391,740**	**391,740**	**391,740**
Other Project Costs (OPC)			
Prior Years - FY 2023	17,205	17,205	15,778
FY 2024	0	0	1,427
FY 2025	0	0	0
FY 2026	2,459	2,459	1,459
Outyears	38,596	38,596	39,596
Total, OPC	**58,260**	**58,260**	**58,260**
Total Project Costs (TPC)			
Prior Years - FY 2023	32,365	32,365	15,778
FY 2024	32,900	32,900	15,850
FY 2025	33,000	33,000	48,713
FY 2026	109,156	109,156	57,080
Outyears	242,579	242,579	312,579
Total TPC	**450,000**	**450,000**	**450,000**

WECF Subproject (21-D-512-05)

($K)

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
Prior Years - FY 2023	20,323	20,323	13,625
FY 2024	2,452	2,452	9,150
Total Design	**22,775**	**22,775**	**22,775**
Construction			
Prior Years - FY 2023	0	0	0
FY 2024	50,548	50,548	6,881
FY 2025	60,400	60,400	75,393
FY 2026	44,800	44,800	39,781
Outyears	16,470	16,470	50,163
Total Construction	**172,218**	**172,218**	**172,218**
TEC			
Prior Years - FY 2023	20,323	20,323	13,625
FY 2024	53,000	53,000	16,031
FY 2025	60,400	60,400	75,393
FY 2026	44,800	44,800	39,781
Outyears	16,470	16,470	50,163
Total TEC	**194,993**	**194,993**	**194,993**
Other Project Costs (OPC)			
Prior Years - FY 2023	7,743	7,743	7,743
FY 2024	2	2	2
FY 2025	200	200	200
FY 2026	200	200	200
Outyears	5,862	5,862	5,862
Total, OPC	**14,007**	**14,007**	**14,007**
Total Project Costs (TPC)			
Prior Years - FY 2023	28,066	28,066	21,368
FY 2024	53,002	53,002	16,033
FY 2025	60,600	60,600	75,593
FY 2026	45,000	45,000	39,981
Outyears	22,332	22,332	56,025
Total TPC	**209,000**	**209,000**	**209,000**

4. Details of Project Cost Estimate[1]

Overall Project (21-D-512)

($K)

	Current Total Estimate	Previous Total Estimate	Previous Validated Baseline[a]
Total Estimated Cost (TEC)			
Design			
Design	413,788	406,313	N/A
Federal Design Support	13,675	14,298	N/A
Contingency	58,396	62,796	N/A
Total Design	**485,859**	**483,407**	**N/A**
Construction			
Site Work	106,632	98,267	N/A
Equipment	242,491	240,635	N/A
Construction	2,686,080	2,102,749	N/A
Federal Design Support	89,234	82,544	N/A
Contingency	1,239,496	1,826,693	N/A
Total Construction	**4,363,933**	**4,350,888**	**N/A**
Total Estimated Cost (TEC)	**4,849,792**	**4,834,295**	**N/A**
Contingency, TEC	***1,297,892***	***1,889,489***	**N/A**
Other Project Costs (OPC)			
OPC except D&D			
Conceptual Activities	66,567	66,567	N/A
Startup	727,726	475,799	N/A
Contingency	221,268	73,028	N/A
Total OPC	**1,015,561**	**615,394**	**N/A**
Contingency, OPC	*221,268*	*73,028*	*N/A*
Total Project Cost	**5,865,353**	**5,449,689**	**N/A**
Total Contingency (TEC+OPC)	***1,519,160***	***1,962,517***	***N/A***

[1] The contingency was increased to account for higher than estimated 30R forecasted values.

D&D Subproject (21-D-512-01)[1]

($K)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design			
Design	22,684	22,684	22,689
Federal Design Support	0	0	0
Contingency	0	0	0
Total Design	**22,684**	**22,684**	**22,689**
Construction			
Site Preparation	0	0	0
Equipment	46,238	46,238	46,238
Construction	296,164	258,244	258,244
Federal Design Support	11,946	11,946	11,946
Contingency	105,352	143,272	143,267
Total Construction	**459,700**	**459,700**	**459,695**
Total Estimated Cost (TEC)	**482,384**	**482,384**	**482,384**
Contingency, TEC	***105,352***	***143,272***	***143,267***
Other Project Costs (OPC)			
OPC except D&D			
Conceptual Activities	8,616	8,616	8,616
Cold Startup	36,000	36,000	36,000
Contingency	2,000	2,000	2,000
Total OPC	**46,616**	**46,616**	**46,616**
Contingency, OPC	*2,000*	*2,000*	*2,000*
Total Project Cost	**529,000**	**529,000**	**529,000**
Total Contingency (TEC+OPC)	***107,352***	***145,272***	***145,267***

[1] NNSA is resequencing equipment demolitions and how they may influence the baseline cost profile. Updates to the D&D estimate have not been made due to this evaluation.

30B Subproject (21-D-512-02)

($K)

		Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)				
Design				
	Design	120,449	120,449	204,894
	Federal Design Support	0	0	0
	Contingency	0	0	0
Total Design		**120,449**	**120,449**	**204,894**
Construction				
	Site Work	58,867	58,867	41,552
	Equipment	51,483	51,483	38,166
	Construction	746,114	849,189	729,249
	Federal Design Support	40,000	40,000	40,000
	Contingency	501,203	398,158	419,193
Total Construction		**1,397,697**	**1,397,697**	**1,268,160**
Total Estimated Cost (TEC)		**1,518,146**	**1,518,146**	**1,473,054**
Contingency, TEC		***501,233***	***398,158***	***419,193***
Other Project Costs (OPC)				
OPC except D&D				
	Conceptual Activities	27,596	27,596	27,596
	Startup	297,427	297,427	363,476
	Contingency	20,957	20,957	0
Total OPC		**345,980**	**345,980**	**391,072**
Contingency, OPC		*20,957*	*20,957*	*0*
Total Project Cost		**1,864,126**	**1,864,126**	**1,864,126**
Total Contingency (TEC+OPC)		***522,190***	***419,115***	***419,193***

30R)Subproject (21-D-512-03)[a]

($K)

		Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)				
Design				
	Design	183,848	183,848	N/A
	Federal Design Support	9,490	9,490	N/A
	Contingency	42,856	42,856	N/A
Total Design		**236,194**	**236,194**	**N/A**
Construction				
	Site Work	0	0	N/A
	Equipment	98,414	98,414	N/A
	Construction	1,396,176	796,176	N/A
	Federal Design Support	22,458	22,458	N/A
	Contingency	509,287	1,172,623	N/A
Total Construction		**2,026,335**	**2,089,671**	**N/A**
Total Estimated Cost (TEC)		**2,262,529**	**2,325,865**	**N/A**
Contingency, TEC		***552,143***	***1,215,479***	***N/A***
Other Project Costs (OPC)				
OPC except D&D				
	Conceptual Activities	10,755	10,755	N/A
	Startup	352,972	102,972	N/A
	Contingency[2]	186,971	36,971	N/A
Total OPC		**550,698**	**150,698**	**0**
Contingency, OPC		*186,971*	*36,971*	*N/A*
Total Project Cost		**2,813,227**	**2,476,563**	**N/A**
Total Contingency (TEC+OPC)		***739,114***	***1,252,450***	***N/A***

[1] The overall cost for the 30R scope has been increased to reflect cost growth being realized on the baselined subprojects. The increases are based on parametric estimates that will be updated during the development of the performance baseline estimate.

[2] The increase in the OPC contingency represents a placeholder for the overall cost increase that is currently forecasted

($K)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design			
Design	64,332	64,332	N/A
Federal Design Support	3,885	3,885	N/A
Contingency	15,540	15,540	N/A
Total Design	**83,757**	**83,757**	**N/A**
Construction			
Site Work	30,600	30,600	N/A
Equipment	40,000	40,000	N/A
Construction	143,642	143,642	N/A
Federal Design Support	6,475	6,475	N/A
Contingency	87,266	87,266	N/A
Total Construction	**307,983**	**307,983**	**N/A**
Total Estimated Cost (TEC)	**391,740**	**391,740**	**N/A**
Contingency, TEC	***102,806***	***102,806***	***N/A***
Other Project Costs (OPC)			
OPC except D&D			
Conceptual Activities	17,760	17,760	N/A
Startup	30,500	30,500	N/A
Contingency	10,000	10,000	N/A
Total OPC	**58,260**	**58,260**	**0**
Contingency, OPC	*10,000*	*10,000*	*N/A*
Total Project Cost	**450,000**	**450,000**	**N/A**
Total Contingency (TEC+OPC)	***112,806***	***112,806***	***N/A***

WECF Subproject (21-D-512-05)

($K)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design			
Design	22,475	15,000	22,475
Federal Design Support	300	923	300
Contingency	0	4,400	0
Total Design	**22,775**	**20,323**	**22,775**
Construction			
Site Work	17,165	8,800	17165
Equipment	6,356	4,500	6356
Construction	103,984	55,498	103984
Federal Design Support	8,355	1,665	8355
Contingency	36,358	25,374	36358
Total Construction	**172,218**	**95,837**	**172,218**
Total Estimated Cost (TEC)	**194,993**	**116,160**	**194,993**
Contingency, TEC	***36,358***	***29,774***	***36,358***
Other Project Costs (OPC)			
OPC except D&D			
Conceptual Activities	1,840	1,840	1840
Other OPCs and Startup	10,827	8,900	10827
Contingency	1,340	3,100	1340
Total OPC	**14,007**	**13,840**	**14,007**
Contingency, OPC	*1,340*	*3,100*	*1,340*
Total Project Cost	**209,000**	**130,000**	**209,000**
Total Contingency (TEC+OPC)	***37,698***	***32,874***	***37,698***

5. Schedule of Appropriations Requests

($K)

Request Year	Type	Prior Years	FY 2024	FY 2025	FY2026	Outyears	Total
FY 2020	TEC	N/A	N/A	N/A	N/A	N/A	N/A
	OPC	N/A	N/A	N/A	N/A	N/A	N/A
	TPC	26,156	N/A	N/A	N/A	N/A	26,156
FY 2021	TEC	N/A	N/A	N/A	N/A	N/A	0
	OPC	N/A	N/A	N/A	N/A	N/A	0
	TPC	1,102,156	450,000	200,000	200,000	N/A	1,952,156
FY 2022	TEC	506,000	N/A	N/A	N/A	2,985,000	3,491,000
	OPC	100,000	N/A	N/A	N/A	274,000	374,000
	TPC	606,000	N/A	N/A	N/A	3,259,000	3,865,000
FY 2023	TEC	1,118,234	617,000	593,160	563,515	317,300	3,209,209
	OPC	106,000	53,000	66,840	61,485	102,000	389,325
	TPC	1,224,234	670,000	660,000	625,000	419,300	3,598,534
FY 2024	TEC	1,011,318	617,000	591,271	521,120	1,340,072	4,080,781
	OPC	212,916	53,000	88,870	188,880	105,428	649,094
	TPC	1,224,234	670,000	680,141	710,000	1,445,500	4,729,875
FY 2025	TEC	1,341,402	617,000	381,130	626,212	2,206,635	5,172,379
	OPC	232,832	53,000	88,870	143,788	108,820	627,310
	TPC	1,574,234	670,000	470,000	770,000	2,315,455	5,799,689
FY 2026	TEC	1,003,318	612,000	406,875	568,079	2,259,520	4,849,792
	OPC	220,916	53,000	63,125	101,921	576,599	1,015,561
	TPC	1,224,234	665000[a]	470,000	670,000	2,836,119	5,200,353

6. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	4Q FY 2032
Expected Useful Life (number of years)	50
Expected Future Start of D&D of this capital asset (fiscal quarter)	4Q FY 2082

Related Funding Requirements
(Budget Authority in millions)

	Annual Costs		Life Cycle Costs 2021 Base Year[2]	
	Previous Total Estimate	Current Total Estimate	Previous Total Estimate	Current Total Estimate
Operations and Maintenance	$88	$88	$9,800	$9,800

[1] In FY 2024, $5 million of AY 2024 funding was reprogrammed from 21-D-512 Los Alamos Pit Production Project, LANL to the Los Alamos Plutonium Operations program at LANL. The financial table reflects this reprogramming and is $5M less than the FY 2024 enacted of $670M.

[2] Life cycle costs associated with this project were developed as part of CD-1 and estimate updates to the operation and maintenance costs will be made as fabrication and installation progress occurs and market conditions adjust over time. Neither the Plutonium Pit Production Analysis of Alternatives (AoA) nor Plutonium Pit Production Engineering Assessment (EA) evaluated life cycle costs of reaching 30 ppy at LANL separately from reaching the full 80 ppy production rate for various LANL options.

7. D&D Information

The scope parameters established at CD-1 established the necessary site infrastructure improvements (WECF, TDC, temporary warehouse, material staging and laydown area, etc.) to support establishing a 30 ppy mission and to enable increased construction capacity, risk mitigation, and project efficiency.

These activities will include an increase in site square footage and the D&D of equipment within existing facilities. The D&D of existing facilities are not funded on this project. PF-4 D&D is not part of the LAP4 project scope. Some removal of contaminated equipment in PF-4 for space reuse will occur using project funds.

Gross Square Footage Created/Eliminated	WECF Square Feet	TDC Square Feet	Temporary Warehouse Square Feet
New area to be constructed by this project at Los Alamos National Laboratory..	23,802	130,000	80,000
Area of D&D in this project at Los Alamos National Laboratory	0	0	0
Area at Los Alamos National Laboratory to be transferred, sold, and/or D&D outside the project including area previously "banked"..	23,802	130,000	80,000
Area of D&D in this project at other sites	0	0	0
Area at other sites to be transferred, sold, and/or D&D outside the project including area previously "banked	0	0	0
Total area eliminated	0	0	0

8. Acquisition Approach

Expansion of pit production capacity at LANL will be accomplished with the installation of systems of gloveboxes and equipment. Equipment installation to provide the capability to produce ten ppy will be accomplished using program funding in the Plutonium Modernization Program. NNSA led glovebox efforts such as the Matrixed Execution Team (MET) and Interface meetings continue to drive the prioritization, integration, and coordination of critical glovebox fabrications across the complex and within the supply chain. The installation of equipment to produce more than ten ppy will be accomplished through this project. The LANL management and operating (M&O) contractor will execute design, and construction will be implemented with cleared and accomplished by the LANL craft resources. Subcontract installation of equipment is not feasible within PF-4, due to concurrent operational activities and the requisite security and safety restraints. The performance baselines for each subproject will be established upon completion of 90 percent design maturity, to allow development of credible cost estimates in accordance with DOE O 413.3B and NNSA policy.

For infrastructure, non-nuclear design and construction will be executed via M&O-issued design-bid-build and design-build construction contracts. The performance baselines for each subproject will be established using a graded approach for design maturities appropriate for the various facility types, and to allow development of credible cost estimates in accordance with DOE O 413.3B and NNSA policy.

15-D-302, TA-55 Reinvestment Project (TRP) Phase III
Los Alamos National Laboratory (LANL), Los Alamos, New Mexico
Project is for Design and Construction

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

Summary: The FY 2026 Request for the TA-55 Reinvestment Project Phase III is $7,942,000. The TEC baseline is $188,887,000 and the Total Project Cost (TPC) baseline is $236,030,000 and a CD-4 approval date of June 18, 2027. NNSA is requesting additional project funding in FY 2026, given known cost increases, resulting in a TPC of $251,000,000. The Congressional Control level for this project is TEC.

Significant Changes:

The TA-55 Reinvestment Project was initiated in FY 2005 and subsequently split into three phases.

The FY 2026 Construction Project Data Sheet (CPDS) is an update from FY 2025 and does not include a new start for the budget year. The most recent Critical Decision (CD) for the project is a combined CD-1/2/3 to approve the alternative selection, performance baseline, and authorization of construction which was approved on May 6, 2021. FY 2026 funding will be used to finish construction. The pace at which construction and turnover to operations can be executed is limited by the work being performed in an operating nuclear facility that is required to support critical program deliverables during the execution of this project.

The Baseline is reflective of CD-1/2/3 package and consistent with the scope selection from the Federal Analysis of Alternatives (AoA), final design, lessons learned, and input from the Independent Cost Estimate and External Independent Reviews.

A Federal Project Director, level 3, has been appointed to this project.

In FY 2025, the TRP III project is installing conduit, wire, and devices within the nuclear facility and completing turnover to operation activities for the balance of plant scopes of work. The Project has experienced cost and schedule impacts based on issues of craft availability and productivity as NNSA and LANL prioritize resources to support mission execution. The project had been unable to obtain the required electricians identified in the original recovery schedule, with NNSA and LANL prioritizing other projects in PF-4 (e.g., LAP4). This continued to slow TRP III's performance. Project subcontracted work occurring outside of PF-4 is experiencing better staffing and productivity and is not driving the critical path. Labor availability issues were resolved by completion of other higher priority infrastructure upgrades. In January 2024 an updated recovery plan was implemented, and the available resources were applied to TRP III. Based on these factors, additional project funding has been applied in FY 2025, increasing the estimated total cost to complete the project to $251M. This represents a 6% increase in the project cost. The potential schedule delay remains at 0 to 1 year. Recognizing the difficulty of working within PF-4, the project included considerable schedule margin in the original baseline. The Federal Project Director is evaluating how these impacts might affect the performance baseline. An Estimate at Completion is currently in review and will form the basis to any performance baseline updates. A draft baseline change proposal (BCP) has been submitted by LANL and is currently being evaluated by the FPD.

Critical Milestone History[1]

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	D&D Complete	CD-4
FY 2015	03/23/2005	12/23/2014	1Q FY 2015	4Q FY 2017	2Q FY 2018	2Q FY 2018	N/A	4Q FY 2022
FY 2016	03/23/2005	12/23/2014	4Q FY 2016	4Q FY 2018	2Q FY 2018	4Q FY 2018	N/A	3Q FY 2026
FY 2017	03/23/2005	12/23/2014	4Q FY 2016	4Q FY 2018	2Q FY 2018	4Q FY 2018	N/A	4Q FY 2025
FY 2021	03/23/2005	11/15/2018	3Q FY 2021	3Q FY 2021	4Q FY 2020	3Q FY 2021	2Q FY 2024	2Q FY 2026
FY 2022	03/23/2005	11/15/2018	5/06/2021	5/06/2021	1/22/2021	5/06/2021	2Q FY 2025	3Q FY 2027
FY 2023	03/23/2005	11/15/2018	5/06/2021	5/06/2021	1/22/2021	5/06/2021	2Q FY 2025	3Q FY 2027
FY 2024	03/23/2005	11/15/2018	5/06/2021	5/06/2021	1/22/2021	5/06/2021	2Q FY 2025	3Q FY 2027
FY 2025	03/23/2005	11/15/2018	5/06/2021	5/06/2021	1/22/2021	5/06/2021	2Q FY 2025	3Q FY 2027
FY 2026	03/23/2005	11/15/2018	5/06/2021	5/06/2021	1/22/2021	5/06/2021	4Q FY 2027	3Q FY 2028

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 complete(d)
CD-3 – Approve Start of Construction/Execution
D&D Complete – Completion of D&D work (see Section 9)
CD-4 – Approve Start of Operations or Project Completion

Project Cost History[2]

Fiscal Year	TEC, Design	TEC, Construction	TEC, Total	OPC, Except D&D	OPC, D&D	OPC, Total	TPC
FY 2015	30,062	110,000	140,062	29,500	N/A	29,500	169,562
FY 2016	30,060	150,002	180,062	46,500	N/A	46,500	226,562
FY 2017	30,060	111,448	141,508	31,500	N/A	31,500	173,008
FY 2021	35,628	155,104	190,732	34,658	12,808	47,466	238,198
FY 2022	22,435	166,452	188,887	44,778	2,365	47,143	236,030
FY 2023	19,184[3]	169,703	188,887	44,778	2,365	47,143	236,030
FY 2024	19,184	169,703	188,887	44,778	2,365	47,143	236,030
FY 2025	19,184	184,673	203,857	44,778	2,365	47,143	251,000
FY 2026	19,184	184,673	203,857	44,778	2,365	47,143	251,000

[1] Critical milestone history reflects no milestones in FY 2018, FY 2019 and FY 2020 since no CPDS or budget requests were submitted in these years.
[2] Project cost history reflect no values in FY 2018, FY 2019 and FY 2020 since no CPDS or budget requests were submitted in these years.
[3] TEC design activities were completed for $3.251 million less than the baselined value $22.435 million. The budget under-run was reallocated to Federal construction contingency during the implementation of the performance baseline.

2. Project Scope and Justification

Scope

The TRP III scope encompasses replacing the currently outdated LANL Technical Area (TA)-55 fire alarm system that is not compliant with current codes and standards. Specifically, the existing detection, control, and evacuation devices associated with the fire alarm system are not National Fire Protection Association (NFPA) or Americans with Disabilities Act (ADA) compliant and are not Underwriters Laboratories (UL) listed. All major components of the system are obsolete and difficult to maintain. Spare part availability has continued to be a significant concern as circuit boards for the main fire alarm control panel are no longer available.

The current single fire alarm control panel will be replaced with multiple panels; separating the nuclear facility, Plutonium Facility (PF)-4, and the non-nuclear facilities within the TA-55 site. The scope also includes addition of area-wide and early warning fire detection throughout PF-4, installation of Underwriter Laboratory (UL) listed digital/addressable components, sprinkler flow sensing switches, new evacuation strobes and audible alarms, consolidated monitoring of the campus in the TA-55 Operations Center, and other components to provide inputs from over 2,000 devices spread throughout 199 zones of protection in TA-55. All new systems must be installed and accepted into operation while existing systems continue to provide alarm functions for the operating facility.

Upon completion of the new system, the project includes decommissioning and decontamination of components of the old systems. Demolition involves appropriate radiation protection and waste management characterization of the areas and parts to be removed.

Justification

PF-4 within TA-55 is the only Hazard Category 2 (HC-2) nuclear facility/Security Category 1 (SC-1) supporting all enduring Plutonium missions for Department of Energy (DOE)/NNSA currently. The mission needed for TRP III is to extend the life of TA-55 so it can continue to operate safely and reliably in support of the stockpile stewardship program. This project specifically extends the life of TA-55 by recapitalizing and revitalizing an aging and obsolete fire alarm system.

The TA-55 main fire control panel and supporting devices represent a single point failure risk for this critical capability. More specifically, this facility is critical to support certification of the stockpile, pit production, and all other DOE/NNSA plutonium missions. PF-4 has been in operation for over 35 years and, before the TRP I and TRP II upgrades, the infrastructure and systems were aging and approaching the end of their service life, required excessive maintenance, and experienced increased operating costs and reduced system reliability. The facility is not in compliance with safety and National Fire Protection Association regulatory requirements that are required for the fire alarm systems. TRP III is the final phase of the three-phase project that supports critical upgrades of PF-4 within the TA-55 boundary at LANL.

Portions of the funds appropriated under this data sheet may be used for contracted support services to the Federal Project Director to conduct independent assessments of the planning and execution of this project required by DOE Order 413.3B and to conduct technical reviews of design and construction documents.

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

Key Performance Parameters (KPPs)

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

Performance Measure[1]	Threshold KPP	Objective KPP
New PF-4 fire alarm system (FAS)	**T1:** New FAS has been installed and accepted into operations for PF-4	**O1:** New FAS has been installed and accepted into operations for Balance of Plant
	T2: All data points cutover from old system to the new system as required per baseline design	**O2:** All Balance of Plant data points cutover from old system to the new system as required per baseline design

[1] Key Performance Parameters approved per CD-1/2/3.

3. Financial Schedule

($K)

		Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)				
Design				
	Prior - FY 2023[1]	19,184	19,184	19,184
Total Design		**19,184**	**19,184**	**19,184**
Construction				
	Prior - FY 2023	102,256	102,256	83,739
	FY 2024[2]	35,000	35,000	43,850
	FY 2025	39,475	39,475	32,986
	FY 2026	7,942	7,942	16,475
	Outyears	0	0	7,623
Total Construction		**184,673**	**184,673**	**184,673**
TEC				
	Prior - FY 2023	121,440	121,440	102,923
	FY 2024	35,000	35,000	43,850
	FY 2025	39,475	39,475	32,986
	FY 2026	7,942	7,942	16,475
	Outyears	0	0	7,623
Total TEC		**203,857**	**203,857**	**203,857**

($K)

Other Project Costs (OPC)				
OPC except D&D				
	Prior - FY 2023	28,988	28,988	17,235
	FY 2024	9,543	9,543	4,440

[1] In FY 2020 there was reprogramming of $1.82 million of the FY 2016 appropriation to the LANL TA-3 Substation replacement, 16-D-621.

[b] TEC design activities were completed for $3.251 million less than the baselined value $22.435 million. The budget under-run was reallocated to contingency per the performance baseline. Final design financial closeout was completed in the first quarter of FY 2022 that resulted in a cost reduction of $19K. This reduction was applied against the FY 2021 appropriation. TEC reflected appropriation of $30 million plus funding reallocated at the completion of design - $3.251 million. Also, in FY 2024 $3 million in AY21 funding was reprogrammed from 04-D-125 Chemistry and Metallurgy Research Replacement Project, LANL to 15-D-302 TA-55 Reinvestments Project, LANL.

	FY 2025	5,700	5,700	8,215
	FY 2026	547	547	9,565
	Outyears	0	0	5,323
Total, OPC except D&D		44,778	44,778	44,778
OPC D&D				
	Prior - FY 2023	100	100	0
	FY 2024	2,265	2,265	0
	FY 2025	0	0	1,365
	FY 2026	0	0	1,000
	Outyears	0	0	0
Total, OPC D&D		2,365	2,365	2,365
Total OPC				
	Prior - FY 2023	29,088	29,088	17,235
	FY 2024	11,808	11,808	4,440
	FY 2025	5,700	5,700	9,580
	FY 2026	547	547	10,565
	Outyears	0	0	5,323
Total, OPC		**47,143**	**47,143**	**47,143**
Total Project Costs (TPC)				
	Prior - FY 2023	150,528	150,528	120,158
	FY 2024	46,808	46,808	48,290
	FY 2025	45,175	45,175	42,566
	FY 2026	8,489	8,489	27,040
	Outyears	0	0	12,946
Total TPC		**251,000**	**251,000**	**251,000**

4. **Details of Project Cost Estimate**

($K)

	Current Total Estimate	Previous Total Estimate	Previous Validated Baseline
Total Estimated Cost (TEC)			
Design			
Design[a]	18,884	18,884	22,135
Federal Design Support	300	300	300
Contingency	0	0	0
Total Design[1]	**19,184**	**19,184**	**22,435**
Construction			
Construction	151651[c]	126469[b]	111,499
Federal Support	5,239	5,239	5,239
Contingency	27,783	52,965	49,714
Total Construction	**33,022**	**58,204**	**166,452**
Total Estimated Cost (TEC)	**52,206**	**77,388**	**188,887**
Contingency, TEC	*27,783*	*52,965*	*49,714*
Other Project Costs (OPC)			
OPC except D&D			
Conceptual Planning	8,885	8,885	8885
Conceptual Design	1,668	1,668	1,668
Start-Up	9,405	9,405	9,405
Project Support	14,541	14,541	14,541
Federal Support	1,160	1,160	1,160
Contingency	9,119	9,119	9,119
Total, OPC except D&D	44,778	44,778	44,778
OPC D&D			
OPC D&D	2,365	2,365	2,365
Total, OPC D&D	2,365	2,365	2,365
Total OPC	**47,143**	**47,143**	**47,143**
Contingency, OPC	*9,119*	*9,119*	*9,119*
Total Project Cost	**99,349**	**124,531**	**236,030**
Total Contingency (TEC+OPC)	***36,902***	***62,084***	***58,833***

[1] TEC design activities were completed for $3.251 million less than the baselined value $22.435 million. The budget under-run was reallocated to Federal construction contingency during the implementation of the performance baseline.
[2] Construction value was increased in reaction to increasing project forecasted estimates. If a baseline change is processed to increase the Total Project Costs, the amount of construction and contingency necessary are subject to change.
[3] Construction value was increased based on the increasing project forecast and planned utilization of management reserve.

5. **Schedule of Appropriation Requests**

($K)							
Request Year	**Type**	**Prior Years**	**FY 2024**	**FY 2025**	**FY2026**	**Outyears**	**Total**
FY 2015	TEC	140,062	0	0	0	0	140,062
	OPC	29,500	0	0	0	0	29,500
	TPC	169,562	0	0	0	0	169,562
FY 2016	TEC	160,062	15,000	5,000	0	0	180,062
	OPC	28,500	3,000	5,000	6,000	4,000	46,500
	TPC	188,562	18,000	10,000	6,000	4,000	226,562
FY 2017	TEC	141,508	0	0	0	0	141,508
	OPC	26,500	3,000	2,000	0	0	31,500
	TPC	168,008	3,000	2,000	0	0	173,008
FY 2021	TEC	96,257	30,000	30,000	34,475	0	190,732
	OPC	17,588	11,000	11,808	4,000	3,070	47,466
	TPC	113,845	41,000	41,808	38,475	3,070	238,198
FY 2022	TEC	91,437	TBD	TBD	TBD	97,450	188,887
	OPC	18,088	TBD	TBD	TBD	29,055	47,143
	TPC	109,525	TBD	TBD	TBD	126,505	236,030
FY 2023	TEC	91,438	30,002	30,000	34,474	2,000	187,914
	OPC	18,088	11,000	11,808	5,700	547	47,143
	TPC	109,526	41,002	41,808	40,174	2,547	235,057
FY 2024	TEC	121,440	30,000	34,475	2,000	0	187,915
	OPC	29,088	11,808	5,700	547	0	47,143
	TPC	150,528	41,808	40,175	2,547	0	235,058
FY 2025	TEC	121,440	30,000	39,475	12,942	0	203,857
	OPC	29,088	11,808	5,700	547	0	47,143
	TPC	150,528	41,808	45,175	13,489	0	251,000
FY 2026	TEC	121,440	35,000	39,475	7,942	0	203,857
	OPC	29,088	11,808	5,700	547	0	47,143
	TPC	150,528	46,808	45,175	8,489	0	251,000

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

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	3Q FY 2028
Expected Useful Life (number of years)	25 years
Expected Future Start of D&D of this capital asset (fiscal quarter)	3Q FY 2053

Related Funding Requirements
(Budget Authority in millions)

	Annual Costs		Life Cycle Costs	
	Previous Total Estimate	**Current Total Estimate**	**Previous Total Estimate**	**Current Total Estimate**
Operations and Maintenance	N/A	N/A	N/A	N/A

7. D&D Information

There is no new area being constructed in this construction project, but the old system will be removed.

8. Acquisition Approach

The TRP III acquisition strategy assigns project execution to the LANL Management and Operating (M&O) Contractor. The final design was issued through a firm fixed price subcontract. Construction activities will be self-performed by the M&O Contractor for PF-4 scope and can be subcontracted for the Balance of Plant scope.

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 Fiscal Year (FY) 2026 Request for the Savannah River Plutonium Processing Facility (SRPPF) project is $1,726,000,000, an increase of $926,000,000 from the FY 2025 Enacted level. Appropriations may be used for design, construction, or other project costs (OPC). The most recent Department of Energy (DOE) approved Critical Decisions (CD) for the project are:

- Sandfilter and Fanhouse (S&F) Subproject (21-D-511-06) CD-3A, Approve Long Lead Procurement and Site Preparation, approved February 27, 2024, by the Deputy Administrator for Defense Programs.
- Main Process Buildings (MPB) Subproject (21-D-511-02) CD-3E, Approve Long Lead Procurement, approved April 3, 2024, by the Administrator.
- MPB Subproject (21-D-511-02) CD-3H, Approve Long Lead Procurement, approved October 15, 2024, by the Administrator.
- MPB Subproject (21-D-511-02) CD-3I, Approve Long Lead Procurement, approved December 16, 2024, by the Deputy Secretary.
- MPB Subproject (21-D-511-02) CD-3D, Approve Long Lead Procurement or Site Preparation, approved December 30, 2024, by the Deputy Administrator for Defense Programs.
- High Fidelity Training and Operations Center (HFTOC) Subproject (21-D-511-05) CD-3B, Approve Long Lead Procurement, approved October 25, 2024, by the Administrator.
- MPB Subproject (21-D-511-02) CD-3R (previous scope under CD-3A for S&F Subproject (21-D-511-06)), Approve Site Preparation, approved February 10, 2025, by the Acting Deputy Administrator for Defense Programs.

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. This data sheet has been updated to reflect the outcome from approved programmatic changes in the project's scope that have occurred since CD-1 approval, which is further described in the Significant Changes section below. An updated Tailoring Strategy (TS), endorsed by the Project Management Risk Committee (PMRC) and Energy Systems Acquisition Advisory Board (ESAAB), was approved October 29, 2024, by the Deputy Secretary as the Chief Executive for Project Management (CE) and Project Management Executive (PME) for SRPPF. The updated Tailoring Strategy includes an exemption to requirements of DOE O 413.3B, *Program and Project Management for the Acquisition of Capital Assets*, to allow establishing the DOE O 413.3 Performance Baseline for Hazard Category 1, 2 and 3 nuclear facilities at less than 90 percent design completion to support a CD-2/3 approval targeted earlier in FY 2026 than had been reflected in the Critical Milestone History section of the FY 2025 CPDS. Additional elements of this tailoring strategy are described in the Significant Changes section below. A Federal Project Director (Level III) is assigned to this project and has approved this Construction Project Data Sheet (CPDS).

National Nuclear Security Administration (NNSA) completed the Plutonium Pit Production analysis of alternatives (AoA) in October 2017 and the follow-on Plutonium Pit Production Engineering Assessment (EA) in April 2018. Both efforts informed NNSA's selection of a preferred alternative on May 10, 2018, to continue to invest in Los Alamos National Laboratory (LANL) for the capability to produce no fewer than 30 pits per year (ppy) in 2026, and to repurpose existing facilities at Savannah River Site (SRS) to produce a capability of no fewer than 50 ppy in 2030. Based on information developed to support the CD-1 approval, NNSA has determined that achieving the required 50 war reserve (WR) ppy production capacity at the SRS in 2030 is not feasible. Establishing the required SRPPF pit production capacity to support Department of Defense (DoD) requirements remains a high-priority and is essential for sustaining the effectiveness of the Nation's nuclear deterrent.

The scope, cost and schedule estimates approved at CD-1 include an estimated cost range of $6,900,000,000 to $11,100,000,000 and a CD-4 schedule range of 1st Quarter FY 2032 to 4th Quarter FY 2035. The FY 2026 CPDS reflects a Total Project Cost (TPC) of $25B as a budgetary placeholder, which aligns with the high end of a $18B - $25B estimate range briefed subsequent to the release of the FY 2025 CPDS.As previously explained in more detail in the Significant Changes section of the FY 2025 CPDS, the project has experienced cost increases due to:

- scope and requirement changes during FY 2024
- a projected increase in design costs and completion schedule, which is now reflected in the FY 2026 CPDS,
- continued Management and Operating (M &O) contractor difficulty performing to forecasts,
- delays in turning over scope from Savannah River Nuclear Solutions (SRNS), the M&O contractor, to Fluor Federal Services (FFS), a Construction Management (CM) subcontractor
- economic conditions as experienced by other similar projects in the DOE complex.

The M&O contractor submitted a cost and schedule estimate for all project scope through CD-4 in January 2024 based on 50 percent design complete. NNSA evaluated this estimate and determined that the top end of the original approved CD-1 cost range has grown by more than 50 percent. As such and in accordance with DOE O 413.3, NNSA acknowledged that it must reassess the alternative selection process to identify a new alternative or reaffirm the selected alternative. This analysis is commonly referred to as CD-1 Reaffirmation (CD-1R). NNSA began the CD-1R analysis in FY2025, to confirm the preferred alternative and that it was essential to national security, and is forecasting that CD-1R approval will be prior to or in conjunction with the CD-2/3 approval.

Significant Changes:

This CPDS is an update of the FY 2025 CPDS and is not a new start.

The FY 2025 appropriation and FY 2026 Request support preliminary and final design with an overall project CD-2/3 Performance Baseline approval now targeted for 3rd Quarter FY 2026 (risk informed), which includes six months of schedule contingency, based on the updated Tailoring Strategy approved by S-2 in October 2024 and further described below; continuation of the execution of the Administrative Building Subproject, a design/build for a construction and maintenance building now being performed through an NNSA Interagency Agreement (IA) with the U.S. Army Corps of Engineers (USACE) (further explained in Section 8, Acquisition Strategy, of this CPDS); and provide support for the start of construction within the 226-F facility associated with the MPB by continuing execution of long lead procurement and site preparation activities, i.e., CD-3Xs, for Dismantlement and Removal (D&R) of equipment and installed commodities in 226-F; preparation of the facility interior; long-lead procurements for gloveboxes/process equipment, bulk materials and balance of plant (BOP) equipment; and early site preparation for the HFTOC Subprojects. The FY 2026 request of $1,726,000,000 will be used to support the execution of the new Tailoring Strategy including execution of six new MPB CD-3Xs for additional site preparation, e.g., temporary parking and roads, and procurement of additional bulk material, as shown in and described under the Critical Milestone History section below.

Providing a status update since the FY 2025 CPDS, in FY 2024 the project continued to focus on acceleration of mature design scopes of work that could be proposed as long lead procurement and site preparation packages as described in the Critical Milestone section with forecasted approval dates. The following construction activities continued execution: D&R of equipment and installed commodities in 226-F; preparation of facility interior by making the majority of new penetrations needed for equipment and commodity installation and removal of unneeded concrete structures and fire doors; procurement of long-lead gloveboxes/process and BOP equipment and materials; early preparation and installation for all temporary facilities, utilities (above and below ground) and other general temporary infrastructure necessary to support mobilization and onboarding of construction resources, storage / laydown of construction materials and equipment, shop / fabrication / work areas, etc., to support initiation of SRPPF construction activities; and, final site work including installation of buried process support utilities and a waste transfer line, and demolition and removal of unneeded Mixed Oxide Fuel Fabrication Facility (MFFF) support buildings (temporary and some permanent), and final roadways and grading.

The project team continued to finalize the preliminary design associated with the single line option (SLO) for process operations aligned to Program Requirements Document (PRD) Revision 4. As described in the FY 2025 CPDS, the April 2023 Design Performance Baseline (DPB) Baseline Change Proposal (BCP) confirmed the NNSA projection of a risk informed design cost increase of approximately $1 billion, and a risk informed estimate of up to a one-year schedule delay for design completion, was likely. However, there was not yet enough information at the time the FY 2025 CPDS was submitted regarding the impact of a building airflow / exhaust issue identified during the 60 percent process design review. Further modeling and evaluation was necessary to resolve this issue, and resolution of the issue was expected to result in a delay for completion of 60 percent design. PRD Revision 4 included additional design changes required to support a capability to produce all seminal pit types of the enduring stockpile. Additionally, project requirement changes necessary to address worker protection recommendations from Defense Nuclear Facilities Safety Boardand NNSA

Subject Matter Experts (SMEs) were being evaluated by the M&O and CM contractors and also expected to impact 60 percent and 90 percent design costs and completion forecasts. An initial project 60 percent design submittal, not including the resolved building airflow / exhaust and worker protection issues, was expected to be submitted from the design subcontractor to the M&O Design Agency (DA) in April 2024 to allow the start of review. The finalized total project 60 percent design documents were anticipated to be submitted in July 2024 to enable completion of the design review. This CPDS provides an update related to the plans that were envisioned at the time of FY 2025 CPDS submittal.

To address the worker protection recommendation from DNFSB and NNSA nuclear safety SMEs, an additional requirement change was implemented in FY 2024 and resulted in elevation of the safety categorization for all non-Safety Class MPB Subproject gloveboxes from General Service to Safety Significant. This requirement change resulted in further impacts to design cost and schedule beyond those projected in the FY 2025 CPDS.

The contractor submitted a 60 percent design package in September 2024, but with a listing of identified gaps where design content was not at full 60 percent design maturity. NNSA determined that the M&O Contractor performance was a large contributor to the continued cost and schedule impacts experienced by the project and took action by directing the M&O Contractor to transition the majority of remaining project scope to a CM Subcontractor, however, this transition has progressed slower than expected delaying contractor performance improvements. This CPDS includes the current projection for cost and schedule to complete project design. NNSA challenged the M&O Contractor and CM Subcontractor to develop and commit to a plan that minimizes the impact to the overall project completion target resulting from continued cost increases and schedule delays experienced during completion of design.

NNSA worked with the M&O, CM and other stakeholders involved in the DOE O 413.3 process to develop an updated Tailoring Strategy to mitigate design delay impacts to the overall project completion schedule. The updated Tailoring Strategy included significant changes compared to the tailoring and execution strategy described in previous versions of the CPDS. To enable implementation of all elements of the updated tailoring strategy required Deputy Secretary approval for exemption from certain requirements delineated in DOE O 413.3. The associated exemption requests were included with the Tailoring Strategy approved by the Deputy Secretary. At a summary level, the major elements of the Tailoring Strategy include:

- Reducing the number of subprojects from 6, as previously approved, to the 3 shown below and described further in Section 2:

    - MPB Subproject (21-D-511-02): the scope of the former Utilities, Site Prep, and Infrastructure (USPI) Subproject (21-D-511-01), the former Safeguards and Security (S&S) Subproject (21-D-511-04), and the former S&F Subproject (21-D-511-06), is being incorporated into the MPB Subproject,
    - Administrative Building (ADMIN) Subproject (21-D-511-03)
    - HFTOC Subproject (21-D-511-05).

- Exemption to requirements of DOE O 413.3B to allow:

    - approval of the Performance Baseline (PB) for Hazard Category 1, 2 and 3 nuclear facilities at less than 90 percent design completion (for the MPB Subproject). (NOTE: The Order requirement to have achieved 90 percent design will still be fulfilled prior to authorizing the M&O contractor to begin any segment of construction scope.
    - low risk / hazard commercial construction scope to be approved for execution under a limited number of CD-3Xs, if needed, prior to approval of CD-2/3 to mitigate the risk of delay in approval of CD-2/3.
    - approval of CD-2/3 if the M&O contractor's Earned Value Management System (EVMS) has not yet been certified. NOTE: EVMS certification would be required within six months of CD-2/3 approval.

- Delegating Project Management Executive (PME) authority for all subprojects with a TPC of less than $750 million (M), and CD-3X packages with a cost estimate of less than $750M to the Under Secretary for Nuclear Security/NNSA Administrator. If an individual subproject's TPC reaches or exceeds $750M, PME authority will revert back to the Deputy Secretary.

- Up to six additional CD-3X packages under the MPB Subproject:
    - CD-3D, Additional Site Preparation (e.g., temporary parking, roads, etc.)
    - CD-3J, MPB Interior Building Preparation (early construction)

- CD-3K, MPB Building Modifications (early construction)
- CD-3L, BOP Support Facilities (early construction)
- CD-3M, MPB Overhead Commodity Installation (early construction)
- CD-3R, Sand Filter Shoring & Mudmat (descoped from CD-3A for former S&F Subproject, now renamed as MPB CD-3O)

NOTE 1: Site preparations and long-lead procurements will be accomplished via CD-3Xs under applicable subprojects to optimize project schedule, progress the critical path, and help offset the delays in the completion of the final designs. Prior to initiation of procurements or early site preparation, design/technical packages and individual point estimate-based performance measurement baselines will be developed, reviewed, and approved by the appropriate NNSA approval authority, aligned with the estimated TPC of each CD-3X to establish the basis for performance and resource management.

NOTE 2: Although the former USPI and S&F Subprojects have now been subsumed by the MPB Subproject, these Subprojects had CD-3Xs that had been previously approved by the PME and which had begun execution in the field. There is also one more CD-3X under the former USPI and S&F Subprojects that may be approved prior to CD-2/3. As such, the USPI and S&F Subprojects CD-3Xs will still carry the USPI and S&F designators when now shown in the Critical Milestone History tables as CD-3Xs under the MPB subproject, to ensure traceability to CD-3X approval documentation while under the former USPI and S&F Subprojects.

Per the new Tailoring Strategy, the project will be pursuing CD-2/3 approval based on completion of preliminary design. SRPPF preliminary design equates to an approximate 60 percent composite design completion status and is currently projected to be completed in 4th quarter FY 2025. The various reviews required by DOE O 413.3B are being coordinated to support CD-2/3 approval now targeted for 1st - 3rd Quarter FY 2026 (risk informed), which includes six months of schedule contingency. Once CD-2/3 is approved, finalization of design will continue with prioritization being focused on completion of design for scopes supporting the critical path of construction that can be packaged for approval to begin construction execution. Following this execution strategy, completion of all design is now expected by 4th Quarter FY 2027 (risk informed). A CD-1R is being conducted by NNSA and the results are expected in conjunction with reviews to be conducted for CD-2/3.

Tables in the Critical Milestone History now reflect the updated projection for completion of final design in 4Q FY 2027 (risk informed). As was described in the FY 2025 CPDS, NNSA continues to assess the impacts on the TPC and CD-4 date due to market conditions (e.g., tight labor market, supply chain delays, and construction escalation) and internal challenges (e.g., poor contractor performance, integration with aging infrastructure, synchronization of multiple site projects and interfacing work fronts). Construction projects across the nation are experiencing continuing impacts and the Nuclear Security Enterprise (NSE) is especially susceptible to market conditions due to the skills and clearances required of our designers and craft personnel and the small, domestic, specialty suppliers often required. The Uranium Processing Facility (UPF) at the Y-12 National Security Complex (Y-12) represents the best analog for SRPPF and will continue to be coordinated with for lessons learned, construction performance metrics and indices, etc. UPF had finished foundation and considerable structural work before COVID, is a nuclear project being constructed outside a PIDAS, includes a main processing building and various support structures, will include extensive commissioning, but not the introduction of nuclear material before completion, and is of similar scale. Since fabrication and installation of gloveboxes is critical path for SRPPF, coordination with LANL and the Glove Box Working Group also continues. To help mitigate potential glovebox vendor throughput capacity limitations that would present a challenge to meeting SRPPF glovebox needs, the Glovebox Manufacturing Expansion Initiative (GMEI) was initiated in FY 2024 and $70M of SRPPF funding has been allocated as of February 2025. The funds will be used for investments in facility expansion and equipment modernization of glovebox vendor facilities to increase throughput capacity of Nuclear Quality Assurance (NQA-1) or International Organization for Standardization (ISO) 9001 nuclear gloveboxes needed for the project. The FY 2026 request of $1,726,000,000 will allow larger obligation of funds to glovebox vendors starting in FY 2025 to avoid potential challenges with encumbrances becoming a funds limitation concern for glovebox fabrication and CD-3Xs expected to be initiated, and / or continuing to be executed, under the CM during FY 2025 and FY 2026. At this time, limited glovebox fabrication has been initiated.

NNSA does not have sufficient insight into whether vendor bids for fabrication of gloveboxes and special facility equipment are coming in reasonably close to M&O estimated cost to fabricate. There is also insufficient data available yet regarding whether vendor fabrication schedules or throughput capacity will support the need dates, defined in subcontract documentation, necessary to enable overall SRPPF completion within the current CD-1 completion range of

1Q FY 2032 – 4Q FY 2035. Receipt of vendor proposals, and price and schedule negotiations, are ongoing between the contractor and the vendors.

In April 2025, based on opportunity identified by the CD-1R team, the requirements for the HFTOC were re-evaluated and a reduction of requirements was identified by the NNSA Weapons Design Authority as an acceptable option for the HFTOC. In April 2025, the contractor was given the results of the re-evaluation as recommendations, not requirements, and given the option to propose design and equipment changes that would incorporate some or all of the NNSA recommendations. The contractor elected to propose incorporation of most of the recommendations, which NNSA approved in May 2025, which is expected to mitigate the cost and completion schedule for the HFTOC Subproject as a result, in part, of requirement relaxation that enables HFTOC Special Facility Equipment (SFE), i.e., gloveboxes, hoods, and associated equipment, to be fabricated by non-NQA-1 vendors.

This change realizes a risk mitigation strategy for the MPB Subproject by providing the additional benefit of reducing the number of SFE required to be fabricated by one of the nine NQA-1 vendors NNSA has contracted with for fabrication of the MPB SFE. These requirement changes are anticipated to improve both the HFTOC and MPB construction cost and completion schedules when submitted by the contractor for NNSA review of the CD-2/3 package.

Considering the project's evolution over the past year, a current and more accurate estimate for Project TPC and CD-4 completion will be available in conjunction with CD-2/3 and CD-1R, currently targeted for 1Q FY 2026. Due to this uncertainty, this CPDS will continue to reflect TBDs for the appropriation amount needing to be requested in years beyond FY 2026.

<u>Critical Milestone History</u>

Overall Project (21-D-511-02, 21-D-511-03 and 21-D-511-05)

Fiscal Quarter or Date

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	CD-4
FY 2021	11/25/2015	4Q FY 2020	2Q FY 2021	TBD	TBD	TBD	4Q FY 2026 - 4Q FY 2031[1]
FY 2022	11/25/2015	3Q FY 2021	3Q FY 2021	TBD	TBD	TBD	1Q FY 2032 - 4Q FY 2035
FY 2023	11/25/2015	06/25/2021	06/25/2021	1Q FY 2024	4Q FY 2023	1Q FY 2024	1Q FY 2032 - 4Q FY 2035
FY 2024	11/25/2015	06/25/2021	06/25/2021	3Q FY 2025	2Q FY 2025	3Q FY 2025	1Q FY 2032 - 4Q FY 2035[2]
FY 2025	11/25/2015	06/25/2021	06/25/2021	3Q FY 2026	2Q FY 2026	3Q FY 2026	1Q FY 2032 - 4Q FY 2035[2]
FY 2026	11/25/2015	06/25/2021	06/25/2021	1Q - 3Q FY 2026	4Q FY 2027	1Q - 3Q FY 2026	1Q FY 2032 - 4Q FY 2035[2]

[1] CD-4 range was based on the *Plutonium Pit Production Engineering Assessment*

[2] CD-4 range reflects the range approved at CD-1.

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

Fiscal Quarter or Date

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	CD-4
FY 2022	11/25/2015	3Q FY 2021	3Q FY 2021	TBD	TBD	TBD	TBD
FY 2023	11/25/2015	06/25/2021	6/25/2021	1Q FY 2024	4Q FY 2023	1Q FY 2024	1Q FY 2032 - 4Q FY 2035[1]
FY 2024	11/25/2015	06/25/2021	6/25/2021	3Q FY 2025	2Q FY 2025	3Q FY 2025	1Q FY 2032 - 4Q FY 2035[a]
FY 2025	11/25/2015	06/25/2021	6/25/2021	3Q FY 2026	2Q FY 2026	3Q FY 2026	1Q FY 2032 - 4Q FY 2035[a]
FY 2026	11/25/2015	06/25/2021	6/25/2021	1Q - 3Q FY 2026	4Q FY 2027	1Q - 3Q FY 2026	1Q FY 2032 - 4Q FY 2035[a]

Fiscal Quarter or Date

Fiscal Year	MPB CD-3A	MPB CD-3C	MPB CD-3D	MPB CD-3E	MPB CD-3F	MPB CD-3G	MPB CD-3H
FY 2022	3Q FY 2021	N/A	N/A	N/A	N/A	N/A	N/A
FY 2023	4Q FY 2022	N/A	N/A	N/A	N/A	N/A	N/A
FY 2024	08/30/2022	4Q FY 2023	N/A	4Q FY 2023	1Q FY 2025	1Q FY 2025	1Q FY 2025
FY 2025	08/30/2022	11/20/2023	N/A	2Q FY 2024	1Q FY 2025	3Q FY 2025	1Q FY 2025
FY 2026	08/30/2022	11/20/2023	12/30/2024	04/03/2024	1Q FY 2026	2Q FY 2026	10/15/2024

Fiscal Quarter or Date

Fiscal Year	MPB CD-3I	MPB CD-3J	MPB CD-3K	MPB CD-3L	MPB CD-3M
FY 2022	N/A	N/A	N/A	N/A	N/A
FY 2023	N/A	N/A	N/A	N/A	N/A
FY 2024	TBD	N/A	N/A	N/A	N/A
FY 2025	TBD	N/A	N/A	N/A	N/A
FY 2026	12/16/2024	4Q FY 2025	1Q FY 2026	3Q FY 2026	3Q FY 2026

Fiscal Quarter or Date

Fiscal Year	MPB CD-3N (Formerly USPI CD-3A)	MPB CD-3O (Formerly S&F CD-3A)	MPB CD-3P (Formerly USPI CD-3B)	MPB CD-3Q (Formerly S&F CD-3B)	MPB CD-3R (Formerly S&F CD-3A Scope)
FY 2022	3Q FY 2021	N/A	N/A	N/A	N/A
FY 2023	4Q FY 2022	N/A	N/A	N/A	N/A
FY 2024	4Q FY 2023	4Q FY 2023	TBD	1Q FY 2025	N/A
FY 2025	12/21/2023	2Q FY 2024	2Q FY 2025	1Q FY 2025	N/A
FY 2026	12/21/2023	02/27/2024	2Q FY 2026	2Q FY 2026	02/10/2025

[1] CD-4 range reflects the range approved at CD-1.

Administrative Building (ADMIN) Subproject (21-D-511-03)

Fiscal Quarter or Date

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	CD-4
FY 2022	11/25/2015	3Q FY 2021	3Q FY 2021	TBD	TBD	TBD	TBD
FY 2023	11/25/2015	06/25/2021	06/25/2021	2Q FY 2023	1Q FY 2023	2Q FY 2023	4Q FY 2030
FY 2024	11/25/2015	06/25/2021	06/25/2021	1Q FY 2024	1Q FY 2024	1Q FY 2024	2Q FY 2026
FY 2025	11/25/2015	06/25/2021	06/25/2021	12/12/2023	12/12/2023	12/12/2023	3Q FY 2027
FY 2026	11/25/2015	06/25/2021	06/25/2021	12/12/2023	12/12/2023	12/12/2023	3Q FY 2027

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

Fiscal Quarter or Date

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	CD-4
FY 2022	11/15/2015	3Q FY 2021	3Q FY 2021	TBD	TBD	TBD	TBD
FY 2023	11/25/2015	06/25/2021	06/25/2021	2Q FY 2023	1Q FY 2023	2Q FY 2023	4Q FY 2028
FY 2024	11/25/2015	06/25/2021	06/25/2021	3Q FY 2025	3Q FY 2025	3Q FY 2025	4Q FY 2028
FY 2025	11/25/2015	06/25/2021	06/25/2021	4Q FY 2025	3Q FY 2025	4Q FY 2025	4Q FY 2028
FY 2026	11/25/2015	06/25/2021	06/25/2021	1Q – 3QFY 2026	4Q FY 2026	1Q – 3Q FY 2026	4Q FY 2028

Fiscal Quarter or Date

Fiscal Year	HFTOC CD-3A	HFTOC CD-3B
FY 2024	1Q FY 2024	1Q FY 2025
FY 2025	1Q FY 2025	1Q FY 2025
FY 2026	4Q FY 2025	10/25/2024

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 Alternative Selection and Cost Range
CD-2 – Approve 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 Demolition and Disposal (D&D) work
CD-4 – Approve Start of Operations or Project Closeout

MPB Subproject (21-D-511-02) Long Lead Procurement and Site Preparation (Dismantle and Removal (D&R)) CD-3A – Dismantle and removal of equipment, partially installed commodities, and coatings from Building 226-F. Site preparation activities including temporary ventilation, temporary electrical, temporary communications, and site services contract support activities.

MPB Subproject (21-D-511-02) Site Preparation CD-3C – Site preparation activities, including structural demolition and removal of wall sections to facilitate installation of gloveboxes and process equipment to support MPB.

MPB Subproject (21-D-511-02) Site Preparation CD-3D – site preparation activities, including construction area fencing, access control stations, parking lot expansion / improvements, and road improvements necessary for logistical coordination and execution.

MPB Subproject (21-D-511-02) Long Lead Procurement CD-3E – Initial long lead procurement of gloveboxes and process equipment to support MPB.

MPB Subproject (21-D-511-02) Long Lead Procurement CD-3F – Long lead procurement of bulk materials to support MPB.

MPB Subproject (21-D-511-02) Long Lead Procurement CD-3G – Long lead procurement of BOP equipment to support MPB.

MPB Subproject (21-D-511-02) Long Lead Procurement CD-3H – Second package of long lead procurement of gloveboxes and process equipment to support MPB.

MPB Subproject (21-D-511-02) Long Lead Procurement CD-3I –Third package of long lead procurement of gloveboxes and process equipment to support MPB and PRD, Revision 4.

MPB Subproject (21-D-511-02) Site Preparation CD-3J - Interior Building Preparation (early construction) to include wall repairs, embed cleanup, exposed rebar mitigations, pour backs and coating (re)application.

MPB Subproject (21-D-511-02) Site Preparation CD-3K - Building Modifications (early construction) including structural concrete and mezzanines interior to the MPB, construct North and South Annexes, transformer pads, stair towers, elevator shafts and additional concrete penetrations.

MPB Subproject (21-D-511-02) Site Preparation CD-3L - Building Modifications (early construction) including all building, equipment and commodities related to the Compressor Building, Diesel Generator and Fuel Oil Storage, Waste Buildings, Nitrogen Generation, Cooling Tower, Firewater Pumphouse & Tank, and Diesel Fuel Station.

MPB Subproject (21-D-511-02) Site Preparation CD-3M – If needed, Overhead Commodity Fabrication and Installation (early construction) to include structural steel, fire sprinkler and HVAC in room branch lines requiring installation prior to glovebox delivery and impacting critical path; balance of concrete modifications and penetrations.

MPB Subproject (21-D-511-02) Long Lead Procurement and Site Preparation CD-3N (formerly USPI Subproject CD-3A) – Site preparation and installation of all temporary facilities, utilities (above and below ground), other general temporary infrastructure necessary to support mobilization and onboarding of construction resources, i.e., storage / laydown of construction materials and equipment, shop / fabrication / work areas, etc., to support initiation of SRPPF construction activities. Final site work, including installation of buried process support utilities and a waste transfer line, demolition, and removal of any unneeded MFFF support buildings (temporary and some permanent), and final roadways/grading.

MPB Subproject (21-D-511-02) Site Preparation CD-3O (formerly S&F Subproject CD-3A) – Site preparation activities for the sandfilter and fanhouse facilities that includes stormwater drainage relocation and sand filter and fan house excavation.

MPB Subproject (21-D-511-02) Site Preparation CD-3P (formerly the USPI Subproject CD-3B) – If needed, additional site preparation activities including underground utilities to support the MPB (early construction).

MPB Subproject (21-D-511-02) Site Preparation CD-3Q (formerly S&F Subproject CD-3B) – If needed, additional site preparation activities, including the base mat installation for the sandfilter (early construction).

MPB Subproject (21-D-511-02) Site Preparation CD-3R (formerly scope under the S&F Subproject CD-3A) – Site preparation activities for the sandfilter and fanhouse facilities that includes sheet piling / shoring for sand filter excavation and installation of the sand filter mudmat.

HFTOC Subproject (21-D-511-05) Site Preparation CD-3A – Site preparation activities for the HFTOC including underground utilities work and building modifications to support receipt and installation of future equipment.

HFTOC Subproject (21-D-511-05) Long Lead Procurement CD-3B – Long lead procurement of gloveboxes and equipment to support the HFTOC.

<u>Project Cost History</u>

Overall Project (21-D-511-02, 21-D-511-03 and 21-D-511-05)

($K)

Fiscal Year	TEC, Design	TEC, Construction	TEC, Other	TEC, Total	OPC	OPC, Total	TPC
FY 2021	241,896	0	N/A	241,896	110,000	110,000	4,590,000[1]
FY 2022	TBD	TBD	TBD	TBD	TBD	TBD	11,100,000
FY 2023	1,550,896	6,779,766	589,104	8,919,766	2,180,234	2,180,234	11,100,000
FY 2024	1,686,388	6,629,274	604,104	8,919,766	2,180,234	2,180,234	11,100,000[2]
FY 2025	2,386,388	TBD	TBD	TBD	TBD	TBD	TBD
FY 2026	2,821,596	15,928,404	N/A	18,750,000	6,250,000	6,250,000	25,000,000[3]

MPB Subproject (21-D-511-02)

($K)

Fiscal Year	TEC, Design	TEC, Construction	TEC, Other	TEC, Total	OPC	OPC, Total	TPC
FY 2022	TBD	TBD	TBD	TBD	TBD	TBD	TBD
FY 2023	1,318,896	5,704,766	441,104	7,464,766	1,935,234	1,935,234	9,400,000
FY 2024	1,454,388	5,297,274	441,104	7,192,766	1,866,234	1,866,234	9,059,000
FY 2025	2,154,388	TBD	TBD	TBD	TBD	TBD	TBD
FY 2026	2,650,596	14,508,204	N/A	17,158,800	5,548,000	5,548,000	22,706,800

[1] TEC and OPC amounts reflect estimated costs for FY 2021 only, the TPC amount reflects the high end of the cost range developed during the *Plutonium Pit Production Engineering Assessment* (EA) in 2018.
[2] TPC amount reflects the high-end cost range developed for the CD-1 package.
[3] TPC of $25B is a budgetary placeholder representing the high end of the $18B - $25B estimate range.

ADMIN Subproject (21-D-511-03)

($K)

Fiscal Year	TEC, Design	TEC, Construction	TEC, Other	TEC, Total	OPC	OPC, Total	TPC
FY 2022	TBD	TBD	TBD	TBD	TBD	TBD	TBD
FY 2023	5,500	46,500	6,000	58,000	22,000	22,000	80,000
FY 2024	5,500	46,500	6,000	58,000	22,000	22,000	80,000
FY 2025	5,500	73,700	12,000	91,200	2,000	2,000	93,200
FY 2026	6,000	85,200	N/A	91,200	2,000	2,000	93,200

HFTOC Subproject (21-D-511-05)

($K)

Fiscal Year	TEC, Design	TEC, Construction	TEC, Other	TEC, Total	OPC	OPC, Total	TPC
FY 2022	TBD	TBD	TBD	TBD	TBD	TBD	TBD
FY 2023	33,000	262,000	22,000	317,000	53,000	53,000	370,000
FY 2024	33,000	262,000	22,000	317,000	53,000	53,000	370,000
FY 2025	48,000	247,000	22,000	317,000	53,000	53,000	370,000
FY 2026	165,000	1,335,000	N/A	1,500,000	700,000	700,000	2,200,000[1]

2. Project Scope and Justification

<u>**Scope**</u>

The 21-D-511 project scope includes repurposing Building 226-F, including removal of previously installed equipment and support systems as necessary to accommodate the new pit production mission. Scope includes turnover of all necessary design and quality documentation from the previous mission, any required modifications to Building 226-F and the design, construction and installation of processing equipment, process support systems and buildings, utilities and security features for a capability to produce 50 ppy. The 21-D-511 project will also include transfer, stewardship, and incorporation of select MFFF project government property into the SRPPF project, conversion of the Building 226-2F warehouse building into a high-fidelity training facility, and design and construction of support facilities. Given the special nuclear material (SNM) expected during operations in the SRPPF, Building 226-F will be a Hazard Category 2, Security Category I facility.

The SRPPF approved tailoring strategy includes the following subprojects.

MPB Subproject (21-D-511-02): The MPB includes design, procurement, 226-F construction, including CD-3A removal of equipment, partially installed commodities, and coatings from 226-F, testing and start-up of structures, systems and components necessary to produce a minimum of 50 ppy, and upgrade a facility to house first shift of Protection Force safeguards and security staff for training and construction interface purposes during overall project construction. The MPB Subproject now includes - a) the former USPI Subproject scope including: early preparation and installation for all temporary facilities, utilities (above and below ground) and other general temporary infrastructure necessary to support mobilization and onboarding of construction resources, storage / laydown of construction materials and equipment, shop / fabrication / work areas, etc., to support initiation of SRPPF construction activities; and, final site work including installation of buried process support utilities and a waste transfer line, and demolition and removal of any unneeded MFFF temporary support buildings, and final roadways and grading, b) the former S&S Subproject scope including: design and construction of entry control facilities, security fencing, reconfigure and remodel of Building 706-4F building

[1] TPC of $2.2B is a budgetary placeholder associated with the high end of the $18B - $25B estimate range.

for protective forces and other security infrastructure, and c) the S&F Subproject scope including: site preparation activities and the installation of the sandfilter and fanhouse facilities, with supporting utilities.

ADMIN Subproject (21-D-511-03): The ADMIN Subproject will include design and construction of an approximately 50,000 square foot new Maintenance and Construction support building and an approximately 22,000 square foot procurement warehouse. The Maintenance and Construction support building and procurement warehouse will be constructed early in the project schedule to allow for offices and management support during construction and start-up. The subproject will be integrated with the completion of the final phase of the Utilities, Site, and Infrastructure Subproject.

HFTOC Subproject (21-D-511-05): The HFTOC includes conversion of the 226-2F warehouse building into a high-fidelity training facility for both classroom and hands-on equipment training. This high-fidelity training facility will contain nearly identical process gloveboxes and equipment lines for key processes, including balance of plant systems, to what will be installed in the main process building. This facility will provide the ideal location to perform cold development of future pit builds and train the future pit production workforce at SRS.

<u>Justification</u>

NNSA's ability to produce pits in the required quantities established by the Nuclear Weapons Council (NWC) is an essential component of the nuclear deterrent. An Independent AoA was conducted after CD-0, in accordance with the requirements of Office of Management and Budget (OMB) Circular A-11. Multiple alternatives were analyzed and the AoA identified two preferred alternatives with different construction approaches at two separate locations:

- Refurbishment and repurposing of facilities at the SRS; and,
- Additional footprint to accommodate pit production requirements at LANL.

The NNSA Office of Cost Estimating and Program Evaluation (CEPE) conducted a review of the AoA in October 2017 and recommended that further refinement of the preferred alternatives be completed before selecting an alternative that meets requirements. NNSA contracted with an independent architecture and engineering (A&E) firm to complete the follow-on EA to evaluate two preferred alternatives and two additional alternatives to better inform the selection of an alternative and support conceptual design which was completed on April 20, 2018, along with a workforce analysis.

The NNSA Administrator selected a recommended alternative on May 10, 2018, to repurpose Building 226-F, a partially constructed facility at the SRS, for pit production to meet DoD plutonium pit requirements by 2030. The selected alternative will continue to invest in LANL for the capability to produce 30 ppy, and to repurpose existing facilities at SRS to produce a capability of 80 ppy (both sites) as close to 2030 as possible.

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.* Funds appropriated under this project may be used for contracted support services to the Federal Project Director and to conduct independent reviews and oversight of design and construction for SRPPF.

Key Performance Parameters (KPPs)

KPPs will be finalized in support of CD-2 documentation, the preliminary KPPs below will be revised in support of CD-2.

Performance Measure[1]
226-F Dismantle and Removal (D&R): Complete dismantlement and removal of MFFF equipment and utility commodities in 226-F.
50 ppy Process and Equipment: Complete successful Operational Readiness Review including completion of integrated Cold System Testing and turnover of all 50 ppy facility, systems and components identified in the SRPPF PRD to Weapons Production for initiation of hot operations Process Prove-in activities.
Physical S&S Infrastructure: Complete successful S&S integrated systems and components testing and reconfiguration of 706-4F including project turnover in support of the 50 PPY SRPPF Process and Equipment Operational Readiness Review.
HFTOC: HFTOC will receive beneficial occupancy approval to allow utilization by the Project for Technology maturation and operational preparations with ultimate turnover to Plutonium Operations
SRPPF Infrastructure: Receive beneficial occupancy to support early project utilization and ultimate operations in accordance with the PRD.

[a] These Preliminary Key Performance Parameters were developed as part of the CD-1 package.

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 shown in the tables below.

Overall Project (21-D-511-02, 21-D-511-03 and 21-D-511-05)

($K)

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
Prior - FY 2023	1,070,896	1,070,896	813,733
FY 2024	586,500	586,500	629,943
FY 2025	395,492	395,492	536,997
FY 2026	658,000	658,000	695,700
Outyears	110,708	110,708	145,223
Total Design	**2,821,596**	**2,821,596**	**2,821,596**
Construction			
Prior - FY 2023	800,000	800,000	83,289
FY 2024	393,485	393,485	139,141
FY 2025	362,508	362,508	573,743
FY 2026	960,750	960,750	1,241,001
Outyears	13,411,661	13,411,661	13,891,230
Total Construction	**15,928,404**	**15,928,404**	**15,928,404**
TEC			
Prior - FY 2023	1,870,896	1,870,896	897,022
FY 2024	979,985	979,985	769,084
FY 2025	758,000	758,000	1,110,740
FY 2026	1,618,750	1,618,750	1,936,701
Outyears	13,522,369	13,522,369	14,036,453
Total TEC	**18,750,000**	**18,750,000**	**18,750,000**
Other Project Costs (OPC)			
Prior - FY 2023	467,213	467,213	376,698
FY 2024	20,250	20,250	3,119
FY 2025	42,000	42,000	30,300
FY 2026	107,250	107,250	57,350
Outyears	5,613,287	5,613,287	5,782,533
Total, OPC	**6,250,000**	**6,250,000**	**6,250,000**
Total Project Costs (TPC)			
Prior - FY 2023	2,338,109	2,338,109	1,273,720
FY 2024	1,000,235	1,000,235	772,203
FY 2025	800,000	800,000	1,141,040
FY 2026	1,726,000	1,726,000	1,994,051
Outyears	19,135,656	19,135,656	19,818,986
Total TPC	**25,000,000**	**25,000,000**	**25,000,000**

MPB (MPB) Subproject (21-D-511-02)

($K)

MPB	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
Prior - FY 2023	1,025,396	1,025,396	777,233
FY 2024	526,000	526,000	579,132
FY 2025	330,492	330,492	469,008
FY 2026	658,000	658,000	680,000
Outyears	110,708	110,708	145,223
Total Design	**2,650,596**	**2,650,596**	**2,650,596**
Construction			
Prior - FY 2023	799,000	799,000	83,289
FY 2024	326,735	326,735	138,909
FY 2025	220,508	220,508	483,276
FY 2026	450,300	450,300	761,500
Outyears	12,711,661	12,711,661	13,041,230
Total Construction	**14,508,204**	**14,508,204**	**14,508,204**
TEC			
Prior - FY 2023	1,824,396	1,824,396	860,522
FY 2024	852,735	852,735	718,041
FY 2025	551,000	551,000	952,284
FY 2026	1,108,300	1,108,300	1,441,500
Outyears	12,822,369	12,822,369	13,186,453
Total TEC	**17,158,800**	**17,158,800**	**17,158,800**
Other Project Costs (OPC)			
Prior - FY 2023	466,213	466,213	376,698
FY 2024	18,000	18,000	3,119
FY 2025	28,000	28,000	19,600
FY 2026	57,000	57,000	36,450
Outyears	4,978,787	4,978,787	5,112,133
Total, OPC	**5,548,000**	**5,548,000**	**5,548,000**
Total Project Costs (TPC)			
Prior - FY 2023	2,290,609	2,290,609	1,237,220
FY 2024	870,735	870,735	721,160
FY 2025	579,000	579,000	971,884
FY 2026	1,165,300	1,165,300	1,477,950
Outyears	17,801,156	17,801,156	18,298,586
Total TPC	**22,706,800**	**22,706,800**	**22,706,800**

ADMIN Subproject (21-D-511-03)

($K)

ADMIN	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
Prior - FY 2023	5,500	5,500	4,079
FY 2024	500	500	1,577
FY 2025	0	0	344
FY 2026	0	0	0
FY 2027	0	0	0
Total Design	**6,000**	**6,000**	**6,000**
Construction			
Prior - FY 2023	0	0	0
FY 2024	33,750	33,750	232
FY 2025	41,000	41,000	50,467
FY 2026	10,450	10,450	29,501
FY 2027	0	0	5,000
Total Construction	**85,200**	**85,200**	**85,200**
TEC			
Prior - FY 2023	5,500	5,500	4,079
FY 2024	34,250	34,250	1,809
FY 2025	41,000	41,000	50,811
FY 2026	10,450	10,450	29,501
FY 2027	0	0	5,000
Total TEC	**91,200**	**91,200**	**91,200**
Other Project Costs (OPC)			
Prior - FY 2023	500	500	0
FY 2024	250	250	0
FY 2025	1,000	1,000	700
FY 2026	250	250	900
FY 2027	0	0	400
Total, OPC	**2,000**	**2,000**	**2,000**
Total Project Costs (TPC)			
Prior - FY 2023	6,000	6,000	4,079
FY 2024	34,500	34,500	1,809
FY 2025	42,000	42,000	51,511
FY 2026	10,700	10,700	30,401
FY 2027	0	0	5,400
Total TPC	**93,200**	**93,200**	**93,200**

HFTOC Subproject (21-D-511-05)

($K)

HFTOC	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
Prior - FY 2023	40,000	40,000	32,421
FY 2024	60,000	60,000	49,234
FY 2025	65,000	65,000	67,645
FY 2026	0	0	15,700
Outyears	0	0	0
Total Design	**165,000**	**165,000**	**165,000**
Construction			
Prior - FY 2023	1,000	1,000	0
FY 2024	33,000	33,000	0
FY 2025	101,000	101,000	40,000
FY 2026	500,000	500,000	450,000
Outyears	700,000	700,000	845,000
Total Construction	**1,335,000**	**1,335,000**	**1,335,000**
TEC			
Prior - FY 2023	41,000	41,000	32,421
FY 2024	93,000	93,000	49,234
FY 2025	166,000	166,000	107,645
FY 2026	500,000	500,000	465,700
Outyears	700,000	700,000	845,000
Total TEC	**1,500,000**	**1,500,000**	**1,500,000**
Other Project Costs (OPC)			
Prior - FY 2023	500	500	0
FY 2024	2,000	2,000	0
FY 2025	13,000	13,000	10,000
FY 2026	50,000	50,000	20,000
Outyears	634,500	634,500	670,000
Total, OPC	**700,000**	**700,000**	**700,000**
Total Project Costs (TPC)			
Prior - FY 2023	41,500	41,500	32,421
FY 2024	95,000	95,000	49,234
FY 2025	179,000	179,000	117,645
FY 2026	550,000	550,000	485,700
Outyears	1,334,500	1,334,500	1,515,000
Total TPC	**2,200,000**	**2,200,000**	**2,200,000**

4. Details of Project Cost Estimate[1]

Overall Project (21-D-511-02, 21-D-511-03 and 21-D-511-05)

($K)

		Current Total Estimate	Previous Total Estimate	Previous Validated Baseline
Total Estimated Cost (TEC)				
Design				
	Design	2,492,500	2,115,492	N/A
	Contingency	329,096	270,896	N/A
Total Design		**2,821,596**	**2,386,388**	**N/A**
Construction				
	Site Preparation	1,337,250	TBD	N/A
	Equipment	4,021,800	TBD	N/A
	Construction	8,160,600	TBD	N/A
	Contingency	2,408,754	TBD	N/A
Total Construction		**15,928,404**	**TBD**	**N/A**
Other TEC (if any)				
	Cold Startup	N/A	TBD	N/A
	Contingency	N/A	TBD	N/A
	Total, Other TEC	N/A	TBD	N/A
Total Estimated Cost (TEC)		**18,750,000**	**TBD**	**N/A**
Contingency, TEC		***2,737,850***	***TBD***	***N/A***
Other Project Costs (OPC)				
OPC except D&D				
	Conceptual Planning & Design	367,896	300,000	N/A
	Post CD-1 Costs	5,301,854	TBD	N/A
	Contingency	580,250	TBD	N/A
Total OPC		**6,250,000**	**TBD**	**N/A**
Contingency, OPC		*580,250*	*TBD*	*N/A*
Total Project Cost		**25,000,000**	**TBD**	**N/A**
Total Contingency (TEC+OPC)		**3,318,100**	**TBD**	***N/A***

[1] The subprojects are pre-CD-2, so there are no validated baselines to include in the tables.

MPB Subproject (21-D-511-02)

($K)

		Current Total Estimate	Previous Total Estimate	Previous Validated Baseline
Total Estimated Cost (TEC)				
Design				
	Design	2,342,000	2,065,492	N/A
	Contingency	308,596	267,396	N/A
Total Design		**2,650,596**	**2,332,888**	**N/A**
Construction				
	Site Preparation	1,250,000	TBD	N/A
	Equipment	3,516,800	TBD	N/A
	Construction	7,550,000	TBD	N/A
	Contingency	2,191,404	TBD	N/A
Total Construction		**14,508,204**	**TBD**	**N/A**
Other TEC (if any)				
	Cold Startup	N/A	TBD	N/A
	Contingency	N/A	TBD	N/A
	Total, Other TEC	N/A	TBD	N/A
Total Estimated Cost (TEC)		**17,158,800**	**TBD**	**N/A**
Contingency, TEC		***2,500,000***	***TBD***	***N/A***
Other Project Costs (OPC)				
OPC except D&D				
	Conceptual Planning & Design	367,896	300,000	N/A
	Post CD-1 OPC Costs	4,680,104	TBD	N/A
	Contingency	500,000	TBD	N/A
Total OPC		**5,548,000**	**TBD**	**N/A**
Contingency, OPC		*500,000*	*TBD*	*N/A*
Total Project Cost		**22,706,800**	**TBD**	**N/A**
Total Contingency (TEC+OPC)		***3,000,000***	***TBD***	***N/A***

ADMIN Subproject (21-D-511-03)

($K)

		Current Total Estimate	Previous Total Estimate	Previous Validated Baseline
Total Estimated Cost (TEC)				
Design				
	Design	5,500	5,000	5,000
	Contingency	500	500	500
Total Design		**6,000**	**5,500**	**5,500**
Construction				
	Site Preparation	7,250	7,250	7,250
	Equipment	5,000	5,000	5,000
	Construction	60,600	51,100	51,100
	Contingency	12,350	10,350	10,350
Total Construction		**85,200**	**73,700**	**73,700**
Other TEC (if any)				
	Cold Startup	N/A	10,000	10,000
	Contingency	N/A	2,000	2,000
	Total, Other TEC	N/A	12,000	12,000
Total Estimated Cost (TEC)		**91,200**	**91,200**	**91,200**
Contingency, TEC		***12,850***	***12,850***	***12,850***
Other Project Costs (OPC)				
OPC except D&D				
	Conceptual Planning & Design	0	0	0
	Post CD-1 OPC Costs	1,750	1,750	1,750
	Contingency	250	250	250
Total OPC		**2,000**	**2,000**	**2,000**
Contingency, OPC		*250*	*250*	*250*
Total Project Cost		**93,200**	**93,200**	**93,200**
Total Contingency (TEC+OPC)		***13,100***	***13,100***	***13,100***

HFTOC Subproject (21-D-511-05)

($K)

		Current Total Estimate	Previous Total Estimate	Previous Validated Baseline
Total Estimated Cost (TEC)				
Design				
	Design	145,000	45,000	N/A
	Contingency	20,000	3,000	N/A
Total Design		**165,000**	**48,000**	**N/A**
Construction				
	Site Preparation	80,000	20,000	N/A
	Equipment	500,000	20,000	N/A
	Construction	550,000	167,000	N/A
	Contingency	205,000	40,000	N/A
Total Construction		**1,335,000**	**247,000**	**N/A**
Other TEC (if any)				
	Cold Startup	N/A	20,000	N/A
	Contingency	N/A	2,000	N/A
	Total, Other TEC	N/A	22,000	N/A
Total Estimated Cost (TEC)		**1,500,000**	**317,000**	**N/A**
Contingency, TEC		***225,000***	***45,000***	***N/A***
Other Project Costs (OPC)				
OPC except D&D				
	Conceptual Planning & Design	0	0	N/A
	Post CD-1 OPC Costs	620,000	50,000	N/A
	Contingency	80,000	3,000	N/A
Total OPC		**700,000**	**53,000**	**N/A**
Contingency, OPC		*80,000*	*3,000*	*N/A*
Total Project Cost		**2,200,000**	**370,000**	**N/A**
Total Contingency (TEC+OPC)		***305,000***	***48,000***	***N/A***

5. Schedule of Appropriations Requests

($K)

Request Year	Type	Prior Years	FY 2024	FY 2025	FY 2026	Out Years	Total
FY 2021	TEC	241,896	N/A	N/A	N/A	N/A	N/A
	OPC	436,000	N/A	N/A	N/A	N/A	N/A
	TPC	677,896	N/A	N/A	N/A	N/A	N/A
FY 2022	TEC	686,896	N/A	N/A	N/A	N/A	N/A
	OPC	451,213	N/A	N/A	N/A	N/A	N/A
	TPC	1,138,109	N/A	N/A	N/A	9,961,891	11,100,000
FY 2023	TEC	1,370,896	828,235	984,508	1,001,339	4,734,788	8,919,766
	OPC	467,213	30,000	30,000	50,000	1,603,021	2,180,234
	TPC	1,838,109	858,235	1,014,508	1,051,339	6,337,809	11,100,000
FY 2024	TEC	1,870,896	828,235	1,070,000	1,150,000	4,000,635	8,919,766
	OPC	467,213	30,000	30,000	50,000	1,603,021	2,180,234
	TPC	2,338,109	858,235	1,100,000	1,200,000	5,603,656	11,100,000
FY 2025	TEC	1,870,896	828,235	1,070,000	1,150,000	TBD	TBD
	OPC	467,213	30,000	30,000	50,000	TBD	TBD
	TPC	2,338,109	858,235	1,100,000	1,200,000	TBD	TBD
FY 2026	TEC	1,870,896	979,985	758,000	1,618,750	13,522,369	18,750,000
	OPC	467,213	20,250	42,000	107,250	5,613,287	6,250,000
	TPC	2,338,109	1,000,235	800,000	1,726,000	19,135,656	25,000,000

6. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	1Q FY 2032 – 4Q FY 2035
Expected Useful Life (number of years)	50
Expected Future Start of D&D of this capital asset (fiscal quarter)	1Q FY 2082 – 4Q FY 2085

Related Funding Requirements
(Budget Authority in Millions of Dollars)

	Annual Costs		Life Cycle Costs[1]	
	Previous Total Estimate	Current Total Estimate	Previous Total Estimate	Current Total Estimate
Operations and Maintenance	600	600	48,100	48,100

[1] Current Life Cycle Costs and Annual Costs are based on an updated Life Cycle Cost Estimate performed in January 2021.

7. D&D Information

The SRPPF plutonium processing capability will be constructed within the existing partially completed 226-F building. This will require dismantlement and removal of previously installed MFFF equipment and support systems and facilities as necessary to accommodate the new plutonium production mission. Costs for dismantlement and removal of previously installed MFFF equipment will be part of the MPB Subproject.

8. Acquisition Approach

On May 10, 2018, in support of CD-1, NNSA requested SRNS to lead the SRPPF CD-1 Conceptual Design development activities while leveraging the LANL plutonium processing knowledge and ongoing project and operation activities. SRNS utilized a LANL subcontract with Merrick to provide the process conceptual design. The SRNS utilized an affiliate sub-contract relationship with Fluor Inc., located in Greenville S.C., to provide design of the balance of plant systems. SRNS was responsible for the nuclear safety and Environmental Safety & Health (ES&H) system conceptual design development while relying on the Physical Security Center of Excellence (PSCOE) from Sandia National Laboratories (SNL) for the physical security conceptual design.

In FY 2022, NNSA directed the M&O contractor to solicit and award a CM Contractor to assume all the Engineering, Procurement, and Construction (EPC) responsibilities. The CM and design partners will continue engaging qualified specialty equipment and materials suppliers to improve the quality of design enabling optimum procurements and construction execution. Transition of the EPC activities is complete to the CM contractor, and SRNS remains responsible as the Facility Design Authority (FDA) for the facility, the production equipment, balance of plant support systems, and nuclear safety and security systems. SRNS also remains as the operational authority for ensuring SRPPF operability, maintainability, and sustainability requirements flowed down to the CM are implemented and controlled throughout the project execution. As the plutonium program and project integrator, SRNS is also responsible for the program and operational assurance during design, procurement, construction, start-up and properly sequencing of the project operational readiness and transition. LANL will continue to support the FDA by providing process inputs and oversight for specialty process equipment. LANL will also support the FDA and serve as the Weapons Design Agency for the first pit type to be produced at SRS. The SRNS contract will include Contract Line-Item Numbers (CLINS) to execute NNSA capital line items at SRS to align the applicable requirements and appropriate incentives to optimize the project execution and completion.

Additionally, as a result of M&O performance issues after approval of CD-2/3, an acquisition strategy change was proposed to, and approved by, the PME for the ADMIN Subproject. The ADMIN Subproject is now being executed through an IA with the USACE. The USACE will be considered a construction execution option for other scopes of work if NNSA determines the USACE would provide better value to the government and improve the confidence of project completion.

The SRPPF project is continuing to look for opportunities to expedite execution and has implemented concurrent review processes to support the technical, acquisition and project management submittal processes. Federal reviews are being executed in parallel with the contractor's independent team and management reviews. A consolidated comment resolution process is being implemented. The Contractor providing complete, quality submittals will be key to successful implementation and minimizing the Federal oversight and risk acceptance.

The SRPPF project continues to utilize lessons learned in acquisition and execution of similarly sized nuclear projects, including the execution of the Los Alamos Plutonium Pit Production Project and Y-12 UPF Project. These lessons learned include:

- early long-lead material and engineered procurements, including gloveboxes, BOP equipment, and bulk materials; and
- early site preparation, to include D&R required to prepare existing SRS facilities for SRPPF CD-2/3 design and construction activities.
- Construction planning and productivity factors
- Testing, Start-up and Transition to Operations

The approved CD-1 package identified a multi-subproject construction execution approach. This acquisition approach is continuing to be refined as design matures, along with integration with the national supply chain. Within each subproject, where appropriate, a phasing approach is being applied that includes the following to optimize project schedule and cash flow:

- early site preparation and installation of temporary facilities / utilities necessary to enable construction mobilization, demolition and removal actions, long lead procurements (i.e., CD-3A);
- performance of independent and usable segments of project scope as subprojects utilizing a “phasing” tailoring strategy approach per DOE O 413.3B, (i.e., a phased subproject that would be managed under its own independent CD-2/3 and CD-4.).

18-D-650, Tritium Finishing Facility
Savannah River Site, Aiken, South Carolina
Project is for Design and Construction

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

Summary:
This Construction Project Data Sheet (CPDS) is an update of the Fiscal Year (FY) 2023 CPDS and does not include a new start for the budget year. The FY 2026 Request for the Tritium Finishing Facility (TFF) Project is $50,000,000. This CPDS has been developed to document work that has been performed, and will continue to be performed, with available funding. The preliminary Total Project Cost (TPC) range approved at Critical Decision (CD)-1 on December 20, 2019, is $305,000,000 to $640,000,000. The cost range will be updated as the project is restarted and works towards completing design.

Significant Changes:
In March 2023 the President's FY 2024 Budget paused the TFF project and National Nuclear security Administration (NNSA) directed the Management & Operating (M&O) contractor to complete 30 percent design for the project and to continue towards completion of the Site Preparation and Warehouse subproject. This Budget restarts the project and includes $50,000,000 to allow the project management team to subcontract with an architect/engineering firm to complete the balance-of-plant design.
In May 2023, the M&O contractor achieved 30 percent design complete for the project and placed balance-of-plant design work in a pause mode, stopping all further design work except for three classified process systems [Preloading Process (PLP), Inert Loading Line (ILL), and Inert Metallurgical Lab (IML)]. The M&O contractor finished 60 percent design of both IML and ILL in FY 2024 and completed 60 percent design of PLP in FY 2025. Implementation of the Site Preparation and Warehouse subproject continued forward. This included installation of a new 13.8kV power supply to the 233-H underground facility and construction of a new warehouse. The Site Preparation and Warehouse subproject is now complete, having achieved CD-4 on March 10, 2025, ahead of schedule and under budget.
In July 2024 NNSA approved the contractor's proposal to "unpause" some of the design work and bring eight additional process systems to 60 percent design complete. NNSA also approved continued work on safety basis documents and other safety documentation. The 11 systems approved for continued design are:

- ILL
- PLP
- IML
- Inert Reservoir Storage (IRS)
- Receipt Inspection (REC)
- Returned Reservoir Storage (RRS)
- Reservoir Assessment (FIN)
- Reservoir Assembly (ASMY)
- Reservoir Acceptance (RAC)
- Packaging (PKG)
- Container Reverification (REV)

In FY 2025 the project will continue design work on PLP, IRS, REC, RRS, FIN, ASMY, RAC, PKG, and REV. The project will also complete the Preliminary Documented Safety Analysis as well as update the Time and Motion Study, Equipment Re-Use Plan, Design Safety Requirement Specifications, and Design input documents (Facility Design Description and System Design Descriptions).

The project will complete 60 percent design work the remaining eight process systems in FY 2026. The project will also complete the Safety Design Strategy, the Facility Throughput Model, and conduct a Formal Design review of the Process Systems. With the request of $50,000,000 in FY 2026, the project team will commence activities to acquire an external architect/engineering firm to bring the remaining design activities to 90 percent design complete.

The initial CD-1, *Approve Alternative Selection and Cost Range* was completed in 2019. Because of the strategic pause, these cost and schedule estimates are no longer considered valid. NNSA is updating the cost, scope, and schedule estimates for this project.

A Federal Project Director (FPD) has been appointed. The FPD is certified as a Level III FPD and is pursuing certification as a Level IV FPD.

The TFF subprojects are described below:

Site Preparation & Warehouse Construction Subproject (18-D-650-01): The subproject demolished one warehouse, built one new replacement warehouse, relocated the Limited Area fence, and relocated utilities to provide space for the process building construction.

Process Buildings Subproject (18-D-650-02): The Process Building Subproject will provide the two main structures of the TFF: Building 1 (249-12H) is a Hazard Category (HC)-2 nuclear facility and Building 2 (249-13H) is a HC-3 nuclear facility. 249-12H is approximately 19,000 square feet and will house the systems processing tritium-loaded gas transfer systems. 249-13H is approximately 10,000 square feet and will house the reservoir handling processes conducted prior to tritium loading.
The subproject will also provide a new fire protection system, security systems, some site civil work, and startup testing of new systems.

Critical Milestone History

Overall Project (18-D-650) and Process Buildings Subproject (18-D-650-02)[1]

Fiscal Quarter or Date

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	D&D Complete	CD-4
FY 2018	06/10/2015	01/28/2017	2Q FY 2018	4Q FY 2022	2Q FY 2022	4Q FY 2022	N/A	4Q FY 2027
FY 2019	06/10/2015	01/28/2017	3Q FY 2018	2Q FY 2023	2Q FY 2022	2Q FY 2023	N/A	4Q FY 2029
FY 2020	06/10/2015	01/28/2017	4Q FY 2019	2Q FY 2024	4Q FY 2023	2Q FY 2024	N/A	4Q FY 2031
FY 2021	06/10/2015	01/28/2017	12/20/2019	1Q FY 2024	1Q FY 2024	1Q FY 2024	N/A	4Q FY 2031
FY 2022	06/10/2015	01/28/2017	12/20/2019	1Q FY 2024	1Q FY 2024	1Q FY 2024	N/A	4Q FY 2031
FY 2023	06/10/2015	01/28/2017	12/20/2019	3Q FY 2026	3Q FY 2026	3Q FY 2026	N/A	4Q FY 2031
FY 2026	06/10/2015	01/28/2017	12/20/2019	TBD	TBD	TBD	N/A	TBD

Fiscal Quarter or Date

Fiscal Year	CD-3A
FY 2018	1Q FY 2020
FY 2019	1Q FY 2020
FY 2020	1Q FY 2022
FY 2021	3Q FY 2021
FY 2022	3Q FY 2024
FY 2023	3Q FY 2024

[1] Schedule estimates will be updated as the project fully restarts. CD-4 will be no later than December 31, 2036, pursuant to Section 3127 of the FY 2024 National Defense Authorization Act.

FY 2024	3Q FY 2024
FY 2025	3Q FY 2026
FY 2026	TBD

Site Preparation & Warehouse Construction Subproject (18-D-650-01)

Fiscal Quarter or Date

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	D&D Complete	CD-4
FY 2022	06/10/2015	01/28/2017	12/20/2019	1Q FY 2024	1Q FY2024	1Q FY 2024	N/A	2Q FY 2025
FY 2023	06/10/2015	01/28/2017	12/20/2019	4Q FY 2023	4Q FY 2023	4Q FY 2023	N/A	2Q FY 2025
FY 2026	06/10/2015	01/28/2017	12/20/2019	12/16/2022	09/15/2022	12/16/2022	N/A	03/10/2025

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 Alternative Selection and Cost Range
CD-2/3 Site Preparation & Warehouse Construction Subproject – demolishing existing structures, relocating a fence, relocating a cooling tower, move access roads, install warehouse space, and relocate utilities to clear and prepare the site for new construction or refurbishment of existing buildings.
CD-3A – Long Lead Procurement of critical equipment
CD-4 – Site Preparation & Warehouse Construction Subproject complete
CD-2/3 – Approve Performance Baseline; Approve Start of Construction
Final Design Complete – Estimated/Actual date the project design will be/was complete(d)
D&D Complete –D&D will not be performed as part of this project, due to the nature of decontaminating tritium process systems
CD-4 – Approve Start of Operations or Project Complete

Project Cost History

Overall Project (18-D-650)

($K)

Fiscal Year	TEC, Design	TEC, Construction	TEC, Total	OPC, Except D&D	OPC, D&D	OPC, Total	TPC
FY 2018	76,000	349,000	425,000	74,000	0	74,000	499,000
FY 2019	76,000	425,042	501,042	74,000	0	74,000	575,042
FY 2020	79,000	464,829	543,829	75,000	0	75,000	618,829
FY 2021	80,000	482,300	562,300	77,700	0	77,700	640,000
FY 2022	144,000	418,300	562,300	77,700	0	77,700	640,000
FY 2023	150,300	412,000	562,300	77,700	0	77,700	640,000
FY 2026[1]	215,373	519,627	735,000	165,000	0	165,000	900,000

Site Preparation & Warehouse Construction Subproject (18-D-650-01)[1]
($K)

Fiscal Year	TEC, Design	TEC, Construction	TEC, Total	OPC, Except D&D	OPC, D&D	OPC, Total	TPC
FY 2022	8,100	16,700	24,800	5,500	0	5,500	30,300
FY 2023	8,100	16,700	24,800	5,500	0	5,500	30,300
FY 2026	12,224	19,927	32,151	2,386	0	2,386	34,537

Process Buildings Subproject (18-D-650-02)

($K)

Fiscal Year	TEC, Design	TEC, Construction	TEC, Total	OPC, Except D&D	OPC, D&D	OPC, Total	TPC
FY 2022	135,900	401,600	537,500	72,200	0	72,200	609,700
FY 2023	142,200	395,300	537,500	72,200	0	72,200	609,700
FY 2026	203,149	499,700	702,849	162,614	0	162,614	865,463

2. Project Scope and Justification

Scope

The TFF project will construct two new buildings to relocate tritium and deuterium processes currently in H-Area Old Manufacturing into safe, reliable, modern buildings. The first, hardened building (approximately 19,000 square feet) will house tritium equipment processes, and the second (approximately 10,000 square feet) will house non-nuclear process equipment. To make room for the new buildings, existing warehouses will be demolished and replaced elsewhere. A hardened corridor (estimated at 1,000 +/- 10% square feet) will be constructed to allow for transportation of tritium containing components to and from the TFF structure. Scope for the project also includes project design, safety basis development, and relocation of utilities, fences, and an access road.

Site Preparation & Warehouse Construction Subproject (18-D-650-01): A subproject has been completed for dismantlement and removal of structures, systems and components, re-establishing warehouse space and site preparation to reduce project schedule and subsequent cost. The subproject demolished one warehouse, built one new approximately 9,000 square foot replacement warehouse, relocated the Limited Area fence, relocated utilities to provide space for the process building construction, and provided an access road.

The project relocated the H-Area New Manufacturing (HANM) 13.8kV power supply to ensure the relocation was completed prior to a critical production operations outage in calendar year 2025 for the Thermal Cycling Absorption Process (TCAP). The 13.8kV power supply relocation was completed in February 2024. Construction of the new warehouse structure commenced in February 2024, with turnover to operations completed in September 2024. This marks the completion of field work for the Site Prep and Warehouse subproject.

The subproject achieved CD-4 on March 10, 2025.

Process Buildings Subproject (18-D-650-02): The Process Buildings Subproject will provide the two main structures of the TFF: Building 1 is a Hazard Category (HC)-2 nuclear facility and Building 2 is a HC-3 nuclear facility. The envisioned project was intended to replace key capabilities in H-Area Old Manufacturing (HAOM), a 1950s vintage building that does not meet current codes and standards and that presents a risk to the tritium mission due to the age of the building and systems as well as susceptibility to natural phenomena. HAOM supports an extensive array of mission critical capabilities, such as the pre-loading process, inert loading, reservoir acceptance, assembly of reservoir components, packaging, storage, shipping, and metallurgical analysis. 249-12H will house the tritium-filled reservoir processes: reservoir acceptance, assembly of reservoir components, packaging, storage and shipping. 249-13H will house the inert systems: receipt inspection, pre-loading process, inert loading and metallurgical analysis. These capabilities directly support shipments of Gas Transfer Systems (GTS) and Limited Life Component Exchanges (LLCE) to the Department of Defense (DoD).

This subproject will also provide a new fire protection system, security systems, final site civil work, startup testing of new systems, and commissioning. This subproject will also construct a hardened corridor to connect TFF to existing facilities through which tritium-containing components can be transported.

Justification

The NNSA Stockpile Stewardship mission and the Tritium-related missions require the specific capability of providing tritium and deuterium-filled reservoirs to the DoD, a capability that must be ensured well into the foreseeable future. These capabilities include, but are not limited to, receipt, inspection, inert loading, pre-loading, metallography, surveillance, container storage, packaging, and shipping. These critical capabilities are currently housed in a 70-year-old building, HAOM. The infrastructure of the building has deteriorated and is well beyond expected end-of-life. Critical capabilities are now housed in areas that create a substantial risk to the enduring Tritium mission. Infrastructure failures have increased, leading to increased safety, security, maintenance and operating costs.

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, and all appropriate project management requirements for CD-1 have been met. The project funding profile may be revised in future budget requests prior to CD-2 to account for improved definition of the design, schedule, and risks.

Funds appropriated under this data sheet may be used for contracted support services to the Federal Project Director and to conduct reviews of design and construction.

Preliminary Key Performance Parameters (KPPs)

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

Performance Measure		
• KPP-1[1] Pre-Loading Process: Demonstrate the operational capability of the pre-loading process at a capacity rate that can meet the annualized threshold requirement. • KPP-2[1] Inert Loading: Demonstrate the operational capability of inert loading at a capacity rate that can meet the annualized threshold requirement. • KPP-3 Reservoir Acceptance: Demonstrate that equipment, instrumentation, and storage space exists and is operable to perform final surveillance inspections and acceptance of reservoirs at various stages of completion. • KPP-4 Assembly: Demonstrate that adequate storage space for tools, components, and completed assemblies exists and is operable. • KPP-5 Packaging: Demonstrate capability to successfully pack and unpack each type of approved shipping package, and safely handle and store the contents of each shipment. • KPP-6 Material Movement: Demonstrate successful transfer of reservoirs between HANM, 249-H, and Building 1 using approved handling methods. • KPP-7 Inert Metallography Lab (IML): Demonstrate space and equipment availability to allow full range of surveillance functions.		

3. Financial Schedule

Site Preparation & Warehouse Construction Subproject (18-D-650-01)

($K)

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
Prior - FY 2023	12,224	12,224	12,221
FY 2024	0	0	2
FY 2025	0	0	1
FY 2026	0	0	0
Outyears	0	0	0
Total Design	**12,224**	**12,224**	**12,224**
Construction			

[1] Further details can be found within the classified annex of the Performance Requirements Document.

Prior - FY 2023	10,000	10,000	6,197
FY 2024	9,927	9,927	13,072
FY 2025	0	0	658
FY 2026	0	0	0
Outyears	0	0	0
Total Construction	**19,927**	**19,927**	**19,927**
TEC			
Prior - FY 2023	22,224	22,224	18,418
FY 2024	9,927	9,927	13,074
FY 2025	0	0	659
FY 2026	0	0	0
Outyears	0	0	0
Total TEC	**32,151**	**32,151**	**32,151**
Other Project Costs (OPC)			
Prior - FY 2023	1,540	1,540	1,498
FY 2024	846	846	789
FY 2025	0	0	99
FY 2026	0	0	0
Outyears	0	0	0
Total, OPC	**2,386**	**2,386**	**2,386**
Total Project Costs (TPC)			
Prior - FY 2023	23,764	23,764	19,916
FY 2024	10,773	10,773	13,863
FY 2025	0	0	758
FY 2026	0	0	0
Outyears	0	0	0
Total TPC	**34,537**	**34,537**	**34,537**

Process Buildings Subproject (18-D-650-02)

($K)

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
Prior - FY 2023	132,076	132,076	67,522
FY 2024	21,073	21,073	8,107
FY 2025	0	0	16,000
FY 2026	50,000	50,000	20,000
Outyears	0	0	91,520
Total Design	**203,149**	**203,149**	**203,149**
Construction			
Prior - FY 2023	0	0	0

FY 2024	0	0	0
FY 2025	0	0	0
FY 2026	0	0	0
Outyears	499,700	499,700	499,700
Total Construction	**499,700**	**499,700**	**499,700**
TEC			
Prior - FY 2023	132,076	132,076	67,522
FY 2024	21,073	21,073	8,107
FY 2025	0	0	16,000
FY 2026	50,000	50,000	20,000
Outyears	499,700	499,700	591,220
Total TEC	**702,849**	**702,849**	**702,849**
Other Project Costs (OPC)			
Prior - FY 2023	12,160	12,160	10,275
FY 2024	3,154	3,154	260
FY 2025	0	0	0
FY 2026	0	0	0
Outyears	147,300	147,300	152,079
Total, OPC	**162,614**	**162,614**	**162,614**
Total Project Costs (TPC)			
Prior - FY 2023	144,236	144,236	77,797
FY 2024	24,227	24,227	8,367
FY 2025	0	0	16,000
FY 2026	50,000	50,000	20,000
Outyears	647,000	647,000	743,299
Total TPC	**865,463**	**865,463**	**865,463**

Overall Project (18-D-650)

($K)

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
Prior - FY 2023	144,300	144,300	79,743
FY 2024	21,073	21,073	8,109
FY 2025	0	0	16,001
FY 2026	50,000	50,000	20,000
Outyears	0	0	91,520
Total Design	**215,373**	**215,373**	**215,373**
Construction			
Prior - FY 2023	10,000	10,000	6,197
FY 2024	9,927	9,927	13,072
FY 2025	0	0	658
FY 2026	0	0	0
Outyears	499,700	499,700	499,700
Total Construction	**519,627**	**519,627**	**519,627**
TEC			
Prior - FY 2023	154,300	154,300	85,940
FY 2024	31,000	31,000	21,181
FY 2025	0	0	16,659
FY 2026	50,000	50,000	20,000
Outyears	499,700	499,700	591,220
Total TEC	**735,000**	**735,000**	**735,000**
Other Project Costs (OPC)			
Prior - FY 2023	13,700	13,700	11,773
FY 2024	4,000	4,000	1,049
FY 2025	0	0	99
FY 2026	0	0	0
Outyears	147,300	147,300	152,079
Total, OPC	**165,000**	**165,000**	**165,000**
Total Project Costs (TPC)			
Prior - FY 2023	168,000	168,000	97,713
FY 2024	35,000	35,000	22,230
FY 2025	0	0	16,758
FY 2026	50,000	50,000	20,000
Outyears	647,000	647,000	743,299
Total TPC	**900,000**	**900,000**	**900,000**

4. **Details of Project Cost Estimate**

The values reflected in the Previous Total Estimate column of Section 4 tables represent the high end of the approved CD-1 estimate range values from the Current Total Estimate column of the Section 4 tables as of the last issuance of a TFF CPDS, which was with the FY 2023 President's Budget Request.

The values shown in the Original Validated Baseline column of the Site Preparation & Warehouse Construction Subproject (18-D-650-01) reflect the CD-2/3 Performance Baseline Total Project Cost as approved December 16, 2022.

Site Preparation & Warehouse Construction Subproject (18-D-650-01)

($K)

		Current Total Estimate	Previous Total Estimate	Previous Validated Baseline
Total Estimated Cost (TEC)				
Design				
	Design	4,511	6,500	8,000
	Safety Basis	60	100	400
	Federal Support	2	500	100
	Project and Design Management	7,651	500	3,000
	Contingency	0	500	1,500
Total, Design		**12,224**	**8,100**	**13,000**
Construction				
	Site Work	490	8,500	5,500
	Facility Demolition	36	3,000	3,000
	Construction	12,605	2,000	4,300
	Safety Basis Documents	0	200	200
	Federal Support	456	1,000	100
	M&O Support	6,340	500	7,000
	Contingency	0	1,500	1,500
Total, Construction		**19,927**	**16,700**	**21,600**
Total Estimated Cost (TEC)		**32,151**	**24,800**	**34,600**
Contingency, TEC		*0*	*2,000*	*3,000*
Other Project Costs (OPC)				
OPC except D&D				
	Conceptual Design	0	1,000	1,000
	NEPA & Permit	0	0	100
	Federal Support	13	250	50
	Safeguard & Security	0	250	250
	ES&H	559	2,000	500
	Contractor Support	0	1,500	300
	Start-up	1,814	0	0
	Contingency	0	500	500

Total OPC, except D&D	**2,386**	**5,500**	**2,700**
Contingency, OPC	*0*	*500*	*500*
Total Project Cost (18-D-650-01)	**34,537**	**30,300**	**37,300**
Total Contingency (TEC+OPC)	***0***	***2,500***	***3,500***

Process Buildings Subproject (18-D-650-02)

Current Total Estimate values represent project and financial closeout associated with CD-4 completion of the Site Preparation & Warehouse Construction Subproject (18-D-650-01).

($K)

		Current Total Estimate	Previous Total Estimate	Previous Validated Baseline
Total Estimated Cost (TEC)				
Design				
	Design	162,808	99,400	N/A
	Safety Basis	8,400	8,300	N/A
	Federal Support	6,141	5,700	N/A
	Project and Design Management	9,100	12,600	N/A
	Contingency	16,700	16,200	N/A
Total, Design		**203,149**	**142,200**	**TBD**
Construction				
	Site Work	10,000	3,900	N/A
	Facility Demolition	2,000	1,000	N/A
	Construction	406,527	328,600	N/A
	Safety Basis Documents	7,000	5,700	N/A
	Federal Support	8,873	6,900	N/A
	M&O Support	7,000	4,400	N/A
	Contingency	58,300	44,800	N/A
Total, Construction		**499,700**	**395,300**	**N/A**
Total Estimated Cost (TEC)		**702,849**	**537,500**	**N/A**
Contingency, TEC		*75,000*	*61,000*	*N/A*
Other Project Costs (OPC)				
OPC except D&D				
	R&D	0	0	N/A
	Conceptual Planning	3,700	3,700	N/A
	Analysis of Alternatives	1,000	800	N/A
	Conceptual Design	3,219	2,200	N/A
	NEPA & Permit	800	500	N/A
	Federal Support	3,983	2,750	N/A
	Safeguard & Security	1,250	750	N/A
	ES&H	12,000	10,500	N/A

Contractor Support	25,000	4,500	N/A
Start-up	92,662	38,000	N/A
Contingency	19,000	8,500	N/A
Total OPC, except D&D	**162,614**	**72,200**	**N/A**
Contingency, OPC	*19,000*	*8,500*	*N/A*
Total Project Cost (18-D-650-02)	**865,463**	**609,700**	**N/A**
Total Contingency (TEC+OPC)	***94,000***	***69,500***	***N/A***

Overall Project (18-D-650)

($K)

	Current Total Estimate	Previous Total Estimate	Previous Validated Baseline
Total Estimated Cost (TEC)			
Design			
Design	167,319	105,900	N/A
Safety Basis	8,460	8,400	N/A
Federal Support	6,143	6,200	N/A
Project and Design Management	16,751	13,100	N/A
Contingency	16,700	16,700	N/A
Total, Design	**215,373**	**150,300**	**N/A**
Construction			
Site Work	10,490	12,400	N/A
Facility Demolition	2,036	4,000	N/A
Construction	419,132	330,600	N/A
Safety Basis Documents	7,000	5,900	N/A
Federal Support	9,329	7,900	N/A
M&O Support	13,340	4,900	N/A
Contingency	58,300	46,300	N/A
Total, Construction	**519,627**	**412,000**	**N/A**
Total Estimated Cost (TEC)	**735,000**	**562,300**	**N/A**
Contingency, TEC	*75,000*	*63,000*	*N/A*
Other Project Costs (OPC)			
OPC except D&D			
R&D	0	0	N/A
Conceptual Planning	3,700	3,700	N/A
Analysis of Alternatives	1,000	800	N/A
Conceptual Design	3,219	3,200	N/A
NEPA & Permit	800	500	N/A
Federal Support	3,996	3,000	N/A
Safeguard & Security	1,250	1,000	N/A
ES&H	12,559	12,500	N/A

Contractor Support	25,000	6,000	N/A
Start-up	94,476	38,000	N/A
Contingency	19,000	9,000	N/A
Total OPC, except D&D	**165,000**	**77,700**	**N/A**
Contingency, OPC	*19,000*	*9,000*	*N/A*
Total Project Cost (18-D-650)	**900,000**	**640,000**	**N/A**
Total Contingency (TEC+OPC)	***94,000***	***72,000***	***N/A***

5. Schedule of Appropriations Requests

TFF funding is appropriated, apportioned and allocated at the Overall Project level (18-D-650), then distributed within the Overall Project to the subprojects, as shown in previous Sections of this Project Data Sheet.

Overall Project (18-D-650)

($K)

Request Year	Type	Prior Years	FY 2024	FY 2025	FY 2026	Out Years	Total
FY 2018	TEC	116,805	N/A	N/A	N/A	308,195	425,000
	OPC	22,100	N/A	N/A	N/A	51,900	74,000
	TPC	138,905	N/A	N/A	N/A	360,095	499,000
FY 2019	TEC	148,800	200,000	152,242	0	0	501,042
	OPC	25,100	3,000	3,000	10,000	32,900	74,000
	TPC	173,900	203,000	155,242	10,000	32,900	575,042
FY 2020	TEC	114,909	166,500	152,242	110,178	0	543,829
	OPC	19,600	3,000	3,000	5,000	44,400	75,000
	TPC	134,509	169,500	155,242	115,178	44,400	618,829
FY 2021	TEC	136,000	85,000	120,000	97,000	124,300	562,300
	OPC	16,700	3,000	6,000	10,000	42,000	77,700
	TPC	152,700	88,000	126,000	107,000	166,300	640,000
FY 2022	TEC	81,000	TBD	TBD	TBD	481,300	562,300
	OPC	13,700	TBD	TBD	TBD	64,000	77,700
	TPC	94,700	TBD	TBD	TBD	545,300	640,000
FY 2023	TEC	154,300	92,200	105,700	89,200	120,900	562,300
	OPC	13,700	8,000	10,500	11,000	34,500	77,700
	TPC	168,000	100,200	116,200	100,200	155,400	640,000
FY 2026	TEC	154,300	31,000	0	50,000	499,700	735,000
	OPC	13,700	4,000	0	0	147,300	165,000
	TPC	168,000	35,000	0	50,000	647,000	900,000

6. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy	TBD
Expected Useful Life	50 years
Expected Future Start of D&D of this capital asset	TBD

[Note: D&D of a tritium facility cannot begin until approximately 70 years after the end of its 50-year useful life due to tritium trapped within metallic structures that needs to decay over a period of roughly five half-lives.]

Related Funding Requirements
(Budget Authority in millions)

	Annual Costs		Life Cycle Costs	
	Previous Total Estimate	Current Total Estimate	Previous Total Estimate	Current Total Estimate
Operations and Maintenance	4.9	TBD	2,478	TBD

7. D&D Information

Because the existing facility contains tritium, the facility cannot be decommissioned and demolished for another 70 years. The approximate area of warehouses to be demolished under 18-D-650-01 to clear the site for the new building is listed here.

D&D Description	Square Feet
1. New area being constructed by this project on the Savannah River Site (SRS)	30,000 – 40,000
2. Area on the SRS to be D&D by this project (Demolished warehouses. HAOM will not undergo D&D under this project)	15,000
3. Area on the SRS to be transferred, sold, and/or D&D outside the project including area previously “banked”	0
4. Area on other sites to be D&D by this project	0
5. Area on other sites to be transferred, sold, and/or D&D outside the project including area previously “banked”	0
6. Total area eliminated (add boxes 2, 3, 4, and 5)	15,000

Square footage numbers rounded to the next highest 1,000 sq ft.

8. Acquisition Approach

The Acquisition Strategy was approved by the Deputy Administrator for Defense Programs on December 20, 2019. The strategy was to utilize a M&O contract construction sub-CLIN to separate capital line-item work scope from operational work scope and utilize performance-based incentives. However, in July 2023 the Fee Determining Official and the Senior Procurement Executive directed the FPD to implement a differing procurement strategy that is similar to that of the existing performance evaluation strategy utilizing the annual Performance Evaluation Management Plan. The Acquisition Strategy will be revised to reflect this.

It is anticipated the M&O contractor will award competitive subcontracts for various portions of the work. During FY 2021 the M&O contractor issued a subcontract to Fluor Federal Services to perform architect/engineer design scope. This A/E contract was terminated in March 2023 once 30 percent design was completed. Although the design and construction work will require both the architect/engineering and construction firms with AMSE NQA-1 capability; significant portions of the construction work are commercial in nature and NNSA anticipates competition from qualified firms for construction.

Uranium Processing Facility (UPF), 06-D-141
Y-12 National Security Complex, Oak Ridge, Tennessee
Project is for Design and Construction

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

Summary:
The Fiscal Year (FY) 2026 Request for the Uranium Processing Facility (UPF) is $730,000,000. The most recent Critical Decision (CD)-2/3 was approved on March 21, 2018, by the Deputy Secretary of Energy, with a total project cost (TPC) of $6,500,000,000 and a Critical Decision (CD)-4 of December 31, 2025. A Level 4 Federal Project Director has been assigned to this project and has approved this Construction Project Data Sheet (CPDS). An increase in the TPC and a change to the CD-4 date was approved by the Deputy Secretary on December 4, 2024, with the TPC increased to $10,350,000,000 and the CD-4 date of January 2032.

The project plans to allocate $264,179,000 in FY 2026 for the Salvage and Accountability Building (SAB) Subproject (06-D-141-09). The CD-2/3 for this subproject was approved on March 21, 2018, by the Deputy Secretary of Energy with a TPC of $1,180,000,000. The long-lead equipment authorized as part of the Main Process Building (MPB) CD-3B for the SAB was included in the SAB TPC at CD-2/3. An increase in the TPC and change in CD-4 date for the SAB was approved by the Deputy Secretary on December 4, 2024. The TPC was increased from $1,180,000,000 to $2,250,000,000, and the CD-4 date was extended from December 2025 to January 2032.

The project plans to allocate $461,721,000 in FY 2026 for the MPB Subproject (06-D-141-04). The CD-2/3 was approved on March 21, 2018, by the Deputy Secretary of Energy with a TPC of $4,731,786,000. The CD-3A for Long-Lead Procurement and Site Preparation was approved on March 30, 2016. The long-lead equipment authorized as part of CD-3B for the MPB was included in the MPB TPC at CD-2/3. An increase in the Total Project Cost (TPC) and change in CD-4 date for the Main Process Building (MPB) was approved by the Deputy Secretary on December 4, 2024. The TPC was increased from $4,731,786,000 to $7,400,000,000, and the CD-4 date was extended from December 2025 to January 2032.

The project plans to allocate $4,100,000 in FY 2026 for the Process Support Facilities (PSF) Subproject (06-D-141-08). An increase in the Total Project Cost (TPC) and change in CD-4 date for the Process Support Facilities (PSF) subproject was approved by the Deputy Administrator for Defense Programs (NA-10) in February 2023. The TPC was increased from $140,000,000 to $194,000,000, and the CD-4 date was extended from December 2025 to December 2026.

Significant Changes:
Construction associated with the UPF project is ongoing, and the project is performing startup and commissioning activities for completed scope as appropriate. Significant construction activities completed in FY 2024 include the cumulative installation of 390 miles of electrical cable in the MPB (out of a total of 625 miles of electrical cable to be installed); the cumulative installation of 220 miles of electrical cable in the SAB (out of a total of 375 miles of electrical cable to be installed); and turning over of 47 of 49 total systems from construction to startup in the PSF, 13 of 190 total systems from construction to startup in the SAB, and 3 of 144 total systems from construction to startup in the MPB.

Contractor performance and planning accounts for about 50% of the cost increase over the previous TPC baseline of $6.5B. Labor availability, procurement costs, and subcontract costs account for about 30% of the cost increase over the previous TPC baseline of $6.5B. Original estimates and planning assumptions on overall productivity, as well as the estimated time to complete system testing and turnover were underestimated. The contractor's inadequate intermediate and long-term planning resulted in multiple re-planning efforts, and the contractor failed to perform as planned on approved long-lead procurements intended to mitigate schedule risk associated with furnaces, gloveboxes, and equipment skids. Degraded project performance metrics and inadequate forecasting made the timely identification of cost overruns and schedule extensions more difficult, thereby delaying requests for additional funding. As part of the BCP approved on December 4, 2024, the Deputy Secretary approved 20 corrective actions. To date, DOE-PM has approved the closure of 18 of these corrective actions, with the remaining 2 corrective actions pending with DOE-PM to be completed by December 2025.

FY 2026 and prior year funds will be used for ongoing construction, startup, and commissioning activities for the MPB, SAB, and PSF UPF subprojects. Subproject descriptions are included in Section 2.

As represented since the FY 2012 Request, design, construction, and Other Project Costs (OPC) will continue to be executed through the line-item funding. Since October 1, 2011, OPC work has been and will only be performed using funding specifically appropriated by Congress for the project. A cost correction to better categorize OPC and TEC funds was made in this datasheet where all costs were reported in TEC in prior years.

Critical Milestone History

Table 1: Uranium Processing Facility Project (06-D-141) Critical Milestone History by Fiscal Quarter or Date

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	D&D Complete	CD-4
FY 2011	12/17/2004	N/A	7/25/2007	TBD	2Q FY 2014	TBD	TBD	TBD
FY 2012	12/17/2004	N/A	7/25/2007	4Q FY 2013	2Q FY 2014	4Q FY 2013	TBD	TBD
FY 2013	12/17/2004	N/A	7/25/2007	4Q FY 2013	2Q FY 2014	4Q FY 2013	N/A	TBD
FY 2014	12/17/2004	N/A	6/8/2012	3Q FY 2014	4QFY 2015	3Q FY 2015	N/A	TBD
FY 2015	12/17/2004	N/A	6/8/2012	TBD	TBD	TBD	N/A	TBD
FY 2016	12/17/2004	2/9/2006	6/8/2012	TBD	TBD	TBD	N/A	TBD
FY 2017	12/17/2004	6/24/2015	6/8/2012	4Q FY 2017	4Q FY 2017	4Q FY 2017	N/A	4Q FY 2025
FY 2018	12/17/2004	6/24/2015	6/8/2012	2Q FY 2018	4Q FY 2017	2Q FY 2018	N/A	4Q FY 2025
FY 2019	12/17/2004	6/24/2015	6/8/2012	2Q FY 2018	8/25/2017	2Q FY 2018	N/A	4Q FY 2025
FY 2020 PB	12/17/2004	6/24/2015	6/8/2012	3/21/2018	8/25/2017	3/21/2018	N/A	12/31/2025
FY 2021	12/17/2004	6/24/2015	6/8/2012	3/21/2018	8/25/2017	3/21/2018	N/A	12/31/2025
FY 2022	12/17/2004	6/24/2015	6/8/2012	3/21/2018	8/25/2017	3/21/2018	N/A	12/31/2025
FY 2023	12/17/2004	6/24/2015	6/8/2012	3/21/2018	8/25/2017	3/21/2018	N/A	12/31/2025
FY 2024	12/17/2004	6/24/2015	6/8/2012	3/21/2018	8/25/2017	3/21/2018	N/A	1Q-2Q FY 2029
FY 2025	12/17/2004	6/24/2015	6/8/2012	3/21/2018	8/25/2017	3/21/2018	N/A	3Q-4Q FY 2030
FY 2026	12/17/2004	6/24/2015	6/8/2012	3/21/2018	8/25/2017	3/21/2018	N/A	2Q FY 2032

Table 1.1: Site Readiness Subproject (06-D-141-01) Critical Milestone History by Fiscal Quarter or Date

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	D&D Complete	CD-4
FY 2014 PB	12/17/2004	N/A	6/8/2012	1/29/2013	1/29/2013	1/29/2013	N/A	2Q FY 2015
FY 2015	12/17/2004	N/A	6/8/2012	1/29/2013	1/29/2013	1/29/2013	N/A	2Q FY 2015
FY 2016	12/17/2004	2/9/2006	6/8/2012	1/29/2013	1/29/2013	1/29/2013	N/A	2Q FY 2015
FY 2017	12/17/2004	2/9/2006	6/8/2012	1/29/2013	1/29/2013	1/29/2013	N/A	2/27/2015

Table 1.2: Site Infrastructure and Services Subproject (06-D-141-05) Critical Milestone History by Fiscal Quarter or Date

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	D&D Complete	CD-4
FY 2015	12/17/2004	N/A	7/25/2007	4Q FY 2014	4Q FY 2013	4Q FY 2014	N/A	4Q FY 2016
FY 2016	12/17/2004	2/9/2006	6/8/2012	2Q FY 2015	3Q FY 2015	2Q FY 2015	N/A	4Q FY 2016
FY 2017 PB	12/17/2004	2/9/2006	6/8/2012	3/12/2015	3/12/2015	3/12/2015	N/A	4/28/2018
FY 2018	12/17/2004	2/9/2006	6/8/2012	3/12/2015	3/12/2015	3/12/2015	N/A	4/28/2018
FY 2019	12/17/2004	2/9/2006	6/8/2012	3/12/2015	3/12/2015	3/12/2015	N/A	4/28/2018
FY 2020	12/17/2004	2/9/2006	6/8/2012	3/12/2015	3/12/2015	3/12/2015	N/A	2/28/2018

Table 1.3: Substation Subproject (06-D-141-07) Critical Milestone History by Fiscal Quarter or Date

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	D&D Complete	CD-4
FY 2017	12/17/2004	6/24/2015	6/8/2012	4Q FY 2016	4Q FY 2016	4Q FY 2016	N/A	1Q FY 2019
FY 2018 PB	12/17/2004	6/24/2015	6/8/2012	9/14/2016	9/30/2017	9/14/2016	N/A	6/30/2020
FY 2019	12/17/2004	6/24/2015	6/8/2012	9/14/2016	12/22/2017	9/14/2016	N/A	6/30/2020
FY 2020	12/17/2004	6/24/2015	6/8/2012	9/14/2016	12/22/2017	9/14/2016	N/A	6/30/2020
FY 2021	12/17/2004	6/24/2015	6/8/2012	9/14/2016	12/22/2017	9/14/2016	N/A	12/20/2019

Table 1.4: Mechanical Electrical Building Subproject (06-D-141-06) Critical Milestone History by Fiscal Quarter or Date

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	D&D Complete	CD-4
FY 2017	12/17/2004	6/24/2015	6/8/2012	2Q FY 2017	4Q FY 2017	2Q FY 2017	N/A	4Q FY 2021
FY 2018 PB	12/17/2004	6/24/2015	6/8/2012	12/13/2016	4Q FY 2017	12/13/2016	N/A	1/31/2022
FY 2019	12/17/2004	6/24/2015	6/8/2012	12/13/2016	9/30/2017	12/13/2016	N/A	1/31/2022
FY 2020	12/17/2004	6/24/2015	6/8/2012	12/13/2016	9/30/2017	12/13/2016	N/A	1/31/2022
FY 2021	12/17/2004	6/24/2015	6/8/2012	12/13/2016	9/30/2017	12/13/2016	N/A	1/31/2022
FY 2022	12/17/2004	6/24/2015	6/8/2012	12/13/2016	9/30/2017	12/13/2016	N/A	1/31/2022
FY 2023	12/17/2004	6/24/2015	6/8/2012	12/13/2016	9/30/2017	12/13/2016	N/A	8/31/2022
FY 2024	12/17/2004	6/24/2015	6/8/2012	12/13/2016	9/30/2017	12/13/2016	N/A	7/8/2022

Table 1.5: Process Support Facilities Subproject (06-D-141-08) Critical Milestone History by Fiscal Quarter or Date

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	D&D Complete	CD-4
FY 2017	12/17/2004	6/24/2015	6/8/2012	3Q FY 2017	3Q FY 2017	3Q FY 2017	N/A	4Q FY 2021
FY 2018	12/17/2004	6/24/2015	6/8/2012	2Q FY 2018	4Q FY 2017	2Q FY 2018	N/A	4Q FY 2025
FY 2019	12/17/2004	6/24/2015	6/8/2012	2Q FY 2018	9/30/2017	2Q FY 2018	N/A	4Q FY 2025
FY 2020 PB	12/17/2004	6/24/2015	6/8/2012	3/16/2018	9/30/2017	3/16/2018	N/A	12/31/2025
FY 2021	12/17/2004	6/24/2015	6/8/2012	3/16/2018	9/30/2017	3/16/2018	N/A	12/31/2025
FY 2022	12/17/2004	6/24/2015	6/8/2012	3/16/2018	9/30/2017	3/16/2018	N/A	12/31/2025
FY 2023	12/17/2004	6/24/2015	6/8/2012	3/16/2018	9/30/2017	3/16/2018	N/A	12/31/2025
FY 2024	12/17/2004	6/24/2015	6/8/2012	3/16/2018	9/30/2017	3/16/2018	N/A	12/31/2026
FY 2025	12/17/2004	6/24/2015	6/8/2012	3/16/2018	9/30/2017	3/16/2018	N/A	1Q FY 2027
FY 2026	12/17/2004	6/24/2015	6/8/2012	3/16/2018	9/30/2017	3/16/2018	N/A	1Q FY 2027

Table 1.6: Salvage and Accountability Building Subproject (06-D-141-09) Critical Milestone History by Fiscal Quarter or Date

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	D&D Complete	CD-4
FY 2017	12/17/2004	6/24/2015	6/8/2012	4Q FY 2017	4Q FY 2017	4Q FY 2017	N/A	4Q FY 2025
FY 2018	12/17/2004	6/24/2015	6/8/2012	3/21/2018	4Q FY 2017	3/21/2018	N/A	4Q FY 2025
FY 2019	12/17/2004	6/24/2015	6/8/2012	3/21/2018	8/25/2017	3/21/2018	N/A	4Q FY 2025
FY 2020 PB	12/17/2004	6/24/2015	6/8/2012	3/21/2018	8/25/2017	3/21/2018	N/A	12/31/2025
FY 2021	12/17/2004	6/24/2015	6/8/2012	3/21/2018	8/25/2017	3/21/2018	N/A	12/31/2025
FY 2022	12/17/2004	6/24/2015	6/8/2012	3/21/2018	8/25/2017	3/21/2018	N/A	12/31/2025
FY 2023	12/17/2004	6/24/2015	6/8/2012	3/21/2018	8/25/2017	3/21/2018	N/A	12/31/2025
FY 2024	12/17/2004	6/24/2015	6/8/2012	3/21/2018	8/25/2017	3/21/2018	N/A	1Q-2Q FY 2029
FY 2025	12/17/2004	6/24/2015	6/8/2012	3/21/2018	8/25/2017	3/21/2018	N/A	3Q-4Q FY 2030
FY 2026	12/17/2004	6/24/2015	6/8/2012	3/21/2018	8/25/2017	3/21/2018	N/A	2Q FY 2032

Table 1.7: Main Process Building Subproject (06-D-141-04) Critical Milestone History by Fiscal Quarter or Date

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	D&D Complete	CD-4
FY 2014	12/17/2004	N/A	6/8/2012	3Q FY 2014	4Q FY 2015	3Q FY 2015	N/A	TBD
FY 2015	12/17/2004	N/A	6/8/2012	TBD	TBD	TBD	N/A	TBD
FY 2016	12/17/2004	2/9/2006	6/8/2012	TBD	TBD	TBD	N/A	TBD
FY 2017	12/17/2004	6/24/2015	6/8/2012	4Q FY 2017	4Q FY 2017	4Q FY 2017	N/A	4Q FY 2025
FY 2018	12/17/2004	6/24/2015	6/8/2012	2Q FY 2018	4Q FY 2017	2Q FY 2018	N/A	4Q FY 2025
FY 2019	12/17/2004	6/24/2015	6/8/2012	2Q FY 2018	8/25/2017	2Q FY 2018	N/A	4Q FY 2025
FY 2020 PB	12/17/2004	6/24/2015	6/8/2012	3/21/2018	8/25/2017	3/21/2018	N/A	12/31/2025
FY 2021	12/17/2004	6/24/2015	6/8/2012	3/21/2018	8/25/2017	3/21/2018	N/A	12/31/2025
FY 2022	12/17/2004	6/24/2015	6/8/2012	3/21/2018	8/25/2017	3/21/2018	N/A	12/31/2025
FY 2023	12/17/2004	6/24/2015	6/8/2012	3/21/2018	8/25/2017	3/21/2018	N/A	12/31/2025
FY 2024	12/17/2004	6/24/2015	6/8/2012	3/21/2018	8/25/2017	3/21/2018	N/A	1Q-2Q FY 2029
FY 2025	12/17/2004	6/24/2015	6/8/2012	3/21/2018	8/25/2017	3/21/2018	N/A	3Q-4Q FY 2030
FY 2026	12/17/2004	6/24/2015	6/8/2012	3/21/2018	8/25/2017	3/21/2018	N/A	2Q FY 2032

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 Alternative Selection and Cost Range
CD-2 – Approve 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
CD-4 – Approve Start of Operations or Project Closeout

Table 2: Uranium Processing Facility Project (06-D-141) Baseline
and Long-Lead Approval by Fiscal Quarter or Date

Fiscal Year	UPF CD-2/3	MPB CD-3A	MPB CD-3B	MPB CD-3C	Substation CD-3A
FY 2017	N/A	2Q FY 2016	1Q F Y2017	1Q FY 2017	3Q FY 2016
FY 2018	3/21/2018	3/30/2016	1/13/2017	N/A	N/A

MPB CD-3A – Long Lead Procurement for site preparation and long lead procurements
MPB CD-3B – Long Lead Procurements
MPB CD-3C – Cancelled as reflected in the FY 2018 CPDS
Substation CD-3A – Cancelled as reflected in the FY 2018 CPDS

Project Cost History

Table 3: Uranium Processing Facility Project (06-D-141) Financial Data ($K)

Fiscal Year	TEC, Design	TEC, Construction	TEC, Total	OPC, Except D&D	OPC, D&D	OPC, Total	TPC
FY 2011	351,149	935,000-1,604,000	1,124,000-1,928,000	276,000-472,000	TBD	TBD	1,400,000-3,500,000
FY 2012	528,690	3,174,779-5,320,310	3,703,000-5,849,000	497,000-651,000	N/A	497,000-651,000	4,200,000-6,500,000
FY 2013	566,192	3,136,808-5,150,808	3,703,000-5,717,000	497,000-783,000	N/A	497,000-783,000	4,200,000-6,500,000
FY 2014	1,164,000	TBD	TBD	TBD	N/A	TBD	TBD
FY 2015	TBD	TBD	TBD	TBD	N/A	TBD	TBD
FY 2016	TBD	TBD	TBD	TBD	N/A	TBD	TBD
FY 2017	1,880,000	4,103,000	5,983,000	517,000	0	517,000	6,500,000
FY 2018	1,926,000	4,148,500	6,074,500	425,500	0	425,500	6,500,000
FY 2019	1,855,809	4,463,724	6,319,533	180,467	0	180,467	6,500,000
FY 2020	1,838,000	4,283,337	6,121,337	378,663	0	378,663	6,500,000
FY 2021	1,838,000	4,283,337	6,121,337	378,663	0	378,663	6,500,000
FY 2022	1,838,000	4,283,337	6,121,337	378,663	0	378,663	6,500,000
FY 2023	1,838,000	4,283,337	6,121,337	378,663	0	378,663	6,500,000
FY 2024	1,838,000	6,356,467	8,194,467	378,663	0	378,663	8,500,000-8,950,000
FY 2025	1,838,000	7,122,504	8,960,504	378,663	0	378,663	9,339,167
FY 2026	1,838,000	6,979,259	8,817,259	1,532,741	0	1,532,741	10,350,000

Table 3.1: Site Readiness Subproject (06-D-141-01) Financial Data ($K)

Fiscal Year	TEC, Design	TEC, Construction	TEC, Total	OPC, Except D&D	OPC, D&D	OPC, Total	TPC
FY 2015	N/A	64,000	64,000	1,000	N/A	1,000	65,000
FY 2016	0	64,000	64,000	1,000	N/A	1,000	65,000
FY 2017	0	43,277	43,277	0	0	0	43,277
FY 2018	0	43,277	43,277	0	0	0	43,277
FY 2019	0	43,714	43,714	0	0	0	43,714

Table 3.2: Site Infrastructure and Services Subproject (06-D-141-05) Financial Data ($K)

Fiscal Year	TEC, Design	TEC, Construction	TEC, Total	OPC, Except D&D	OPC, D&D	OPC, Total	TPC
FY 2015	N/A	58,000	58,000	1,500	N/A	1,500	59,500
FY 2016	N/A	84,500	84,500	500	N/A	500	85,000
FY 2017	0	78,000	78,000	500	0	500	78,500
FY 2018	0	78,000	78,000	500	0	500	78,500
FY 2019	0	78,000	78,000	500	0	500	78,500
FY 2020	0	60,500	60,500	0	0	0	60,500

Table 3.3: Substation Subproject (06-D-141-07) Financial Data ($K)

Fiscal Year	TEC, Design	TEC, Construction	TEC, Total	OPC, Except D&D	OPC, D&D	OPC, Total	TPC
FY 2017	0	48,000	48,000	2,000	0	2,000	50,000
FY 2018	0	60,000	60,000	0	0	0	60,000
FY 2019	0	60,000	60,000	0	0	0	60,000
FY 2020	0	60,000	60,000	0	0	0	60,000
FY 2021	0	48,568	48,568	0	0	0	48,568
FY 2022	0	43,650	43,650	0	0	0	43,650

Table 3.4: Mechanical Electrical Building Subproject (06-D-141-06) Financial Data ($K)

Fiscal Year	TEC, Design	TEC, Construction	TEC, Total	OPC, Except D&D	OPC, D&D	OPC, Total	TPC
FY 2017	0	540,000	540,000	60,000	0	60,000	600,000
FY 2018	0	284,000	284,000	0	0	0	284,000
FY 2019	0	283,917	283,917	83	0	83	284,000
FY 2020	0	282,980	282,980	1,020	0	1,020	284,000
FY 2021	0	282,980	282,980	1,020	0	1,020	284,000
FY 2022	0	282,980	282,980	1,020	0	1,020	284,000
FY 2023	0	307,116	307,116	1,020	0	1,020	308,136

Table 3.5: Process Support Facilities Subproject (06-D-141-08) Financial Data ($K)

Fiscal Year	TEC, Design	TEC, Construction	TEC, Total	OPC, Except D&D	OPC, D&D	OPC, Total	TPC
FY 2017	0	55,000	55,000	5,000	0	5,000	60,000
FY 2018	0	111,000	111,000	10,000	0	10,000	121,000
FY 2019	0	116,702	116,702	4,298	0	4,298	121,000
FY 2020	0	118,000	118,000	22,000	0	22,000	140,000
FY 2021	0	118,000	118,000	22,000	0	22,000	140,000
FY 2022	0	118,000	118,000	22,000	0	22,000	140,000
FY 2023	0	118,000	118,000	22,000	0	22,000	140,000
FY 2024	0	172,000	172,000	22,000	0	22,000	194,000
FY 2025	0	172,000	172,000	22,000	0	22,000	194,000
FY 2026	0	166,000	166,000	28,000	0	28,000	194,000

Table 3.6: Salvage and Accountability Building Subproject (06-D-141-09) Financial Data ($K)

Fiscal Year	TEC, Design	TEC, Construction	TEC, Total	OPC, Except D&D	OPC, D&D	OPC, Total	TPC
FY 2017	0	1,200,000	1,200,000	130,000	0	130,000	1,330,000
FY 2018	0	1,060,250	1,060,250	25,000	0	25,000	1,085,250
FY 2019	0	1,013,761	1,013,761	16,239	0	16,239	1,030,000
FY 2020	0	1,105,000	1,105,000	75,000	0	75,000	1,180,000
FY 2021	0	1,105,000	1,105,000	75,000	0	75,000	1,180,000
FY 2022	0	1,105,000	1,105,000	75,000	0	75,000	1,180,000
FY 2023	0	1,105,000	1,105,000	75,000	0	75,000	1,180,000
FY 2024	0	1,595,403	1,595,403	75,000	0	75,000	1,670,403
FY 2025	0	1,801,762	1,801,762	75,000	0	75,000	1,876,762
FY 2026	0	2,017,930	2,017,930	232,070	0	232,070	2,250,000

Table 3.7: Main Process Building Subproject (06-D-141-04) Financial Data ($K)

Fiscal Year	TEC, Design	TEC, Construction	TEC, Total	OPC, Except D&D	OPC, D&D	OPC, Total	TPC
FY 2015	TBD	TBD	TBD	TBD	N/A	TBD	TBD
FY 2016	TBD	TBD	TBD	TBD	N/A	TBD	TBD
FY 2017	1,880,000	2,138,723	4,018,723	319,500	0	319,500	4,338,223
FY 2018	1,926,000	2,511,973	4,437,973	390,000	0	390,000	4,827,973
FY 2019	1,855,809	2,867,630	4,723,439	159,347	0	159,347	4,882,786
FY 2020	1,838,000	2,613,143	4,451,143	280,643	0	280,643	4,731,786
FY 2021	1,838,000	2,613,143	4,451,143	280,643	0	280,643	4,731,786
FY 2022	1,838,000	2,613,143	4,451,143	280,643	0	280,643	4,731,786
FY 2023	1,838,000	2,603,343	4,441,343	280,643	0	280,643	4,721,986
FY 2024	1,838,000	4,132,070	5,970,070	280,643	0	280,643	6,250,713
FY 2025	1,838,000	4,693,612	6,513,612	280,643	0	280,643	6,812,555
FY 2026	1,838,000	4,340,349	6,178,349	1,271,651	0	1,271,651	7,450,000

2. Project Scope and Justification

Scope

The UPF Project is a design and construction project. The UPF Project consists of a series of industrial and nuclear buildings and supporting infrastructure. It is a major system acquisition that was selected in the Record of Decision for the Complex Transformation Supplemental Programmatic Environmental Impact Statement to ensure the long-term viability, safety, and security of the Enriched Uranium (EU) capability at the Y-12 National Security Complex. The UPF consists of 6 buildings, totaling 568,524 square feet. The UPF project focuses on modernizing uranium processing capabilities at Y-12 to reduce program and safety risk. The UPF project provides new buildings to replace the Building 9212 capabilities for Highly Enriched Uranium (HEU) casting, oxide production, recovery, decontamination, and assay. Coordination between Headquarters Office of Infrastructure, Enriched Uranium Modernization Program, the NNSA Y-12 Field Office (YFO), and the Y-12 Acquisition and Project Management Office (APMO) is essential as the uranium mission strategy and associated implementation plans define how the uranium capabilities are transitioned, relocated, sustained, and/or replaced.

The goals and objectives of the UPF Project are to support the following modernization strategy:

- Ensure the long-term capability and improve the reliability of EU operations;
- Replace deteriorating, end-of-life buildings with modern manufacturing buildings;
- Significantly improve the health and safety posture for workers and the public by replacing administrative controls with engineered controls to manage the risks related to worker safety, criticality safety, fire protection, and environmental compliance.

The UPF project consists of the following subprojects:

Site Readiness Subproject (06-D-141-01): The Site Readiness Subproject scope included Bear Creek Road relocation, including a bridge overpass of the haul road; installation of potable water lines paralleling the new road; electrical line demolition to make way for the road and clear the construction site; electrical line and communication cable installation; preparation of the West Borrow area to receive excess-soil and preparation and maintenance of a spoil area for wet soil; extension of an existing haul road for access to the construction site; and jack-and-bore installation of casings for future utilities. The Site Readiness Subproject completed in February 2015.

Site Infrastructure and Services (SIS) Subproject (06-D-141-05): The SIS Subproject scope included demolition of Building 9107 and its hillside, installation of haul road security features, completion of a sedimentation basin, a concrete batch plant, and completion of the Construction Support Building, which is 66,000 square feet. The SIS Subproject completed in February 2018.

Substation Subproject (06-D-141-07): The Substation Subproject provided for the installation of the 161 kilovolt (kV) Main Electrical Substation for the UPF Project and capacity for most of the rest of the Y-12 plant. The Substation provides electrical power from the Tennessee Valley Authority (TVA) 161kV transmission system. The Substation

Subproject includes all equipment, facilities, and structures needed for a fully operational substation. The Substation Subproject completed in December 2019.

Mechanical Electrical Building (MEB) Subproject (06-D-141-06): The MEB Subproject constructed a 66,384 square feet facility and installed the utility equipment and support systems required by both the MPB and the SAB. The MEB is a stand-alone building housing mechanical, electrical, heating, ventilation, air conditioning, utility equipment, and support systems. The MEB is constructed to nonnuclear commercial industrial standards. This subproject includes a leased warehouse and fabrication facility; a cooling tower; and an onsite warehouse. The MEB Subproject completed in July 2022.

Process Support Facilities (PSF) Subproject (06-D-141-08): The PSF Subproject will construct a 23,914 square foot building and provide facilities for instrument air, demineralized water, waste management, and chemical and gas storage needed to support the MPB and SAB. No change in scope since the previous Request.

Salvage and Accountability Building (SAB) Subproject (06-D-141-09): The SAB Subproject consists of two buildings totaling 160,113 square feet that will contain the following processes: waste preparation, decontamination, nondestructive analysis, the clean and contaminated shops, chemical recovery, calcination and leaching, electronics and calibration maintenance, filter room, and personnel-related rooms. The SAB will be constructed to standards commensurate with the radioactive hazard and security requirements for the materials and processes contained within. This subproject includes support buildings including a fire tank pump building as well as the Personnel Support Building which provides personnel access and monitoring station, truck bay, loading dock, and material access. Long-lead equipment purchases associated with the SAB Subproject are allocated to the SAB TPC. No change in scope since the previous Request.

Long Lead Procurements, CD-3B: Included long lead gloveboxes, skids, and select long-lead procurements for structural steel, rebar, embeds, and specialty items associated with SAB.

Main Process Building (MPB) Subproject (06-D-141-04): The MPB Subproject consists of a nuclear building totaling 252,113 square feet that will house the casting and oxide production capabilities. It also contains nondestructive analysis and waste preparations, furnaces and repacking, and spaces needed for process support such as the shift manager's office, restrooms, and other personnel-related rooms. The MPB will be constructed to nuclear standards commensurate with high-hazard materials and security for the processes to be carried out within. The MPB Subproject will include the construction of the Highly Enriched Uranium Materials Facility (HEUMF) connector, and the new Perimeter Intrusion Detection and Assessment System surrounding the UPF campus and support buildings. Design costs for the UPF project are included in the MPB Subproject baseline, as design costs are not tracked for each individual UPF subproject. No change in scope since the previous Request.

Site Preparation and Long Lead Procurements, CD-3A: Included excavation and fill for the MPB, SAB, and the MEB; installation of temporary facilities, power, storm water and sanitary sewers; and long lead procurements of tower cranes and rebar for the MEB slab.

Long Lead Procurements, CD-3B: Included long-lead gloveboxes, skids, and select long-lead procurements for structural steel, rebar, embeds, and specialty items associated with MPB.

Justification and Mission Need

The UPF Project is needed to ensure the long-term viability, safety, and security of the Enriched Uranium (EU) capability in the United States. The UPF Project will support the Nation's nuclear weapons stockpile, down blending of EU in support of nonproliferation, and provide uranium as feedstock for fuel for naval reactors. Currently, these capabilities reside in aged Manhattan Project-era facilities. There is substantial risk that the existing facilities will continue to deteriorate to the point of significant impact to Defense Programs, Defense Nuclear Nonproliferation, and Naval Reactors programs. The impacts could result in loss of the U.S. capability to maintain the nuclear weapons stockpile through life extension programs, shutdown of the U.S. Navy nuclear powered fleet due to lack of EU fuel feedstock materials, and impact to the Defense Nuclear Nonproliferation program's ability to reduce the enrichment level of foreign research reactors through supply of lower enrichment fuels manufactured at Y-12. The risk of inadvertent or accidental shutdown of the existing facilities is high and may occur prior to completion and startup of the UPF Project.

The UPF Mission Need Statement approved in December 2004, states that safe, efficient, and secure enriched uranium processing capabilities are needed within the Nuclear Weapons Complex to meet the mission of the DOE's NNSA. The UPF Project is needed to ensure the long-term viability, safety, and security of the EU capability in the United States. The UPF Mission Need was reexamined at each of the subsequent CD phases and remains valid.

Key Performance Parameters (KPPs)

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

Table 4: Key Performance Parameters

Performance Measure	Threshold	Objective
UPF supports phasing out mission dependency on 9212	Threshold Performance Parameters are identified in the Classified Project Requirements Document	Objective Performance Parameters are identified in the Classified Project Requirements Document

3. Financial Schedule

UPF funding is appropriated at the Overall Project level (06-D-141) and is allocated to the subprojects in the tables below.

Table 5: Uranium Processing Facility Project (06-D-141) ($K)

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
PY to FY 2018	1,838,000	1,838,000	1,838,000
Total Design	**1,838,000**	**1,838,000**	**1,838,000**
Construction			
PY to FY 2023	4,572,264	4,570,474	4,338,812
FY 2024	707,679	704,450	604,379
FY 2025	734,569	733,866	765,178
FY 2026	613,900	611,658	765,574
Outyears	350,847	358,811	505,316
Total Construction	**6,979,259**	**6,979,259**	**6,979,259**
TEC			
PY to FY 2023	6,410,264	6,408,474	6,176,812
FY 2024	707,679	704,450	604,379
FY 2025	734,569	733,866	765,178
FY 2026	613,900	611,658	765,574
Outyears	350,847	358,811	505,316
Total TEC	**8,817,259**	**8,817,259**	**8,817,259**
Other Project Costs (OPC)			
PY to FY 2023	170,663	170,663	159,598
FY 2024	106,000	106,000	4,549
FY 2025	65,900	65,900	81,852
FY 2026	116,100	116,100	131,600
Outyears	1,074,078	1,074,078	1,155,142
Total, OPC	**1,532,741**	**1,532,741**	**1,532,741**
Total Project Costs (TPC)			
PY to FY 2023	6,580,927	6,579,137	6,336,410
FY 2024	813,679	810,450	608,928
FY 2025	800,469	799,766	847,030
FY 2026	730,000	727,758	897,174
Outyears	1,424,925	1,432,889	1,660,458
Total TPC[1]	**10,350,000**	**10,350,000**	**10,350,000**

[1] Budget Authority includes funding made available to the project through reprogramming. Cumulatively, NNSA has reprogrammed an additional $191,951k to the project.

Table 5.1: Site Readiness Subproject (06-D-141-01) Financial Schedule

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
PY to FY 2017	0	0	0
Total Design	**0**	**0**	**0**
Construction			
PY to FY 2017	43,714	43,714	43,714
Total Construction	**43,714**	**43,714**	**43,714**
TEC			
PY to FY 2017	43,714	43,714	43,714
Total TEC	**43,714**	**43,714**	**43,714**
Other Project Costs (OPC)			
PY to FY 2017	0	0	0
Total, OPC	**0**	**0**	**0**
Total Project Costs (TPC)			
PY to FY 2017	43,714	43,714	43,714
Total TPC	**43,714**	**43,714**	**43,714**

Table 5.2: Site Infrastructure and Services Subproject (06-D-141-05) [1]

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
PY to FY 2017	0	0	0
Total Design	**0**	**0**	**0**
Construction			
PY to FY 2019	60,500	60,500	60,500
Total Construction	**60,500**	**60,500**	**60,500**
TEC			
PY to FY 2019	60,500	60,500	60,500
Total TEC	**60,500**	**60,500**	**60,500**
Other Project Costs (OPC)			
PY to FY 2017	0	0	0
Total, OPC	**0**	**0**	**0**
PY to FY 2017	60,500	60,500	60,500
Total TPC	**60,500**	**60,500**	**60,500**

[1] Subproject received CD-4 approval in FY 2018 and completed under budget; baseline was $78,000,000, actual cost was $60,500,000.

Table 5.3: Substation Subproject (06-D-141-07) [1]

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
PY to FY 2017	0	0	0
Total Design	**0**	**0**	**0**
Construction			
PY to FY 2020	43,650	43,650	43,650
Total Construction	**43,650**	**43,650**	**43,650**
TEC			
PY to FY 2020	43,650	43,650	43,650
Total TEC	**43,650**	**43,650**	**43,650**
Other Project Costs (OPC)			
PY to FY 2017	0	0	0
Total, OPC	**0**	**0**	**0**
Total Project Costs (TPC)			
PY to FY 2020	43,650	43,650	43,650
Total TPC	**43,650**	**43,650**	**43,650**

[1] The approximately $16,200,000 of cost savings from the Substation Subproject has been redeployed to the MEB subproject to cover a TPC increase.

Table 5.4: Mechanical Electrical Building Subproject (06-D-141-06)

		Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)				
Design				
	PY to FY 2017	0	0	0
Total Design		**0**	**0**	**0**
Construction				
	PY to FY 2023	307,116	307,116	307,116
Total Construction		**307,116**	**307,116**	**307,116**
TEC				
	PY to FY 2023	307,116	307,116	307,116
Total TEC		**307,116**	**307,116**	**307,116**
Other Project Costs (OPC)				
	PY to FY 2023	1,020	1,020	1,020
Total, OPC		**1,020**	**1,020**	**1,020**
Total Project Costs (TPC)				
	PY to FY 2023	308,136	308,136	308,136
Total TPC		**308,136**	**308,136**	**308,136**

Table 5.5: Process Support Facilities Subproject (06-D-141-08)

		Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)				
Design				
	PY to FY 2017	0	0	0
Total Design		**0**	**0**	**0**
Construction				
	PY to FY 2023	154,000	154,000	126,877
	FY 2024	12,000	12,000	19,076
	FY 2025	0	0	17,207
	FY 2026	0	0	2,840
Total Construction		**166,000**	**166,000**	**166,000**
TEC				
	PY to FY 2023	154,000	154,000	126,877
	FY 2024	12,000	12,000	19,076
	FY 2025	0	0	17,207
	FY 2026	0	0	2,840
Total TEC		**166,000**	**166,000**	**166,000**
Other Project Costs (OPC)				
	PY to FY 2023	22,000	22,000	22,000
	FY 2024	1,000	1,000	843
	FY 2025	900	900	323
	FY 2026	4,100	4,100	4,834
Total, OPC		**28,000**	**28,000**	**28,000**
Total Project Costs (TPC)				
	PY to FY 2023	176,000	176,000	148,877
	FY 2024	13,000	13,000	19,919
	FY 2025	900	900	17,530
	FY 2026	4,100	4,100	7,674
Total TPC		**194,000**	**194,000**	**194,000**

Table 5.6: Salvage and Accountability Building Subproject (06-D-141-09)

		Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)				
Design				
	PY to FY 2017	0	0	0
Total Design		**0**	**0**	**0**
Construction				
	PY to FY 2023	1,153,003	1,153,003	1,143,705
	FY 2024	224,000	224,000	187,252
	FY 2025	330,000	330,000	291,739
	FY 2026	244,179	244,179	250,000
	Outyears	66,748	66,748	145,234
Total Construction		**2,017,930**	**2,017,930**	**2,017,930**
TEC				
	PY to FY 2023	1,153,003	1,153,003	1,143,705
	FY 2024	224,000	224,000	187,252
	FY 2025	330,000	330,000	291,739
	FY 2026	244,179	244,179	250,000
	Outyears	66,748	66,748	145,234
Total TEC		**2,017,930**	**2,017,930**	**2,017,930**
Other Project Costs (OPC)				
	PY to FY 2023	19,000	19,000	18,379
	FY 2024	8,000	8,000	340
	FY 2025	25,000	25,000	14,761
	FY 2026	20,000	20,000	19,915
	Outyears	160,070	160,070	178,675
Total, OPC		**232,070**	**232,070**	**232,070**
Total Project Costs (TPC)				
	PY to FY 2023	1,172,003	1,172,003	1,162,084
	FY 2024	232,000	232,000	187,592
	FY 2025	355,000	355,000	306,500
	FY 2026	264,179	264,179	269,915
	Outyears	226,818	226,818	323,909
Total TPC		**2,250,000**	**2,250,000**	**2,250,000**

Table 5.7: Main Process Building Subproject (06-D-141-04)

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
PY to FY 2023	1,838,000	1,604,795	1,643,230
Total Design	**1,838,000**	**1,838,000**	**1,838,000**
Construction			
PY to FY 2023	2,810,281	2,808,491	2,613,250
FY 2024	471,679	468,450	398,051
FY 2025	404,569	403,866	456,232
FY 2026	369,721	367,479	512,734
Outyears	284,099	292,063	360,082
Total Construction	**4,340,349**	**4,340,349**	**4,340,349**
TEC			
PY to FY 2023	4,648,281	4,646,491	4,451,250
FY 2024	471,679	468,450	398,051
FY 2025	404,569	403,866	456,232
FY 2026	369,721	367,479	512,734
Outyears	284,099	292,063	360,082
Total TEC	**6,178,349**	**6,178,349**	**6,178,349**
Other Project Costs (OPC)			
PY to FY 2023	128,643	128,643	118,199
FY 2024	97,000	97,000	3,366
FY 2025	40,000	40,000	66,768
FY 2026	92,000	92,000	106,851
Outyears	914,008	914,008	976,467
Total, OPC	**1,271,651**	**1,271,651**	**1,271,651**
Total Project Costs (TPC)			
PY to FY 2023	4,776,924	4,775,134	4,569,449
FY 2024	568,679	565,450	401,417
FY 2025	444,569	443,866	523,000
FY 2026	461,721	459,479	619,585
Outyears	1,198,107	1,206,071	1,336,549
Total TPC [d]	**7,450,000**	**7,450,000**	**7,450,000**

4. Details of Project Cost Estimate

Table 6: Details of UPF Project (06-D-141) ($K)

	Current Total Estimate	Previous Total Estimate	Previous Validated Baseline
Total Estimated Cost (TEC)			
Design			
Design	1,838,000	1,838,000	1,838,000
Contingency	0	0	0
Total Design	**1,838,000**	**1,838,000**	**1,838,000**
Construction			
Site Preparation	156,214	156,214	191,700
Equipment	1,176,641	1,696,967	1,370,180
Construction[1]	5,416,104	4,755,614	2,420,463
Contingency[2]	230,300	513,709	340,300
Total Construction	**6,979,259**	**7,122,504**	**4,322,643**
Total Estimated Cost (TEC)	**8,817,259**	**8,960,504**	**6,160,643**
Contingency, TEC	*230,300*	*513,709*	*340,300*
Other Project Costs (OPC)			
OPC except D&D			
Conceptual Planning	30,000	30,000	30,000
Conceptual Design	64,643	64,643	64,643
Start-up[3]	1,068,248	228,820	225,000
Contingency[b]	369,850	55,200	59,000
Total OPC	**1,532,741**	**378,663**	**378,643**
Contingency, OPC	369,850	55,200	59,000
Total Project Cost	**10,350,000**	**9,339,167**	**6,539,286**
Total Contingency (TEC+OPC)[b]	***600,150***	***568,909***	***399,300***

[1] Construction costs have increased since FY 2025 CPDS due to increases in construction durations, and system turnover durations. Contractor performance and performance driven funding shortfalls caused duration extensions.
[2] Contingency values reflect a bottoms up re-estimate of the work to go, and a revised federal risk assessment with greater uncertainty and risk during the start-up phase of the project.
[3] Some start-up costs had previously been estimated as part of construction. The FY 2026 CPDS reflects a total bottoms up re-estimate with durations based on experience in the MEB, the PSF, and benchmarking the Waste Treatment and Immobilization Project in Richland WA.

Table 6.1: Details of Site Readiness Subproject (06-D-141-01)

	Current Total Estimate	Previous Total Estimate	Previous Validated Baseline
Total Estimated Cost (TEC)			
Design			
Design	0	0	0
Contingency	0	0	0
Total Design	**0**	**0**	**0**
Construction			
Site Preparation	43,714	43,714	50,200
Equipment	0	0	0
Construction	0	0	0
Contingency	0	0	13,800
Total Construction	**43,714**	**43,714**	**64,000**
Total Estimated Cost (TEC)	**43,714**	**43,714**	**64,000**
Contingency, TEC	*0*	*0*	*13,800*
Other Project Costs (OPC)			
OPC except D&D			
Conceptual Planning	0	0	0
Conceptual Design	0	0	0
Start-up	0	0	1000
Contingency	0	0	0
Total OPC	**0**	**0**	**1,000**
Contingency, OPC	*0*	*0*	*0*
Total Project Cost	**43,714**	**43,714**	**65,000**
Total Contingency (TEC+OPC)	***0***	***0***	***13,800***

Table 6.2: Details of Site Infrastructure and Services Subproject (06-D-141-05)

	Current Total Estimate	Previous Total Estimate	Previous Validated Baseline
Total Estimated Cost (TEC)			
Design			
Design	0	0	0
Contingency	0	0	0
Total Design	**0**	**0**	**0**
Construction			
Site Preparation	0	0	26,000
Equipment	0	0	0
Construction	60,500	60,500	30,000
Contingency	0	0	22,500
Total Construction	**60,500**	**60,500**	**78,500**
Total Estimated Cost (TEC)	**60,500**	**60,500**	**78,500**
Contingency, TEC	*0*	*0*	*22,500*
Other Project Costs (OPC)			
OPC except D&D			
Conceptual Planning	0	0	0
Conceptual Design	0	0	0
Start-up	0	0	0
Contingency	0	0	0
Total OPC	**0**	**0**	**0**
Contingency, OPC	*0*	*0*	*0*
Total Project Cost	**60,500**	**60,500**	**78,500**
Total Contingency (TEC+OPC)	***0***	***0***	***22,500***

Table 6.3: Details of Substation Subproject (06-D-141-07) ($K)

	Current Total Estimate	Previous Total Estimate	Previous Validated Baseline
Total Estimated Cost (TEC)			
Design			
Design	0	0	0
Contingency	0	0	0
Total Design	**0**	**0**	**0**
Construction			
Site Preparation	0	0	3,000
Equipment	0	0	49,700
Construction	43,650	43,800	0
Contingency	0	0	7,300
Total Construction	**43,650**	**43,800**	**60,000**
Total Estimated Cost (TEC)	**43,650**	**43,800**	**60,000**
Contingency, TEC	*0*	*0*	*7,300*
Other Project Costs (OPC)			
OPC except D&D			
Conceptual Planning	0	0	0
Conceptual Design	0	0	0
Start-up	0	0	0
Contingency	0	0	0
Total OPC	**0**	**0**	**0**
Contingency, OPC	*0*	*0*	*0*
Total Project Cost	**43,650**	**43,800**	**60,000**
Total Contingency (TEC+OPC)	***0***	***0***	***7,300***

Table 6.4: Details of Mechanical Electrical Building Subproject (06-D-141-06) ($K)

	Current Total Estimate	Previous Total Estimate	Previous Validated Baseline
Total Estimated Cost (TEC)			
Design			
Design	0	0	0
Contingency	0	0	0
Total Design	**0**	**0**	**0**
Construction			
Site Preparation	0	0	0
Equipment	86,180	86,180	86,040
Construction	220,936	220,936	159,760
Contingency	0	0	38,200
Total Construction	**307,116**	**307,116**	**284,000**
Total Estimated Cost (TEC)	**307,116**	**307,116**	**284,000**
Contingency, TEC	*0*	*0*	*38,200*
Other Project Costs (OPC)			
OPC except D&D			
Conceptual Planning	0	0	0
Conceptual Design	0	0	0
Start-up	1,020	1,020	0
Contingency	0	0	0
Total OPC	**1,020**	**1,020**	**0**
Contingency, OPC	*0*	*0*	*0*
Total Project Cost	**308,136**	**308,136**	**284,000**
Total Contingency (TEC+OPC)	***0***	***0***	***38,200***
TPC from CD-4 Documentation	**309,000**		

Table 6.5: Details of Process Support Facilities Subproject (06-D-141-08) ($K)

	Current Total Estimate	Previous Total Estimate	Previous Validated Baseline
Total Estimated Cost (TEC)			
Design			
Design	0	0	0
Contingency	0	0	0
Total Design	**0**	**0**	**0**
Construction			
Site Preparation	0	0	0
Equipment	25,438	26,600	19,530
Construction	131,576	127,100	75,970
Contingency	8,986	18,300	22,500
Total Construction	**166,000**	**172,000**	**118,000**
Total Estimated Cost (TEC)	**166,000**	**172,000**	**118,000**
Contingency, TEC	*8,986*	*18,300*	*22,500*
Other Project Costs (OPC)			
OPC except D&D			
Conceptual Planning	0	0	0
Conceptual Design	0	0	0
Start-up	22,546	21,800	18,000
Contingency	5,454	200	4,000
Total OPC	**28,000**	**22,000**	**22,000**
Contingency, OPC	*5,454*	*200*	*4,000*
Total Project Cost	**194,000**	**194,000**	**140,000**
Total Contingency (TEC+OPC)	***14,440***	***18,500***	***26,500***

Table 6.6: Details of Salvage and Accountability Building Subproject (06-D-141-09) ($K)

	Current Total Estimate	Previous Total Estimate	Previous Validated Baseline
Total Estimated Cost (TEC)			
Design			
Design	0	0	0
Contingency	0	0	0
Total Design	**0**	**0**	**0**
Construction			
Site Preparation	0	0	0
Equipment	312,527	301,777	380,160
Construction[1]	1,618,917	1,370,676	599,840
Contingency[2]	86,486	129,309	125,000
Total Construction	**2,017,930**	**1,801,762**	**1,105,000**
Total Estimated Cost (TEC)	**2,017,930**	**1,801,762**	**1,105,000**
Contingency, TEC	*86,486*	*129,309*	*125,000*
Other Project Costs (OPC)			
OPC except D&D			
Conceptual Planning	0	0	0
Conceptual Design	0	0	0
Start-up[3]	136,030	60,000	60,000
Contingency[2]	96,040	15,000	15,000
Total OPC	**232,070**	**75,000**	**75,000**
Contingency, OPC	96,040	15,000	15,000
Total Project Cost	**2,250,000**	**1,876,762**	**1,180,000**
Total Contingency (TEC+OPC) [2]	***182,526***	***144,309***	***140,000***

[1] Construction costs have increased since FY 2025 CPDS due to increases in construction durations, and system turnover durations. Contractor performance and performance driven funding shortfalls caused duration extensions.

[2] Contingency values reflect a bottoms up re-estimate of the work to go, and a revised federal risk assessment with greater uncertainty and risk during the start-up phase of the project.

[3] Some start-up costs had previously been estimated as part of construction. The FY 2026 CPDS reflects a total bottoms up re-estimate with durations based on experience in the MEB, the PSF, and benchmarking the Waste Treatment and Immobilization Project in Richland WA.

Table 6.7: Details of Main Process Building Subproject (06-D-141-04)

	Current Total Estimate	Previous Total Estimate	Previous Validated Baseline
Total Estimated Cost (TEC)			
Design			
Design	1,838,000	1,838,000	1,838,000
Contingency	0	0	0
Total Design	**1,838,000**	**1,838,000**	**1,838,000**
Construction			
Site Preparation	112,500	112,500	112,500
Equipment	752,496	1,282,410	834,750
Construction[1]	3,340,525	2,932,602	1,554,893
Contingency[2]	134,828	366,100	111,000
Total Construction	**4,340,349**	**4,693,612**	**2,613,143**
Total Estimated Cost (TEC)	**6,178,349**	**6,531,612**	**4,451,143**
Contingency, TEC	*134,828*	*366,100*	*111,000*
Other Project Costs (OPC)			
OPC except D&D			
Conceptual Planning	30,000	30,000	30,000
Conceptual Design	64,643	64,643	64,643
Start-up[3]	908,652	146,000	146,000
Contingency [b]	268,356	40,000	40,000
Total OPC	**1,271,651**	**280,643**	**280,643**
Contingency, OPC	*268,356*	*40,000*	*40,000*
Total Project Cost	**7,450,000**	**6,812,255**	**4,731,786**
Total Contingency (TEC+OPC) [b]	***403,184***	***406,100***	***151,000***

[1] Construction costs have increased since FY 2025 CPDS due to increases in construction durations, and system turnover durations. Contractor performance and performance driven funding shortfalls caused duration extensions.
[2] Contingency values reflect a bottoms up re-estimate of the work to go, and a revised federal risk assessment with greater uncertainty and risk during the start-up phase of the project.
[3] Some start-up costs had previously been estimated as part of construction. The FY 2026 CPDS reflects a total bottoms up re-estimate with durations based on experience in the MEB, the PSF, and benchmarking the Waste Treatment and Immobilization Project in Richland WA.

5. Schedule of Appropriations Requests

Request Year	Type	Prior Years	FY 2024	FY 2025	FY 2026	Outyears	Total
FY 2013	TEC	TBD	TBD	TBD	TBD	TBD	TBD
	OPC	TBD	TBD	TBD	TBD	TBD	TBD
	TPC	TBD	TBD	TBD	TBD	TBD	TBD
FY 2014	TEC	TBD	TBD	TBD	TBD	TBD	TBD
	OPC	TBD	TBD	TBD	TBD	TBD	TBD
	TPC	TBD	TBD	TBD	TBD	TBD	TBD
FY 2015	TEC	TBD	TBD	TBD	TBD	TBD	TBD
	OPC	TBD	TBD	TBD	TBD	TBD	TBD
	TPC	TBD	TBD	TBD	TBD	TBD	TBD
FY 2016	TEC	TBD	TBD	TBD	TBD	TBD	TBD
	OPC	TBD	TBD	TBD	TBD	TBD	TBD
	TPC	TBD	TBD	TBD	TBD	TBD	TBD
FY 2017	TEC	N/A	N/A	N/A	N/A	N/A	N/A
	OPC	N/A	N/A	N/A	N/A	N/A	N/A
	TPC	6,200,096	250,000	49,904	0	0	6,500,000
FY 2018	TEC	N/A	N/A	N/A	N/A	N/A	N/A
	OPC	N/A	N/A	N/A	N/A	N/A	N/A
	TPC	6,435,096	64,904	0	0	0	6,500,000
FY 2019	TEC	N/A	N/A	N/A	N/A	N/A	N/A
	OPC	N/A	N/A	N/A	N/A	N/A	N/A
	TPC	6,335,411	159,000	5,589	0	0	6,500,000
FY 2020	TEC	N/A	N/A	N/A	N/A	N/A	N/A
	OPC	N/A	N/A	N/A	N/A	N/A	N/A
	TPC	6,335,411	164,589	0	0	0	6,500,000
FY 2021	TEC	N/A	N/A	N/A	N/A	N/A	N/A
	OPC	N/A	N/A	N/A	N/A	N/A	N/A
	TPC	6,335,411	164,589	0	0	0	6,500,000
FY 2022	TEC	N/A	N/A	N/A	N/A	N/A	N/A
	OPC	N/A	N/A	N/A	N/A	N/A	N/A
	TPC	5,939,411	0	0	0	0	5,939,411
FY 2023	TEC	N/A	N/A	N/A	N/A	N/A	N/A
	OPC	N/A	N/A	N/A	N/A	N/A	N/A
	TPC	6,377,411	122,589	0	0	0	6,500,000
FY 2024	TEC	N/A	N/A	N/A	N/A	N/A	N/A
	OPC	N/A	N/A	N/A	N/A	N/A	N/A
	TPC	6,580,517	760,000	550,000	400,000	282,613	8,573,130
FY 2025	TEC	N/A	N/A	N/A	N/A	N/A	N/A
	OPC	N/A	N/A	N/A	N/A	N/A	N/A
	TPC	6,577,261	760,000	800,000	596,021	605,885	9,339,167
FY 2026	TEC	N/A	N/A	N/A	N/A	N/A	N/A
	OPC	N/A	N/A	N/A	N/A	N/A	N/A

Request Year	Type	Prior Years	FY 2024	FY 2025	FY 2026	Outyears	Total
	TPC [a]	6,577,111	810,000	800,000	730,000	1,432,889	10,350,000

6. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy	01/31/2032
Expected Useful Life	50 years
Expected Future Start of D&D of this capital asset (fiscal quarter)	01/31/2082

Related Funding Requirements
(Budget Authority in Billions of Dollars)

	Annual Costs		Life Cycle Costs	
	Previous Total Estimate	Current Total Estimate	Previous Total Estimate	Current Total Estimate
Operations and Maintenance	$0.466	$0.466	$32.915	$32.915

7. D&D Information

The new area being constructed in this project is replacing existing facilities.

New Area being constructed at Y-12 National Security Complex	568,524 square feet
Area of D&D in this project at Y-12 National Security Complex	11,000 square feet[1]
Area at Y-12 National Security Complex to be transferred, sold, and/or D&D outside the project, including area previously "banked"	1,202,000 square feet
Area of D&D of 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	N/A

8. Acquisition Approach

The NNSA Federal Project Director and the Integrated Project Team are responsible for the execution of the project. The Y-12 M&O contractor is the designated design authority. Designated officials within the Office of Defense Programs (NA-10) are responsible for defining program requirements and identifying project scope changes. The Office of Infrastructure is responsible for providing support for alternative studies and serves as the lead NNSA office for design and construction of the project.

The UPF Project construction scope is being performed under firm fixed price contracts or subcontracts along with cost-plus contracts as determined to be the best value for the government. The Department is administering Architect-Engineer and construction contracts utilizing the M&O contract and stand-alone contract vehicles. The United States Army Corps of Engineers (USACE) and Tennessee Valley Authority have had acquisition and project management responsibility for appropriate scopes of work as determined by the Department.

[1] Building 9107.

22-D-513 Power Sources Capability (PSC) Facility
Sandia National Laboratories, Albuquerque, New Mexico
Project is for Design and Construction

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

Summary: The Fiscal Year (FY) 2026 Request for the Power Sources Capability (PSC) project is $115,000,000 and supports the continued construction of the facility.

This Construction Project Data Sheet (CPDS) is an update of the FY 2025 CPDS and does not include a new start for the budget year. The most recent DOE O 413.3B approved Critical Decision (CD) is CD-1, *Approve Alternative Selection and Cost Range,* which was approved on December 29, 2022, with a cost range of $344,000,000 to $400,000,000 and a CD-4 date of 3Q FY 2030. At CD-1 approval, NNSA established a top-end of the range limit of $400M for the project funding. The CD-1 top-end range estimate included contemporary escalation rates.

A Federal Project Director has been assigned to this project and approved this CPDS. Non-Nuclear Capability Modernization provides funding for Other Project Costs. All costs associated with the conduct of independent reviews, to include federal staff travel, are funded by this project.

Significant Changes:
No significant changes are noted. The project completed final design. The project expects to achieve CD-2/3 and to complete CD-3B site preparation work during FY 2025.

Critical Milestone History

Fiscal Quarter or Date

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	D&D Complete	CD-4
FY 2022	07/10/2019	4Q FY 2021	1Q FY 2022	4Q FY 2023	1Q FY 2023	4Q FY 2023	N/A	4Q FY 2026
FY 2024	07/10/2019	07/14/2021	12/29/2022	3Q FY 2025	3Q FY 2025	3Q FY 2025	N/A	3Q FY 2030
FY 2025	07/10/2019	07/14/2021	12/29/2022	3Q FY 2025	3Q FY 2025	3Q FY 2025	N/A	3Q FY 2030
FY 2026	07/10/2019	07/14/2021	12/29/2022	4Q FY 2025	01/24/2025	4Q FY 2025	N/A	3Q FY 2030

CD-0 – Approve Mission Need for a construction project with a conceptual scope and cost range
Conceptual Design Complete – Estimated date the conceptual design will be completed
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 complete(d)
CD-3 – Approve Start of Construction
D&D Complete – N/A
CD-4 – Approve Start of Operations or Project Closeout

Fiscal Year	CD-3A	CD-3B	CD-3C
FY 2024	2Q FY 2024	2Q FY 2024	N/A
FY 2025	2Q FY 2025	4Q FY 2024	N/A
FY 2026	11/26/2024	10/21/2024	05/23/2025

CD-3A/C – Approve long-lead procurement (electrical equipment / construction preparation services)
CD-3B – Approve site preparation

Project Cost History ($K)

Fiscal Year	TEC, Design	TEC, Construction	TEC, Total	OPC, Except D&D	OPC, D&D	OPC, Total	TPC
FY 2022	27,000	261,000	288,000	32,000	N/A	32,000	320,000
FY 2024	22,379	353,574	375,953	24,047	N/A	24,047	400,000
FY 2025	22,379	348,047	370,426	29,574	N/A	29,574	400,000
FY 2026	22,244	349,610	371,854	28,146	N/A	28,146	400,000

2. Project Scope and Justification

Scope
The PSC facility will be a new, Leadership in Energy and Environmental Design (LEED) Certified, modern building with co-located offices and operations. The PSC facility will consist of approximately 136,000 gross square feet of offices, laboratories, and support areas.

The new PSC facility will include the following high-level capabilities:
- A 50-year operating life.
- Co-located office, general use, and specialized laboratory space in one facility.
- Operational and physical security controls for all space types.
- Laboratory area infrastructure to support local exhaust ventilation, grounding and static dissipative controls, and specific engineering controls for operations.
- Controls and requirements for the varying chemicals throughout the facility, which include water reactive materials, compressed gasses (inert, oxygen, inert/5% hydrogen, etc.)
- Expanded utilities and site infrastructure to enable a future building addition, if necessary.

CD-3A, *Approve Long-Lead Procurement*, scope is for procurement of electrical equipment (approximately $3.62 million). This equipment has long procurement durations, approximately 20 to 30 months, and consists of eleven (11) medium voltage transformers and two (2) switchgear. CD-3B, *Approve Site Preparation*, (approximately $20 million) is advancing early site work prior to vertical construction, and consists of grading, clearing, and grubbing, installation of drainage and erosion control for the construction area, and installation of utilities. CD-3C, *Approve Long-Lead Procurement*, is being considered, while the project is completing the CD-2/3 approval process, for construction preparation services in advance of receiving approval to start construction activities. The total cost for CD-3C is capped at $18,000,000.

Justification
All modernization programs and future planned nuclear weapon systems require power source capabilities, and the NNSA has concluded there is an unacceptable risk to these capabilities due to aging and inadequate facilities and an unreliable supplier base. The full-lifecycle power sources mission for the Nuclear Security Enterprise (NSE) is carried out by Sandia National Laboratories (SNL) and this capability primarily resides in Building 894, a now 75-year-old shipping and receiving facility not designed to handle the environments necessary for the mission. The building's maintenance issues began impeding operations at an increasing rate by 2016, thus putting production capacities at significant risk. Building 894 was rated as "Poor" (Building Condition Index Score of 52) by facility and system assessments conducted in 2020. As of FY 2024, the facility had about $30,000,000 in deferred maintenance, which is expected to grow in the next few years and further increases the risk to the power sources mission.

Successful completion of the power sources facility will:
- Enable the NNSA to meet power source requirements through 2080.
- Reduce risks to the programs associated with SNL Building 894, including environmental safety and health risks.
- Reduce the risk of mission dependence on an unstable vendor base.
- Ensure the availability of capabilities to complete RDT&E activities in addition to production.
- Ensure the flexibility and agility necessary to meet future mission needs.

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*. Funds requested under this data sheet may be used to provide independent assessments for planning and execution of this project, and contracted support services to the federal project team for oversight and support.

Preliminary Key Performance Parameters (KPPs)

The Threshold KPPs, represent the minimum acceptable performance that the project must achieve. Achievement of the Threshold KPPs will be a prerequisite for approval of CD-4, Project Completion. The Objective KPPs represent the desired project performance. Initial values were developed prior to CD-0 approval and were revised prior to CD-1. These KPP's will be further refined prior to CD-2/3 approval.

#	Requirement	Threshold Value	Objective Value	Unit
M-1	Meet Program Requirements Document (PRD) requirements for primary batteries[a]	Various (see PRD)	Various (see PRD)	Starts and programs per year
M-2	Meet PRD requirements for thermal batteries	Various (see PRD)	Various (see PRD)	Starts and programs per year
M-3	Meet PRD requirements for radioisotope thermoelectric generator technology	Various (see PRD)	Various (see PRD)	Starts and programs per year

[a] Includes both starts for Joint Test Assemblies and Stockpiled Power Sources.

2. Financial Schedule ($K)

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
Prior Years	13,827	13,827	6,591
FY 2024	8,417	8,417	10,785
FY 2025	0	0	4,868
Total Design	**22,244**	**22,244**	**22,244**
Construction			
FY 2024	29,469	29,469	0
FY 2025	50,000	50,000	25,000
FY 2026	115,000	115,000	80,000
Out Years	155,141	155,141	244,610
Total Construction	**349,610**	**349,610**	**349,610**
TEC			
Prior Years	13,827	13,827	6,591
FY 2024	37,886	37,886	10,785
FY 2025	50,000	50,000	29,868
FY 2026	115,000	115,000	80,000
Out Years	155,141	155,141	244,610
Total TEC	**371,854**	**371,854**	**371,854**
Other Project Costs (OPC)			
Prior Years	14,793	14,793	12,609
FY 2024	0	0	145
FY 2025	1,250	1,250	1,350
FY 2026	3,000	3,000	3,000
Out Years	9,103	9,103	11,042
Total, OPC	**28,146**	**28,146**	**28,146**
Total Project Costs (TPC)			
Prior Years	28,620	28,620	19,200
FY 2024	37,886	37,886	10,930
FY 2025	51,250	51,250	31,218
FY 2026	118,000	118,000	83,000
Out Years	164,244	164,244	255,652
Total TPC	**400,000**	**400,000**	**400,000**

3. Details of Project Cost Estimate ($K)

		Current Total Estimate	Previous Total Estimate	Previous Validated Baseline
Total Estimated Cost (TEC)				
Design				
	Design	17,170	17,305	N/A
	Federal Design Review Support	1,665	1,665	N/A
	Contingency	3,409[a]	3,409	N/A
Total Design		**22,244**	**22,379**	**N/A**
Construction				
	Site Work	18,205	13,629	N/A
	Equipment	16,275	50,887	N/A
	Construction	261,100	220,937	N/A
	Federal Support	4,000	2,171	N/A
	Contingency	50,030	60,423	N/A
Total Construction		**349,610**	**348,047**	**N/A**
Total Estimated Cost (TEC)		**371,854**	**370,426**	**N/A**
Contingency, TEC		*53,439*	*63,832*	*N/A*
Other Project Costs (OPC)				
OPC except D&D				
	Analysis of Alternatives	821	821	N/A
	Conceptual Design	9,616	9,616	N/A
	CD-1 Documents/Fed Support	2,000	1,762	N/A
	Transition to Operations/Start-up	7,500	7,400	N/A
	Equipment Move	5,513	7,381	N/A
	Contingency	2,696	2,594	N/A
Total OPC		**28,146**	**29,574**	**N/A**
Contingency, OPC		*2,696*	*2,594*	*N/A*
Total Project Cost		**400,000**	**400,000**	**N/A**
Total Contingency (TEC+OPC)		***56,135***	***66,426***	***N/A***

[a] While final design is complete, there are ongoing activities associated with the establishment of the performance baseline (PB), which is planned for August 2025, that may require the use of contingency. Once the PB is established, any remaining design contingency will be transferred to construction.

4. Schedule of Appropriations Requests ($K)

Request Year	Type	Prior Years	FY 2024	FY 2025	FY 2026	Outyears	Total
FY 2022	TEC	13,827	TBD	TBD	TBD	274,173	288,000
	OPC	9,800	TBD	TBD	TBD	22,200	32,000
	TPC	23,627	TBD	TBD	TBD	296,373	320,000
FY 2024	TEC	13,827	37,886	71,083	73,902	179,255	375,953
	OPC	14,027	1,000	2,000	1,361	5,659	24,047
	TPC	27,854	38,886	73,083	75,263	184,914	400,000
FY 2025	TEC	13,827	37,886	50,000	115,000	153,713	370,426
	OPC	14,793	0	1,250	3,000	10,531	29,574
	TPC	28,620	37,886	51,250	118,000	164,244	400,000
FY 2026	TEC	13,827	37,886	50,000	115,000	155,141	371,854
	OPC	14,793	0	1,250	3,000	9,103	28,146
	TPC	28,620	37,886	51,250	118,000	164,244	400,000

5. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	3Q FY 2030
Expected Useful Life (number of years)	50
Expected Future Start of D&D of this capital asset (fiscal quarter)	3Q FY 2080

	Annual Cost		Life Cycle Costs	
	Previous Total Estimate	Current Total Estimate	Previous Total Estimate	Current Total Estimate[a]
Operations and Maintenance	$12M	$12M	$600M	$600M

6. D&D Information

The one-for-one offset requirement will be met by utilizing site-banked square footage. A plan for D&D of the existing facility will be developed at the end of construction of the new facility when characterization data is available.

	Square Feet
New area being constructed by this project at SNL	136,000
Area of D&D in this project at SNL	0
Area at SNL to be transferred, sold, and/or D&D outside the project including area previously "banked"	136,000
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	136,000

7. Acquisition Approach

The preliminary and final design is being led by the SNL Management and Operating (M&O) contractor utilizing a subcontracted Architectural and Engineering firm. The M&O contractor has also awarded a subcontract for a

[a] Not escalated; Base Year 2022.

Construction Manager at Risk (CMAR) effort to provide constructability reviews during the design review process, develop construction estimates at each design phase, and develop construction specific documents. The CD-3A, *Approve Long-Lead Procurement*, and CD-3B, *Approve Site Preparation*, work are being executed through the existing Power Sources Capability CMAR subcontract with Hensel Phelps as Optional Scope 1.

07-D-220-04 Transuranic Liquid Waste (TLW) Treatment Facility Upgrade Project,
Los Alamos National Laboratory (LANL), Los Alamos, New Mexico
Project is for Design and Construction

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

Summary:
The Fiscal Year (FY) 2026 Request is for $9,083,000 Other Project Costs (OPC), $5,865,000 Total Estimated Cost (TEC), and $14,948,000 Total Project Costs (TPC). The FY 2026 Request includes funds to finish construction and commissioning, as well as continued execution of the transition to operations activities that will enable the next project phases with the completion of construction and commissioning. Critical Decision (CD) 2 and 3 were approved on January 6, 2022, for $193,228,000 TEC and $215,327,000 TPC with a CD-4 approval date of August 31, 2027.

Significant Changes:

This Construction Project Data Sheet (CPDS) is an update of the FY 2023 CPDS and does not include a new start for the budget year. Beneficial occupancy and construction complete are forecasted for September 2025 and November 2025, respectively. The Project recently completed a comprehensive estimate at completion (CEAC) that recognizes schedule delays and cost growth. Specifically, the CEAC recognizes the challenges associated with site conditions, incomplete utility mapping, schedule delays resulting in additional project management & oversight (LOE), commissioning & startup costs being underestimated in the original performance baseline, and the remaining documentation and validation. The CEAC reflects $194,890,000 TEC and $226,072,000 TPC with a CD-4 date of January 31, 2028. After construction completion and commissioning, the project will transition to system testing and evaluation, including surrogate testing to demonstrate the achievement of key performance parameters. The project will then begin the required operational readiness reviews required for nuclear facility operation.

A Federal Project Director has been appointed.

Critical Milestone History

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	D&D Complete	CD-4
FY 2014	10/04/2004		09/16/2011	4QFY 2016	1QFY 2017	1Q FY 2017	N/A	4Q FY 2020
FY 2015	10/04/2004		09/23/2013	4QFY 2016	1QFY 2017	2Q FY 2017	N/A	4Q FY 2020
FY 2016	10/04/2004	09/23/2013	09/23/2013	4QFY 2017	1QFY 2017	4Q FY 2017	N/A	4Q FY 2020
FY 2017	10/04/2004	09/23/2013	09/23/2013	4Q FY 2017	1Q FY 2017	4Q FY 2017	N/A	4Q FY 2021
FY 2018	10/04/2004	09/23/2013	09/23/2013	2Q FY 2018	02/06/2017	2Q FY 2018	N/A	4Q FY 2023
FY 2021	10/04/2004	09/23/2013	09/23/2013	4Q FY 2020	1Q FY 2021	4Q FY 2020	N/A	4Q FY 2024
FY 2023	10/04/2004	09/23/2013	09/23/2013	01/06/2022	04/15/2021	01/06/2022	N/A	4Q FY 2027
FY 2026	10/04/2004	09/23/2013	01/06/2022	01/06/2022	04/15/2021	01/06/2022	N/A	2Q FY 2028

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 complete(d)
CD-3 – Approve Start of Construction/Execution
D&D Complete – Completion of D&D work (see Section 9)
CD-4 – Approve Start of Operations or Project Completion

Project Cost History

Fiscal Year	TEC, Design	TEC, Construction	TEC, Total	OPC Except D&D	OPC, D&D	OPC, Total	TPC
FY 2014	20,546	74,270	94,816	12,780	0	12,780	107,596
FY 2015	25,605	60,000	85,605	10,428	0	10,428	96,033
FY 2016	25,605	66,997	92,602	10,428	0	10,428	103,030
FY 2017	25,605	66,997	92,602	10,428	0	10,428	103,030
FY 2018	25,605	67,244	92,849	12,940	0	12,940	105,789
FY 2021	40,500	84,260	124,760	14,464	0	14,464	139,224
FY 2023	44,829	148,399	193,228	22,099	0	22,099	215,327
FY 2026	44,829	150,061	194,890	31,182	0	31,182	226,072

2. Project Scope and Justification

Scope
The project will design and construct a new hazard category 3 nuclear facility of approximately 5,000 square feet. The facility will house processing equipment capable of treating at least 29,000 liters of transuranic (TRU) liquid waste each year, a TRU liquid influent storage system, and necessary utilities.

Justification
The existing degraded and outdated treatment facility systems pose elevated risk to workers, public, environment and plutonium missions at LANL. Continuous workarounds are required to keep systems running and excessive corrosion threatens system availability. The replacement is needed to remediate significant deficiencies associated with the existing Radioactive Liquid Waste (RLW) treatment capabilities that pose a threat to the long-term availability of this function. The replacement is ultimately aimed at providing a RLW treatment capability that is safe, reliable, and effective for the next 50 years in support of primary plutonium missions at LANL. Delays in TLW could have a significant risk to the NNSA plutonium mission due to the potential risks associated with the aging existing Radioactive Liquid Waste Treatment Facility. The new facility will be built to comply with the current codes, Nuclear Safety/Quality, standards including International Building Code, seismic design/construction codes, and the National Electric Code.

The project is executed in accordance with the project management requirements in DOE Order 413.3B. Funds appropriated under this data sheet may be used for independent assessments of the planning and execution of this project and for contracted support services to the federal project team for oversight and support.

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

Key Performance Parameters (KPPs)

Performance Measure	Threshold KPP	Objective KPP
-Design and construct the capability to process 29,000 liters per year of TRU liquid waste	-Process 29,000 liters per year	Any additional throughput will be accomplished through operational tempo
-Design and construct the TLW Facility such that the TLW effluent will meet the Waste Acceptance Criteria (WAC) for the LLW collection system	-Meet the WAC for the LLW collection system	

3. Financial Schedule

($K)			
	Budget Authority (Appropriations)	**Obligations**	**Costs**
Total Estimated Cost (TEC)			
Design			
Prior - FY 2023	44,829	44,829	44,829
Total Design			
Construction			
Prior - FY 2023	139,196	139,196	45,134
FY 2024	0	0	80,920
FY 2025	5,000	5,000	16,348
FY 2026	5,865	5,865	7,659
Total Construction	**150,061**	**150,061**	**150,061**
TEC			
Prior - FY 2023	184,025	184,025	89,963
FY 2024	0	0	80,920
FY 2025	5000	5,000	16,348
FY 2026	5865	5,865	7,659
Total TEC	**194,890**	**194,890**	**194,890**
Other Project Costs (OPC)			
Prior - FY 2023	11,234	11,234	2,316
FY 2024	6,230	6,230	1,928
FY 2025	4,635	4,635	13,073
FY 2026	9,083	9,083	9,757
Outyears	-	-	4,108
Total, OPC	**31,182**	**31,182**	**31,182**
Total Project Costs (TPC)			
Prior - FY 2023	195,259	195,259	92,279
FY 2024	6,230	6,230	82,848
FY 2025	9,635	9,635	29,421
FY 2026	14,948	14,948	17,416
Outyears	-	-	4,108
Total TPC	**226,072**	**226,072**	**226,072**

4. **Details of Project Cost Estimate**

	($K)		
	Current Total Estimate	**Previous Total Estimate**	**Previous Validated Baseline**
Total Estimated Cost (TEC)			
Design			
Design	44,829	44,711	44,711
Federal Support	0	0	0
Contingency	0	118	118
Total Design	**44,829**	**44,829**	**44,829**
Construction			
Other Construction	141,485	112,150	112,150
Equipment (GFE)	1,279	0	0
Safety Basis	2,539	2,421	2,421
Federal Support	2,100	5,275	5,275
Contingency	2,658	28,553	28,553
Total Construction	**150,061**	**148,399**	**148,399**
Total Estimated Cost (TEC)	**194,890**	**193,228**	**193,228**
Contingency, TEC	*2,658*	*28,671*	*28,671*
Other Project Costs (OPC)			
OPC except D&D			
Conceptual Planning	0	0	0
Conceptual Design			
Design Support	1,547	1,547	1,547
Start-Up	28,553	15,904	15,904
Federal Support	0	725	725
Contingency	1,082	3,923	3,923
Total OPC	**31,182**	**22,099**	**22,099**
Contingency, OPC	*1,082*	*3,923*	*3,923*
Total Project Cost	**226,072**	**215,327**	**215,327**
Total Contingency (TEC+OPC)	***3,740***	***32,594***	***32,594***

5. Schedule of Appropriation Requests

($K)

Request Year	Type	Prior Years	FY 2024	FY 2025	FY2026	Total
FY 2014	TEC	86,053	0	0		86,053
	OPC	12,780	0	0		12,780
	TPC	98,833	0	0		98,833
FY 2015	TEC	85,605	0	0		85,605
	OPC	10,428	0	0		10,428
	TPC	96,033	0	0		96,033
FY 2016	TEC	85,102	0	0		85,102
	OPC	10,428	0	0		10,428
	TPC	95,530	0	0		95,530
FY 2017	TEC	85,102	0	0		85,102
	OPC	10,428	0	0		10,428
	TPC	95,530	0	0		95,530
FY 2018	TEC	92,849	0	0		92,849
	OPC	7,746	0	0		7,746
	TPC	100,595	0	0		100,595
FY 2021	TEC	129,536	0	0		129,536
	OPC	11,234	3,230	0		14,464
	TPC	140,770	3,230	0		144,000
FY 2023	TEC	184,295	8,933	0		193,228
	OPC	11,234	6,230	4,635		22,099
	TPC	195,529	15,163	4,635		215,327
FY 2026	TEC	184,025	0	5,000	5,865	194,890
	OPC	11,234	6,230	4,635	9,083	31,182
	TPC	195,259	6,230	9,635	14,948	226,072

6. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	Q2 FY 2028
Expected Useful Life (number of years)	50
Expected Future Start of D&D of this capital asset (fiscal quarter)	Q2 FY 2078

Related Funding Requirements
(Budget Authority in Millions of Dollars)
2013 Base Dollars

	Annual Costs		Life Cycle Costs	
	Current Total Estimate	Previous Total Estimate	Current Total Estimate	Previous Total Estimate
Operations	1.400	1.400	70.0	70.0
Utilities	0.050	0.050	2.5	2.5
Maintenance & Repair	0.400	0.400	20.0	20.0
Total	1.850	1.850	92.5	92.5

7. D&D Information

The one-for-one offset requirement will be met by utilizing site-banked square footage. A plan for D&D of the existing facility will be developed at the end of construction of the new facility when characterization data is available.

	Square Feet
New area being constructed by this project at LANL	5,000
Area of D&D in this project at LANL	0
Area at LANL to be transferred, sold, and/or D&D outside the project including area previously "banked"	5,000
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	5,000

8. Acquisition Approach

The TLW acquisition strategy assigns project execution activities to the LANL Management and Operating (M&O) Contractor. The LANL M&O completed CD-2 and -3 prior to final design. Both CD-2 and -3 approval was received on January 6, 2022, and a firm fixed price contract for construction was awarded on March 23, 2022. Most construction activities will be performed by the Construction Sub-Contractor Hensel Phelps, with some activities performed by the LANL M&O. Specifically, the startup, commissioning, and turnover to Operations and Readiness will be performed by the LANL M&O through the cost-plus contract.

Chemistry and Metallurgy Research Replacement (CMRR) Project, 04-D-125
Los Alamos National Laboratory (LANL), Los Alamos, New Mexico
Project is for Design and Construction

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

Summary:
The Fiscal Year (FY) 2026 Request for the Chemistry and Metallurgy Research Replacement (CMRR) Project is $50,000,000 supporting subprojects for equipment installation in the Plutonium Facility 4 (PF-4), and associated infrastructure for related operations at PF-4.

The CMRR Project provides continuity in analytical chemistry (AC) and materials characterization (MC) capabilities through the relocation of programmatic operations from the existing Chemistry and Metallurgy Research (CMR) facility and provides infrastructure and support facilities for consolidated operations at the Technical Area -55 (TA-55) site.

Significant Changes:
The FY 2026 Construction Project Data Sheet (CPDS) is an update of the FY 2024 CPDS and does not include a new start for the budget year. This data sheet updates the project to reflect establishment of the performance baseline and start of full-scale construction of the PF-4 Equipment Installation Phase 2 (PEI2), and removal of remaining scope of the Radiological Laboratory Utility Office Building (RLUOB) Hazard Category 3 (RC3) subproject.

On November 6, 2024, the Project Management Executive approved the second revision to Critical Decision (CD)-1 (CD-1RR) for CMRR and CD-2/3 for PEI2. The approval aligned the remaining scope, removed the remaining RC3 scope from the project, and established the performance baseline for the final subproject, PEI2, with a total project cost (TPC) of $1.19B and a June 2034 completion date. The CD-1RR reflects the cost growth associated with the PEI2 subproject from the FY24 CPDS that was the result of scope modifications and cost growth in the existing scope. Similarly, the removal of remaining RC3 scope was initiated to offset PEI2 scope modifications and cost growth and ensure the project was completed within the existing CD-1R cost range.

FY 2026 funding will be used to support continued construction to increase capacity for change rooms leading into PF-4, upgrades in capacity for vehicular entrances/exits to and from TA-55, and upgrades to existing PF-4 ingress/egress security posts for essential capacity increases related to CMRR missions.

The current CMRR subprojects are listed below, and further completion details are described in Section 2 of this document.

RLUOB Subproject (04-D-125-01): *COMPLETE* - CD-4 approved on June 24, 2010.

RLUOB Equipment Installation Phase 1 (REI1) Subproject (04-D-125-02): *COMPLETE* - CD-4 approved on June 20, 2013.

Nuclear Facility (NF) Subproject (04-D-125-03): *CANCELLED* - This subproject was cancelled.

RLUOB Equipment Installation Phase 2 (REI2) Subproject (04-D-125-04): *COMPLETE – CD*-4 approved on December 20, 2021.

PEI1 Subproject (04-D-125-05): *COMPLETE* – CD-4 approved on January 8, 2021.

PEI2 Subproject (04-D-125-06): Maximizes use of PF-4 by consolidating and relocating existing capabilities, replacing existing equipment, installing gloveboxes and equipment, and development of infrastructure supporting AC/MC mission relocation to TA-55. PEI2 will establish enduring AC and MC capabilities for supporting NNSA actinide-based missions. PEI2 also improves TA-55 and PF-4 personnel and vehicular ingress/egress, levels of worker preparation/staging and warehousing for relocated AC/MC operations and personnel. See Section 4 of this datasheet for additional detail on *Project Scope and Justification*. Underruns from PEI1 and REI2 and funding from RC3 were utilized to fund remaining performance baselines. PEI2 was congressionally paused in 2017 and restarted in March 2022. CD-3B, Change Room Expansion and Post 118 expansion, was approved in February 2021 at $89 million. CD-3C, Long-Lead Equipment Procurement, was approved in December 2022 at $53.9 million. CD-2/3 was approved for PEI2 at a TPC of $1.19B and CD-4 date of June 2034.

RC3 Subproject (04-D-125-07): *COMPLETE* – The scope maximized the use of RLUOB by converting the facility to a Hazard Category 3 Nuclear Facility from the original radiological categorization. The facility was originally limited to 8.9 grams and now limited to 400 grams of Plutonium. RC3 remaining scope was removed based on the November 2024 CD-1RR and this subproject is now considered complete.

A Level 4 Federal Project Director has been appointed to this project and has approved this data sheet.

Critical Milestone History[1]

Fiscal Quarter or Date

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	D&D Complete	CD-4
FY 2004	07/16/2002	N/A	1Q FY 2004		N/A	2Q FY 2004	N/A	1Q FY 2011
FY 2005	07/16/2002	N/A	3Q FY 2004		N/A	3Q FY 2005	N/A	3Q FY 2012
FY 2006	07/16/2002	N/A	2Q FY 2005	4Q FY 2005	N/A	1Q FY 2006	N/A	4Q FY 2010
FY 2007	07/16/2002	N/A	09/30/2005	1Q FY 2006	N/A	1Q FY 2006	N/A	1Q FY 2013
FY 2008	07/16/2002	N/A	09/30/2005	10/21/2005	N/A	1Q FY 2006	N/A	1Q FY 2013
FY 2009	07/16/2002	N/A	09/30/2005	TBD	N/A	TBD	N/A	TBD
FY 2010	07/16/2002	N/A	09/30/2005	TBD	N/A	TBD	N/A	TBD
FY 2011	07/16/2002	N/A	05/18/2005	TBD	N/A	TBD	N/A	TBD
FY 2012	07/16/2002	N/A	05/18/2005	4Q FY 2012	N/A	4Q FY 2012	N/A	TBD
FY 2012 Rep	07/16/2002	N/A	05/18/2005	TBD	TBD	TBD	N/A	TBD
FY 2016	07/16/2002	N/A	4QFY2014	3Q FY 2016	2Q FY 2016	3Q FY 2016	4Q FY 2019	4Q FY 2024
FY 2017	07/16/2002	N/A	08/21/2014	3Q FY 2016	2Q FY 2016	3Q FY 2016	4Q FY 2019	4Q FY 2024
FY 2018	07/16/2002	N/A	08/21/2014	2Q FY 2022	3Q FY 2021	2Q FY 2022	4Q FY 2026	4Q FY 2026
FY 2019	07/16/2002	N/A	08/21/2014	4Q FY 2022	4Q FY 2022	4Q FY 2022	4Q FY 2026	4Q FY 2026
FY 2020	07/16/2002	N/A	08/21/2014	10/31/2016	12/1/2016	10/31/2016	N/A	3Q FY 2022
FY 2021	07/16/2002	N/A	08/21/2014	1Q FY 2023	2Q FY 2023	2Q FY 2023	4Q FY 2025	4Q FY 2029
FY 2022	07/16/2002	N/A	08/21/2014	4Q FY 2023	4Q FY 2023	4Q FY 2023	3Q FY 2028	4Q FY 2029
FY 2023	07/16/2002	N/A	08/21/2014	3Q FY 2024	2Q FY 2024	3Q FY 2024	4Q FY 2029	4Q FY 2029
FY 2024	07/16/2002	N/A	08/21/2014	3Q FY 2024	2Q FY 2024	3Q FY 2024	4Q FY 2029	4Q FY 2029
FY 2026	07/16/2002	N/A	11/06/2024	11/06/2024	11/06/2024	11/06/2024	N/A[2]	3Q FY 2034

RLUOB Subproject (04-D-125-01)

Fiscal Quarter or Date

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	D&D Complete	CD-4
FY 2011	07/16/2002	N/A	05/18/2005	10/21/2005	N/A	10/21/2005	N/A	02/28/2010
FY 2012	07/16/2002	N/A	05/18/2005	10/21/2005	N/A	10/21/2005	N/A	06/24/2010
FY 2012 Rep	07/16/2002	N/A	05/18/2005	10/21/2005	N/A	10/21/2005	N/A	06/24/2010[3]

[1] Critical milestone history reflects no milestones in FY2013, FY2014, FY2015, and FY2025 since no budget requests were submitted in these years.
[2] The D&D scope associated with the PEI2 subproject was de-scoped as part of the CD-1RR and CD-2/3 approval process.
[3] This subproject is complete, and the project history has not changed.

REI1 Subproject (04-D-125-02)

Fiscal Quarter or Date

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	D&D Complete	CD-4
FY 2011	07/16/2002	N/A	05/18/2005	07/17/2009	N/A	07/17/2009	N/A	04/30/2013
FY 2012	07/16/2002	N/A	05/18/2005	07/17/2009	N/A	07/17/2009	N/A	04/30/2013
FY 2012 Rep	07/16/2002	N/A	05/18/2005	07/17/2009	N/A	07/17/2009	N/A	06/20/2013[1]

Nuclear Facility (NF) Subproject (04-D-125-03)

Fiscal Quarter or Date

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	D&D Complete	CD-4
FY 2011	07/16/2002	N/A	05/18/2005	TBD	N/A	TBD	N/A	TBD
FY 2012	07/16/2002	N/A	05/18/2005	4Q FY 2012	N/A	4Q FY 2012	N/A	TBD
FY 2012 Rep	07/16/2002	N/A	05/18/2005	TBD	TBD	TBD	N/A	TBD
FY 2016	07/16/2002	N/A	05/18/2005	Cancelled	Cancelled	Cancelled	N/A	Cancelled[2]

REI2 Subproject (04-D-125-04)

Fiscal Quarter or Date

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	D&D Complete	CD-4
FY 2016	07/16/2002	8/21/2014	8/21/2014	3Q FY 2016	2Q FY 2016	3Q FY 2016	N/A	1Q FY 2020
FY 2017	07/16/2002	8/21/2014	8/21/2014	3Q FY 2016	2Q FY 2016	3Q FY 2016	N/A	1Q FY 2020
FY 2018 PB	07/16/2002	8/21/2014	8/21/2014	10/31/2016	4/6/2016	10/31/2016	N/A	2Q FY 2022
FY 2019	07/16/2002	8/21/2014	8/21/2014	10/31/2016	4/6/2016	10/31/2016	N/A	2Q FY 2022
FY 2020	07/16/2002	8/21/2014	8/21/2014	10/31/2016	4/6/2016	10/31/2016	N/A	2Q FY 2022
FY 2021	07/16/2002	8/21/2014	8/21/2014	10/31/2016	4/6/2016	10/31/2016	N/A	2Q FY 2022
FY 2022	07/16/2002	8/21/2014	8/21/2014	10/31/2016	4/6/2016	10/31/2016	N/A	2Q FY 2022
FY 2023	07/16/2002	8/21/2014	8/21/2014	10/31/2016	4/6/2016	10/31/2016	N/A	12/20/2021[1]

Fiscal Quarter or Date

Fiscal Year	CD-3A	CD-3B
FY 2016	12/18/2014	2Q FY 2015
FY 2017	12/18/2014	12/22/2015
FY 2018	12/18/2014	12/22/2015
FY 2019	12/18/2014	12/22/2015
FY 2020	12/18/2014	12/22/2015
FY 2021	12/18/2014	12/22/2015
FY 2022	12/18/2014	12/22/2015
FY 2023	12/18/2014	12/22/2015

CD-3A – Approve Long-Lead Procurements
CD-3B – Approve Long-Lead Procurements

[1] This subproject is complete, and the project history has not changed.
[2] This subproject was canceled, and the project history has not changed.

PEI1 Subproject (04-D-125-05)

Fiscal Quarter or Date

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	D&D Complete	CD-4
FY 2016	07/16/2002	4Q FY 2015	4Q FY 2014	3Q FY 2016	2Q FY 2016	3Q FY 2016	4Q FY 2019	1Q FY 2024
FY 2017	07/16/2002	8/21/2014	08/21/2014	3Q FY 2016	2Q FY 2016	3Q FY 2016	4Q FY 2019	1Q FY 2020
FY 2018 PB	07/16/2002	8/21/2014	08/21/2014	10/31/2016	12/1/2016	10/31/2016	4Q FY 2019	3Q FY 2022
FY 2019	07/16/2002	8/21/2014	08/21/2014	10/31/2016	12/1/2016	10/31/2016	4Q FY 2019	3Q FY 2022
FY 2020	07/16/2002	8/21/2014	08/21/2014	10/31/2016	12/1/2016	10/31/2016	4Q FY 2019	3Q FY 2022
FY 2021	07/16/2002	8/21/2014	08/21/2014	10/31/2016	12/1/2016	10/31/2016	4Q FY 2019	3Q FY 2022
FY 2022	07/16/2002	8/21/2014	08/21/2014	10/31/2016	12/1/2016	10/31/2016	11/12/2019	1/08/2021[1]

Fiscal Quarter or Date

Fiscal Year	CD-3A	CD-3B
FY 2016	03/18/2015	12/22/2015
FY 2017	03/18/2015	12/22/2015
FY 2018	03/18/2015	12/22/2015
FY 2019	03/18/2015	12/22/2015
FY 2020	03/18/2015	12/22/2015
FY 2021	03/18/2015	12/22/2015
FY 2022	03/18/2015	12/22/2015

CD-3A – Approve Long-Lead Procurements
CD-3B – Approve Long-Lead Procurements

PEI2 Subproject (04-D-125-06)

Fiscal Quarter or Date

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	D&D Complete	CD-4
FY 2016	07/16/2002	8/21/2014	4Q FY 2014	3Q FY 2016	2Q FY 2016	3Q FY 2016	4Q FY 2019	1Q FY 2024
FY 2021	07/16/2002	8/21/2014	8/21/2014	2Q FY 2023	2Q FY 2023	2Q FY 2023	4Q FY 2025	4Q FY 2028
FY 2022	07/16/2002	8/21/2014	8/21/2014	3Q FY 2023	3Q FY 2023	3Q FY 2023	3Q FY 2028	4Q FY 2029
FY 2023	07/16/2002	8/21/2014	8/21/2014	3Q FY 2023	2Q FY 2023	3Q FY 2023	4Q FY 2029	4Q FY 2029
FY 2024	07/16/2002	8/21/2014	8/21/2014	3Q FY 2023	2Q FY 2023	3Q FY 2023	4Q FY 2029	4Q FY 2029
FY 2026	07/16/2002	8/21/2014	11/06/2024	11/06/2024	11/06/2024	11/06/2024	N/A[2]	3Q FY 2034

Fiscal Quarter or Date

Fiscal Year	CD-3A	CD-3B	CD-3C
FY 2016	03/18/2015		
FY 2017	03/18/2015		
FY 2018	03/18/2015		
FY 2019	03/18/2015		
FY 2020	03/18/2015		
FY 2021	03/18/2015	2Q FY 2022	
FY 2022	03/18/2015	02/03/2021	
FY 2023	03/18/2015	02/09/2021	
FY 2024	03/18/2015	02/09/2021	12/28/2022

CD-3A – D&D of Room 200 Area

[1] This subproject is complete, and the project history has not changed.
[2] The D&D scope associated with the PEI2 subproject was de-scoped as part of the CD-1RR and CD-2/3 approval process.

CD-3B – Infrastructure scope/early site security/access
CD-3C – Approve Long-Lead Procurements

RC3 (04-D-125-07)[1]

Fiscal Quarter or Date

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	D&D Complete	CD-4
FY 2016	07/16/2002	08/21/2014	4Q FY 2014	3Q FY 2018	2Q FY 2017	4Q FY 2017	N/A	1Q FY 2024
FY 2021	07/16/2002	08/21/2014	4Q FY 2014	2Q FY 2023	2Q FY 2023	2Q FY 2023	N/A	4Q FY 2028
FY 2022	07/16/2002	08/21/2014	8/21/2014	4Q FY 2023	4Q FY 2023	1Q FY 2024	N/A	4Q FY 2028
FY 2023	07/16/2002	08/21/2014	8/21/2014	3Q FY 2024	2Q FY 2024	3Q FY 2024	N/A	4Q FY 2028
FY 2024	07/16/2002	08/21/2014	8/21/2014	3Q FY 2024	2Q FY 2024	3Q FY 2024	N/A	4Q FY 2028
FY 2026	07/16/2002	08/21/2014	11/06/2024	N/A	N/A	N/A	N/A	N/A

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 Alternative Selection and Cost Range
CD-2 – Approve 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
CD-4 – Approve Start of Operations or Project Closeout

[1] RC3 has been deemed completed based on November 6, 2024 CD-1RR. The completed scope maximized the use of RLUOB by converting the facility to a Hazard Category 3 Nuclear Facility from the original radiological categorization. The facility was originally limited to 8.9 grams and is now limited to 400 grams of plutonium.

Project Cost History[1] ($K)

Fiscal Year	TEC, Design 03-D-103	TEC, Design/Construction 04-D-125	TEC, Total	OPC, Except D&D	OPC, D&D	OPC, Total	TPC
FY 2004	N/A	N/A	500,000	100,000	N/A	N/A	600,000
FY 2005	N/A	N/A	500,000	100,000	N/A	N/A	600,000
FY 2006	N/A	N/A	750,000	100,000	N/A	N/A	850,000
FY 2007	N/A	N/A	738,097	100,000	N/A	N/A	838,097
FY 2008	65,939	672,158	738,097	100,000	N/A	N/A	838,098
FY 2009	TBD	TBD	TBD	TBD	N/A	TBD	TBD
FY 2010	65,138	TBD	TBD	TBD	N/A	TBD	TBD
FY 2016	63,646	2,295,936	2,359,582	463,721	54,000	517,721	2,877,303
FY 2017	63,646	2,243,436	2,307,082	516,221	54,000	570,221	2,877,303
FY 2018	63,573	2,209,842	2,273,415	549,815	54,000	603,815	2,877,230
FY 2019	63,573	2,209,069	2,272,642	550,588	54,000	604,588	2,877,230
FY 2020	63,573	1,492,091	1,555,664	336,089	N/A	336,089	1,891,753[2]
FY 2021	63,573	2,209,069	2,272,642	550,588	54,000	604,588	2,877,230
FY 2022	63,573	2,241,987	2,305,560	526,670[3]	54,000	580,670	2,886,230
FY 2023	63,573	2,293,647	2,357,220	493,730	35,280	529,010	2,886,230
FY 2024	63,573	2,293,647	2,357,220	493,730	35,280	529,010	2,886,230
FY 2026	63,573	2,451,983	2,515,556	370,674	0	370,674	2,886,230[4]

RLUOB Subproject (04-D-125-01) ($K)

Fiscal Year	TEC, Design 03-D-103	TEC, Design/Construction 04-D-125	TEC, Total	OPC, Except D&D	OPC, D&D	OPC, Total	TPC
FY 2011	N/A	159,130	159,130	4,870	N/A	4,870	164,000
FY 2012	N/A	159,130	159,130	4,870	N/A	4,870	164,000
FY 2012 Rep	N/A	159,130	159,130	4,870	N/A	4,870	164,000
FY 2016[5]	N/A	194,130	194,130	4,870	N/A	4,870	199,000

REI1 Subproject (04-D-125-02) ($K)

Fiscal Year	TEC, Design 03-D-103	TEC, Design/Construction 04-D-125	TEC, Total	OPC, Except D&D	OPC, D&D	OPC, Total	TPC
FY 2011	N/A	152,900	152,900	46,500	N/A	46,500	199,400
FY 2012	N/A	152,900	152,900	46,500	N/A	46,500	199,400
FY 2012 Rep	N/A	152,900	152,900	46,500	N/A	46,500	199,400
FY 2016[6]	N/A	151,963	151,963	44,797	N/A	44,797	196,760

[1] Project cost history reflects no milestones in FY 2013, FY 2014, FY 2015, and FY 2025 since no CPDS or budget requests were submitted in these years.
[2] In the FY 2020 CMRR Data Project Data Sheet the PEI2 and RC3 subprojects were removed from the CMRR project and funded under the Plutonium Pit Production Project in accordance with the Conference Report.
[3] The published FY 2022 CPDS OPC was incorrectly stated as $520,035,000. The rest of the FY 2022 numbers were correct. The FY 2022 number has been updated to correct this previous typographical error in the FY 2022 submittal.
[4] Now reflects the PEI2 baseline and the completion of the RC3 subproject.
[5] This subproject is complete, and the project history has not changed.
[6] This subproject is complete, and the project history has not changed.

NF Subproject (03-D-103 and 04-D-125-03) ($K)

Fiscal Year	TEC, Design 03-D-103	TEC, Design/Construction 04-D-125	TEC, Total	OPC, Except D&D	OPC, D&D	OPC, Total	TPC
FY 2011	65,138	TBD	TBD	TBD	N/A	TBD	TBD
FY 2012	65,138	3,239,862 – 5,169,862	3,305,000 – 5,235,000	405,000 - 625,000	N/A	405,000-625,000	3,710,000 - 5,860,000
FY 2012 Rep	65,138	TBD	TBD	4,870	N/A	TBD	TBD
FY 2016	63,646	391,324	454,970	40,274	N/A	40,274	495,244
FY 2017	63,646	391,324	454,970	40,274	N/A	40,274	495,244
FY 2018[1]	63,573	336,919	400,492	39,054	N/A	39,054	439,546

REI2 Subproject (04-D-125-04) ($K)

Fiscal Year	TEC, Design 03-D-103	TEC, Design/Construction 04-D-125	TEC, Total	OPC, Except D&D	OPC, D&D	OPC, Total	TPC
FY 2016	0	540,000	540,000	135,000	N/A	135,000	675,000
FY 2017	0	540,000	540,000	135,000	N/A	135,000	675,000
FY 2018 PB	0	488,040	488,040	145,210	N/A	145,210	633,250
FY 2019	0	488,040	488,040	145,210	N/A	145,210	633,250
FY 2020	0	488,040	488,040	145,210	N/A	145,210	633,250
FY 2021	0	488,040	488,040	145,210	N/A	145,210	633,250
FY 2022	0	451,517	451,517	111,090	N/A	111,090	562,607
FY 2023	0	410,659	410,659	106,191	N/A	106,191	516,850
FY 2024	0	410,201	410,201	103,343	N/A	103,343	513,544
FY 2026	0	412,488	412,488	103,193	N/A	103,193	515,681[2]

PEI1 Subproject (04-D-125-05) ($K)

Fiscal Year	TEC, Design 03-D-103	TEC, Design/Construction 04-D-125	TEC, Total	OPC, Except D&D	OPC, D&D	OPC, Total	TPC
FY 2016	0	1,071,000	1,071,000	240,000	54,000	294,000	1,365,000
FY 2017	0	257,595	257,595	57,405	N/A	57,405	315,000
FY 2018 PB	0	292,300	292,300	101,700	N/A	101,700	394,000
FY 2019	0	292,300	292,300	101,700	N/A	101,700	394,000
FY 2020	0	292,300	292,300	101,700	N/A	101,700	394,000
FY 2021	0	292,300	292,300	101,700	N/A	101,700	394,000
FY 2022	0	231,400	231,400	52,600	N/A	52,600	284,000
FY 2023	0	220,701	220,701	56,905	N/A	56,905	277,606
FY 2024[3]	0	220,719	220,719	56,454	N/A	56,454	277,173

[1] This subproject was canceled, and the project history has not changed.
[2] REI2 achieved CD-4 in December 2021, with an approved TPC of $509,300,000 the subproject is currently completing financial closeout and the actual will be updated to reflect the final costs in the next project data sheet. The tables reflect the current costs to date of $515,681,000.
[3] This subproject is complete, and the project history has not changed.

PEI2 Subproject (04-D-125-06) ($K)

Fiscal Year	TEC, Design 03-D-103	TEC, Design/Construction 04-D-125	TEC, Total	OPC, Except D&D	OPC, D&D	OPC, Total	TPC
FY 2016	0	471,500	471,500	159,500	54,000	213,500	685,000
FY 2020	0	28,739	28,739	296	N/A	296	29,035
FY 2021	0	475,242	475,242	146,098	54,000	200,098	675,340
FY 2022	0	538,662	538,662	156,533	54,000	210,533	749,195
FY 2023	0	590,413	590,413	118,356	35,280	153,636	744,049
FY 2024	0	625,693	625,693	118,356	0	118,356	744,049
FY 2026	0	1,103,356	1,103,356	82,460	0	82,460	1,185,816

RC3 (04-D-125-07) ($K)

Fiscal Year	TEC, Design 03-D-103	TEC, Design/Construction 04-D-125	TEC, Total	OPC, Except D&D	OPC, D&D	OPC, Total	TPC
FY 2016	0	289,405	289,405	75,595	N/A	75,595	365,000
FY 2020	0	0	0	162	N/A	162	162
FY 2021	0	270,475	270,475	68,859	N/A	68,859	339,334
FY 2022	0	337,396	337,396	117,726	N/A	117,726	455,122[1]
FY 2023	0	388,862	388,862	123,557	N/A	123,557	512,419
FY 2024	0	390,801	390,801	125,357	N/A	125,357	516,158
FY 2026	0	32,408	32,408	39,848	N/A	39,848	72,254[2]

2. Project Scope and Justification

Scope

The CMRR Project, as originally proposed, relocated, and consolidated mission critical AC, material MC, and actinide research and development (R&D) capabilities; and provided special nuclear material (SNM) storage and large vessel handling capabilities. The SNM storage and large vessel handling capabilities originally planned for CMRR-NF are not included in the current set of CMRR subprojects and have been addressed by programmatic operations. This data sheet provides information related to the one ongoing subproject to transition AC and MC capabilities into PF-4, to ensure continuity in plutonium support capabilities and enable the cessation of program operations in CMR.

The list of CMRR line-item subprojects since inception are:

- **RLUOB Subproject (04-D-125-01):** Construction of a 203,686 gross square foot (gsf) facility to house laboratory space capable of handling radiological quantities of SNM; a 22,071 gsf utility building sized to provide utility services (including chilled and hot water, potable hot/cold water, compressed air, and process gases) for all CMRR facility elements; office space for CMRR workers located outside of perimeter security protection systems; and space for centralized TA-55 training activities. The RLUOB became fully functional and operational after the completion of the equipment installation effort for this facility in the REI phase.

- **RLUOB Equipment Installation (REI) Subproject (04-D-125-02):** Equipment installation included gloveboxes, hoods, AC/MC instrumentation, security and communication hardware, and final facility tie-ins and operational readiness/turnover activities. RLUOB equipment fabrication, installation, testing, and acceptance physically

[1] The high end of the current cost range of the subproject was increased to reflect the completion of PEI1 and REI2 subprojects and application of the underruns to the existing scope. The underruns are being used/made available to address existing scope as performance baselines are established. Until a performance baseline for all scope elements of the project is achieved, the project will maintain the top end of the range established at CD-1.
[2] RC3 has been deemed complete based on CD-1RR.

completed in FY 2012. Staff occupation of the office spaces in FY 2012 occurred and CD-4 was approved. The facility exceeded its sustainability goal of LEED Silver by achieving LEED Gold in June 2012.

- **Nuclear Facility (NF) Subproject (04-D-125-03):** This subproject is cancelled with the remaining mission need (excluding SNM storage and large vessel handling) for CMRR to be met by other subprojects.

- **REI Phase 2 (REI2) Subproject (04-D-125-04):** Maximizes the use of RLUOB laboratories by both reconfiguring some existing laboratory space and equipping empty laboratories with AC and MC capabilities. Until the RC3 subproject was completed, the RLUOB was operated at a radiological limit, 38.6 g of Pu-239 equivalent, consistent with the NNSA Supplemental Guidance NA-1 SD G 1027. New gloveboxes/hoods and equipment were installed in RLUOB through this subproject. This project makes progress toward ceasing program operations in CMR. Specific capabilities in REI2 scope include the following:
  - Trace Elements Sample Preparation
  - Mass Spectrometry Sample Preparation
  - X-Ray Fluorescence Sample Preparation and Instruments
  - Radiochemistry Counting Laboratory and Sample Preparation
  - Oxide and Metal Sample Distribution
  - Coulometry
  - AC and MC Capabilities for R&D and Troubleshooting

- **PF-4 Equipment Installation Phase 1 (PEI1) Subproject (04-D-125-05):** The PEI1 subproject involved the following: relocation of existing PF-4 processes within PF-4 to create open consolidated space, reusing existing gloveboxes for new processes, decontamination and decommissioning (D&D) of old gloveboxes/equipment in PF-4 to create open laboratory space; and installation of new gloveboxes/equipment in the created open space. PEI1 supports the AC and MC capabilities that require the processing of larger amounts of nuclear material. This project made progress toward ceasing program operations in CMR. These capabilities support pit production, pit surveillance, plutonium science and other national security programs. The removal work was executed as site-prep work within this subproject. Specific capabilities in PEI1 scope included:
  - Sample Preparation Surface Science
  - Mechanical Testing
  - Physical Properties
  - Small Sample Fabrication and Preparation

- **PF-4 Equipment Installation Phase 2 (PEI2) Subproject (04-D-125-06):** This scope will maximize use of PF-4 by consolidating and relocating existing capabilities within PF-4, replacing existing equipment, and installing gloveboxes and equipment. PEI2 will establish enduring AC and MC capabilities for supporting NNSA actinide-based missions, including pit production. PEI scope also includes the following construction and facilities upgrades:
  - New Construction to increase capacity for change rooms leading into PF-4.
  - Upgrade in capacity for vehicular entrances/exits to and from TA-55.
  - Upgrades to existing PF-4 ingress/egress security posts for essential capacity increases related to CMRR missions.

- **RLUOB Hazard Category 3 (RC3) (04-D-125-07):** The subproject is deemed completed now that NNSA has converted the Radiological Laboratory to a Hazard Category 3 Nuclear Facility; remaining scope has been removed. The scope maximizes the use of RLUOB by converting the facility to a Hazard Category 3 Nuclear Facility from the original radiological categorization. The facility was originally limited to 8.9 grams and is now limited to 400 grams of Plutonium.

<u>Justification</u>

As defined in the most recent revision of the Mission Need Statement (MNS), the mission of the CMRR Project is to ensure continuity in AC and MC capabilities for NNSA actinide-based missions in support of stockpile stewardship. The AC and MC capabilities provided by this project support pit production, pit surveillance, plutonium science and other national security programs. During development of the plutonium strategy, the joint Department of Defense-Cost Analysis and Program Evaluation business case analysis indicated that optimizing RLUOB and repurposing space in PF-4 should be started as soon as possible to maintain continuity in AC and MC capabilities.

The project is being conducted in accordance with the project management requirements in DOE O 413.3B. Funds appropriated under this data sheet may be used for contracted support services to the Federal Project Director to conduct independent assessments of the planning and execution of this project required by DOE O 413.3B and to conduct technical reviews of design and construction documents.

Key Performance Parameters (KPPs)

PF-4 Equipment Installation Phase 2 (PEI2) Subproject (04-D-125-06) This scope will complete personnel access infrastructure upgrades to enable reliable 24/7 operations for PF-4 in support of 30 PPY mission, increase vehicle access capacity of the TA-55 Protected Area (PA) to enable required capability to support required 24/7 schedule, and install enduring MC capability in PF-4 as described in PEI2 Transition to Operations Plan for Equipment Installation document.

3. Financial Schedule

Total Project

($K)[1][2]

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design (03-D-103-010)			
Prior Years - FY 2023	63,573	63,573	63,573
Total Design (03-D-103-010)	**63,573**	**63,573**	**63,573**
Design (04-D-125)			
Prior Years - FY 2023	643,877	643,877	643,842
FY 2024	20,537	20,537	20,572
FY 2025	0	0	0
Total Design (04-D-125)	**664,414**	**664,414**	**664,414**
Construction			
Prior Years - FY 2023	1,222,101	1,212,096	967,879
FY 2024	206,587	205,147	54,741
FY 2025	0	0	168,246
FY 2026	50,000	61,445	189,400
Outyears	308,881	308,881	407,303
Total Construction	**1,787,569**	**1,787,569**	**1,787,569**
TEC			
Prior Years - FY 2023	1,929,551	1,919,546	1,675,294
FY 2024	227,124	225,684	75,313
FY 2025	0	0	168,246
FY 2026	110,000	110,000	189,400

[1] FY 2018 Budget authority was overstated by $9M, Obligations were overstated by $32.6M, Budget Authority and Obligations have been distributed to active subprojects. Reflects reprogramming of $3M FY2021 and $2M FY2022 for TRP3. Reflects reprogramming of $2M FY2021 and $3M FY2022 for TLW. Reflect reprogramming of FY2023 funding of $20M for UPF and $232.96M used as offset in FY2023.
[2] FY 2024 negative "appropriations," obligations, and costs for OPC as well as TEC "appropriation" above FY 2024 Enacted level represent the reallocation of funding between and final cost correction for subprojects. CMRR FY 2024 TEC and OPC "appropriations" tie at the TPC level.

	Budget Authority (Appropriations)	Obligations	Costs
Outyears	248,881	260,326	407,303
Total TEC	**2,515,556**	**2,515,556**	**2,515,556**
Other Project Costs (OPC)			
(OPC non capital)			
Prior Years - FY 2023	108,408	108,408	104,983
FY 2024	0	0	0
FY 2025	0	0	3,425
Total OPC non capital	**108,408**	**108,408**	**108,408**
(OPC except D&D)			
Prior Years - FY 2023	220,188	220,188	186,309
FY 2024	-2	-2	27
FY 2025	0	0	1,973
FY 2026	0	0	6,300
Outyears	42,080	42,080	67,657
Total OPC except D&D	**262,266**	**262,266**	**262,266**
OPC Total			
Prior Years - FY 2023	328,596	328,596	291,292
FY 2024	-2	-2	27
FY 2025	0	0	5,398
FY 2026	0	0	6,300
Outyears	42,080	42,080	67,657
Total, OPC	**370,674**	**370,674**	**370,674**
Total Project Costs (TPC)			
Prior Years - FY 2023[a]	2,258,147	2,248,142	1,966,586
FY 2024	227,122	225,682	75,340
FY 2025	0	0	173,644
FY 2026	50,000	61,445	195,700
Outyears	350,961	350,961	474,960
Total TPC	**2,886,230**	**2,886,230**	**2,886,230**

Prior Subprojects (RLUOB/REI/Nuclear Facility) 03-D-103-010[1] & 04-D-125-01, -02, -03)

($K)

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design (03-D-103-010)			
Prior Years - FY 2018	63,573	63,573	63,573
Total Design (03-D-103-010)	**63,573**	**63,573**	**63,573**
Design (04-D-125)			
Prior Years - FY 2018	386,929	386,929	386,929
Total Design (04-D-125)	**386,929**	**386,929**	**386,929**
Total Design			
Prior Years - FY 2018	450,502	450,502	450,502
Total Design	**450,502**	**450,502**	**450,502**
Construction			
Prior Years - FY 2018	296,083	296,083	296,083
Total Construction	**296,083**	**296,083**	**296,083**
TEC			
Prior Years - FY 2018	746,585	746,585	746,585
Total TEC	**746,585**	**746,585**	**746,585**
Other Project Costs (OPC)			
(OPC non-capital)			
Prior Years - FY 2018	88,721	88,721	88,721
Total Project Costs (TPC)	**88,721**	**88,721**	**88,721**
Prior Years - FY 2018			
Total TPC	**835,306**	**835,306**	**835,306**

[1] 03-D-103-010 CPDS funded design efforts on multiple line-item projects starting in 2003. Subsequently the funding of design and construction was shifted to 04-D-125.

REI Phase 2 (REI2) Subproject (04-D-125-04)[1]

($K)

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design (04-D-125-04)			
Prior Years - FY 2021	42,512	42,512	42,512
Total Design (04-D-125-04)	**42,512**	**42,512**	**42,512**
Construction (04-D-125-04)			
Prior Years - FY 2023	369,980	369,980	369,980
FY 2024	-4	-4	-4
Total Construction (04-D-125-04)	**369,976**	**369,976**	**369,976**
TEC (04-D-125-04)			
Prior Years - FY 2023	412,492	412,492	412,492
FY 2024	-4	-4	-4
Total TEC (04-D-125-04)	**412,488**	**412,488**	**412,488**
Other Project Costs (OPC)			
OPC except D&D (04-D-125-04)			
Prior Years - FY 2023	103,193	103,193	103,193
Total OPC except D&D (04-D-125-04)	**103,193**	**103,193**	**103,193**
Total Project Costs (TPC)			
Prior Years - FY 2023	515,685	515,685	515,685
FY 2024	-4	-4	-4
Total TPC (04-D-125-04)[2]	**515,681**	**515,681**	**515,681**

[1] Unused funding was reallocated from REI2 to support execution of the PEI2 subprojects. FY 2024 negative appropriations, obligations, and costs represent that FY 2024 reallocation of funding and final cost correction. CMRR FY 2024 "appropriations" tie at the Total Project TPC level.
[2] TPC value reflects final costs for REI2.

PF-4 Equipment Installation Phase 1 (PEI1) Subproject (04-D-125-05)

($K) [1]

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design (04-D-125-05)			
Prior Years - FY 2018	31,611	31,611	31,611
Total Design (04-D-125-05)	**31,611**	**31,611**	**31,611**
Construction (04-D-125-05)			
Prior Years - FY 2023	189,108	189,108	189,108
Total Construction (04-D-125-05)	**189,108**	**189,108**	**189,108**
TEC (04-D-125-05)			
Prior Years - FY 2023	220,719	220,719	220,719
Total TEC (04-D-125-05)	**220,719**	**220,719**	**220,719**
Other Project Costs (OPC) **OPC except D&D (04-D-125-05)**			
Prior Years - FY 2023	56,454	56,454	56,454
Total OPC except D&D (04-D-125-05)	**56,454**	**56,454**	**56,454**
Total Project Costs (TPC)			
Prior Years - FY 2023	277,173	277,173	277,173
Total TPC (04-D-125-05)	**277,173**	**277,173**	**277,173**

[1] Funding was reallocated from PEI1 to remaining subprojects.

PF-4 Equipment Installation Phase 2 (PEI2) Subproject (04-D-125-06)[1]

($K)

		Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)				
Design (04-D-125-06)				
	Prior Years - FY 2023	150,417	150,417	150,417
	FY 2024	20,537	20,537	20,537
Total Design (04-D-125-06)		**170,954**	**170,954**	**170,954**
Construction (04-D-125-06)				
	Prior Years - FY 2023	366,930	356,925	112,708
	FY 2024	206,591	205,151	54,745
	FY 2025	0	0	168,246
	FY 2026	50,000	61,445	189,400
	Outyears	308,881	308,881	407,303
Total Construction (04-D-125-06)		**932,402**	**932,402**	**932,402**
TEC (04-D-125-06)				
	Prior Years - FY 2023[2]	517,347	507,342	263,125
	FY 2024	227,128	225,688	75,282
	FY 2025	0	0	168,246
	FY 2026	50,000	61,445	189,400
	Outyears	308,881	308,881	407,303
Total TEC (04-D-125-06)		**1,103,356**	**1,103,356**	**1,103,356**
Other Project Costs (OPC) **OPC non capital (04-D-125-06)**				
	Prior Years - FY 2023	6,438	6,438	3,013
	FY 2024	0	0	0
	FY 2025	0	0	3,425
Total OPC non capital (04-D-125-06)		**6,438**	**6,438**	**6,438**
OPC except D&D (04-D-125-06)				
	Prior Years - FY 2023	33,942	33,942	63
	FY 2024	0	0	29
	FY 2025	0	0	1,973
	FY 2026	0	0	6,300
	Outyears	42,080	42,080	67,657
Total OPC except D&D (04-D-125-06)		**76,022**	**76,022**	**76,022**
Total OPC (04-D-125-06)				
	Prior Years - FY 2023	40,380	40,380	3,076
	FY 2024	0	0	29

[1] FY 2024 TEC "appropriations" above FY 2024 Enacted level represent the reallocation of funding between and final cost correction for subprojects. CMRR FY 2024 "appropriations" tie at the Total Project TPC level.

[2] Reflects reprogramming of $3M FY2021 and $2M FY2022 for TRP3. Reflects reprogramming of $2M FY2021 and $3M FY2022 for TLW. Reflects reprogramming of FY2023 funding of $20M for UPF and $232.96M used as offset in FY2023.

		Budget Authority (Appropriations)	Obligations	Costs
	FY 2025	0	0	5,398
	FY 2026	0	0	6,300
	Outyears	42,080	42,080	67,657
Total OPC (04-D-125-06)		**82,460**	**82,460**	**82,460**
Total Project Costs (TPC)				
	Prior Years - FY 2023[1]	557,727	547,722	266,201
	FY 2024	227,128	225,688	75,311
	FY 2025	0	0	173,644
	FY 2026	50,000	61,445	195,700
	Outyears	350,961	350,961	474,960
Total TPC (04-D-125-06)		**1,185,816**	**1,185,816**	**1,185,816**

RLUOB Hazard Category 3 (RC3) (04-D-125-07) [2]

($K)

		Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)				
Design (04-D-125-07)				
	Prior Years - FY 2023	32,408	32,408	32,373
	FY 2024	0	0	35
Total Design (04-D-125-07)		**32,408**	**32,408**	**32,408**
Construction (04-D-125-07)				
	Prior Years - FY 2023	0	0	0
Total Construction (04-D-125-07)		**0**	**0**	**0**
TEC (04-D-125-07)				
	Prior Years - FY 2023	32,408	32,408	32,373
	FY 2024	0	0	35
Total TEC (04-D-125-07)		**32,408**	**32,408**	**32,408**
Other Project Costs (OPC)				
OPC non-capital (04-D-125-07)				
	Prior Years - FY 2023	13,249	13,249	13,249
	FY 2024	0	0	0
Total OPC non-capital (04-D-125-07)		**13,249**	**13,249**	**13,249**
OPC except D&D (04-D-125-07)				
	Prior Years - FY 2023	26,599	26,599	26,599
	FY 2024	-2	-2	-2
Total OPC except D&D (04-D-125-06)		**26,597**	**26,597**	**26,597**

[1] See footnote on TEC Prior Years – FY 2023

[2] FY 2024 negative appropriations, obligations, and costs represent the reallocation of funding and final cost correction for this completed subproject. CMRR FY 2024 "appropriations" tie at the Total Project TPC level.

Total OPC (04-D-125-06)				
	Prior Years - FY 2023	39,848	39,848	39,848
	FY 2024	-2	-2	-2
Total OPC (04-D-125-06)		**39,846**	**39,846**	**39,846**
Total Project Costs (TPC)				
	Prior Years - FY 2023	72,256	72,256	72,221
	FY 2024	-2	-2	33
Total TPC (04-D-125-06)		**72,254**	**72,254**	**72,254**

4. Details of Project Cost Estimate

Total Project

($K)

		Current Total Estimate	Previous Total Estimate	Previous Validated Baseline
Total Estimated Cost (TEC)				
Design				
	Design			N/A
	Contingency			N/A
Total Design		**728,097**	**768,413**	**N/A**
Construction				
	Site Work			N/A
	Equipment			N/A
	Construction			N/A
	Contingency			N/A
Total Construction		**1,787,559**	**1,625,586**	**N/A**
Other TEC (if any)				
	Cold Startup	0	0	N/A
	Contingency	0	0	N/A
Total, Other TEC		**0**	**0**	**N/A**
Total Estimated Cost (TEC)		**2,515,656**	**2,393,999**	**N/A**
Contingency, TEC		*143,979*	*159,774*	*N/A*
Other Project Costs (OPC)				
OPC except D&D		370,574	492,231	
Total OPC		**370,574**	**492,231**	**N/A**
Contingency, OPC		14,812	62,631	N/A
Total Project Cost		**2,886,230**	**2,886,230**	**N/A**
Total Contingency (TEC+OPC)		***158,791***	***222,405***	***N/A***

Prior Subprojects (RLUOB/REI/Nuclear Facility) 03-D-103-010 & 04-D-125-01, -02, -03)

($K)

		Current Total Estimate	Previous Total Estimate	Previous Validated Baseline
Total Estimated Cost (TEC)				
Design				
	Design			
	Contingency			
Total Design		**450,502**	**450,502**	**N/A**
Construction				
	Site Work			
	Equipment			
	Construction			
	Contingency			
Total Construction		**296,083**	**296,083**	**N/A**
Total Estimated Cost (TEC)		**746,585**	**746,585**	**N/A**
Contingency, TEC				
Other Project Costs (OPC)				
OPC except D&D				
	Conceptual Planning			N/A
	Conceptual Design			N/A
	Other OPC Costs			N/A
	Contingency			N/A
Total OPC		**88,721**	**88,721**	**N/A**
Contingency, OPC				
Total Project Cost		**835,306**	**835,306**	**N/A**
Total Contingency (TEC+OPC)		**0**	**0**	**N/A**

REI Phase 2 (REI2) Subproject (04-D-125-04)

($K)

		Current Total Estimate	Previous Total Estimate	Previous Validated Baseline
Total Estimated Cost (TEC)				
Design				
	Design	42,512	42,512	N/A
	Contingency			N/A
Total Design		**42,512**	**42,512**	**44,816**
Construction				
	Site Work	4,463	4,463	5,461
	Equipment	42,750	42,750	52,089
	Construction	322,763	320,476	305,023
	Contingency	0	0	80,651
Total Construction		**369,976**	**367,689**	**443,224**
Total Estimated Cost (TEC)		**412,488**	**410,201**	**488,040**
Contingency, TEC		*0*	*0*	*80,651*
Other Project Costs (OPC)				
OPC except D&D				
	Conceptual Planning	2,595	2,595	1,883
	Conceptual Design	3,670	3,670	2,663
	Other OPC Costs	96,928	97,078	81,707
	Contingency	0	0	59,594
Total OPC		**103,193**	**103,343**	**145,847**
Contingency, OPC		0	0	59,594
Total Project Cost[1]		**515,681**	**513,544**	**633,887**
Total Contingency (TEC+OPC)		**0**	**0**	**140,245**

[1]REI2 achieved CD-4, with an approved TPC of $509,300,000. Current TPC reflect final costs.

PF-4 Equipment Installation Phase 1 (PEI1) Subproject (04-D-125-05)

($K)

		Current Total Estimate	Previous Total Estimate	Previous Validated Baseline
Total Estimated Cost (TEC)				
Design				
	Design	31,611	31,611	N/A
	Contingency			N/A
Total Design		**31,611**	**31,611**	**34,308**
Construction				
	Site Work	30,054	30,054	43,054
	Equipment	11,842	11,842	11,842
	Construction	147,212	147,212	137,892
	Contingency			65,204
Total Construction		**189,108**	**189,108**	**257,992**
Total Estimated Cost (TEC)		**220,719**	**220,719**	**292,300**
Contingency, TEC		*0*	*0*	*65,204*
Other Project Costs (OPC)				
OPC except D&D				
	Conceptual Planning	2,189	2,189	2,189
	Conceptual Design	0	0	0
	Other OPC Costs	54,265	54,265	63,686
	Contingency	0	0	35,825
Total OPC		**56,454**	**56,454**	**101,700**
Contingency, OPC		0	0	35,825
Total Project Cost		**277,173**	**277,173**	**394,000**
Total Contingency (TEC+OPC)		**0**	**0**	**101,029**

PF-4 Equipment Installation Phase 2 (PEI2) Subproject (04-D-125-06)

($K)

		Current Total Estimate	Previous Total Estimate	Previous Validated Baseline
Total Estimated Cost (TEC)				
Design				
	Design	167,698	79,501	167,698
	Federal Design Support	3,366	0	3,366
	Contingency		49,639	
Total Design		**171,064**	**129,140**	**171,064**
Construction				
	Site Work		700	
	Equipment	32,658	118,000	32,658
	Construction	706,455	342,653	706,455
	Federal Construction Support	49,300	0	49,300
	Contingency	143,979	35,200	143,979
Total Construction		**932,392**	**496,553**	**932,392**
Other TEC (if any)				
	Cold Startup	0	0	0
	Contingency	0	0	0
Total, Other TEC		**0**	**0**	**0**
Total Estimated Cost (TEC)		**1,103,456**	**625,693**	**1,103,456**
Contingency, TEC		*143,979*	*84,839*	*143,979*
Other Project Costs (OPC)				
OPC D&D				
OPC except D&D				
	Conceptual Planning	0	0	0
	Conceptual Design	0	0	0
	Other OPC Costs	64,114	98,630	64,114
	Federal OPC Support	3,434	0	3,434
	Contingency	14,812	19,726	14,812
Total OPC		**82,360**	**118,356**	**82,360**
Contingency, OPC		*14,812*	*19,726*	*14,812*
Total Project Cost		**1,185,816**	**744,049**	**1,185,816**
Total Contingency (TEC+OPC)		***158,791***	***104,565***	***158,791***

RLUOB Hazard Category 3 (RC3) (04-D-125-07)

($K)

		Current Total Estimate	Previous Total Estimate	Previous Validated Baseline
Total Estimated Cost (TEC)				
Design				
	Design	32,408	69,499	N/A
	Contingency	0	45,149	N/A
Total Design		**32,408**	**114,648**	**N/A**
Construction				
	Site Work	0	900	N/A
	Equipment/Construction	0	245,467	N/A
	Other, as needed	0	0	N/A
	Contingency	*0*	*29,786*	*N/A*
Total Construction		**0**	**276,153**	**N/A**
Other TEC (if any)				
	Cold Startup	0	0	N/A
	Contingency	0	0	N/A
Total, Other TEC		**0**	**0**	**N/A**
Total Estimated Cost (TEC)		**32,408**	**390,801**	**N/A**
Contingency, TEC		*0*	*74,935*	*N/A*
Other Project Costs (OPC)				
OPC except D&D				
	Conceptual Planning	0	0	N/A
	Conceptual Design	0	0	N/A
	Other OPC Costs	39,846	82,452	N/A
	Contingency	0	42,905	N/A
Total OPC		**39,846**	**125,357**	**N/A**
Contingency, OPC		***0***	***42,905***	***N/A***
Total Project Cost		**72,254**	**516,158**	**N/A**
Total Contingency (TEC+OPC)		***0***	***117,840***	***N/A***

5. Schedule of Appropriations Requests

($K)

Request Year	Type	Prior Years	FY2024	FY 2025	FY 2026	Outyears	Total
FY 2019	TEC	N/A	N/A	N/A	N/A	N/A	N/A
	OPC	N/A	N/A	N/A	N/A	N/A	N/A
	TPC	2,513,236	0	0	0	363,994	2,877,230
FY 2020	TEC	N/A	N/A	N/A	N/A	N/A	N/A
	OPC	N/A	N/A	N/A	N/A	N/A	N/A
	TPC	1,891,753	0	0	0	0	1,891,753
FY 2021	TEC	N/A	N/A	N/A	N/A	N/A	N/A
	OPC	N/A	N/A	N/A	N/A	N/A	N/A
	TPC	2,392,068	275,481	198,477	11,204	0	2,877,230
FY 2022	TEC	N/A	N/A	N/A	N/A	N/A	N/A
	OPC	N/A	N/A	N/A	N/A	N/A	N/A
	TPC	2,197,487	0	0	0	688,743	2,886,230
FY 2023	TEC	N/A	N/A	N/A	N/A	N/A	N/A
	OPC	N/A	N/A	N/A	N/A	N/A	N/A
	TPC	2,361,776	248,917	167,867	0	0	2,778,560
FY 2024	TEC	N/A	N/A	N/A	N/A	N/A	N/A
	OPC	N/A	N/A	N/A	N/A	N/A	N/A
	TPC	2,326,987	227,122	77,000	21,204	0	2,652,313
FY 2026	TEC	N/A	N/A	N/A	N/A	N/A	N/A
	OPC	N/A	N/A	N/A	N/A	N/A	N/A
	TPC	2,258,147	227,122	0	50,000	350,961	2,886,230

6. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy[1]	3Q FY 2034
Expected Useful Life	50 years
Expected Future Start of D&D of this capital asset	3Q FY 2084

Related Funding Requirements (Budget Authority in Millions of Dollars)
2016 Base Dollars

	Annual Costs		Life Cycle Costs	
	Previous Total Estimate	Current Total Estimate	Previous Total Estimate	Current Total Estimate[2]
Operations and Maintenance	25	25	1,250	1,250

7. D&D Information

The scope parameters established at CD-1 provided necessary Site Infrastructure Improvements (office facilities, physical security, warehouse, material staging and laydown area, access control and change rooms, etc.) to support AC/MC mission relocation, and to enable increased construction capacity, risk mitigation, and project efficiency. These

[1] Start date tied to anticipated programmatic operation of RLUOB as a hazard category 3 facility. Individual portions of CMRR project will have different completion dates and life spans.
[2] The Annual and Life Cycle costs are being revised to align with the recent CD-1RR scope decision in November of 2024. The above figures trace back to the CD-1R decision back in 2017.

activities will include an increase in site square footage and the D&D of equipment within existing facilities. The D&D of existing facilities is not funded on this project.

CMR D&D is not part of the CMRR project scope. Some removal of contaminated equipment in PF-4 for space reuse will occur using project funds.

Gross Square Footage Created/Eliminated	RLUOB/ REI1 Square Feet	REI2/PEI1 Square Feet	RC3/PEI2 Square Feet
New area constructed previously by this project at Los Alamos National Laboratory	225,757	50,000	127,500
Area of D&D in this project at Los Alamos National Laboratory	0	0	0
Area at Los Alamos National Laboratory to be transferred, sold, and/or D&D outside the project including area previously "banked"	225,757	50,000	127,500
Area of D&D in this project at other sites	0	0	0
Area at other sites to be transferred, sold, and/or D&D outside the project including area previously "banked"	0	0	0
Total area eliminated	0	0	0

8. Acquisition Approach

The CMRR Acquisition Strategy is based on procurement strategies specific for each subproject of the CMRR project in order to mitigate overall technical and schedule risk. The RLUOB subproject was executed via LANL-issued design-build subcontract based on performance specifications developed during CMRR Conceptual Design. The REI1 subproject was executed via LANL-issued final design-bid build construction contracts. The REI2 subproject is being executed via LANL-issued final design-bid-build construction contracts. The PEI1 subproject was executed via LANL-issued final design, and the construction was self-performed in the PF-4. The PEI2 subproject will be executed via LANL-issued design subcontracts, and construction will be self-performed in the PF-4. Construction work external to PF-4 will be executed through construction subcontracts. The performance baselines for each baselined subproject have been established upon completion of 90% design maturity to allow development of credible cost estimates in accordance with DOE O 413.3B and NNSA policy.

26-D-510, Product Realization Infrastructure for Stockpile Modernization (PRISM) facility
Lawrence Livermore National Lab, Livermore, California
Project is for Design and Construction

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

Summary: The Fiscal Year (FY) 2026 Request for the Product Realization Infrastructure for Stockpile Modernization (PRISM) project is $15,000,000. This request funds $15,000,000 for Total Estimated Cost (TEC) activities to complete preliminary design and final design. PRISM is planning to utilize the National Nuclear Security Administration (NNSA) Supplemental Directive (SD) 413.3-7, *Project Management for Non-Nuclear, Non-Complex Capital Asset Acquisition,* that specifies tailoring of DOE O 413.3B requirements for projects with a Total Project Cost (TPC) of less than $100M.

This Construction Project Data Sheet (CPDS) is a new start for FY 2026. SD 413.3-7 Critical Decision (CD)-0, *Approval of Mission Need Statement & Program Requirements Document (MNS/PRD),* is planned for approval in September 2025. SD 413.3-7 CD-1, *Approve Preliminary Project Execution Plan*, which includes the completion of the conceptual design, is planned for March 2026. PRISM has an estimated TPC of $95,000,000 and a CD-4 date target of FY 2030 based on a business case analysis (BCA) completed in September 2024. The BCA indicated a cost range of $47.9M - $58.0M for the facility, with the remaining funding to be utilized for equipment. The Project Management Executive (PME) authority is planned to be delegated to the Principal Assistant Deputy Administrator for Production Modernization & Materials Management.

A Federal Project Director has not been assigned to this project. The PRISM project will employ a build-to-budget approach. The Non-Nuclear Capability Modernization program provides funding for Other Project Costs (OPCs) associated with the PRISM project.

Critical Milestone History

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	CD-4
FY 2026	4Q FY 2025	2Q FY 2026	2Q FY 2026	4Q FY 2027	4Q FY 2027	4Q FY 2027	4Q FY 2030

Per NNSA SD 413.3-7:
CD-0 – Approve combined Mission Need Statement and Program Requirements Document along with Business Case Analysis in lieu of AoA.
Conceptual Design Complete – Actual date the conceptual design was completed (if applicable).
CD-1 – Approve Preliminary Project Execution Plan (PPEP)
Final Design Complete – Estimated/Actual date the project design will be/was complete(d)
CD-2/3 – Approve final design, performance baseline, PEP, and Start of Construction
D&D Complete –Completion of D&D work
CD-4 – Approve Start of Operations or Project Complete

Fiscal Year	CD-3A
FY 2026	3Q FY 2027

CD-3A – Approve Long-Lead Procurement (laboratory and facility equipment)

Project Cost History ($K)

Fiscal Year	TEC, Design	TEC, Construction	TEC Total	OPC Total	TPC
FY 2026	15,000	75,000	90,000	5,000	95,000

2. Project Scope and Justification

Scope

The PRISM project is a design and construction build-to-budget project where the equipment is included in the $95,000,000 TPC cost estimate. The project will build a new, approximately 30,000 square feet facility capable of maturing two technologies concurrently. The facility will include 25,000 square feet of high bay space plus office space and adequate support space such as restrooms, a break room, and utility rooms.

Justification

Ongoing demands from weapon modernization efforts for new weapons components and modernization programs for technology development, including both component development and fabrication capability development, have grown beyond Lawrence Livermore National Laboratory's (LLNL) existing facility capacity. Based on workload projection from upcoming weapons modernization programs, there is a capability gap in the capacity for early technology maturity – both for weapons components and fabrication methods – at LLNL. In addition to meeting today's stockpile needs, DOE/NNSA has advocated for increased technology maturation capabilities to design, develop, and mature new fabrication and inspection abilities to improve realization times. LLNL facilities supporting the weapons programs, such as B-321 for manufacturing and B-225 for polymers, are operating at or near capacity, solely focusing on manufacturing and fabricating legacy test articles to meet current deadlines for the Nation's ongoing weapons programs. These facilities cannot endure a substantial increase in demand, and LLNL currently does not have adequate space for the early development, testing, and certification of modern manufacturing advances.

These capacity issues are not only a result of increasing weapons modernization workloads, but also because many of the capabilities and manufacturing processes within the Nuclear Security Enterprise (NSE) are antiquated and inefficient. DOE/NNSA and the Department of Defense (DOD) are experiencing long production times, low part yield, and slow process throughput for current modernization programs. Future stockpile programs will exacerbate manufacturing modernization challenges and further stress these capacity constraints as they will require new nuclear explosive package component designs, production capabilities, and materials, and will be subjected to more stringent DOD military characteristics. To alleviate capacity constraints across the NSE, meet modernization schedules, and enable stockpile responsiveness, a new approach to component fabrication and inspection methodologies that enables the development, inspection, and qualification of new technologies is required.

Currently, NNSA is severely challenged by the need to rapidly modernize obsolete manufacturing technologies intended for a future stockpile without directly impacting critical path design agency and production agency mission activities. To improve the design-to-manufacture transition and more effectively accelerate manufacturing readiness level (MRL) and technology readiness level (TRL) cycles for weapons programs, a dedicated component fabrication and technology maturation development laboratory is required.

Key Performance Parameters (KPPs)

#	Requirement
MR-1	Provide capabilities to rapidly test, demonstrate, and prototype new manufacturing concepts
MR-2	Provide capabilities to co-develop and transfer technologies to the relevant production agencies
MR-3	Enable the maturation of many different technologies over time.
MR-4	Enable the maturation of multiple technologies concurrently.

3. Financial Schedule ($K)

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
FY 2026	15,000	15,000	7,500
Outyears			7,500
Total Design	**15,000**	**15,000**	**15,000**
Construction			
Outyears	75,000	75,000	75,000
Total Construction	**75,000**	**75,000**	**75,000**
TEC			
FY 2026	14,000	14,000	10,000
Outyears	76,000	76,000	80,000
Total TEC	**90,000**	**90,000**	**90,000**
Other Project Costs (OPC)			
Prior Years	249	249	116
FY 2025	250	250	383
FY 2026	1,000	1,000	1,000
Out Years	3,501	3,501	3,501
Total, OPC	**5,000**	**5,000**	**5,000**
Total Project Costs (TPC)			
Prior Years	249	249	116
FY 2025	250	250	383
FY 2026	15,000	15,000	8,500
Out Years	79,501	79,501	86,001
Total TPC	**95,000**	**95,000**	**95,000**

4. Details of Project Cost Estimate ($K)

		Current Total Estimate	Previous Total Estimate	Previous Validated Baseline
Total Estimated Cost (TEC)				
Design				
	Design	TBD	N/A	N/A
	Federal Design Review Support	TBD	N/A	N/A
	Contingency	TBD	N/A	N/A
Total Design		**15,000**	**N/A**	**N/A**
Construction				
	Site Work	TBD	N/A	N/A
	Equipment	TBD	N/A	N/A
	Construction	TBD	N/A	N/A
	Federal Support	TBD	N/A	N/A
	Contingency	TBD	N/A	N/A
Total Construction		**75,000**	**N/A**	**N/A**
Total Estimated Cost (TEC)		**90,000**	**N/A**	**N/A**
Contingency, TEC		*TBD*	*N/A*	*N/A*
Other Project Costs (OPC)				
OPC except D&D			N/A	N/A
	Business Case Analysis	249	N/A	N/A
	Conceptual Design	1,000	N/A	N/A
	CD-1 Documents/Fed Support	250	N/A	N/A
	Start-up	TBD	N/A	N/A
	Equipment Move	TBD	N/A	N/A
	Contingency	TBD	N/A	N/A
Total OPC		**5,000**	**N/A**	**N/A**
Contingency, OPC		*TBD*	*N/A*	*N/A*
Total Project Cost		**95,000**	**N/A**	**N/A**
Total Contingency (TEC+OPC)		***TBD***	***N/A***	***N/A***

5. Schedule of Appropriations Requests ($K)

Request Year	Type	Prior Year	FY 2025	FY2026	Out Years	Total
FY 2026	TEC	0	0	15,000	75,000	90,000
	OPC	249	250	1,000	3,501	5,000
	TPC	249	250	16,000	78,501	95,000

6. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	4Q FY 2030
Expected Useful Life (number of years)	50
Expected Future Start of D&D of this capital asset (fiscal quarter)	4Q FY 2080

Related Funding Requirements ($M)

Funding Requirements	Annual Costs		Life Cycle Costs	
Estimate Totals	Previous Estimate	Current Estimate	Previous Estimate	Current Estimate
Operations and Maintenance	N/A	TBD	N/A	TBD

7. D&D Information

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

	Square Feet
New area being constructed by this project	30,000
Area of D&D in this project at LLNL	NA
Area at LLNL to be transferred, sold, and/or D&D outside the project, including area previously "banked"	30,000
Area of D&D in this project at other sites	NA

8. Acquisition Approach

The project will be managed by the LLNL Management and Operating contractor. Design and construction are expected to be performed by subcontractors specializing in that type of work under firm-fixed-price contracts.

26-D-511, MESA Photolithography Capability (MPC)
Sandia National Laboratories, Albuquerque, New Mexico
Project is for Design and Construction

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

Summary

The Fiscal Year (FY) 2026 Request for the Microsystem Engineering, Science, and Applications (MESA) Photolithography Capability (MPC) project is $40,000,000 and supports all activities leading up to Critical Decision (CD)-2/3, including preliminary and final design.

This project is a new start in FY 2026. The MPC project is planning to receive CD-0/1 approval in December 2025. The Project Management Executive (PME) authority is planned to be delegated to the Principal Assistant Deputy Administrator for Production Modernization and Materials Management. A business case analysis (BCA) study was completed in FY 2024, and a conceptual design was completed in March 2025 and included an initial cost range of $332M (P20) - $350M (P80). Given that the estimate is pending an external review, a Total Project Cost (TPC) of $400M is proposed.

The Non-Nuclear Capability Modernization program provides funding for Other Project Costs (OPCs) associated with the MPC project. The MPC project will be a build-to-budget project. A Federal Project Director has not been assigned to this project.

Critical Milestone History

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	CD-4
FY 2026	1Q FY 2026	03/20/2025	1Q FY 2025	2Q FY 2028	4Q FY 2027	2Q FY 2028	1Q FY 2032

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 Alternative Selection and Cost Range
CD-2 – Approve 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
CD-4 – Approve Start of Operations or Project Complete

Fiscal Year	CD-3A
FY 2025	1Q FY 2027

CD-3A – Approve Long-Lead Procurement (laboratory and facility equipment)

Project Cost History ($K)

Fiscal Year	TEC, Design	TEC, Construction	TEC Total	OPC Total,	TPC
FY 2026	40,000	340,900	380,900	19,100	400,000

2. Project Scope and Justification

Scope

The MPC project is a design and construction project that will add two modern photolithography tools and supporting equipment to the MESA complex. Estimates in this data sheet are informed by preliminary scope assumptions that include construction of an additional 6,700 square feet of modern clean room space for the two photolithography tools.

Justification

Microelectronics, commonly referred to as integrated circuits or semiconductors, form the basis of nearly all electronic products, including components of nuclear weapons. The long-term viability of the U.S. nuclear deterrent depends on a trustworthy supply of unique microelectronics. U.S. nuclear weapons require a supply of unique warhead strategically radiation hardened (WSRH) microelectronics that must function properly when exposed to high levels of radiation. Strategic radiation-hardened microelectronics are essential components of a nuclear weapon's arming, fuzing, and firing system, which provides the signals that initiate the nuclear explosive chain.

The MESA Complex at Sandia National Laboratories (SNL) is the only approved source of WSRH microelectronics for the Nation's nuclear deterrent. These microelectronics consist of application-specific integrated circuits (ASICs), Heterojunction Bipolar Transistors (HBTs) Electrical Environment Sensing Devices (EESDs), and more. MESA has produced over 300,000 parts across 43 products.

Many of the facilities and infrastructure, tools and equipment responsible for producing these parts are reaching end of life (EOL) and are in poor condition, which could lead to production and development shortcomings in the near future. The MESA complex is extremely limited in available clean room space for expansion. Existing tools are reaching EOL, and new modern tools require more physical space and utilities than are currently available. Expansion of clean room space is needed to allow for the installation of additional equipment to mitigate single points of failure.

Of the existing MESA facilities, the Silicon Fabrication Facility (SiFab) is in the most challenging condition. Built in 1988, it was originally designed for research and development work, then modified for microelectronics production. Of all the process tools, the two photolithography machines are considered the most critical as all the silicon fabrication microelectronics pass through them, as each component passes 28 to 44 times through the photolithography tool for each production run. These two tools, which had a combined mean downtime in calendar year (CY) 2023 of 27.8% and in CY 2024 of 65.7%,[a] are no longer supported by the original manufacturer. Without photolithography, MESA cannot produce WSRH components, and weapon modernization programs would come to a halt.

Key Performance Parameters (KPPs)

KPPs will be developed along with the Preliminary Project Execution Plan that considers the requirement for redundant, modern photolithography capability.

[a] Downtime in CY 2024 spiked due to a planned outage of one photolithography machine. This outage enabled the performance of an 18-month-long project to replace an obsolescent tool that supports that machine.

3. **Financial Schedule ($K)**

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
FY 2026	40,000	40,000	20,000
Out Years	0	0	20,000
Total Design	**40,000**	**40,000**	**40,000**
Construction			
Outyears	340,900	340,900	340,900
Total Construction	**340,900**	**340,900**	**340,900**
TEC			
FY 2026	40,000	40,000	30,000
Outyears	340,900	340,900	350,900
Total TEC	**380,900**	**380,900**	**380,900**
Other Project Costs (OPC)			
FY 2024	1,310	1,310	855
FY 2025	200	200	555
FY 2026	0	0	100
Outyears	17,590	17,590	17,590
Total, OPC	**19,100**	**19,100**	**19,100**
Total Project Costs (TPC)			
FY 2024	1,310	1,310	855
FY 2025	200	200	555
FY 2026	40,000	40,000	20,100
Outyears	358,490	358,490	368,490
Total TPC	**400,000**	**400,000**	**400,000**

4. Details of Project Cost Estimate ($K)

		Current Total Estimate	Previous Total Estimate	Previous Validated Baseline
Total Estimated Cost (TEC)				
Design				
	Design	TBD	N/A	N/A
	Federal Design Review Support	TBD	N/A	N/A
	Contingency	TBD	N/A	N/A
Total Design		**40,000**	**N/A**	**N/A**
Construction				
	Site Work	TBD	N/A	N/A
	Equipment	TBD	N/A	N/A
	Construction	TBD	N/A	N/A
	Federal Support	TBD	N/A	N/A
	Contingency	TBD	N/A	N/A
Total Construction		**340,900**	**N/A**	**N/A**
Total Estimated Cost (TEC)		**380,900**	**N/A**	**N/A**
Contingency, TEC		*TBD*	*N/A*	*N/A*
Other Project Costs (OPC)				
OPC except D&D			N/A	N/A
	Business Case Analysis	400	N/A	N/A
	Conceptual Design	910	N/A	N/A
	CD-1 Documents/Fed Support	200	N/A	N/A
	Start-up	TBD	N/A	N/A
	Equipment Move	TBD	N/A	N/A
	Contingency	TBD	N/A	N/A
Total OPC		**19,100**	**N/A**	**N/A**
Contingency, OPC		*TBD*	*N/A*	*N/A*
Total Project Cost		**400,000**	**N/A**	**N/A**
Total Contingency (TEC+OPC)		***TBD***	***N/A***	***N/A***

5. Schedule of Appropriations Requests ($K)

Request Year	Type	FY2024	FY2025	FY2026	Outyears	Total
FY 2026	TEC	0	0	40,000	340,900	380,900
	OPC	1,310	200	0	17,590	19,100
	TPC	1,310	200	40,000	358,490	400,000

6. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy (fiscal quarter or date) 4Q FY 2032

Expected Useful Life (number of years)	50
Expected Future Start of D&D of this capital asset (fiscal quarter)	4Q FY 2082

Related Funding Requirements ($M)

Funding Requirements	Annual Costs		Life Cycle Costs	
Estimate Totals	Previous Estimate	Current Estimate	Previous Estimate	Current Estimate
Operations and Maintenance	N/A	TBD	N/A	TBD

7. D&D Information

The new area being constructed in this project is replacing a portion of an existing facility (MESA SiFab), but which will still be in use and thus cannot be demolished.

	Square Feet
New area being constructed by this project	6,700
Area of D&D in this project at SNL	NA
Area at SNL to be transferred, sold, and/or D&D outside the project, including area previously "banked"	6,700
Area of D&D in this project at other sites	NA

8. Acquisition Approach

The MPC project is planned to be managed by the SNL Management and Operating (M&O) contractor. Design and construction of are expected to be performed by a subcontractor specializing in that type of work under a firm-fixed-price contract.

Stockpile Research, Technology, and Engineering

Overview

NNSA's Stockpile Research, Technology, and Engineering (SRT&E) program conducts the weapons design, certification, and assessment activities in support of the nuclear stockpile. SRT&E provides the foundation for science-based stockpile decisions; delivers advanced capabilities to support Department of Defense (DoD) requirements and counter emerging threats; and innovates across the nuclear security enterprise (NSE) to improve productivity, efficiency, and responsiveness. These activities ensure confidence in the nuclear stockpile of today and tomorrow.

Key activities supported by the SRT&E science base include the annual assessment and report to the president and Congress regarding the reliability of the United States' nuclear weapons stockpile. The program enables experimental facilities, modeling and simulation codes, and computational hardware across the enterprise. SRT&E experts design new systems, conduct analysis of foreign nuclear capabilities, and support Stockpile Management programs of record and stockpile surveillance.

SRT&E activities are essential to a responsive enterprise, among them the development and maturation of new materials, physics and engineering models, novel technologies, and processes to modernize nuclear systems and the production complex.

Rapid capability development is essential to provide timely delivery of advanced systems to DoD to meet emerging requirements. Key activities include integrating design and production across the NSE under the Stockpile Responsiveness Program and with the Integrated Demonstrator Program. This approach allows new capabilities to be delivered to Stockpile Management that have been tested and evaluated under relevant environments in a system context. The SRT&E funding also supports Phases 1 and 2 of the nuclear weapon development cycle.

In addition to strengthening the nuclear deterrent, SRT&E capabilities advance NNSA's nonproliferation, counterterrorism, and counterproliferation missions. Partners in the DoD, the Intelligence Community, Homeland Security, and State Department also apply SRT&E enabled capabilities to their respective national security missions.

The subprograms are:
1. Assessment Science (AS)
2. Engineering and Integrated Assessments (EIA)
3. Inertial Confinement Fusion (ICF)
4. Advanced Simulation and Computing (ASC)
5. Weapon Technology and Manufacturing Maturation (WTMM)

Line-Item Construction and Major Items of Equipment
These SRT&E line-item construction projects and major item of equipment (MIE) are critical to modernizing capabilities that directly support the nuclear weapons programs:

- The Enhanced Capabilities for Subcritical Experiments (ECSE) portfolio provides for the continued construction of two new test beds in the Principal Underground Laboratory for Subcritical Experimentation (PULSE) facility at the Nevada National Security Site (NNSS). These test beds will enable the conduct of weapons-scale, radiographically diagnosed subcritical experiments (SCEs) using special nuclear material. ESCE funds the development of the Advanced Sources and Detectors (Scorpius) MIE. In conjunction with ECSE, two line-item projects are constructing the test beds.
  - The U1a Complex Enhancements Project (UCEP) to host the Scorpius x-ray source.
  - The Z-Pinch Experimental Underground System Test Bed Facilities Improvement (ZTBFI) to host a dense plasma focus source for neutron diagnostics.
- The FY 2026 request is the first year of dedicated line-item funding for the Combined Radiation Environments for Survivability Testing (CREST) project, the Los Alamos Neutron Science Center (LANSCE) Modernization Project (LAMP), and the National Ignition Facility (NIF) Enhanced Fusion Yield Capability (EYC) project.
- The Dynamic Materials Science Sector (DMSS) will enable high hazard, secure experiments in mesoscale material science utilizing the Advanced Photon Source at Argonne National Laboratory. NNSA anticipates the estimated cost to complete conceptual design to exceed the 50 USC 2746 threshold of $5,000,000.

Stockpile Research, Technology, and Engineering
Funding ($K)

	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request	FY 2026 Request vs. FY 2025 Enacted	
				$	%
Assessment Science	**836,557**	**862,609**	**1,179,959**	**317,350**	**36.8%**
Primary Assessment Technologies	160,000	160,000	228,062	68,062	42.5%
Dynamic Materials Properties	128,000	139,982	185,743	45,761	32.7%
Advanced Diagnostics	35,141	31,500	35,989	4,489	14.3%
Secondary Assessment Technologies	74,880	56,581	92,162	35,581	62.9%
Enhanced Capabilities for Subcritical Experiments	292,373	292,373	382,718	90,345	30.9%
Hydrodynamic & Subcritical Execution Support	146,163	182,173	255,285	73,112	40.1%
26-D-512 LANSCE Modernization Project (LAMP), LANL	0	0	20,000	20,000	0.0%
24-D-513 Z-pinch Experimental Underground System (ZEUS) Test Bed Facilities Improvement (ZTBFI), NNSS	80,000	0	72,000	72,000	0.0%
17-D-640 U1a Complex Enhancements Project, NNSS	126,570	73,083	150,000	76,917	105.2%
Total, Assessment Science	**1,043,127**	**935,692**	**1,421,959**	**486,267**	**52.0%**
Engineering and Integrated Assessments	**409,532**	**425,765**	**566,777**	**141,012**	**33.1%**
Archiving & Support	44,805	39,679	39,739	60	0.2%
Delivery Environments	38,388	38,247	38,820	573	1.5%
Weapons Survivability	88,368	82,002	60,444	-21,558	-26.3%
Studies and Assessments	49,000	69,000	150,000	+81,000	+117.4%
Aging & Lifetimes	59,955	67,955	65,833	-2,122	-3.1%
Stockpile Responsiveness	69,882	69,882	150,000	80,118	114.6%
Advanced Certification & Qualification	59,134	59,000	61,941	2,941	5.0%
26-D-513 Combined Radiation Environments for Survivability Testing, SNL	0	0	52,248	52,248	0.0%
Total, Engineering and Integrated Assessments	**409,532**	**425,765**	**619,025**	**193,260**	**45.4%**
Inertial Confinement Fusion	**690,000**	**699,830**	**738,206**	**38,376**	**5.5%**
HED & Ignition Science for Stockpile Applications	115,500	112,926	113,574	648	0.6%
ICF Diagnostics and Instrumentation	79,500	73,341	56,894	-16,447	-22.4%
Facility Operations	495,500	513,563	567,738	54,175	10.5%
26-D-514 NIF Enhanced Fusion Yield Capability, LLNL	0	0	26,000	26,000	0.0%
Total, Inertial Confinement Fusion	**690,000**	**699,830**	**764,206**	**64,376**	**9.2%**
Advanced Simulation and Computing	**830,000**	**850,000**	**989,995**	**139,995**	**16.5%**
Integrated Codes	163,697	178,133	181,876	3,743	2.1%
Physics & Engineering Models	93,935	107,219	109,473	2,254	2.1%
Verification & Validation	63,650	72,984	74,519	1,535	2.1%
Computational Systems & Software Environment	296,718	264,296	302,649	38,353	14.5%

	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request	FY 2026 Request vs. FY 2025 Enacted	
				$	%
Facility Ops & User Support	212,000	207,368	241,478	34,110	16.4%
Capabilities for Nuclear Intelligence	0	20,000	20,000	0	0.0%
Artificial Intelligence for Nuclear Security	0	0	60,000	60,000	0.0%
Total, Advanced Simulation and Computing	**830,000**	**850,000**	**989,995**	**139,995**	**16.5%**
Weapon Technology and Manufacturing Maturation	**307,745**	**286,489**	**420,279**	**133,790**	**46.7%**
Surety Technology	51,000	35,891	50,000	14,109	39.3%
Weapon Technology Development	129,500	121,137	159,770	38,633	31.9%
Advanced Manufacturing Development	127,245	116,161	183,009	66,848	57.5%
Integrated Demonstrators Program	0	13,300	27,500	14,200	106.8%
Total, Weapon Technology and Manufacturing Maturation	**307,745**	**286,489**	**420,279**	**133,790**	**46.7%**
Total, Stockpile Research, Technology, and Engineering	**3,280,404**	**3,197,776**	**4,215,464**	**1,017,688**	**31.8%**

Assessment Science

Overview

The Assessment Science (AS) program provides the knowledge and expertise needed to maintain confidence in the nuclear stockpile. Capabilities developed and maintained in the AS program support the entire Nuclear Security Enterprise (NSE). The AS program provides: (1) the scientific underpinnings required to conduct annual assessments of weapon performance and the certification of Life Extension Programs (LEPs); (2) the scientific insight to inform our understanding on the impacts of surveillance findings to ensure the nuclear stockpile remains safe, secure, and effective; and (3) the core technical expertise required to be responsive to technical developments and geopolitical drivers. AS also facilitates the assessment of current weapon and weapon component lifetimes, the development and qualification of modern materials and manufacturing processes, the exploration of concepts for component reuse, and the development of modern safety concepts for sustainment.

AS performs experiments to obtain the materials and nuclear data required to validate and understand the physics of nuclear weapons performance. AS experiments include hydrodynamic and subcritical experiments (SCEs) to obtain data on the dynamic behavior of plutonium and surrogate materials in integral geometries. The AS program experimentation and data analyses also facilitate safety, security, and evaluations of sustainment concepts without the need for nuclear explosive testing. These activities develop, exercise, and maintain the expertise and competence of the nuclear weapon design, engineering, and assessment community. Assessment Science's compendium of weapons-relevant data is acquired using unique, small-scale and large-scale experimental facilities throughout the NSE.

Many of the signature efforts enabling science-based stockpile stewardship at NNSA reside in this program. For example:

- Supporting the congressionally mandated *Research Program Plan for Plutonium/Pit Agin*g.
- Developing and characterizing new high explosives formulations.
- Executing hydrodynamic and SCEs (Dual Axis Radiographic Hydrodynamic Test [DARHT], Contained Firing Facility [CFF]), PULSE, and the proton radiography [pRad] capability at LANSCE).
- Establishing the ECSE.
- Conducting High-Energy-Density (HED) experiments (National Ignition Facility [NIF], Z Pulsed Power Facility [Z], Omega Laser Facility [Omega]).
- Supporting hostile environment experiments (Z, NIF).

While research, development, platform deployment, and experimental execution support associated with these efforts reside in AS, the operational funds for the facilities are included in other program budgets, such as Inertial Confinement Fusion (ICF) and Infrastructure and Operations.

The AS program has strong programmatic coupling with Advanced Simulation and Computing (ASC), ICF, Engineering and Integrated Assessments (EIA), Weapon Technology and Manufacturing Maturation (WTMM), and Stockpile Management programs.

The AS program consists of six subprograms:

1. **Primary Assessment Technologies (PAT)** provides capabilities for the annual assessment of stockpile primaries, improvement of the nuclear explosive test modeling suite in the common model framework, certification of future modernization programs, improvements in primary safety and security, and resolution of Significant Finding Investigations (SFIs).
2. **Dynamic Materials Properties (DMP)** develops and maintains the experimental capabilities needed to inform modern, physics-based models that describe and predict the behavior of weapon materials in extreme pressure, temperature, and strain rates to understand fundamental material properties.
3. **Advanced Diagnostics (AD)** pioneers cutting-edge dynamic experiment diagnostics and methodologies, delivering the essential data required to assess the current and future nuclear stockpile.
4. **Secondary Assessment Technologies (SAT)** provides capabilities essential for the annual assessment of stockpile secondaries through validating weapons physics models using experimental platforms, improving models, expanding the nuclear explosive test modeling suite in the common model framework, and supporting the evaluation of new manufacturing processes, replacement materials, and aged materials in the stockpile.

5. **Enhanced Capabilities for Subcritical Experiments (ECSE)** establishes a key test capability and closes a capability gap to evaluate the response of plutonium to aging, modern manufacturing techniques, modern materials, and evolving design philosophies. It also enables design certification of nuclear systems.
6. **Hydrodynamic and Subcritical Experiments Execution Support (HSEES)** provides the facilities and services required to maintain a robust testing capability that supplies critical data to weapon physicists and design engineers. These data allow assessments of potential impacts on weapon performance and safety due to design changes, material substitutions, or component changes associated with LEPs, Alterations (Alts), or Modifications (Mods).

Major Line Items under Assessment Science

- **26-D-512 LANSCE Modernization Project (LAMP), LANL (+$20.000 million)**
  - Increase supports initiation of preliminary design for LAMP.

- **24-D-513 Z-pinch Experimental Underground System (ZEUS) Test Bed Facilities Improvement (ZTBFI), NNSS (+$72.000 million)**
  - Increase supports cost growth associated with the construction of the Neutron Diagnosed Subcritical Experiments Laboratory and Support Infrastructure subproject.

- **17-D-640 U1a Complex Enhancements Project, NNSS (+$76.917 million)**
  - Increase supports cost growth associated with the construction of the ECSE Laboratory and Support Infrastructure subproject in support of the revised baseline approved in January 2025.

Assessment Science Explanation of Change (+$317.383 million)
The increase supports experiments in the Pu/Pit Aging Plan, Insensitive High Explosive (IHE) formulations and new material options, the first year of Los Alamos Neutron Science Center (LANSCE) Accelerator Modernization Project (LAMP) line-item funding and other project costs, as well as funding for continuation of the U1a Complex Enhancements Project,(UCEP), Advanced Sources and Detectors (ASD), and Z-pinch Experimental Underground System (ZEUS) Test Best Facility Improvement (ZTBFI) projects.

Primary Assessment Technologies Subprogram

Description

PAT provides capabilities for the annual assessment of stockpile primaries, certification of future sustainment programs, improvements in primary safety and security, and resolution of SFIs. Primary assessment efforts focus on improving stockpile stewardship science predictive ability by testing and revising the common framework models to quantify uncertainties. The main objective is to stress these predictions to better quantify performance and confidence in qualification. The predictive models include the impact caused by design variance issues, aging effects (time/progression/decay), and/or variability of manufacturing processes on primary performance. In the near-term, experiments are concentrated on providing the data needed to support pit reuse options to meet requirements for replacement primaries. A long-term goal is to quantify the uncertainties of the boost mechanism by achieving a more fundamental understanding of its operation.

A major effort within PAT is conducting SCEs. SCEs are the most direct linkage between the focused physics experiments conducted within PAT and elsewhere and the integral nuclear performance of the underground test history providing confidence in NNSA's simulation capabilities. SCEs are simultaneously being developed for execution in the existing Cygnus testbed and future ECSE ZEUS and Scorpius testbeds.

PAT activities include: (1) design and analysis of hydrodynamic experiments to include SCEs; (2) experiments supporting burn studies for boost science; (3) Integrated performance and analysis focused on primary design, construction, and function; (4) nuclear science measurements (e.g., fission cross-sections, fission yield, etc.); and (5) surface science experiments to assess corrosion phenomena.

Highlights of the FY 2026 Budget

- Support the design, assembly, and analysis of four SCE campaigns to study plutonium aging and understand the impacts of design modifications and changes in materials for the future stockpile.

- Nimble Campaign: Deliver data on plutonium ejecta in direct support of stockpile modernization programs.
- Great Basin Campaign: Deliver data on plutonium equation-of-state to improve the predictive capabilities of simulations.
- Point Lobos Campaign: Deliver data on implosion hydrodynamics and ejecta production in new and old pits under stockpile-relevant conditions concluding.
- Excalibur Campaign: Deliver data to validate a new ECSE technique for measuring nuclear reactivity in SCEs and provide necessary data on plutonium aging.

- Support the development and use of platforms (Z, NIF, pRad) to enhance modeling and simulation efforts for the primary portion of the Nuclear Explosive Package (NEP). Experiments are critical to validating our weapons physics models and increase confidence in weapon performance by reducing uncertainties.
- Execute one or two plutonium (Pu) experiments at the LANSCE pRad facility. Experiments will provide critical dynamic performance data for materials and components (new alloys, new manufacturing and processing, and aging studies). Plutonium at proton radiography (Pu@pRad) will allow cost-effective and quick turn-around of small, focused experiments to study high explosives (HE) driven plutonium for ejecta, Equations-Of-State (EOS), defects, and overall, early hydrodynamic behavior without driving to criticality.
- Perform the first full containment experiment utilizing the Sandia Boost platform at Z; analyze alternatives for a future platform.
- Execute neutron scattering cross sections and fission product measurements at the LANSCE facility on one key actinide.

Primary Assessment Technologies Explanation of Change (+$68.062 million)

- Executes Lehman and Morgana subcritical experiments
- Supports the other project costs for LAMP line-item construction project to support achieving CD-1 by the fourth quarter of FY 2026.
- Supports design of the Durandal SCE to deliver plutonium aging data to validate aging aware models to be executed at the ZEUS testbed and the Sherman SCE campaign development effort to enable the delivery of data to modernization program customers to be executed at the Scorpius testbed. Several years of platform development activities are needed to mature novel SCE concepts.
- Accelerates efforts in novel implosion hydrodynamic platform;

Dynamic Materials Properties Subprogram

Description

The DMP subprogram develops and maintains the experimental capabilities to inform modern, physics-based models. The models describe and predict the behavior of materials undergoing extreme pressure, temperature, and strain rate to understand how fundamental material behavior affects nuclear weapon performance. The consideration of pit and secondary component reuse and replacement also requires studies of degradation of materials with age (to include aged plutonium samples) under dynamic conditions to understand potential performance changes. DMP provides experimental data and assessment of Special Nuclear Material (SNM), metals, conventional high explosives (CHE), insensitive high explosives (IHE), polymers, and foams under dynamic conditions required for annual assessment and certification of the stockpile as well as for future options. Aspects of this subprogram link with other programs/subprograms within DOE/NNSA, including Physics and Engineering Models (PEM), Aging and Lifetimes, Advanced Manufacturing Development, Plutonium Modernization, High Explosives and Energetics, DOE/Office of Science, and the Department of Defense (Joint DoD/DOE Munitions Program [JMP]). DMP provides a significant portion of the experimental results for the 10-year integrated Research Program Plan for Plutonium and Pit Aging.

DMP research supports (1) the annual assessment process, (2) baselining of materials properties for the determination of aging effects (e.g., plutonium aging), and (3) consideration of materials replacement and future options for the enduring stockpile. The characterization of new materials and processes for stockpile applications is an emerging focus for stockpile modernization and responsiveness to enable the use of modern manufacturing techniques.

The following capabilities are being developed to facilitate certification of pit reuse for upcoming sustainment programs: (1) heating and cooling capabilities on dynamic testing platforms, (2) high-pressure experiments on plutonium and other relevant materials, and (3) experiments on aged samples on various experimental platforms. Facilities and drivers to support experimental execution include NIF, Z, Joint Actinide Shock Physics Experimental Research (JASPER), TA-55 gas gun, High Explosives Applications Facility (HEAF), Dynamic Equations-of-State Facility (DEOS), Shock Thermodynamic Applied Research (STAR) Facility, Dynamic Integrated Compression Experimental (DICE) Facility, High Pressure – Collaborative Access Team (HP-CAT), and the Dynamic Compression Sector (DCS). For long-term materials qualification needs, DMP is exploring alternatives that include expanding X-ray light sources efforts (e.g., APS) to characterize various materials *in situ* within appropriate physical regimes.

DMP activities include: (1) experimental execution (e.g., equation of state) on high Z materials (including actinides), (2) experiments of low Z materials (including polymers, foams, etc.), (3) experiments to qualify HE and energetics, (4) development of high pressure platforms and X-ray light sources to access and characterize materials at extreme conditions, and (5) experiments on materials produced via novel synthesis/formulation/processing methodologies leading to future qualification.

Highlights of the FY 2026 Budget

- Execute the decadal Plutonium/Pit Aging plan by studying properties of aged plutonium and replacement materials to increase confidence in stockpile performance and LEPs.
- Emphasize tri-lab strength efforts (unifying the analytic models and multiple data sets for incorporation into simulations) in metals to provide more robust multi-phase EOS to increase the reliability of models.
- Maintain and enhance capabilities on high-pressure platforms to expand pressure, temperature, and strain rate regimes for high-interest materials.
- Develop new molecules and methodologies for scale-up of candidate IHE to provide better performing and more efficiently produced HE.
- Use X-ray light sources to develop new methodologies of examining high-interest materials (e.g., metals, HE, additively manufactured materials) under extreme conditions, leading to advanced models with reduced uncertainties.
- The FY 2026 Budget Request also funds the Dynamic Materials Properties Laser (DMPL) phase 1 upgrade (MIE) at the Advanced Photon Source (APS). DMPL will upgrade the current laser to allow dynamic interrogation of materials of interest.
- Collaborate across Weapons Activities in areas such as plutonium aging, pit production, and HE to provide weapons designers with materials options.

Dynamic Materials Properties Explanation of Change (+45.761 million)
- Increase supports light source initiatives DMPL/ DMSS, pursuing acquisition of a high energy long pulse laser and advances conceptual design of DMSS
- Accelerates opportunities for execution of Pu/Pit Aging Plan
- Develop IHE formulation options to mitigate regulatory concerns, including scale up and safety testing. Accelerates new energetic molecule and binder discovery, agile test methods, and detonation performance measurement.

Advanced Diagnostics Subprogram

Description

The AD subprogram develops and implements cutting-edge tools and methodologies to address the need for new experimental data, spanning from microscale physics to full-scale hydrodynamic tests. This program motivates new material models, validates design codes, and improves the quality of scientific results at experimental facilities. AD is conducted at Sandia National Laboratories (SNL), Los Alamos National Laboratory (LANL), Lawrence Livermore National Laboratory (LLNL), NNSS, and Naval Research Laboratory (NRL), focusing on intermediate and long-term R&D aligned with four major themes: Environments and Conditions, Radiographic Diagnostics, Non-Radiographic Diagnostics, and Data Science, Analysis, and Modeling.

AD's activities include developing advanced drivers using pulsed-power science, energy storage, solid-state technologies, and lasers, as well as new diagnostics for hydrodynamic tests, SCEs, and fundamental experiments. This involves photon, particle, and neutron detectors; visible light cameras; position, velocity, and temperature diagnostics; and advanced radiographic techniques. The program also implements new experimental methodologies for weapons experiments, such as short-pulse laser-driven electron and ion beam sources, and revolutionary implosion and confinement technologies. AD is also developing initiatives in weapons radiography and pulsed-power-driven accelerators.

Highlights of the FY 2026 Budget

- Investments will involve procuring advanced insulators for pulsed-power systems and developing and rigorously testing improved, highly reliable laser-triggered gas switch designs intended to operate at higher voltages.
- Diagnostic capabilities will be substantially advanced through the design and demonstration of specialized modules for beam diagnostics, including modular imagers for DARHT, enabling the characterization of experimental conditions with unprecedented precision, specifically with spatial and temporal resolution improvements.
- Comparative analyses will be undertaken to benchmark the performance of single-image laser-driven MeV radiography against existing diagnostic technologies, providing quantitative data-driven insights that inform strategic decisions regarding future investments in pioneering radiographic techniques.
- The development pipeline for advanced detectors will undergo continued optimization, ensuring a consistent flow of state-of-the-art sensing capabilities such as high-dynamic range and fast-framing detectors.
- Key program elements encompass the refinement of time-resolved detector systems for capturing dynamic phenomena, the implementation of flash spectrometry for source characterization, and the development of fast multi-flash scintillator screens with optimized light output, collectively expanding both the scope and quality of data obtainable from dynamic experiments.
- Significant research and development efforts will be dedicated to the refinement of beam-tuning algorithms for optimizing source performance, for example, developing algorithms for automated tuning on LANSCE, in tandem with the laboratory demonstration testbeds for groundbreaking x-ray technologies such as novel laser-plasma sources. These initiatives will ensure the program remains at the forefront of diagnostic capabilities, with a keen eye towards practical implementation.
- Multi-frame radiographic capability promises a substantial expansion of the diagnostic toolkit available for stockpile stewardship, offering unprecedented insights into dynamic processes via advanced multi-pulse radiographic techniques.

Advanced Diagnostics Explanation of Change (+$4.489 million)

- Increase supports dynamic neutron radiography, pulsed power R&D for weapon environments, improvements to Cygnus, and advanced driver technologies.
- Supports new diagnostics for intermediate and long-term planned subcritical and hydrotest experiments.

Secondary Assessment Technologies Subprogram

Description

The SAT subprogram provides capabilities and advances knowledge to increase confidence in the assessment of stockpile secondaries. This enables a broad range of sustainment options and the resolution of SFIs. The principal focus of SAT is to provide the experimental and science capability used to improve the quantification of full system performance margins and associated uncertainties. The subprogram uses historical nuclear explosive test data and data from a variety of above ground experiments (AGEX) to develop and validate physical models. These efforts underwrite the domain of validity for constituent models essential to our integrated simulation tools. Additionally, qualified AGEX experimental platforms can be quickly repurposed to meet the needs of life-extension and modernization programs, supporting responsiveness.

Key elements of the SAT subprogram include radiation transport, complex hydrodynamics and thermonuclear burn, material properties, and weapons outputs and effects. For stockpile systems, core SAT R&D facilitates: (1) the reacceptance of canned sub-assemblies (CSAs) and other NEP components for future sustainment options and (2) the development of the science basis for physics performance assessments supporting qualification of remanufactured CSAs and other components and stockpile assessments. In FY 2026, SAT will continue efforts to evaluate and assess alternate materials of interest for future stockpile designs in partnership with Weapon Technology and Manufacturing Maturation. The SAT subprogram validates essential physics and material properties models supporting the stockpile sustainment and acquisition programs, anticipates stockpile responsiveness needs, develops new AGEX platforms, and continues model improvements, including the expansion of nuclear explosive test models in the common model framework. These efforts support the physics qualification and deliver improved appraisal of new manufacturing processes, replacement materials, and aged materials on the integrated, full-system performance of stockpile systems and are essential to the LEPs, modernization programs, and production modernization efforts. Today, understanding the impact of new manufacturing processes (e.g. additive manufacturing or other new forming technologies) for the production of new or restoration of secondary-relevant components requires both new experimental measurements and modeling techniques to inform qualifications and evaluate potential performance impacts.

Efforts to advance and develop HED plasma platforms that produce radiation sources supporting weapon outputs, effects, and survivability R&D are accelerated in FY 2026. Radiation sources are important capabilities for studies of material response in hostile environments. The ability to assess survivability in a hostile environment requires the integrated understanding of weapons outputs, the propagation of outputs, as well as the subsequent impact on weapons operations resulting from weapons-effects-coupling into the weapon intended for survival. SAT research includes the acquisition of experimental data for model validation improving accuracy of weapon output calculations, developing innovative laboratory radiation sources and diagnostics, and hardware qualification experiments evaluating candidate stockpile technologies for radiation hardness.

SAT has strong programmatic coupling with PAT, ASC, ICF, Engineering and Integrated Assessments, and Weapon Technology and Manufacturing Maturation. SAT has significant coupling to advanced computing platforms and resources supported by the ASC program and to the Weapons Survivability and Aging & Lifetimes subprograms in the Engineering and Integrated Assessments program. SAT partners with Secondary Capability Modernization in executing experiments and relevant analyses supporting physics and engineering qualification of new materials and processes needed for the modernization of stockpile secondaries.

Highlights of the FY 2026 Budget

- Continue design-supported physics qualification work to advance materials R&D initiatives and new manufacturing approaches, emphasizing options for the future stockpile while mitigating risk for the modernization programs.
- Continue technology maturation activities and support for physics qualification for manufacturing options to mitigate aging.
- Expand the weapon science validation basis using studies of relevant nuclear explosive test data, focusing on off-nominal and non-stockpile designs, supporting stockpile responsiveness, assessments, and modernization decisions.
- Advance the physics validation of essential models through developing and using experimental HED platforms, non-HED platforms, and radiochemistry and nuclear data.
- Maintain core X-ray source capabilities at the HED facilities and seek partnership with Engineering and Integrated Assessments and modernization programs to perform key applied experiments needed for survivability assessments supporting qualification activities.

Secondary Assessment Technologies Explanation of Change (+$35.381 million)

- Increase provides the experimental and science capability, and the workforce needed to improve the quantification of full system performance margins and associated uncertainties, impacting current stockpile assessments, the modernization programs, manufacture, and future systems.
- Supports underwriting common model suites and secondary assessment methodologies for the annual assessments, Phase 1 studies, stockpile aging, and innovative weapons concepts for future designs.
- Enables novel radiochemistry analyses that support secondary assessments, including investigations of specific physics uncertainties.
- Advances extinct isotope measurements on historical debris supporting weapons performance studies and continues fission product yield (FPY) measurements at NIF leveraging ignition neutrons and laboratory nuclear data experiments to improve base-line physics models.
- Supports experiments and physics qualification activities for metal spinning and for other new material manufacturing options under consideration to reduce cost and risk for component manufacture.
- Provides experimental data and models to support high-fidelity modeling capabilities for nuclear weapons outputs, effects, and environments.

- Accelerates the development of advanced HED platforms and capabilities needed to provide experimental data and model validation, including x-ray sources and diagnostics needed by the modernization programs, Engineering and Integrated Assessments, and by ASC for code validation and survivability assessments.

Enhanced Capabilities for Subcritical Experiments Subprogram

Description

ECSE is a portfolio of work aimed at improving the ability to assess weapons without nuclear explosive testing. To achieve this objective, two new capabilities to measure plutonium from SCEs will provide data to help reduce uncertainties in the weapon computer models it uses to assess the stockpile. Data from ECSE is required as part of the certification of the W87-1 Modification program, as well as future Annual Assessments and stockpile modernization programs.

NNSA identified two types of measurements needed when the plutonium reaches high pressure and density during the late stages of implosion, including radiographic measurements and the measurements of the rate of the fission chain reaction in plutonium. NNSA places a high priority on developing ECSE at the NNSS's underground laboratory, PULSE, formerly U1a Complex.

The ECSE subprogram consolidates a portfolio of work that includes (1) the MIE titled ASD, (2) a reactivity measurement technology named Neutron Diagnosed Subcritical Experiments (NDSE) that is under development, and (3) ECSE subcritical experiment entombment activities that are completing. The other project costs (OPCs) for the UCEP and ZTBFI projects are funded from the ECSE subprogram.

Nicknamed Scorpius, ASD designs and installs a large, multi-pulse accelerator system that will generate radiographs necessary to diagnose late-time dynamics in plutonium implosion experiments. NDSE is a measurement concept that NNSA will apply to dynamic plutonium experiments that will measure the negative reactivity of a subcritical assembly. Since neutron multiplication is sensitive to the material properties of fissile material, the data will provide a new constraint on the codes and models used to simulate the performance of nuclear weapon primaries, improving our stockpile assessment capability. Entombment activities provide a disposition area in PULSE for expended SCEs.

Highlights of the FY 2026 Budget

- Continues delivery of ECSE capabilities in support of the W80-4, W87-1, W93, and future weapon system certification plans.
- Performs testing of the NDSE system that includes a dense plasma focus (ZEUS), associated detector system, and diagnostics prior to being moved underground to diagnose SCEs in 6 ft diameter confinement vessels.
- Supports procurements, assembly, and testing of ASD components above ground needed prior to final installation into PULSE.

Enhanced Capabilities for Subcritical Experiments Explanation of Change (+$90.345 million)

- Additional funds will support early accelerator installation, taking advantage of a new fire protection strategy. Expedites purchases to reduce vendor delivery gaps and buys down risks particularly on pulsed power. Advances delivery of accelerator housings and magnetic cores.

Hydrodynamic and Subcritical Experiments Execution Support Subprogram

Description

The HSEES subprogram maintains a robust testing capability to assess the effects of component aging or defects identified during stockpile surveillance activities. The data obtained from these experiments are foundational for the annual assessment process, certification decisions, advancement of nuclear weapon science, refinement of weapon computational models, development of emergency response tools, assessment of foreign and terrorist designs, reducing the risk of technological surprise, and developing the skills and experience of weapon physicists and design engineers.

Programs determine the need for integral hydrodynamic experiments (hydros) and are responsible for the design, fabrication, and assembly of the test device as well as the post-experiment detailed data analysis that informs the physics models and weapon codes. The HSEES subprogram funds the fielding, diagnostics, execution, initial data analyses, and the disposition and cleanup of the expended hydro experiments. Once the hydro experiment is delivered to a firing site/facility, it is connected to diagnostics then detonated to obtain data. Many of the hydros are conducted in specialized, engineered steel containers (known as "vessels") that confine the HE and hazardous material byproducts.

Following an experiment using surrogate material hydros (those experiments that do not contain SNM), these vessels undergo a lengthy requalification process that entails clean out, weld repair, and inspections. For plutonium experiments executed at PULSE, also known as SCEs, the vessels are entombed underground and removed from inventory. These vessels require extensive engineering, and each procurement requires multiple years.

Surrogate hydros are conducted at LANL and LLNL facilities, while SCEs are conducted at the NNSS PULSE. As the stockpile continues to evolve, ECSE will establish new test beds in PULSE.

Highlights of the FY 2026 Budget

- Ensures the operational and diagnostic capabilities of the NNSA complex firing facilities are sufficient to execute hydrodynamic tests in support of specific weapon systems (LEP/ALT/MOD), nuclear weapon stockpile, global security, and experimental science.
- Procures, assembles, and fields impulsively loaded steel vessels in support of integral weapon experiments/hydrodynamic tests.
- Complete imaging system and Cygnus source modifications needed for Great Basin SCE series.
- Test non-NDSE diagnostic suite that will be installed in the ZTB in preparation for Excalibur SCE series.
- Fully outfit Building 851/Outdoor Firing Facility with high precision optical diagnostics and digitizers for temporally resolved velocity and position measurements.
- Develop a machine learning tool for the Scorpius Integrated Systems.
- Perform multi-pulse target characterization using Flash X-Ray (FXR) including fielding a new thermal and chemical imaging diagnostic.

Hydrodynamic and Subcritical Experiments Execution Support Explanation of Change (+$73.112 million)

- Funding supports an increase in the cadence of integrated weapon experiments at firing sites, such as Los Alamos National Laboratory's (LANL) Dual-Axis Radiographic Hydrodynamic Test (DARHT) Facility and Lawrence Livermore National Laboratory's (LLNL) Contained Firing Facility (CFF), via collaborative operations. It funds staffing growth at Nevada National Security Sites (NNSS) in preparation for new underground test beds. This funding acquires and installs programmatic equipment, diagnostics, and experimental apparatuses for both the DARHT Facility and the CFF to directly enhance the quality and quantity of data produced. These upgrades will support more reliable operations, enhance experimental efficiency, and broaden the range of programs and missions they can effectively support.

Engineering and Integrated Assessments

Overview

The Engineering and Integrated Assessments program is responsible for ensuring system survivability in present and future stockpile-to-target sequences (STS) and ensures a responsive nuclear deterrent through collaborative partnerships, proactive integration to include prototyping activities, and assessments. This program supports four key mission areas: (1) strengthening the science, technology, and engineering base; (2) providing tools for qualifying weapon components and certifying weapons without nuclear explosive testing; (3) supporting annual stockpile assessments through improved weapons surveillance technologies and warhead component aging assessments; and (4) providing capabilities that accelerate the nuclear weapons acquisition process.

Engineering and Integrated Assessments is composed of the following subprograms:

1. **Archiving and Support** preserves and maintains historic knowledge, records, and data related to U.S. nuclear weapons testing and Stockpile Stewardship, and provides targeted studies, multi-system assessments, and independent reviews that support the annual assessment of the stockpile.
2. **Delivery Environments** funds tools and technologies that help to ensure delivery systems and platforms survive current and future STSs in *Normal* and *Abnormal* environments.
3. **Weapons Survivability** funds tools and technologies to ensure U.S. weapons will operate through current and future *Hostile* environments such as current and future enemy defenses.
4. **Studies and Assessments** funds pre-Phase X / 6.X activities to inform NWC decision-makers of the strategic impacts from the pursuit of various Nuclear Security Enterprise and weapon capabilities in coordination with DOD partners. Coordinates and co-leads Phase 1 (Concept Assessment) efforts with DoD partners.
5. **Aging and Lifetimes** funds scientific research to understand and mitigate the impacts of aging on materials and components for the stockpile. It also develops advanced diagnostics used to detect and assess age-induced impacts on weapon systems and maximize data returns on limited test articles.
6. **Stockpile Responsiveness** provides efforts that sustain, enhance, and exercise capabilities required to conceptualize, study, design, develop, engineer, certify, produce, and deploy nuclear weapons. These efforts do not include the actual production or deployment of a stockpile weapon system, nor do they engage in the acquisition of nuclear weapons for the U.S. stockpile.
7. **Advanced Certification and Qualification** funds tools and methods to ensure that there is a certification path for stockpile systems and new components without underground explosive nuclear testing. This is done by integrating computing, science, technology, and engineering advancements to facilitate certification of future life extensions and other warhead needs.

Major Line Items under Engineering and Integrated Assessments

- **26-D-513 Combined Radiation Environments for Survivability Testing (CREST) (+$52.248 million)** funds a replacement of the Annular Core Research Reactor (ACRR) facility, which directly supports the NA-10 stockpile systems design, development, qualification, and surveillance missions. CREST will provide a combined radiation environment (gamma, neutron and shock) at a higher capacity than currently available and provide for surge capacity to meet increasing demand.

Engineering and Integrated Assessments (+$141.012 million)

- The increase fully funds the Nuclear Weapons Council (NWC)-directed Phase 1, Concept Assessment, for the WXX and a variety of Hard and Deeply Buried Target (HDBT) defeat efforts by the Studies and Assessments program. The increase also supports rapid capabilities work primarily within the Stockpile Responsiveness Program to execute at least two concurrent rapid development activities and invests in responsive commercial flight testing capabilities.

Archiving and Support Subprogram

Description

The Archiving and Support (A&S) program is responsible for preserving and maintaining data, records, and knowledge related to U.S. nuclear weapons, historic nuclear weapons testing, and Stockpile Stewardship efforts. Additionally, Archiving and Support provides targeted studies, independent reviews, and multi-system assessments that support the annual assessment process.

By physically and digitally preserving historical knowledge, records, and data related to U.S. nuclear weapons, nuclear weapons testing, and stockpile stewardship efforts, Archiving and Data Management (ADAM) ensures the continuity and accessibility of this information beyond the lifetime of its native formats. Additionally, ADAM provides access to the historical archives used across the Nuclear Security Enterprise by researchers, scientists, engineers, and other requestors (e.g., the public, educational institutions). Data from the ADAM program is used to maintain and assess the current stockpile, support stockpile modernization, and train the next generation of weapons scientists and engineers.

A&S conducts short term, one- to two-year, weapon-informed studies that target the gaps in weapons system knowledge to improve Stockpile Stewardship assessments.

A&S is also responsible for stewarding the annual Assessment Support; 50 U.S. Code § 2525 requires dual validation teams conduct independent and cross laboratory weapon assessments. This effort supports the Independent Nuclear Weapon Assessment Process (INWAP), in accordance with the law, as well as other multi-system assessments that support the annual assessment reporting process.

Highlights of the FY 2026 Budget

The Archiving and Support program directly supports NNSA's priorities to design and deliver the Nation's nuclear stockpile and leverage transformative technologies to address emerging challenges. Archiving and Support enables NNSA's mission using world-class science, technology, and engineering while adapting to a specialized workforce through advanced knowledge and records management technologies. Archiving and Support activities include, but are not limited to:

- Ensuring knowledge preservation to inform future stewardship activities, which include but are not limited to:
  - Physical preservation, digitization, and maintenance of large holdings at LANL, LLNL, SNL, NNSS, Kansas City National Security Campus (KCNSC), Savannah River National Laboratory (SRNL), Pantex Plant, and Y-12 National Security Complex.
  - Efforts targeted at accelerating the digitization process of all media types (e.g., paper, films, microfilm, microfiche, aperture cards, and other media) through technological advancements, machinery, and training opportunities.
  - Implementing Artificial Intelligence/Machine Learning (AI/ML) tools to ingest, index, catalog, and create metadata on weapons-related documents.
  - Developing a centralized, searchable database to increase accessibility to preserved information.
  - Maintaining legacy monitoring sites, such as, the U.S. Geological Survey (USGS) Core Library and Data Center and seismic monitoring stations at the Nevada National Security Site.
  - Funding the Nuclear Testing Archives at Nevada; the National Security Research Center (NSRC) at Los Alamos; Nuclear Test Heritage (NTH) project and Atmospheric Test Film archives at Livermore; the Central Technical Files and other archives at Sandia; and various archival needs at Kansas City, SRNL, Y-12, and Pantex.
  - Performing cross-laboratory, historical radiochemistry for data analysis to update current modeling and simulation tools.
- Providing assessments and data to support the Annual Assessment Report for the nuclear stockpile and enhance stockpile stewardship initiatives, which include but are not limited to:
  - Improving system(s) modeling capabilities that inform certification.
  - Executing 50 U.S.C 2525 by maintaining the Independent Nuclear Weapons Assessment program (INWAP), standing up challenge teams, and supporting Red Team evaluations.
- Maintaining and/or upgrading the capabilities that support Archiving and Support activities, including but not limited to:

- Funding computer upgrades, software licenses, and other basic infrastructure needs.
- Funding Artificial Intelligence/Machine Learning tools to not only increase efficiency of digital data curation but also meet National Archives and Records Administration (NARA) metadata requirements.
- Maintaining seismic monitoring stations that record seismic measurements of experimental explosions and subcritical experiments; provides verification monitoring data for the Comprehensive Nuclear-Test-Ban Treaty.
- Upgrading and purchasing specialized equipment used to digitize unique and critical archives dating back to the Manhattan Project.

Archiving and Support Explanation of Change (+$0.060 million)

- No significant change.

Delivery Environments Subprogram

Description

The Delivery Environments (DE) Program helps ensure delivery systems and platforms survive current and future STSs in *Normal* and *Abnormal* environments. Select environmental examples include reentry environments, atmospheric gliding, evolving thermal and pressure differentials for prolonged periods of time, shock phenomena, and combined environments. The Delivery Environments Program accomplishes these goals by predicting, identifying, and evaluating delivery platform system and sub-system performance and responses to such environmental phenomena. The program develops engineering representative prototypes and conducts modeling and simulating responses to new environmental demands and requirements, advanced diagnostics, and strategic and informed experiments. The Delivery Environments Program furthers its objectives by collaborating with various interagency and interoffice partners to ensure alignment.

The Delivery Environments Program is forward-looking in evaluating emerging deterrence risks and works closely with the Department of Defense (DoD) in ensuring delivery systems meet the DoD's performance requirements for current, emerging, and future Stockpile-to-Target Sequences. Select environmental responses that impact survivability and failure margins include the modeling and testing of shock, vibration, thermal stresses, pressure strains, adverse and normal effects, the combination of these environments with hostile or abnormal environments, and the effects of these phenomena on nuclear and non-nuclear weapon components and systems. To align these goals, the Delivery Environments Program works closely with the Weapons Survivability (WS) Program, the Stockpile Responsiveness Program (SRP), Advanced Certification and Qualification (ACQ), the Office of Advanced Simulation and Computing (ASC), the DoD, and the Intelligence Community to ensure informed decisions, prioritization, and resource optimization.

The Delivery Environments Program ensures the survivability and effectiveness of a weapon system in abnormal environments, such as external electromagnetic events, drops, and impacts during the handling and mounting of a weapon, crash and burn scenarios, aircraft crashes, age-related malfunctions, and transportation accidents. This program collaborates with the Aging and Lifetimes Program and ASC to ensure experiments and predictive capabilities are properly developed to adequately replicate such incidents.

In addition to considering emerging and future systems, the Delivery Environments Program also supports select computational analysis, engineering, and experiments for current stockpile applications that are relevant to emerging and future Stockpile to Target Sequences. These activities help identify relevant impacts to future Stockpile-to-Target Sequences and related survivability requirements.

Highlights of the FY 2026 Budget

- Complete intermediate-level combined environment shaker tables and hydraulic load frames, ensure proper completion of the Horizontal Air Bearing, and begin subsequent experiments on the Centrifuge Test Facility. Evaluate the performance of the upgraded tunable separation shock tower and potentially expand its applicability. Evaluate multi-axis vibration testing with higher fidelity test articles and expand collaborations with SNL on testing capabilities and related software. Continue exercising flight test diagnostics in environments, integrating sensors with LANL FlexDAQ data acquisition system, and quantifying uncertainties of integrated sensors in environments.

- Exercise Testbeds to Reduce Uncertainties in Simulations and Tests (TRUST) on advanced testbeds to quantify uncertainties in computational and experimental capabilities of interest. Mature an NEP-representative multi-feature TRUST design to expand on uncertainty quantification efforts.
- Mature existing integrated computational toolsets for predicting weapon system flight characteristics and ensure warhead performance in emerging and future delivery environments. Verification and validation efforts build confidence in the predictive capability of the toolset. This work directly supports the *Combined Threat Environments* JASON study.
- Perform hydrodynamic system modeling and simulation, engineering design, focused small-scale experiments, test diagnostics, and a full-scale test. Modeling and simulation capabilities are being exercised through inter-agency collaborations to provide a bounding trade space for advanced future systems. Develop advanced combined-environment testing techniques to assess system performance before, during, and after combined normal-hostile encounters (involve extensive model-based test design to quantify combined effects). Deploy novel diagnostics in combined environment tests. Formalize the environmental specification process for advanced ground-based testing techniques.
- Compare aero environments in advanced geometries and acquire data that will support the development of engineering modeling and simulation of emerging and future flight systems. Quantify gas chemistry and material chemistry effects on unsteady aero loading relevant to hypersonic environments. Develop optical instrumentation to support these loading characterizations and collaborate with ASC activities in data-driven modeling of hypersonic flows.
- Develop capabilities necessary to quantify multi-disciplinary failure margins for weapon systems and components in normal, abnormal, and combined normal-hostile environments. These projects will support experimental capability development for combined physics testing as well as diagnostic development and environment characterization. Collaborate with ASC to develop agile predictive capability required to design and qualify weapon systems to combined thermal and mechanical conditions.
- Completed the first wind tunnel test of the hypersonic finned cone via the Hypersonic Wind Tunnel (HWT). Analyzed the unsteady loading data on this advanced geometry to characterize the resulting fluid structure interaction.
- Leveraged an ASC Validation & Verification project work on Multiple Input, Multiple Output powered flight specification derivation methods. Developed necessary elements to perform a multi-axis powered flight vibration test.

Delivery Environments Explanation of Change (+$0.573 million)
- Accelerated development on LLNL/Sora.
- Additional sensor characterizations identified in FY 2025.

Weapons Survivability Subprogram

Description

Weapons Survivability provides the tools and technologies necessary for ensuring U.S. nuclear weapons survivability in hostile and fratricide environments. Since weapons entering the stockpile are expected to be fielded for decades, Weapons Survivability includes projections for the evolution of defensive technologies and threats.

Weapons Survivability scope includes: (1) developing scientific and engineering models for understanding radiation effects; (2) improving laboratory radiation sources and diagnostics to support code validation and hardware qualification experiments; (3) generating experimental data to validate scientific and engineering models; (4) understanding radiation-hardened design strategies; and (5) evaluating candidate and evolving stockpile technologies for radiation hardness capabilities in a generalized, weapon-relevant configuration.

Weapons Survivability activities include:
System-Generated Electro-Magnetic Pulse (SGEMP) and Electro-Magnetic Pulse (EMP) Effects – Several electromagnetic (EM) effects driven by X-rays, gamma, and high-power EM sources can induce detrimental responses to nuclear and non-nuclear electrical components of the warhead. A particular effect of concern is System Generated Electromagnetic Pulse (SGEMP), whereby photons with sufficient energy to penetrate and interact with materials inside the weapon produce energetic electrons generating large currents within the weapon. Cable SGEMP and Box Internal Electromagnetic Pulse (IEMP) are variations associated with cables and components. Understanding SGEMP (and its various counterparts, i.e., xEMP) requires knowledge of physical phenomena, including radiation transport across

complex material interfaces; photo emission; radiation-induced conductivity in solids, foams, and gases; time-dependent dielectric breakdown phenomena; and EM coupling through plasmas. Importantly, the responses are highly dependent on the temporal and spectral content of the radiation drive, the properties of the materials undergoing irradiation, and the coupling between subsystems.

Related to this is the production of EMP environments driven in the atmosphere whereby X-rays and high energy gamma rays dissociate the atmosphere, produce conductivity, which drives currents and high frequency electromagnetic pulses. These environments can induce detrimental responses inside the weapon, depending on Reentry Vehicle/Reentry Body shielding effectiveness.

Presently, there are limited high-fidelity experimental and test environments for driving relevant SGEMP/xEMP responses. Current and planned capabilities utilizing the Saturn and High Energy Radiation Megavolt Electron Source III (HERMES III) Accelerators, the NIF, and Z cannot adequately support component, subsystem, or system-level testing for many of the xEMP effects, particularly those driven by X-rays. Given the challenge of suitable testing capabilities (e.g., adequate fluence, spectrum, volume, time history, etc.), this effort has a strong focus on developing experimental platforms for physics discovery and code validation to support computational capabilities that enable the qualification of components for X-ray driven EM effects while advancing present phenomena understanding for future applications. In addition, this effort develops the platforms and diagnostics for test and evaluation that allows creation of relevant high fidelity (real or surrogate) environments.

Effects of X-rays and Air Blast on Materials – This effort includes all activities related to material and structural responses driven by X-rays and air blast. The effort is relevant to the study of both exo-atmospheric nuclear burst encounters, as well as endo-atmospheric encounters. Structural effects and response from exposure to air blast can become significant for the terminal phase of flight. Limited high-fidelity testing capabilities exist for analyzing and assessing these effects; for example, radiation testing is limited to small objects over a restricted range of photon energy. Mechanical surrogates are used in many cases for system-level qualification for both cold X-rays and air blast. Hence, validated modeling and simulation capabilities are vital to understanding these effects and validating the efficacy of the surrogate platforms. Select activities include direct testing of materials and components at radiation generating facilities, development of diagnostics and platforms to increase the applicability of these facilities, development of surrogate testing capabilities (e.g., explosive drives, intense particle beams or optical [intense laser] light), and development and validation of modeling and simulation capabilities based on modern codes. Key facilities of use include the Z, NIF, Light Initiated High Explosive Facility, and related gas-gun capabilities.

Neutron Effects – Neutron radiation from nearby nuclear bursts has the potential to cause damage to various warhead components. For endo-atmospheric engagements, neutrons can be effective at ranges that are large relative to the effective ranges of other radiation. Assessing the effects of neutron exposure to warhead components requires understanding these interactions over a significant range of energies and pulse shapes. Importantly, exo-atmospheric engagements require knowledge of high energy (14 mega-electron volts [MeV]) neutron effects.

This effort includes direct testing of materials and components along with developing corresponding modeling and simulation tools. Specific activities include: modeling and experiments to investigate fission heating, modeling to quantify the initiation response to external neutron fields, experiments and modeling to investigate displacement damage in semiconductors and other electronic effects, obtaining calibration data for neutron radiation aware micro-electronics models, facility and diagnostic development, material aging effects on neutron environment survivability development, and validation of modeling and simulation capability based on modern codes. Key facilities of use include Annular Core Research Reactor facility (ACRR) and NIF.

High Energy Photon Effects – This effort primarily focuses on the study of energy (dose) and power (dose rate) deposition in material of high energy (i.e., > 1 MeV) photons. High energy photons can penetrate deep into the interior of a weapon and cause disruptions, error readouts, and burnout of critical electronics. This effort encompasses electrical component response to dose-rate effects; single electron effects, high energy photon transport in materials, radiation hardened micro-electronics design, and the study of long lifetime intrinsic radiation (INRAD) effects found within the warhead. The INRAD activity is primarily focused on the development of capability to characterize the INRAD environment and assess aging of critical components exposed to INRAD.

Weapon Output – A robust survivability capability relies upon the understanding and analyses of foreign weapon threats and their outputs. Until recently, legacy tools that were validated using underground explosive test data were exclusively used. These legacy tools are reaching the end of their lives, so this effort supports the process for modernizing and improving tools and methodologies. Improved physics fidelity and hydrodynamics over longer simulation times is a cornerstone of this development. Validation of these new tools is necessary and will be accomplished using a combination of underground test data and above ground experiments. This is coupled with higher-fidelity diagnostics to enhance the calculated uncertainties associated with weapon output modeling.

Further, the propagation and quantification of uncertainties is paramount to understanding margins and providing certification assurances for survivability analysis. A robust understanding of survivability margins cannot be achieved without uncertainty quantification imbedded within the hostile threat characterization. This effort focuses on establishing a more comprehensive understanding of the required modeling fidelity based on understanding of weapon output uncertainty propagation in the mechanical and electrical response of components and systems, more transparent and functional databases, and improved visualization software.

Combined Environments – Legacy survivability analyses have generally been performed by separating and addressing individual effects, one at a time. As computational tools, diagnostics, and technology insertion have become more flexible and robust, assessments of combined environments are now possible. This effort focuses on the development of experimental facilities, including recapitalizing the Annular Core Research Reactor through the Combined Radiation Environments for Survivability Testing (CREST) line-item project, and platforms for combined environment testing (e.g., radiation + mechanical, radiation + EMP, etc.), combined effects response discovery and analysis, and analysis of effects at high levels of integration. It also supports the development and validation of modeling and simulation capabilities based on modern codes. Further, data generated with combined survivability assessments can be utilized to improve understanding of integrated weapon response, electrical response, and terminal flight dynamics of U.S. warheads after a hostile or fratricide engagement.

Highlights of the FY 2026 Budget

- Execute a planned 160 research and development and qualification capability development shots on high energy density (NIF and Z) and radiation environment (e.g., Saturn, Hermes, ACRR) machines and facilities.
- Develop laboratory weapon qualification platforms that reproduce and simulate hostile environments and effects.
- Further improve experimental capabilities for delivery systems that enable the development of mitigation mechanisms capable of addressing current and future hostile threats.
- Provide experimental tools and simulation capabilities for systems to qualify the behavior of electronics in radiation and combined environments.

Weapons Survivability Explanation of Change (-$21.558 million)

- Decrease in funding is due to moving CREST OPCs to Line-Item funding for efficient management and reporting.

26-D-513 Combined Radiation Environments for Survivability Testing, SNL (+$52.248 million)

- The funding increase will allow for the nuclear facility and reactor preliminary design contract to be awarded.

Studies and Assessments Subprogram

Description

The Studies and Assessments Program, established by Congress in FY 2020, improves oversight and visibility of pre-Phase X / 6.X assessments and Phase X / 6.X assessments. Beginning in FY 2023, this program improves the ability of the Office of Defense Programs to respond to Nuclear Weapons Council (NWC) direction for joint studies of potential weapons and Nuclear Security Enterprise (NSE) capabilities. These studies result in concept assessments to inform NWC decisions about the future nuclear weapon stockpile and supporting enterprise. The Studies and Assessments program collaborates with other Engineering and Integrated Assessments and Weapon Technology and Manufacturing Maturation programs to align their scope with these future capability needs, as well as with other NNSA programs to coordinate impacts from these studies. Additionally, Studies and Assessments develops innovative business practices to improve NSE collaboration and agility.

Highlights of the FY 2026 Budget

- Achieve the second year of the multi-year Phase 1 (Concept Assessment) of the WXX / Next Generation Reentry Capabilities (NGRC) program per NWC strategic direction.

- Design, build, ground test, and assess the second year of the Nuclear Delivery Systems – Airborne risk reduction project with Air Force Research Laboratory, per NWC strategic direction.
- Accomplish the second-year deliverables of the multi-year Phase 1 (Concept Assessment) of the Hard and Deeply Buried Target defeat, per NWC strategic direction.
- Explore NNSA weapon design options and potential stockpile-to-target sequence (STS) environments for a Future Strategic Warhead (FSW), per NWC strategic direction.

Studies and Assessments Explanation of Change (+$81.000 million)
- The funding level planned for FY 2026 will fund multiple simultaneous Phase 1 initiatives.
- Improve oversight and visibility of pre-Phase X / 6.X assessments and studies of future concepts
- Expand Defense Programs' (NA-10) ability to rapidly respond to Nuclear Weapons Council (NWC) requests for joint DoD-DOE studies of potential weapon and nuclear security enterprise (NSE) capabilities to support future DOD needs.

Aging and Lifetimes Subprogram

Description

Aging and Lifetimes detects and predicts the onset of harmful material incompatibility and aging phenomena in nuclear weapon materials, components, and subsystems before they degrade the nuclear deterrent. It also ensures new materials introduced into the stockpile or likely to be introduced, whether through life extension programs or entirely new designs, will not cause aging problems in the future. These activities require a deep understanding of the material, chemical, metallurgical, physical, and engineering behaviors that control the performance, aging, and degradation of various components in the weapon systems.

To achieve its programmatic goals, Aging and Lifetimes conducts three types of key activities:
- Aging Studies, which provide fundamental materials for aging knowledge and inform decisions on when to replace weapons components and materials, whether materials can be reused, or if new materials could cause aging issues.
- Computational Modeling, which predicts the aging rates, mechanisms, and impacts for weapon components and materials and provides component and materials lifetime estimates.
- Diagnostic Tool Development, which develops and provides diagnostic tools for improving the quantity and quality of surveillance data for the enduring and future stockpiles.

Aging and Lifetimes activities include:
Non-Nuclear Components – This activity addresses aging related phenomena of non-nuclear components and identifies the highest-risk aging concerns that impact multiple weapon systems. These components perform a wide variety of essential functions and ensure that the nuclear weapon always performs as intended.

High Explosives (HE) in the Nuclear Explosives Package – This activity determines when age-related changes in main charges and boosters may affect weapon safety, performance, and/or reliability. This is accomplished through a combination of predictive modeling, experimental techniques, non-destructive evaluation tools, and assessment of surveillance data.

Pits – This activity develops and delivers new analytical methods, tools, modeling, and diagnostics, including non-destructive evaluation techniques, to achieve timely, less invasive, and more cost-effective component surveillance.

Canned Subassemblies (CSAs) and Cases – This activity provides experimentally validated material aging models and integrated materials chemistry simulations needed to determine when, or if, CSAs or cases will need to be refurbished or replaced.

Non-Nuclear Materials – This activity develops and applies predictive models for assessing the aging of non-nuclear materials. Additional activities include developing diagnostics for testing non-nuclear materials, assessing new methods and materials to replace legacy formulations, evaluating compatibility of candidate materials with other stockpile materials, and developing predictive lifetime models for polymeric or other materials and components.

Systems – This activity augments the existing surveillance program with system-level evaluation tools that include new capabilities to measure component-level parameters during system testing and provide improved confidence in future weapons reliability, safety, and performance.

Highlights of the FY 2026 Budget

- Transition non-destructive diagnostics and modernized capabilities to Core Surveillance (Stockpile Sustainment) based on recommendations from the Component Evaluation Program Planning Committees and JASON studies.
- Continued development of the Shell Acceleration Initiation Train (SAIT) with the intention of phasing out the Snowball test used for high explosives.
- Support material compatibility and aging assessments required to mature the W93 and other modernization program's component technologies.
- Study aging behaviors of potential candidate stockpile materials to support future decisions.
- Support and evaluate newly developed accelerated aging testing methodologies designed to rapidly and more accurately determine responses of individual materials to anticipated environmental stressors.
- Analyze chemical, physical, and mechanical properties of organic polymers.
- Compare predictive aging models to legacy data sets.
- Develop and mature hydrogen sink models to be applied in Diffusion ReACtiOn (DRACO) Canned Sub-Assembly aging models.
- Continue improvement in scientific understanding of corrosion and coatings as a function of temperature and gas composition.
- Pilot digital twin platforms that link production data with aging data – from both current and next generation diagnostics and sensors – to predict lifetimes of individual weapon components and systems.
- Produce, characterize, pack, and ship Plutonium accelerated-aged alloys.

Aging and Lifetimes Explanation of Change (-$2.122 million)
- No significant change

Stockpile Responsiveness

Description

The Stockpile Responsiveness Program (SRP) exercises capabilities to proceed rapidly from clean sheet designs through prototyping, testing, and development for production and qualification. SRP has matured from its early years as a collection of activities each aimed at one of the congressionally directed objectives for SRP towards larger scale integrated "rapid" prototyping efforts focused on demonstrating opportunities to accelerate the nuclear weapons lifecycle. In particular, the program pursues new production and qualification techniques to dramatically accelerate the rate at which components can be produced, while reducing costs and complexity. The cross-cutting system perspective provided by these integrated activities are identifying technologies that can enhance warhead and production system performance, particularly when combined with other system enhancements.

In the conduct of its activities, SRP is guided by its statutory objectives to exercise and enhance capabilities required to support all phases of the joint nuclear weapons lifecycle process, to transfer knowledge and skills to the newer generation of nuclear weapon designers and engineers, and to strengthen integration between DoD and NNSA. A significant emphasis of the SRP is on laboratory-production plant collaborations focused on augmenting production responsiveness. The three nuclear weapon laboratories (LANL, LLNL, and SNL) are designated as design agencies (DAs), while the production plants (Pantex, Y-12, KCNSC, and SRS) are designated as production agencies (PAs). LANL and SNL hold both a PA and DA designation because of their production mission responsibility for select components.

SRP activities are undertaken with the view that modernization and other potential responses to future challenges will require reinvigorating the development process for new systems or subsystems employing new technologies and materials to meet new missions and operate in new environments. Such development necessarily invokes increased technical risk beyond the limited risk presently accepted in LEP planning. To enhance capabilities to address this risk, SRP program activities described below are chosen in part to demonstrate the ability to accelerate the design, prototype, test cycle as a learning mechanism that offers insights into methods to decrease the time and cost to develop a producible and qualifiable system that can support a national nuclear deterrence need.

Stockpile Responsiveness activities:
SRP's present and planned activities fall into two descriptions: 1. integrated prototyping exercises, and 2. other responsiveness activities, principally focused longer term production responsiveness efforts outside of what is pursued in the integrated prototyping efforts.

Integrated Prototyping Exercises - These efforts start from novel concepts that could address specific "challenge problems" derived from guidance provided to the SRP by the Nuclear Weapons Council. These exercises are intended to proceed rapidly from a design to a producible and testable prototype with the goal of executing multiple cycles to improve the intended system through such cycles of learning. The production agencies are included as full partners in the effort, at the outset to provide expertise on design for manufacturability and to begin anticipating tooling, material procurement and assembly issues that will arise. The production agencies are also essential partners in providing prototype fabrication capabilities to enable rapid prototyping and early testing.

Other SRP production responsiveness activities – These are principally longer-term production technology efforts either at the production plants or in collaboration with the laboratories to advance new manufacturing technologies and participate in advanced qualification methodologies.

Highlights of the FY 2026 Budget

- Continue to build on creative and highly productive design agency/production agency (DA/PA) collaboration efforts to develop responsive manufacturing and qualification processes including methods to execute design for manufacturability
- Execute integrated prototyping exercises including:
    1. Bold Talon, a follow-on to the Agile Processes & Technologies prototyping effort completed in FY 2024 to exercise the ability to create a rapid operational capability.
    2. Continue the Responsive Demonstration Experiment (ReDX) program to develop low-cost high tempo flight-testing capabilities in partnership with industry and demonstrate the use of these platforms to enable rapid prototyping of new warhead system concepts, including:
        - A Los Alamos prototype demonstration of integrating technologies developed at LANL in multiple NNSA programs.
        - Continue flights with the United Kingdom in the Cyclone Series.
        - Execute a demonstrator developed jointly with industry to demonstrate flight test capabilities and reentry system capabilities.
    3. Nevermore prototype concept to exercise the ability to produce a small number of a specialized weapon system with minimal impact on the ability of the production plants to support programs of record required by stockpile modernization.
    4. Develop a low-cost flight test to further test and develop the DEEPCORE concept.
- Continue the development of Artificial Reality / Virtual Reality tools at the Production Agencies to accelerate production planning, tooling, and fabrication and assembly processes with a particular focus on enabling early performance of safety reviews and issue resolution.
- Continue to demonstrate commercial flight test capabilities through the ongoing ReDX program at LANL with commercial partners to provide high tempo, high fidelity flight testing for system development. Activities under this include multiple design-integrate-test cycles and joint test opportunities for Defense Programs and military service partners. In particular, SRP will build and flight test two prototype systems demonstrating higher levels of integration and increased launch platform performance.

Stockpile Responsiveness Explanation of Change (+$80.118 million)

- Increase funds full execution of at least two rapid development activities. These projects execute work at multiple sites and provides pre-acquisition experience to junior personnel in areas beyond the current program of record. Investments highlighted below in test and prototyping will be realized first by these rapid development teams.
- The increase will accelerate commercial flight capability to transition to Integrated Demonstrator operational control in FY 2027. This will enable engineering costs to achieve multi-stage boost capabilities a year ahead of current schedule to support rapid capabilities with relevant flight test environments. Contracts for additional flights will have to be established at the earliest available point within the fiscal year.
- Establish new rapid capability structure and prepare dedicated spaces, prototyping capacity. Initiate planning for third concurrent task (zero year) rapid capability effort. This will require significant investment across all the

enterprise labs, plants, and sites. Planning and coordination for zero-year activities will encompass teams from all represented activities.
- Add additional resources to accelerate the design, prototype, test cycle to develop producible and qualifiable systems that can support a national nuclear deterrence need with minimal impact to the programs of record.

Advanced Certification and Qualification

Description

Advanced Certification and Qualification (ACQ) develops tools and methods to ensure there is a certification path for stockpile systems and components without underground nuclear explosive testing. It integrates modeling/simulation, science, technology, and engineering advancements to facilitate certification of future life extension programs (LEPs) and new warheads. Additionally, ACQ, in collaboration with Advanced Manufacturing Development and the Stockpile Responsiveness program (SRP), explores emerging methods to accelerate the qualification of components and manufacturing processes and reduce costs and laboratory and plant facility requirements. In support of modernization initiatives, ACQ has moved from understanding the certification basis for the legacy stockpile to developing certification methodologies for the stockpile as it is evolving, including planned LEPs and modern systems needed in the future. ACQ is exploring the qualification benefits and challenges of modular architectures proposed for future stockpile systems.

More specifically, Advanced Certification and Qualification: (1) develops certification methodologies and integrates new experimental data into common models and assesses impacts on stockpile performance, (2) develops qualification paths for advanced manufacturing, replacement materials, and revolutionary technologies, (3) conducts certification readiness exercises to explore certification and qualification challenges in technologies that are being developed or demonstrated for future LEPs, and (4) explores the certification challenges of advanced surety technologies.

ACQ provided funding for Kansas City National Security Campus (KCNSC), Y-12, and Pantex to develop qualification methodologies for advanced manufacturing that decreased the qualification timelines and enhanced the acceptance rate.

Highlights of the FY 2026 Budget

- Develop certification approaches for systems and components responsive to stockpile modernization initiatives to strengthen the certification basis for the new designs of modern weapons.
- Develop capabilities to enable assessment and qualification of designs that enable agility to meet emerging threats.
- Develop diagnostics and testing relevant to certification for changing environmental requirements.
- Refine in situ inspection and link to acceptance for both traditional and additively manufactured (AM) parts.
- Transfer scalable advanced manufacturing capabilities with built in qualification approaches.
- Develop approaches to accelerate and streamline qualification efforts for new manufacturing methods, materials, and components to reduce time and costs to introduce into the stockpile and to address and manage the inherent technical risk in new approaches to shorten the delivery schedules of upcoming programs of record.
- Continue a certification readiness exercise to assess the qualification readiness of proposed modular architectures to improve the flexibility and maintainability of stockpile systems and reduce lifecycle costs to extend the functional life of the future deterrent.
- Investigate the approach to certification of a novel approach to future systems outside the bounds of legacy stockpile.
- Investigate feasibility and qualification methodologies related to a non legacy production process.
- Execute hydrodynamic tests to support improved technologies, raise TRLs and MRLs, and demonstrate certifiability.
- Continue to access the archive of nuclear test data, study of failure modes, and other advanced methods to expand in certification basis of upcoming sustainment programs and for future weapon systems.
- Conduct experiments supporting product-based qualification methods of components made with advanced manufacturing to not be tied to material and process limitations.
- Exercise the certifiability of reuse, surety, and hardening concepts, as well as concepts incorporating new manufacturing technologies.

- Develop Advanced Materials qualification methodology to enable component material replacement options with a qualification path to reduce production time constraints.
- Advance microstructure-aware simulation capability and deploy production codes for designers to span micro- to macro-scale behaviors.
- Extend common qualified testers and common calibration to support more products, improving flexibility and reducing long qualification cycles with maximum reuse of pre-qualified software and hardware.
- Develop new inspection techniques to validate and certify new complex geometries produced by advanced manufacturing techniques

Advanced Certification and Qualification Explanation of Change (+$2.941 million)

- Increase supports Capability investments to shorten qualification timelines in support of rapid capability development.
- Increase supports Novel testing capabilities and diagnostics to enable responsive certification of non-legacy system concepts.

Inertial Confinement Fusion

Overview

The ICF program provides HED science capabilities and expertise that support research and testing across the breadth of the SSP. ICF meets the immediate and emerging HED science needs to support today's deterrent while advancing R&D capabilities required to meet future deterrent needs. Since most of the energy in a nuclear weapon detonation is generated by matter in the HED regime, understanding the behavior of matter and energy in this regime is critical to understanding and predicting the performance of both nuclear weapon primaries and secondaries, as well as the response of weapon components to extreme hostile radiation environments.

The ICF program enables access to and study of the HED regime through work executed by three subprograms:

1. **HED and Ignition Science for Stockpile Applications** develops and matures HED experimental platforms and computational tools, enabling partners across the nuclear weapons programs to investigate weapons physics phenomena and material behaviors for near-term SSP applications and designs. The execution of complex physics experiments will push the boundaries of understanding within HED science to support pursuit of high yield capabilities for next-generation stockpile science.
2. **ICF Diagnostics and Instrumentation** establishes new diagnostic capabilities and experimental support systems through the R&D of specialized technologies necessary to execute experiments studying matter under extreme HED conditions relevant to nuclear weapons performance.
3. **Facility Operations** provides the support and services required to ensure the safe and efficient operations of the national HED facilities, including operations, preventative and backlogged maintenance, load and target consumables, and research and engineering to sustain facility capabilities. These facilities, the NIF at LLNL, Z at SNL, and Omega at the University of Rochester's Laboratory for Laser Energetics (LLE), represent a complementary set of capabilities designed to meet the diverse needs of weapons physics, the pursuit of higher yields, and the exploration of fundamental HED science.

The ICF program leverages its experimental design expertise and computational modeling tools, diagnostic technology, target engineering and fabrication infrastructure, and national HED facilities to ensure high fidelity experimental capabilities and data are available to support a range of NNSA missions. Its capabilities are used across the NNSA to assess and certify the existing stockpile, inform design decisions for current life extension programs, investigate hostile nuclear environments, address weapons relevant HED science challenges, and support research by DoD and key international partners.

The ICF Program is focused on:

- Maturing HED stockpile science concepts to address key gaps in fundamental physics understanding.
- Conducting R&D to improve the quality of existing targets and explore new designs to achieve higher yields.
- Utilizing ignition-class platform for applications relevant to weapon outputs, environments, and effects.
- Exploring innovative and disruptive diagnostics, drivers, simulation capabilities, and analytical tools to advance physics understanding of the highest priorities of SSP.
- Extending the lifetime of NIF, Z, and Omega, to include making progress on replacing obsolete systems.
- Acquiring data at current scales to inform cost, scope, and schedule for future experimental investments.
- Maintaining technical leadership and capabilities necessary to recruit, train, challenge, and retain the highest caliber of scientists and engineers who engage in stockpile stewardship and pursue world-leading HED research, while preparing to meet the stockpile science challenges of the 2030s and beyond.
- Promoting cross-laboratory collaboration and external engagement to improve program efficiencies and ensure continued global leadership while pursuing high technical risk, high reward research efforts.

Major Line Items under Inertial Confinement Fusion

26-D-514 NIF Enhanced Fusion Yield Capability, LLNL (+$26.000 million)

- Increase begins NIF EYC, LLNL line-item funding in FY 2026.

Inertial Confinement Fusion Explanation of Change (+$38.376 million)

- The increase ensures baseline facility operation needs are fully met at NIF, Z, and Omega, addresses highest priority sustainment activities to extend facility lifetime, and preserves the necessary HED experiments and capabilities to deliver on high impact stockpile stewardship needs.

HED and Ignition Science for Stockpile Applications Reporting Line

Description

This subprogram supports R&D in HED science, including the study and use of thermonuclear fusion, enabling partners across the nuclear weapons programs to explore weapons physics phenomena for near-term applications and to pursue high yield capabilities for next-generation stockpile science needs. In the HED state, materials experience pressures greater than one million earth atmospheres and reach temperatures and densities far exceeding those of normal or condensed matter, generating complicated behaviors predominantly described by plasma physics. This complex and dynamic state dominates energy generation in nuclear weapons, making its study a key component of the SSP. Research activities for this subprogram include theory, experiments, modeling, design, and engineering, and are identified by the following areas: assessment platforms, fusion yield platforms, simulations and analysis methods, and driver physics and development.

- **Assessment Platforms** develops capabilities that enable stockpile assessment science, LEPs, nuclear modernization, and radiation effects to resolve key gaps in understanding within dynamic material properties, fluid and plasma hydrodynamics, hydrodynamic instability-induced mix, burn, boost, radiation transport and opacities, and yield applications relevant to nuclear weapon outputs, environments, and effects. Coordination with the weapons programs is necessary to conceive, mature, and provide platforms to execute experiments at all the national HED facilities to meet their near-term stockpile stewardship needs. These tools provide access to materials data at extreme conditions, allow the study of hostile radiation environments, and make it possible for NNSA, Department of Defense users, and key international partners to probe a variety of complex weapons physics phenomena.

- **Fusion Yield Platforms** embodies the long-term R&D efforts to advance understanding of fusion implosions and develop multi-megajoule (MJ)/burning plasma platforms, and eventually high-yield fusion platforms for next generation stockpile applications. When realized, these capabilities will be critical to the long-term viability of the SSP, particularly the future qualification of nuclear components, the assessment and certification of the next generation of nuclear weapons in the full range of relevant HED regimes, and the investigation of a range of complex physics not currently accessible within a laboratory setting.

  Since the historic milestone in December 2022, ignition has been achieved seven more times, including a new fusion yield record of 8.6 MJ set on April 6, 2025. This subprogram will continue to advance understanding and utilization of nuclear ignition through the development of robust platforms for SSP applications. Additional focus will be on acquiring information at current scales to justify cost, scope, and schedule for any future investments in experimental capabilities for attaining higher fusion yields.

- **Simulation & Analysis Methods** matures and enhances codes, simulation techniques, and analytical methods for HED physics experiments to improve its predictive capability and optimize its data use across all mission areas in support of this subprogram's short- and long-term efforts.

- **Driver Physics & Development** propels forward research to explore and improve the ability to couple driver energy to targets in all experimental configurations within the HED regime to maximize the fidelity of weapons physics experiments and continue to improve the performance of integrated fusion experiments.

Highlights of the FY 2026 Budget

- Fusion Yield and Assessment Platforms
  - Perform design studies with NIF to improve fusion yield and driver-target coupling and to understand compression limits in laser-driven targets, implosion conditions, and laser plasma interactions (LPI) risk at higher laser energy.
  - Field magnetized linear inertial fusion (MagLIF) and other platforms at Z for experiments testing similarity scaling theory and quantifying stagnation conditions.

- Execute experiments with innovative magnetic direct drive (MDD) designs to reduce high-yield driver requirements.
    - Field high pressure platforms on Omega to optimize implosion performance.
    - Develop and mature novel laser- and magnetic-based platforms to support near-term AS and Survivability needs, for example, volume burn platforms for accessing unique mix characteristics and radiation flow platforms for understanding radiation hydrodynamic behaviors.
- Simulation and Analysis Methods
    - Improve predictive capability through (1) enhancements to existing hydrodynamic codes and common modeling frameworks as well as (2) development of next-generation ICF codes, for example, improvements to low-density plasma modeling to reduce uncertainties.
    - Enrich data analysis techniques for efficient experiment and model comparisons.
- Driver Physics and Development
    - Mature power flow modeling codes to support next-generation driver development.
    - Advance energy delivery within the HED regime by developing next-generation lasers.

HED and Ignition Science for Stockpile Applications Explanation of Change (+$0.648 million)
- No significant change.

ICF Diagnostics and Instrumentation Reporting Line

Description

The ICF Diagnostics and Instrumentation subprogram establishes novel diagnostic capabilities and experimental support systems at the three national HED facilities. Diagnostics are essential for understanding the nuclear explosive process, linking the creation of HED conditions to the use of complex and dynamic experimental data for validating models and resolving weapons physics issues. Diagnostics enable the observation and capture of relevant physics phenomena, addressing stockpile certification and qualification questions requirements. In the near term, the subprogram will field advanced diagnostics using the latest technologies to meet HED experimental requirements and achieve programmatic deliverables in AS, ASC, EIA. Stockpile Management, and other stockpile programs.

Diagnostics development involves the creation of scientific tools with extremely tight temporal and spatial resolution specifications to support experimental events that last less than a fraction of a second. Since achieving ignition on December 5, 2022, the rapid pace of advancement has required the subprogram to proactively anticipate programmatic needs to ensure timely diagnostic design and commissioning. Advancement includes activities such as developing experimental support systems to expand laser and pulsed-power driver performance through enhanced cryogenics capabilities and laser diagnostics. Many activities, which require coordinated efforts and expertise sharing across HED facilities and national laboratories, will support delivery of unprecedented data from HED experiments on material properties, complex hydrodynamics, radiation flow, survivability, and thermonuclear burn.

Highlights of the FY 2026 Budget
- Build and deliver the highest-priority transformational diagnostics identified in the National Diagnostics Plan for HED Science to enhance the accuracy of data used in stockpile research and predictive modeling of relevant physical phenomena.
    - Improve time resolved X-ray diffraction measurements at NIF and Omega for EOS of materials of interest.
    - Advance down-scatter neutron, gamma imaging capabilities at NIF to better understand compression.
    - Complete phase 1 for high yield (>10MJ) X-ray imager to provide time-resolved X-ray fuel shape at NIF.
    - Improve spectroscopy and time resolved diffraction using hybrid complementary metal oxide semiconductor (CMOS) sensors at NIF and Omega.
    - Implement the third line of sight X-ray imager at Omega for exploring symmetry and hot-spot formation.
- Enhance and deploy vital local diagnostics and advanced instrumentation to capture key data for validating physics codes and reducing uncertainties in nuclear weapons performance assessments.
    - Improve extended X-ray absorption fine structure diagnostic for plutonium EOS measurement on NIF.
    - Develop time resolved ultra-fast X-ray imager to measure evolution of plasma parameters at Z.
    - Develop diagnostics to provide high-fidelity data in the 10 MJ neutron yield environments at NIF.
    - Mature a gaseous radiochemistry diagnostic for double shell target measurements on NIF and Z.
    - Advance 3D diagnostics for imploding shell and stagnation on Omega.
- Develop new experimental capabilities and diagnostic support systems.

- Advance novel cryogenic and gas-filled system configurations for ICF and AS experiments on Z.
- Pursue foam-coated implosion targets using additive manufacturing to mitigate laser imprint at Omega.
- Improve laser accuracy and performance and optics performance on NIF.

ICF Diagnostics and Instrumentation Explanation of Change (-$16.447 million)

- Decrease represents a reprioritization of the ICF program toward facility operations.

Facility Operations Reporting Line

Description

The ICF Facility Operations subprogram supports the suite of HED experimental facilities. The NIF, Z, and Omega facilities, and the advanced target design and fabrication capabilities at LLNL, General Atomics (GA), LLE, and LANL are critical to explore material properties, hydrodynamics, weapon output, effects, and survivability, platform and diagnostics development, ignition, and high yield.

ICF Facility Operations provides not only the facilities but also diagnostics and targets essential to achieve the requirements of the national HED experimental plans. Diagnostic capabilities become part of the facility operations after the experimental design stage is complete. Proper fielding, upkeep, and calibration of these diagnostics are required to maintain high-fidelity measurements and data expected to meet research objectives. Target fabrication is a key component of SSP experiments on NNSA's major HED facilities. The target is at the heart of the experiments and its designs and details change based on the goals of the program, with over 200 new designs yearly. Advanced target designs are being pursued at all facilities to explore aspects of energy coupling and to provide an experimental platform for stockpile mission experiments. Target production and research include ongoing work at both NNSA laboratories and contractors to advance the ICF capabilities. GA plays a critical role in providing targets for all four laboratories to meet NNSA experimental requirements in support of Stockpile needs. As target design specifications become more complex, so must the production process controls, including identification and development of new processes to advance the state-of-the-art. LLNL and GA have conducted in-depth internal reviews of the ignition platform target fabrication process. Findings from these reviews resulted in implementing changes to the target production process to make the fabrication and handling operations more robust to ensure that target components are available to meet NIF shot schedule. Both target production and research and development to enable advanced and next generation ICF capabilities are funded through ICF Facility Operations. Target and capsule research and development is required to leverage ignition conditions produced on NIF.

Activities of facility operations are identified by the following Work Breakdown Structures:

- **Operations:** This activity encompasses both shot operations and facility reviews. Shot operations involve all tasks directly related to executing a shot, as well as preparation, recovery, and refurbishment activities. Facility reviews ensure that the facilities are machine-safe and capable of meeting user objectives, including conducting post-shot evaluations.
- **Maintenance:** This activity includes the maintenance of the facility, encompassing both preventative and corrective maintenance, which may also involve reliability and efficiency improvements. Preventative maintenance refers to routine tasks aimed at keeping systems functioning properly, while corrective maintenance involves repairs for broken or impaired systems.
- **Loads/Target Consumables:** This activity encompasses the essential elements required to design, procure, and refurbish components for various experimental platforms. This includes the management of consumables that are intentionally utilized during facility operations, as well as the necessary refurbishment activities to ensure the reliability and performance of key load and target hardware.
- **Capability Development:** This activity ensures continued high performance and reliability while enhancing capabilities to maintain the facility as a vibrant asset for stockpile stewardship. This includes the introduction of advanced technologies and systems that improve operational effectiveness and support the facility's mission.
- **Sustainment:** Major investments required to sustain operation to expected standards, shot quality, reliability, and productivity. Activities are documented within the facility sustainment plan(s).

AS, ASC, Stockpile Management, Weapon Survivability, and other stockpile program elements, as well as external mission partners including Defense Threat Reduction Agency and the United Kingdom's Atomic Weapons Establishment (AWE), leverage the capabilities developed by this subprogram.

Highlights of the FY 2026 Budget

- Support research and testing across the SSP, meeting both the immediate and emerging needs to support the deterrent of today and advancing the R&D capabilities necessary to meet those needs for the future deterrent.
- Provide operational facilities to obtain the key data that reduce uncertainty in modeling and simulation of nuclear weapons performance.
- Generate data to address questions regarding the properties of high atomic-weight materials, such as uranium and plutonium, in new weapon-relevant HED regimes using the Z at SNL and the NIF at LLNL.
- Ensure all NNSA-funded national ICF/HED facilities operate safely and efficiently in accordance with their Governance Plans.
- Refurbish and recapitalize the most critical systems, as identified in the facility sustainment plans and prioritized by the program, to maintain global preeminence in HED capabilities.
- Advance target design and development capabilities at LANL, LLNL, SNL, LLE, and GA to enable unique targets.
- Manage and maintain a robust target fabrication line to meet the quality and quantity requirements of the ICF program.
- Provide more relevant survivability capabilities at NIF and Z by enabling weapons-grade plutonium on NIF and increasing plutonium capabilities and number of experiments at Z.
- Conduct pre-CD-1 work required to support advancement of NIF EYC project.
- Conduct programmatic studies required to leverage public-private partnerships to mature HED facility technology, buy down technological risk, and inform a next-generation HED facility.

Facility Operations Explanation of Change (+$54.175 million)

- Increase supports operating the HED facilities ensuring they continue to deliver on the highest priority stockpile stewardship needs. This funding level will ensure that NIF, Z and Omega can execute their experimental plans at a shot cadence of roughly 330, 150, and 1700 shots per year, respectively.
- Increase supports full target production at GA to meet the FY26 shot schedules at NIF, Z, and Omega, whose experiments are growing more novel and complex as progress is made.
- Increase supports some target fabrication R&D that enables the continuous improvement in experimental design and performance at the HED facilities. The recent 8.6 MJ shot at NIF was enabled through target fabrication R&D.
- Increase supports the most critical sustainment activities at the HED facilities.
- Increase supports developing public-private partnerships with private industry. Efforts will focus on maturing advanced pulsed power driver technologies by collaborating on technical projects of mutual interest to the ICF program and private fusion companies.

Advanced Simulation and Computing

Overview

The Advanced Simulation and Computing (ASC) program provides high-end simulation capabilities (e.g., modeling codes, computing platforms, and supporting infrastructure) to meet the requirements of the SSP. Modeling the complexity of nuclear weapons systems is essential to maintaining confidence in the performance of our stockpile. The ASC program provides the weapon codes that provide the integrated assessment capability supporting annual assessment and future sustainment program qualification and certification of the stockpile. ASC's capabilities inform decision-making related to the sustainment of the nuclear stockpile. The program also coordinates with NNSA and other government agencies, including the Intelligence Community, to support nonproliferation, emergency response, nuclear forensics, and attribution activities.

ASC computing capabilities are the integrator for many of the capabilities in SRT&E and are the foundational tools that support the defense programs. The integrated design codes (IDCs) are mathematical and computational descriptions of nuclear weapons systems and physical descriptions of their functions. Combined with weapon-specific data and fundamental data measured by the experimental programs, the IDCs support design studies, maintenance analyses, the Annual Assessment Reports, sustainment programs, SFIs, and weapons dismantlement activities.

The IDCs routinely benefit from improvements to NNSA's understanding of physics through experimental programs. The IDCs also make use of improved algorithms that utilize new computational hardware, which enable responses to issues such as material aging, emerging threats, and support for manufacturing and production. ASC capabilities that support the stockpile stewardship mission were built on the computing technologies commercially available over the past two decades. As industry evolves beyond and away from NNSA's scientific computing needs to provide increased computing power for general consumer markets, ASC must maintain currency with the computing industry to ensure continued performance of the IDCs on the next-generation computer platforms.

The ASC program is executing several internal initiatives to leverage developing technologies and capabilities to support the sustainment of the nuclear stockpile. ASC established the Large-Scale Calculations Initiative (LSCI) in FY 2018 to determine the limitations and scaling potential of our current assessment capabilities. This initiative assesses the potential of current HPC platforms, codes, and qualified personnel by exploring physics calculations that are impractical for regular assessment capabilities. The initiative pushes the national security laboratories to look beyond current computing abilities to make today's hero calculations routine business in the near future for a variety of NNSA missions.

The Artificial Intelligence for Nuclear Security (AI4NS) portfolio which is new for FY 2026 will subsume the previous Advanced Machine/Learning Initiative (AMLI) and several small-scale R&D activities. AI4NS aims to develop artificial intelligence and machine learning capabilities for deployment into stockpile stewardship mission areas. The portfolio will initially focus on: (1) the development of secure and trusted AI infrastructure to protect national security information, (2) the deployment of AI to accelerate design, manufacturing, and certification, (3) supporting AI-assisted materials discovery for stockpile use cases and, (4) the deployment of dedicated AI compute hardware for use by NNSA program offices at the required security classification levels.

Other initiatives crossing the national security laboratories include quantum computing (QC) and the Production Simulation Initiative (PSI). In QC, ASC seeks to develop new methods and expertise in algorithm development and hardware evaluations to develop promising QC technologies suitable for nuclear weapon applications. Through PSI, the ASC program aims to drive efficiencies within the manufacturing process, encompassing efforts such as the Simulation First initiative at KCNSC which aims to incorporate physics-based simulation into production processes and operations to optimize solutions.

The Advanced Simulation and Computing program is composed of seven subprograms:

1. **Integrated Codes** produces large-scale, full-physics IDCs that allow the performance of detailed nuclear weapons assessments without the need for nuclear explosive testing.
2. **Physics and Engineering Models** provides the models and databases used in simulations supporting the U.S. nuclear stockpile.

3. **Verification and Validation** brings the Integrated Codes and Physics and Engineering Models subprograms of ASC together with the Stockpile Management program to evaluate the capability of IDCs.
4. **Computational Systems and Software Environment** builds integrated, balanced, and scalable computational capabilities, including HPC systems and requisite software stacks.
5. **Facility Operations and User Support** provides the facilities and user services required to enable nuclear weapons simulations.
6. **Capabilities for Nuclear Intelligence** provides the SRT&E tools to enable intelligence community assessments on foreign nuclear programs**.**
7. **Artificial Intelligence for Nuclear Security** develops and deploys artificial intelligence and machine learning capabilities for stockpile stewardship missions.

Due to synergistic connection and technical dependencies, ASC is tightly coordinated with the other SRT&E programs to meet its commitments to the stockpile stewardship, management, and modernization missions.

Advanced Simulation and Computing Explanation of Change (+$139.995 million)

- (+$50.700 million) Increase includes hardware, infrastructure, licensing, network equipment, and operations staffing to begin the Digital Infrastructure for Collaborate Ecosystem (DICE). This will create a secure environment for Design Agencies (DAs) and Production Agencies (PAs) to effectively communicate with each other for large-scale scientific and data science workloads, including the ability to transfer and analyze very large datasets.
- (+$29.295 million) Deployment of Controlled Unclassified Information (CUI) and SECRET-level AI hardware resources and AI models. Integration of AI tools into ASC HPC software environment and workflows.
- (+$60.000 million) Increase is to create the Artificial Intelligence for Nuclear Security (AI4NS) sub-program.

Integrated Codes Reporting Line

Description

The Integrated Codes (IC) subprogram produces integrated design codes (IDCs) that enable detailed nuclear weapons assessments. These full-system, multi-scale physics and engineering codes are used for stockpile assessments to support concept studies, certification, maintenance analyses, LEPs, Alts, SFIs, and weapons dismantlement activities. The IDCs represent the knowledge gained from experiments on NNSA's wide range of facilities and legacy nuclear explosive tests which support the Stockpile Management program and critical national security missions. These codes enable nuclear forensics, foreign assessments, and device disablement techniques related to nuclear counterterrorism efforts and the study of nuclear weapons behavior in normal, abnormal, and hostile environments, as well as outputs to enable effects estimates. These specialized codes enable simulation workflows, generate models or information used by the IDCs, and validate the IDCs by comparison with experimental data obtained from facilities, such as Z and NIF. In this way, the IDCs are the foundational toolset for all activities and experiments within SRT&E and Defense Programs. The IC subprogram also maintains select legacy codes, is responsible for ancillary tools that support the weapons mission, and partners with the other ASC subprograms to improve code capabilities and optimize high performance computing (HPC) platforms. Long-term technical goals for the IC subprogram are to provide credible simulation capabilities that cover all the relevant physics and maximize performance on current and future ASC computing platforms. These goals are achieved through collaborative activities with the Physics and Engineering Models (PEM), Verification and Validation (V&V), Computational Systems and Software Environment (CSSE) subprograms, and experimental programs in the Office of Experimental Sciences. The IC subprogram sustains activities that enable simulation capabilities to use complex and heterogeneous node architectures of future HPC platforms and benefits from the advances achieved by the Computational Systems and Software Environment (CSSE) subprogram.

Highlights of the FY 2026 Budget

- Provide weapons code capabilities to Nuclear Security Enterprise for annual assessments, SFI investigations, LEP qualification and certification, and related nuclear security assessments.
- Demonstrate integrated design code readiness on the El Capitan system and ensure code capabilities are available to support Phase 1 assessments.
- Develop additional code capabilities and invest in targeted R&D to support critical missions, such as delivery environments, and invest in modern programming models and algorithm development to adapt to future HPC architectures.

- Assess specific mission applications where AI/ML has potential to achieve significant advancements, assess potential of developing cognitive assistants for training new laboratory personnel, and partner with CSSE on developing infrastructure requirements for targeted investments in AI hardware and new workflows for digital engineering/digital transformation.

Integrated Codes Explanation of Change (+$3.743 million)

- Provides support for modernizing key legacy code capabilities for graphics processing unit architectures and conducting targeted R&D to improve formal methods, meshing, and analysis workflows for optimizing computing hardware.

Physics and Engineering Models Reporting Line

Description

The Physics and Engineering Models (PEM) subprogram provides the models and databases used in simulations supporting the U.S. nuclear stockpile. These models and databases describe a wide variety of physical and engineering processes occurring in a nuclear weapon's lifecycle. The capability to accurately simulate these processes is required for annual assessment; design, qualification, and certification of warheads undergoing sustainment programs; resolution (and in some cases generation) of SFIs; and the development of future stockpile technologies. The PEM subprogram is closely linked to the Assessment Science program within SRT&E, which provides the experimental data that informs development of new models used in simulation codes.

The PEM subprogram's responsibilities are threefold: 1) to provide mathematical models and databases to represent physical behavior and physical data (e.g., equation of state (EOS), strength parameters, radiation opacities and nuclear cross-sections) for use in the IDCs; 2) to collaborate with the IC subprogram to implement these models and data in the IDCs; and 3) to collaborate with the Verification & Validation (V&V) subprogram to ensure the models have been implemented correctly ("verified") and have been compared to experimental data ("validated").

Highlights of the FY 2026 Budget

- Deploy models to assess current and future stockpile survivability in hostile environments across available high-performance computing architectures.
- Continue developing and porting foundational materials models and libraries to fully support and utilize next-generation architectures.
- Improve physics models relevant to full range of applications across all weapon systems. This includes improved modeling of multi-physics response to combined abnormal environments, expanding current inline opacity capabilities to support modeling certification efforts and hostile environments, and implementing phase-aware material models for strength and ejecta.
- Develop material response models to inform material development approaches, including high explosives and thermal protection system materials, along with providing quantified uncertainties.
- Further develop and deploy production relevant material models at the production agencies to optimize production processes.
- Initial development of surrogate physics models using AI to allow for fast evaluation of candidate weapon system designs and material properties.

Physics and Engineering Models Explanation of Change (+$2.254 million)

- Provides additional support for predictive modeling for candidate IHE materials.
- Provides additional support to production workflow modeling identified by the production agencies.

Verification and Validation Reporting Line

Description

The Verification and Validation (V&V) subprogram provides confidence in integrated simulation capabilities by collecting evidence that the numerical methods and simulation models are being solved precisely ("verification"), and that the simulation results from mathematical and computational models implemented into the codes reflect real-world observations ("validation"). The V&V subprogram funds the critical skills needed to apply systematic measurement, documentation, and demonstration of the ability of the models and codes to predict physical behavior.

V&V brings the IC and PEM subprograms together with other SRT&E activities to evaluate the capability of the IDCs. Verification activities demonstrate that the IDCs and PEM models are correctly solving their respective governing equations. Validation activities ensure that both science and integrated design codes are solving the equations accurately, and that the models themselves are sufficiently precise for the intended application. Together, these subprogram activities provide a technically rigorous, credible, and sensible foundation for computational science and engineering calculations by developing, exercising, and implementing tools that provide confidence in the simulations of nuclear stockpile problems.

Highlights of the FY 2026 Budget

- Improve necessary next-generation verification and validation techniques to continue support in methods, assessments, and data archiving.
- Continue extending the verification and validation infrastructure to include next-generation integrated design codes.
- Support advancement of V&V and Uncertainty Quantification (UQ) suites to enhance the current stockpile integration of common modeling workflows.
- Integrate test suites into existing workflows for supporting a broad customer base.
- Demonstrate improved and validated nuclear data from machine learning techniques to incorporate into material response and plasma models.
- Strengthen verification and validation techniques utilized for 3D studies of the aging stockpile and for new design optimization aided by AI/ML and UQ.
- Enhance physics and engineering common modeling frameworks to align with relevant techniques for ASC capabilities.

Verification and Validation Explanation of Change (+$1.535 million)

- Provides support for responsive deterrent capabilities through predictive models, experimental collaborations, and integrated V&V/UQ processes.
- Provides support for enhancing V&V Common Modeling Frameworks to ensure consistent approaches for implementing and executing the physics-based models and codes.

Computational Systems and Software Environment Reporting Line

Description

The Computational Systems and Software Environment (CSSE) subprogram supports a portfolio of integrated, balanced, and scalable computational capabilities to provide NNSA's IDCs with a stable computing environment. The CSSE subprogram fields powerful Commodity Technology (CT), Advanced Technology (AT), and Advanced Architecture Prototype (AAP) systems as well as supporting software infrastructure that is deployed on these platforms, which include system software, input/output (I/O) services, storage and networking, post-processing (visualization and data analysis tools), and next-generation computing technologies. CSSE also examines and develops possible future technologies beyond exascale, such as quantum, neuromorphic, artificial intelligence, and reconfigurable computing components.

The CSSE subprogram provides the computational infrastructure, both hardware and software, necessary to support weapon applications, as follows:

- Design, develop, and deploy usable computing systems. The CSSE subprogram designs and procures HPC systems required to support stockpile stewardship and broader nuclear security missions. These systems include testbeds, architecture prototypes and early-access systems for evaluation and analysis of code performance issues on next-generation hardware, CT systems for most stockpile computing work, and AT systems for large-scale simulation workloads and predictive science advancements.
- Provide comprehensive, stable computing and development environments across the national security laboratories. The CSSE subprogram will also provide the system software and user environments necessary for code development and simulation using the computing hardware.

The CSSE subprogram uses a range of contracting vehicles to deploy capabilities in support of the ASC program. This includes lease-to-purchase contracts (also referred to as lease-to-own (LTO) agreements) for CT and AT systems as well as visualization clusters, storage systems, and other high-performance computing platform procurements when such contracts are found to provide the best programmatic and financial value to the government.

Highlights of the FY 2026 Budget

- Execute classified modeling and simulation campaigns on the ATS-3/Crossroads and ATS-4/El Capitan systems.
- Optimize high-efficiency, scalable, exascale-class software technologies for production ATS and CTS user environments.
- Evaluate data-flow architecture software and hardware using the AAPS-2/Vanguard-II architecture prototype system at SNL.
- Manage the ATS-5 system procurement and prepare prototype software environment for system deployments in FY 2027.
- Deploy open-source and proprietary large language models (LLM) in the unclassified and classified networks to support AI model evaluation and development activities for national security missions.
- Complete contract and design activities for CTS-3 systems and deploy initial test systems.

Computational Systems and Software Environment Explanation of Change (+$38.353 million)

- Support for integration of AI software packages into stockpile design tools and workflows.
- Support for Controlled Unclassified Information (CUI) and SECRET-level data infrastructure, and AI model deployment.
- Deploy and interconnect data storage/software systems needed for stockpile stewardship projects.
- Deploy additional system hardware/infrastructure for the AAPS-2/Vanguard-II system at Sandia.

Facility Operations and User Support Reporting Line

Description

The Facility Operations and User Support (FOUS) subprogram provides the facilities and services required to support nuclear weapons simulation workloads. Facility Operations includes physical space, power, and other utility infrastructure; Local Area/Wide Area Networking for local and remote access; and system administration, cybersecurity, and operations services for ongoing support. User Support includes computer center hotline and help-desk services, account management, web-based system documentation, system status information tools, user training, trouble-ticketing systems, common computing environment, and application analyst support.

The FOUS subprogram is responsible for management of the computer operations and maintenance and for system administration and user support. This includes:

- Effective management of computing hardware infrastructure. The FOUS subprogram will provide adequate power, cooling, and integrated facilities to support the computing system hardware, and it will provide the requisite networking and storage infrastructure.
- Responsive system administration, maintenance, and user support. The FOUS subprogram will administer the computational systems, manage the job scheduling capability, and provide responsive support to the user community.

The FOUS subprogram uses a range of contracting vehicles to deploy capabilities in support of the ASC program. This includes lease-to-purchase contracts (also referred to as lease-to-own (LTO) agreements) for CT and AT systems as well as visualization clusters, storage systems, and other high performance computing platform procurements when such contracts are found to provide the best programmatic and financial value to the government.

Highlights of the FY 2026 Budget

- Prepare the ASC computing facilities at the NNSA laboratories for the next-generation platforms.
- Operate unclassified and classified CTS-2 platforms at the NNSA laboratories.
- Deploy and operate initial CTS-3 test systems.
- Operate ATS-3/Crossroads at LANL and ATS-4/El Capitan at LLNL, including remote computing capabilities.
- Begin construction of the ATS-5 Installation Project minor construction project at LANL.
- Begin construction of the power and cooling improvement/modification minor construction projects at B453 and B451 at LLNL.

- Deploy and provide user support for additional AI testbeds and large-scale computer resources, in addition to new data management and storage services, on unclassified and classified networks to support new machine learning and data science activities.

Facility Operations and User Support Explanation of Change (+$34.110 million)

- Additional data center upgrades and refurbishment to meet needs of forthcoming ATS and CTS systems.
- Deployment of storage hardware, software and services, to support data infrastructure needs for the ASC program.
- Unclassified and classified network upgrades to increase the performance of system connections for additional local and remote-site users.
- System administration staffing for additional support resources.

Capabilities for Nuclear Intelligence Reporting Line

Description

The Capabilities for Nuclear Intelligence (CNI) subprogram advances and adapts SRT&E capabilities developed for the weapons program to serve the needs of the intelligence community in assessing foreign nuclear weapon activities. CNI focuses on activities related to non-stockpile weapons training, high explosive knowledge development, weapon modeling advancements and computational platforms, weaponization studies, and experimental capabilities and assessments.

CNI scope has historically been funded across Primary Assessment Technologies and Archiving and Support. In FY 2025, the funding for this work scope was consolidated into a new subprogram under Advanced Simulation and Computing.

Highlights of the FY 2026 Budget

- Complete CNI Practicum 8, a design study that challenges early- to mid-career U.S. nuclear designers and engineers to develop an understanding and appreciation for non-stockpile-like nuclear design space.
- Continue porting relevant modeling/simulation tools to global security computing platforms.
- Complete testing series on proliferant-relevant design.
- Initial efforts to evaluate the impact of AI on nuclear security missions.

Capabilities for Nuclear Intelligence Explanation of Change ($0.000 million)

- No change.

Artificial Intelligence for Nuclear Security Reporting Line

Description

The Artificial Intelligence for Nuclear Security (AI4NS) sub-program will be created in FY26, subsuming the previous Advanced Machine Learning Initiative (AMLI) and several small-scale R&D projects. The sub-program will create a focused thrust to develop and deploy artificial intelligence and machine learning capabilities into stockpile stewardship mission areas. The program will concentrate on several key areas in FY26, including: (1) the creation of secure AI models and information protection tools, providing the ability to protect sensitive national security information; (2) the development of AI-accelerated design, manufacturing, and qualification tools, providing NNSA with reduced component design times, and providing for greater automation in defect analysis or component inspection; (3) the creation of advanced materials discovery tools using AI surrogates and analysis of experimental datasets, and, (4) the deployment of dedicated AI hardware, enabling NNSA users to rapidly deploy AI models and provide secure fast access for users across the nuclear security complex. AI4NS will seek to partner with the US AI industry to utilize, and innovate in, commercial solutions where possible, as well as creating methods to tailor and tune commercial tools for national security use cases.

Highlights of the FY 2026 Budget

- Evaluate AI models to enforce national security data protection, including the protection of information compartments and need-to-know limitations. Where needed, additional national security specific guardrails may be created to meet information protection requirements.

- Deploy AI-assisted component inspection and defect identification tools for non-nuclear component manufacture.
- Deploy AI-assisted defect identification for pit CT scans.
- Create and deploy AI-assisted materials discovery tools/processes, connecting to historical experimental science datasets, and high-performance computing-based material simulation tools.
- Deploy small-scale dedicated AI compute hardware at the TOP SECRET classification.

Artificial Intelligence for Nuclear Security Explanation of Change (+$60.000M)

- New program for FY26.

Weapon Technology and Manufacturing Maturation

Overview

The Weapon Technology and Manufacturing Maturation program develops agile, affordable, assured, and responsive technologies and capabilities for nuclear stockpile sustainment and modernization.

The core areas of work include:

- **Agile, Assured, and Affordable Technologies:** Developing and modernizing stockpile technologies, architectures, and processes so the techniques are agile, assured, and responsive to change, shortening design, qualification, certification, and manufacturing cycles and timelines to improve future affordability and meet future military requirements.
- **Robust and responsive production capabilities:** Developing and modernizing the production techniques and technologies utilized for weapons manufacturing and testing in order to enable more throughput, reduce health and environmental impacts, and enable lower operating costs.
- **Partnership with Stakeholders to Meet Stockpile and Customer Requirements:** Identifying, sustaining, enhancing, integrating, and continually exercising all capabilities, tools, and technologies across the science, engineering, design, certification, and manufacturing cycle, working together with the Department of Defense, national security laboratories, nuclear weapon production facilities, and other partners.
- **Skilled Technical Workforce and Enhanced Capabilities:** Maintaining a qualified technical workforce and enhanced capabilities by transferring knowledge, skills, and direct experience with respect to all stockpile technologies and processes.

Primary responsibilities of this program include:

- Developing innovative technologies that both minimize the probability of unauthorized use and maximize reliability for authorized use of nuclear weapons.
- Leading technology and system demonstration efforts, with various mission partners, to speed development and improve acceptance of advanced technologies and processes into the stockpile and the Nuclear Security Enterprise.
- Improving agility, effectiveness, safety, and efficiency in the design and manufacture of war reserve components using advanced technologies and manufacturing processes.
- Improve, develop and leverage novel manufacturing technologies to reduce weapon program risk and cost.
- Evaluate and develop materials to enable novel designs, address supply chain concerns and improve weapon performance.
- Collaborate with intelligence agencies and ensure that development capabilities and expertise are available and pacing global concerns to enable evaluation.
- Explore and leverage emerging digital capabilities to advance the capabilities of weapon design and manufacturing.

The Weapon Technology and Manufacturing Maturation program is made up of four subprograms:

1. **Surety Technologies (ST)** is committed to minimizing the likelihood of unauthorized use of U.S. nuclear weapons while maximizing the reliability of authorized use, all while upholding the highest safety standards. The ST Program creates, develops, and advances cutting-edge safety, security, and use control technologies to minimize the risk of accidental nuclear explosions, and in the unlikely event of a security breach and unauthorized access, reduce the risk of nuclear yield to the lowest practical level.
2. **Weapon Technology Development (WTD)** develops the state-of-the-art non-nuclear components, architectures, and processes responsible for the functionality of the weapons system ensuring the reliable performance, safety, and handling of current and future stockpile systems. Demonstrations and testing of components and architectures in environments relevant to military requirements are also covered under this subprogram.
3. **Advanced Manufacturing Development (AMD)** rapidly develops and deploys advanced manufacturing methodologies and processes that are responsive to the NNSA mission.
4. **Integrated Demonstrator Program (IDP)** provides integrated testing in relevant environments with approximate system context for the purposes of evaluation and risk reduction of future programs, leverages demonstration opportunities to test, analyze, and evaluate the architectures, components, and processes directly taking the components produced by other programs and puts them into realistic scenarios **for assessment and technology maturation**.

Weapon Technology and Manufacturing Maturation Explanation of Change (+$133.790 million)

- The funding increase reflects a focus on areas of rapid prototyping, support for the development of rad-hardened microelectronics, and a prioritization in weapon use control and surety technologies. Some of these highlights include the funding of Cell 1 at Pantex, and the KCNSC Applied Processing and Prototyping Advancement (KAPPA) facility, and a restructured CMOS8 development effort.
- Additional funds will also be used to develop accelerate the development of critical technologies to enable novel stockpile to target sequences, critical materials that are sunsetting, subject legal or adversarial actions, critical gaps in production science to accomplish the current strategic deterrence plan and integration of technologies into prototyping spaces.

Surety Technologies Reporting Line

Description

Surety Technologies creates, develops, and matures advanced safety, security, and use-control or denial technologies to minimize the probability of an accidental nuclear explosion and, in the unlikely event that security fails, and unauthorized access is gained, reduces the risk of an unauthorized nuclear yield to the lowest practical level. To effectively achieve this mission, surety investments span the entire weapon lifecycle and can often be separated into three categories by venue and life stage: warhead surety, fixed venue surety, and transportation surety. Warhead Surety describes security solutions for within the skin of the warhead or bomb, across the entire lifetime of the weapon. These architectures are often tailored to specific system needs. Fixed Venue Surety provides security solutions that support the need to secure weapons in both traditional and non-traditional environments, including DOE and DoD custody. Transportation Surety targets critical Over-The-Road (OTR) transportation venues and provides security solutions for this vulnerable piece of the weapons lifecycle, such as Integrated Surety Architectures (ISA).

Surety Technologies seeks advances in leading-edge technologies in two timeframes:

- Maturing near-term surety concepts and technologies to offer the most effective surety solutions for the enduring stockpile and future insertion opportunities.
- Creating and evolving highly advanced surety technologies, independent of specific weapon types or insertion opportunities, that can result in major safety and security improvements.

Surety Technologies incorporates national security guidance as outlined in the Presidential Policy Directive (PPD)–35; Department of Energy Order 452.1E, *Nuclear Explosive and Weapon Surety Program* and its new surety requirements; the NNSA Defense Programs surety strategy; and the 2010 JASON Surety Study findings and recommendations; in conjunction with the Joint Integrated Lifecycle Surety risk assessment capability to identify the most cost-effective surety technologies. This enables program and weapon system managers to make better-informed implementation decisions on stockpile surety improvement options.

Highlights of the 2026 Budget

- Develop a universal container prototype through the ST-led Containers Working Group, as well as a suite of technologies to improve the various current containers used by the enterprise for weapon shipment and storage.
- Continue development of advanced safety mechanisms and demonstrate technologies on the next appropriate demonstrator.
- Integrate novel technologies into safety architectures that minimize/eliminate issues with inadvertent electrical transmission.
- Construct prototype power management technologies tailored to modernized applications.
- Continue to mature quantum computer resistant codes and weapon architecture for future insertion opportunities.
- Develop graded surety architecture suites to address emergent needs of the stockpile.

Surety Technologies Explanation of Change (+$14.109 million)

- Funding increase reflects prioritization of investment in weapons use control and surety technologies development.

- Emerging requirements for future systems demand use control and integrated surety architectures in unprecedented venues. NNSA anticipates that these requirements will increase as DOD deploys weapons to austere environments and develops future systems with unique surety needs.
- Commercial National Security Algorithm Suite 2.0 requires quantum-resilient algorithms and coded control on all weapon systems by 2033 to counter adversarial quantum computing capabilities. NNSA must invest in novel methods to secure future weapon communications that include hardware for the protection of high-assurance materials, algorithms for quantum resiliency, and external authentication management systems to decouple use control and use denial.

Weapon Technology Development Reporting Line

Description

The Weapon Technology Development program (WTD) is responsible for researching and developing new technology options that will enhance U.S. nuclear weapon safety, performance, and reliability. WTD focuses on improving existing capabilities, providing solutions to address capability gaps, developing and maturing new capabilities to address changing policies and emerging threats, and utilizing improved technologies and methods to reduce development times and lifecycle costs. WTD also includes early-stage development and testing of weapon components designed to replace sunset technologies and modernize weapon subsystems.

Highlights of the FY 2026 Budget

- Continue development of trusted warhead strategic radiation-hardened microelectronics in the CMOS suite of technologies, particularly system-on-chip (SOC) integrated circuit products.
- Maturation of ferroelectric and electric neutron generator (NG) technologies and gas transfer system (GTS) designs for improved weight and size.
- Innovate Nuclear Explosive Package (NEP) replacement materials and arming, fuzing, & firing (AF&F) component improvements.
- Develop the Distributed Bus-Based Architecture (DBBA) concept with emphasis on incorporating CMOS8 and Smart Battery technologies.
- Develop Optical Initiation (OI) for insensitive high explosives (IHEs).
- Develop the Synthetic Aperture Multitarget Simulator (SAMuS) and Advanced Radar Target Simulator.
- Synthesize a binder replacement for PBX 9502 due to supply chain issues with perfluoroalkyl substances (PFAS) materials.
- Mature strategically-radiation-hardened magneto-resistive random-access memory (MRAM).
- Adapt new passivation techniques and testing of tritium storage vessels to sidestep supply chain shortages of current components.
- Execute partnership and complete a safety architecture study with the UK on Allied Exploratory Concepts (AEC) as a strategic collaboration focusing on new technologies outside the programs of record.

Weapon Technology Development Explanation of Change (+$38.633 million)

- Increased funding will support emerging requirements for future systems focused on non-nuclear components and architectures built for austere environments. A restructured CMOS8 development effort will streamline the delivery of technologies development.
- Increase will support LANL's Cyber-Physical Materials Characterization Prototype to allow for non-invasive vulnerability assessments of microelectronics components in alignment with hardware assurance standards put in place by Nuclear Enterprise Assurance.
- Increase supports the Joint Neutron Tube for the current generation of neutron generators, requiring a design change for greater producibility and manufacturability.
- Increase will support performance testing required for the Distributed Bus-Based Architectures team requires performance testing for future systems and design integration into digital twin modeling for their Smart Battery product.
- Increase supports new high explosive formulations to support future stockpile needs.
- Increased collaborations with the UK as part of the AEC program.

Advanced Manufacturing Development

Description

The mission of the Advanced Manufacturing Development (AMD) program is to rapidly develop and deploy advanced manufacturing solutions to existing problems and have manufacturing technologies and capabilities to rapidly recover from unforeseen problems. AMD directly benefits the future agility and responsiveness of the National Nuclear Security Administration's manufacturing infrastructure by providing capable, efficient, and effective manufacturing solutions to address technical issues, replace obsolete materials or processes, and anticipate solutions to future challenges.

In pursuing the long-term advanced manufacturing strategy, this program prioritizes developing improvements that demonstrate viability for a particular application, which allows future weapon modernization efforts to incorporate those production methods with confidence to meet program requirements, costs, and schedule. The new production processes that AMD identifies and opts to mature can improve component performance, shorten production schedules, and design cycles, reduce facility footprint, avoid compliance issues, provide risk mitigation, and lower life-cycle costs. The AMD program maintains awareness of emerging manufacturing technologies, assessing and tailoring new manufacturing processes emerging from the industrial and academic sectors to the unique materials and qualification standards required for nuclear weapons.

In support of Rapid Capabilities, the AMD program will establish the spaces, equipment, and people needed to quickly execute prototyping and testing of novel integrated architectures addressing emerging National needs. This effort focuses on the production agencies, in the near term, then will expand to the broader enterprise.

Highlights of the FY 2026 Budget

- Leverage additive manufacturing and other fabrication processes to continue implementation of a digital transformation in the design and development of components, tools, and fixtures.
- Develop increased understanding of in-situ process monitoring to move closer to "born qualified" component manufacturing capabilities with additive manufacturing processes i.e., a successful print yields a QA-approved part.
- Enhance the development of additively manufactured high explosives for multiple component development as an alternative to obsolete and at-risk material technologies (e.g. PFAS binders).
- Increase producibility rating on next-gen strategic rad-hard complementary metal oxide semiconductor (CMOS8) products development and yield through process improvements.
- Develop modern factory processes for production environments including the use of radio-frequency identification tracking to improve accountability and increase efficiency.
- Strengthen predictive simulation and data analytics capabilities for manufacturing processes, substantially augmenting the enterprise's capabilities to rapidly mature novel manufacturing processes and produce acceptable stockpile components.
- Mature and initiate transition processes for improving lithium production efficiency and worker safety.
- Transition technologies that conserve or reclaim at-risk materials, replace obsolete materials, and/or create new materials and chemicals that support stockpile stewardship.
- Finalize transition of additive manufacturing (Direct Ink Write) technologies for specific pads and cushions to modernization programs, allowing a transition to novel developments in pad and cushion technology, including on-machine inspection.
- Transition coating technologies able to meet stockpile requirements to modernization programs.
- Mature and initiate transition processes for metal spinning production for rapid prototyping and metal part fabrication.

Advanced Manufacturing Development (+$66.848 million)

- Invest in modernized prototyping capabilities at the production agencies to prepare for rapid capability manufacturing and buy-down risk of traditionally long-lead component development. Including Cell One at Pantex, the KCNSC Applied Processing and Prototyping Advancement (KAPPA) facility, and the Hardware Support Facility at NNSS.
- Advance lithium processing research capabilities to speed up the development of faster, safer and more efficient lithium production technologies for weapon components.

- Significantly improve microelectronics manufacturing capabilities that support production of complex radiation hardened chips and other components for numerous applications.
- Develop new alloys and forming technologies for the rapid development and prototyping of metal parts.

Integrated Demonstrators Program Reporting Line

Description

The Integrated Demonstrators Program (IDP) executes test series that culminate in high consequence events to provide evidence for new functionality, processes, capabilities and/or weapon features while enabling partnerships with external stakeholders and driving DA/PA collaborations. Demonstrators can advance technology readiness levels (TRL) by ensuring an integrated system context for ground, flight, or certification exercises that cannot be achieved through component level testing alone and can provide data needed for model and simulation validation of relevant stockpile-to-target sequence environments.

To meet the IDP goals of exercising systems integration, partnering with the Armed Services, workforce training and development, and demonstrating focused efforts that will help the warhead modernization program offices, the program focuses on a series of joint development cycles (rapid design-build-test cycles) that result in time-bound sprints ahead of flight tests with U.S. military services and commercial flight providers (such as ReDX, etc.). Workstreams for Air Force, Navy, and NNSA exploratory concepts are established. In the Air Force and Navy workstreams, NNSA develops the systems integrated warhead hardware and DoD develops the flight test platform or rocket. In the NNSA exploratory workstream, NNSA develops the warhead hardware and procures the rocket for the flight test platform. The NNSA stream also collaborates with other NNSA programs such as SRP, Preparedness Exercises, US-UK joint exploratory efforts, and provides periodic flight test support for DoD subsystems.

Highlights of the FY 2026 Budget

- USAF/NNSA Corvus flight payload development, instrumentation, and data analysis, as necessary.
- Advancement of NNSA exploratory concepts.
- Collaborate with Navy Strategic Systems Programs (SSP) partners and others on future flight opportunities in relevant environments for Navy platforms.
- Continue support for Air Force-focused demonstrator programs to mature technologies for future Air Force systems.

Integrated Demonstrators Program Explanation of Change (+$14.200 million)

- Enable NNSA enterprise and partners to formalize demonstrators planning and schedule development and pursue additional flight opportunity via commercial partnerships.
- Finalize design and pursue additional flight opportunity to increase technology maturation and reduce risk to future systems.

Capital Equipment Summary
($K)

	Total	Prior Years	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request	Outyears Total
Capital Equipment (> $500K)						
Total Non-MIE Capital Equipment (TEC <$10M)	N/A	N/A	62,572	63,886	65,228	N/A
Advanced Sources and Detectors, LANL	2,228,363	812,827	279,580	276,956	365,000	494,000
ATS-5 System, LANL	248,000	0	2,000	20,000	108,000	118,000
Crossroads (ATS-3) System, LANL	115,000	103,000	6,000	6,000	0	0
AT System – ATS-6, LLNL	250,000	0	0	0	2,000	248,000
Commodity Technology System (CTS) 2, LLNL (previously CTS-2)[1]	90,000	30,000	20,000	20,000	20,000	0
Commodity Technology System (CTS) 3, LLNL[1]	80,000	0	0	0	0	80,000
El Capitan (ATS-4), LLNL	600,000	446,000	96,000	58,000	0	0
Final Optic Damage Inspection System Replacement, LLNL	0	0	0	0	0	18,350
High Yield X-ray Imager, LLNL	10,000	6,000	0	4,000	0	0
Target and Beam Alignment System Replacement (formerly Target Alignment Sensor Upgrade), LLNL	29,290	0	0	0	0	29,290
Tuolumne (formerly Unclassified El Capitan-like System (ATS-4)), LLNL[2]	17,000	4,000	3,000	3,000	3,000	4,000
Unclassified ATS-6 System, LLNL	10,000	0	0	0	0	10,000
ZEUS Detector Wall, NNSS[3] [d]	15,438	8,261	4,774	2,403	0	0
Dynamic Materials Properties Laser Subproject 1/DCS Laser Upgrade (DMPL, formerly Long Pulse Laser @ XFEL), SLAC	25,000	0	0	0	25,000	0
Commodity Technology System (CTS) 2, SNL	20,000	0	0	10,000	10,000	0

[1] Represents a blanket contract under which multiple useful HPC systems are purchased annually.
[2] DNN R&D and a LLNS overhead cost pool funds the remainder of costs for this MIE.
[3] Project started as R&D. Proved concept in FY 2024 and shift to MIE. MIE experienced cost growth. Project will complete in FY 2026 at NNSS. Installation will take place at PULSE in FY 2028.

	Total	Prior Years	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request	Outyears Total
Commodity Technology System (CTS) 3, SNL	40,000	0	0	0	0	40,000
Total, Capital Equipment	**N/A**	**N/A**	**473,074**	**464,245**	**598,228**	**1,041,640**

17-D-640 U1a Complex Enhancements Project (UCEP)
Nevada National Security Sites (NNSS), Mercury, Nevada
Project is for Design and Construction

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

Summary
The FY 2026 Request for the U1a Complex Enhancements Project (UCEP) is $150,000,000 of Total Estimated Cost (TEC) and $3,878,000 of Other Project Cost (OPC). The FY 2026 request will continue construction activities. The most recent Critical Decision (CD) for UCEP was the approval of CD-2/3, *Approve Performance Baseline and Start of Construction*, for Subproject 17-D-640-020 on June 23, 2022, with a TPC of $560,034,000 and a CD-4, *Approve Start of Operations or Project Completion,* of December 2026. The current Total Project Cost (TPC), for Subproject 17-D-640-020, is $830,000,000 and the current CD-4 is the first quarter of FY 2030. Both the TPC and CD-4 were approved in a baseline change approved by the Project Management Executive on January 19, 2025.

The Subproject 17-D-640-010 final cost was $45,994,292.

A Federal Project Director has been assigned to this project.

Significant Changes:
- The project estimate has been revised – including CD-4 being delayed from FY 2028 to FY2030 – with respect to the FY 2025 request to reflect increased costs for the fire extinguishing system and surface construction. In August 2023, NNSA finalized the selection of the type of fire extinguishing system to be used underground in the Principle Underground Laboratory for Subcritical Experiments (PULSE, formerly U1a Complex). The estimate and schedule were reviewed through an External Independent Review/Independent Cost Review by the Department of Energy Office of Project Management in September 2024.
- Corrections were made to Subproject 17-D-640-020 to align with past actual costs.

Critical Milestone History

17-D-640: Total Project

Fiscal Quarter or Date

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	D&D Complete	CD-4
FY 2017	9/25/2014	8/13/2015	1QFY2017	1QFY2019	2QFY2019	3QFY2019	N/A	3QFY2022
FY 2018	9/25/2014	8/13/2015	3QFY2017	4QFY2019	2QFY2019	4QFY2019	N/A	2QFY2023
FY 2019	9/25/2014	8/13/2015	08/09/2017	4QFY2019	2QFY2019	4QFY2019	N/A	2QFY2023
FY 2020	9/25/2014	8/13/2015	08/09/2017	2QFY2020	4QFY2019	2QFY2020	N/A	4QFY2025
FY 2021	9/25/2014	8/13/2015	08/09/2017	1QFY2021	3QFY2020	1QFY2021	N/A	4QFY2025
FY 2022	9/25/2014	8/13/2015	08/09/2017	4QFY2021	2QFY2021	4QFY2021	N/A	1QFY2026
FY 2023	9/25/2014	8/13/2015	08/09/2017	3QFY2022	3/11/2022	3QFY2022	N/A	1QFY2027
FY 2024	9/25/2014	8/13/2015	08/09/2017	06/23/2022	3/11/2022	06/23/2022	N/A	1QFY2027
FY 2025	9/25/2014	8/13/2015	08/09/2017	06/23/2022	3/11/2022	06/23/2022	N/A	4QFY2028
FY 2026	9/25/2014	8/13/2015	08/09/2017	06/23/2022	3/11/2022	06/23/2022	N/A	1QFY2030

17-D-640-010: Enhanced Capabilities for Subcritical Experiments (ECSE) Access and Life Safety Infrastructure

Fiscal Quarter or Date

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	D&D Complete	CD-4
FY 2017	9/25/2014	8/13/2015	1QFY2017	3QFY2017	4QFY2017	4QFY2017	N/A	2QFY2019
FY 2018	9/25/2014	8/13/2015	3QFY2017	2QFY2018	1QFY2018	2QFY2018	N/A	3QFY2020
FY 2019	9/25/2014	8/13/2015	08/09/2017	2QFY2019	3QFY2018	2QFY2019	N/A	2QFY2021
FY 2020	9/25/2014	8/13/2015	08/09/2017	2QFY2019	7/11/2018	2QFY2019	N/A	4QFY2023
FY 2021	9/25/2014	8/13/2015	08/09/2017	03/27/2019	7/11/2018	03/27/2019	N/A	4QFY2023
FY 2022	9/25/2014	8/13/2015	08/09/2017	03/27/2019	7/11/2018	03/27/2019	N/A	3QFY2022
FY 2023	9/25/2014	8/13/2015	08/09/2017	03/27/2019	7/11/2018	03/27/2019	N/A	4QFY2023
FY 2024	9/25/2014	8/13/2015	08/09/2017	03/27/2019	7/11/2018	03/27/2019	N/A	06/30/2022

17-D-640-020: ECSE Laboratory and Support Infrastructure

Fiscal Quarter or Date

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	D&D Complete	CD-4
FY 2017	9/25/2014	8/13/2015	1QFY2017	1QFY2019	2QFY2019	3QFY2019	N/A	3QFY2022
FY 2018	9/25/2014	8/13/2015	3QFY2017	4QFY2019	2QFY2019	4QFY2019	N/A	2QFY2023
FY 2019	9/25/2014	8/13/2015	08/09/2017	4QFY2019	2QFY2019	4QFY2019	N/A	2QFY2023
FY 2020	9/25/2014	8/13/2015	08/09/2017	2QFY2020	4QFY2019	2QFY2020	N/A	4QFY2025
FY 2021	9/25/2014	8/13/2015	08/09/2017	1QFY2021	3QFY2020	1QFY2021	N/A	4QFY2025
FY 2022	9/25/2014	8/13/2015	08/09/2017	4QFY2021	2QFY2021	4QFY2021	N/A	1QFY2026
FY 2023	9/25/2014	8/13/2015	08/09/2017	3QFY2022	3/11/2022	3QFY2022	N/A	1QFY2027
FY 2024	9/25/2014	8/13/2015	08/09/2017	06/23/2022	3/11/2022	06/23/2022	N/A	1QFY2027
FY 2025	9/25/2014	8/13/2015	08/09/2017	06/23/2022	3/11/2022	06/23/2022	N/A	4QFY2028
FY 2026	9/25/2014	8/13/2015	08/09/2017	06/23/2022	3/11/2022	06/23/2022	N/A	1QFY2030

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 Alternative Selection and Cost Range
CD-2 – Approve Performance Baseline
Final Design Complete – Estimated/Actual date the project design will be/was complete(d)
CD-3A – Approve Site Preparation
CD-3B – Approve Site Preparation
CD-3 – Approve Start of Construction/Execution
D&D Complete – Completion of D&D work
CD-4 – Approve Start of Operations or Project Closeout
Separate documentation will be submitted for combined CD-2/3 for each subproject

17-D-640-020: ECSE Laboratory and Support Infrastructure

Fiscal Quarter or Date

Fiscal Year	Performance Baseline Validation	CD-3A	CD-3B
FY 2021	1QFY2021	3QFY2020	N/A
FY 2022	4QFY2021	3QFY2021	N/A
FY 2023	6/23/2022	7/7/2021	8/30/2021

CD-3A – Site Preparation
CD-3B – Site Preparation

Project Cost History ($K)
17-D-640: Total Project

Fiscal Year	TEC, Design	TEC, Construction	TEC, Total	OPC, Except D&D	OPC, D&D	OPC, Total	TPC
FY 2017	14,200	137,300	151,500	7,109	N/A	7,109	158,609
FY 2018	14,200	137,300	151,500	7,109	N/A	7,109	158,609
FY 2019	19,900	131,600	151,500	7,109	N/A	7,109	158,609
FY 2020	14,856	148,144	163,000	11,809	N/A	11,809	174,809
FY 2021	38,916	468,284	507,200	19,309	N/A	19,309	526,509
FY 2022	70,756	436,444	507,200	19,309	N/A	19,309	526,509
FY 2023	106,863	460,337	567,200	9,672	N/A	9,672	576,872
FY 2024	104,027	496,756	600,783	9,372	N/A	9,372	610,155
FY 2025	104,027	646,956	750,983	10,577	N/A	10,577	761,560
FY 2026	105,062	760,335	865,397	10,597	N/A	10,597	875,994

17-D-640-010: ECSE Access and Life Safety Infrastructure

Fiscal Year	TEC, Design	TEC, Construction	TEC, Total	OPC, Except D&D	OPC, D&D	OPC, Total	TPC
FY 2017	2,700	23,940	26,640	981	N/A	981	27,621
FY 2018	2,700	23,940	26,640	981	N/A	981	27,621
FY 2019	8,400	38,240	46,640	981	N/A	981	47,621
FY 2020	3,356	44,784	48,140	1,981	N/A	1,981	50,121
FY 2021	3,356	44,784	48,140	1,981	N/A	1,981	50,121
FY 2022	3,356	46,074	49,430	1,398	N/A	1,398	50,828
FY 2023	3,356	45,374	48,730	1,391	N/A	1,391	50,121
FY 2024	3,356	45,374	48,730	1,391	N/A	1,391	50,121
FY 2025	3,356	41,352	44,708	1,286	N/A	1,286	45,994

17-D-640-020: ECSE Laboratory and Support Infrastructure

Fiscal Year	TEC, Design	TEC, Construction	TEC, Total	OPC, Except D&D	OPC, D&D	OPC, Total	TPC
FY 2017	11,500	113,360	124,860	6,128	N/A	6,128	130,988
FY 2018	11,500	113,360	124,860	6,128	N/A	6,128	130,988
FY 2019	11,500	93,360	104,860	6,128	N/A	6,128	110,988
FY 2020	11,500	103,360	114,860	9,828	N/A	9,828	124,688
FY 2021	35,560	423,500	459,060	17,328	N/A	17,328	476,388
FY 2022	67,400	390,370	457,770	17,911	N/A	17,911	475,681
FY 2023	103,507	414,963	518,470	8,281	N/A	8,281	526,751
FY 2024	100,671	451,382	552,053	7,981	N/A	7,981	560,034
FY 2025	100,671	605,604	706,275	9,291	N/A	9,291	715,566
FY 2026	101,706	718,983	820,689	9,311	N/A	9,311	830,000

2. Project Scope and Justification

Scope

UCEP will perform mining and provide the supporting structures, systems, and components necessary to deploy the large Major Items of Equipment (MIE) diagnostic systems and experiments. The existing Principle Underground Laboratory for Subcritical Experiments (PULSE, formerly U1a Complex) orthogonal U1a.100 and U1a.104 drifts will be used to minimize the need for new mining.

17-D-640-010 includes the design, mining, fabrication, construction, installation, and commissioning of the underground areas and systems in the PULSE to provide accessibility, a refuge station, adequate ventilation, and construction power for the ensuing subproject 17-D-640-020. This subproject is required to support any significant construction activity in the eastern portion of the PULSE. While driven by the same mission in the ECSE subprogram, it is a subproject that can be designed and completed separately from the other subproject.

17-D-640-020 includes the design, mining, fabrication, construction, installation, and commissioning of the ECSE Area and systems to provide MIE diagnostic/detector alcove drifts and mechanical equipment drifts. Also included are safety basis and readiness activities. The project underground scope includes an experimental room with containment plugs for experiment execution, process control system, safety interlock system, diagnostic clean rooms and diagnostic infrastructure, and ancillary systems (overhead handling systems, power, cooling, ventilation, process water and oil, instrument air, spill mitigation, and shielding). In 2023, a safety analysis of alternatives was completed that recommended installing a hybrid mist Fire Extinguishing System (FES). The project team completed the design and is working to issue a subcontract for the installation. There have been discussions within NNSA about elimination of the FES and the risks associated with the installation which would potentially result in reduced costs. This subproject includes a CD-3A and CD-3B for site preparation. The CD-3A scope consisted of site preparation underground and the drilling of a borehole to run utilities and communications from the surface to the new experiment area and was completed. The CD-3B scope consisted of site preparation above ground for the lay down yard/construction trailers and relocation of existing facility infrastructure and was completed.

Justification

DOE Order 413.3B Critical Decision, *CD-0 Approve Mission Need,* was approved on September 25, 2014, for the "Enhanced Capabilities for Subcritical Experiments (ECSE) at the Nevada National Security Sites, PULSE." On November 4, 2015, the intersection of the U1a.100 and U1a.104 Drifts within the U1a Complex at the Nevada National Security Sites was determined to be the only viable location for ECSE. The enhancements to the PULSE included in this line item will provide the drifts and the supporting structures, systems, and components necessary for the deployment of the MIEs to diagnose the subcritical hydrodynamic integrated weapons experiments using plutonium.

NNSA plans long-term investments supporting plutonium science at the NNSS. NNSS is the only site in the United States for experiments combining high explosives and plutonium, a core capability for NNSA's Stockpile Stewardship Program.

Funds appropriated under this data sheet may be used for contracted support services to the Federal Program Manager and the Federal Project Director to conduct independent assessments of the planning and execution of this project required by DOE O 413.3B and to conduct technical reviews of design and construction documents. All costs associated with the conduct of independent reviews, to include travel for Federal staff of the DOE Office of Project Management, is funded by this 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*. As allowed by DOE O 413.3B, work will be phased to improve overall efficiency.

OPCs are funded out of the Enhanced Capabilities for Subcritical Experiments subprogram under Stockpile Research, Technology, and Engineering.

Key Performance Parameters (KPPs)

The KPPs represent the minimum acceptable performance that the project must achieve.

Performance Measure	Completion Criteria
17-D-640-010: Ventilation and power sufficient to allow concurrent excavation for two headings east of the U1a.01 Drift	Documented in UCEP Subproject 010 Ventilation Plan; UCEP Electrical Load Calculation; Temporary Power Plan
17-D-640-010: An invert suitable for transport of ASD accelerator equipment between the U1h shaft station and U1a.104 Drift	Documented in Building Code Requirements for Structural Concrete; Invert Plan; Invert Sections; Cast-In-Place Concrete Specification
17-D-640-010: Direct access from the U1a.01 Drift to the U1a.104 Drift for equipment and personnel	Documented in General Arrangement Plan
17-D-640-010: Multiple egress pathways from the U1a.100 Drift and U1a.104 Drift to the U1a.01 Drift	Documented in General Arrangement Plan
17-D-640-010: Operational Refuge Station east of the U1a.01 Drift to accommodate the number of individuals anticipated to normally work in that area	Documented in NNSS Underground Facility Safety and Health Program Description; U1a.102D Drift Refuge Shelter Equipment
17-D-640-020: An invert suitable for installation of the ASD accelerator in the U1a.104 Drift	Documented in the revised Program Requirements Document and the revised Project Execution Plan
17-D-640-020: Utilities and mechanical systems sufficient to support operation and maintenance of the ASD accelerator in the U1a.104 Drift	Documented in the revised Program Requirements Document and the revised Project Execution Plan
17-D-640-020: A zero room structure and mechanical systems that meet requirements for conducting subcritical experiments in the U1a.100 Drift	Documented in the revised Program Requirements Document and the revised Project Execution Plan
17-D-640-020: Infrastructure that supports installation of a centralized control of operation system of the ASD accelerator and NDSE source	Documented in the revised Program Requirements Document and the revised Project Execution Plan
17-D-640-020: Infrastructure that supports acquisition of experiment diagnostic data	Documented in the revised Program Requirements Document and the revised Project Execution Plan

3. **Financial Schedule ($K)**

17-D-640: Total Project

		Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)				
	Design			
	Prior years	105,062	105,062	105,062
	Total, Design	**105,062**	**105,062**	**105,062**
	Construction			
	Prior years	332,268	332,268	193,286
	FY 2024	127,842[1]	127,842	117,050
	FY 2025	73,083	73,083	159,609
	FY 2026	150,000	150,000	152,760
	Outyears	77,142	77,142	137,630
	Total, Construction	**760,335**	**760,335**	**760,335**
	Total Estimated Costs			
	Prior years	437,330	437,330	298,348
	FY 2024	127,842	127,842	117,050
	FY 2025	73,083	73,083	159,609
	FY 2026	150,000	150,000	152,760
	Outyears	77,142	77,142	137,630
	Total, TEC	**865,397**	**865,397**	**865,397**
Other Project Costs (OPC)				
	OPC, except D&D			
	Prior years	6,114	6,114	6,114
	FY 2024	0	0	0
	FY 2025	0	0	0
	FY 2026	3,878	3,878	500
	Outyears	605	605	3,983
	Total OPC	**10,597**	**10,597**	**10,597**
Total Project Costs (TPC)				
	Prior years	443,444	443,444	304,462
	FY 2024	127,842	127,842	117,050
	FY 2025	73,083	73,083	159,609
	FY 2026	153,878	153,878	153,260
	Outyears	77,747	77,747	141,613
Grand Total		**875,994**	**875,994**	**875,994**

[1] FY 2024 budget includes an internal reprogramming of $1.272 million of unearned fee.

17-D-640-010: ECSE Access and Life Safety Infrastructure

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
Prior years	3,356	3,356	3,356
Total, Design	**3,356**	**3,356**	**3,356**
Construction			
Prior years	41,352	41,352	41,352
Total, Construction	**41,352**	**41,352**	**41,352**
Total Estimated Costs			
Prior years	44,708	44,708	44,708
Total, TEC	**44,708**	**44,708**	**44,708**
Other Project Costs (OPC)			
OPC, except D&D			
Prior years	1,286	1,286	1,286
Total OPC	**1,286**	**1,286**	**1,286**
Total Project Costs (TPC)			
Prior years	45,994	45,994	45,994
Grand Total	**45,994**	**45,994**	**45,994**

17-D-640-020: ECSE Laboratory and Support Infrastructure

		Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)				
Design				
	Prior years	101,706	101,706	101,706
Total Design		**101,706**	**101,706**	**101,706**
Construction				
	Prior years	290,916	290,916	151,934
	FY 2024	127,842	127,842	117,050
	FY 2025	73,083	73,083	159,609
	FY 2026	150,000	150,000	152,760
	Outyears	77,142	77,142	137,630
Total Construction		**718,983**	**718,983**	**718,983**
TEC				
	Prior years	392,622	392,622	253,640
	FY 2024	127,842	127,842	117,050
	FY 2025	73,083	73,083	159,609
	FY 2026	150,000	150,000	152,760
	Outyears	77,142	77,142	137,630
Total TEC		**820,689**	**820,689**	**820,689**
Other Project Costs (OPC)				
	Prior years	4,828	4,828	4,828
	FY 2024	0	0	0
	FY 2025	0	0	0
	FY 2026	3,878	3,878	500
	Outyears	605	605	3,983
Total, OPC		**9,311**	**9,311**	**9,311**
Total Project Costs (TPC)				
	Prior years	397,450	397,450	258,468
	FY 2024	127,842	127,842	117,050
	FY 2025	73,083	73,083	159,609
	FY 2026	153,878	153,878	153,260
	Outyears	77,747	77,747	141,613
Total TPC		**830,000**	**830,000**	**830,000**

4. Details of Project Cost Estimate ($K)

17-D-640: Total Project

		Current Total Estimate	Previous Total Estimate	Previous Validated Baseline
Total Estimated Cost (TEC)				
Design				
	Design	69,406	68,371	68,371
	Project Management	35,656	35,656	35,656
	Contingency	0	0	0
Total Design		**105,062**	**104,027**	**104,027**
Construction				
	Site Work	0	0	0
	Equipment	0	0	0
	Construction	625,084	543,441	373,233
	Construction Management	80,951	77,951	67,951
	Contingency	54,300	25,564	55,072
Total Construction		**760,335**	**646,956**	**496,256**
Total Estimated Cost (TEC)		**865,397**	**750,983**	**600,283**
Contingency, TEC		*54,300*	*25,564*	*55,072*
Other Project Costs (OPC)				
OPC except D&D				
	R&D	0	0	0
	Conceptual Planning	500	500	500
	Conceptual Design	1,009	1,009	1,009
	Other OPC Costs	9,088	9,068	8,363
	Contingency	0	0	0
Total OPC		**10,597**	**10,577**	**9,872**
Contingency, OPC		*0*	*0*	*0*
Total Project Cost		**875,994**	**761,560**	**610,155**
Total Contingency (TEC+OPC)		***54,300***	***25,564***	***55,072***

17-D-640-010: ECSE Access and Life Safety Infrastructure

		Current Total Estimate	Previous Total Estimate	Previous Validated Baseline
Total Estimated Cost (TEC)				
Design				
	Design	2,852	2,852	2,852
	Project Management	504	504	504
	Contingency	0	0	0
Total Design		**3,356**	**3,356**	**3,356**
Construction				
	Site Work	0	0	0
	Equipment	0	0	0
	Construction	35,984	35,984	31,606
	Construction Management	5,368	5,368	5,368
	Contingency	0	0	7,810
Total Construction		**41,352**	**41,352**	**44,784**
Total Estimated Cost (TEC)		**44,708**	**44,708**	**48,140**
Contingency, TEC		*0*	*0*	*7,810*
Other Project Costs (OPC)				
OPC except D&D				
	R&D	0	0	0
	Conceptual Planning	200	200	200
	Conceptual Design	281	281	281
	Other OPC Costs	805	805	1,500
	Contingency	0	0	0
Total OPC		**1,286**	**1,286**	**1,981**
Contingency, OPC		*0*	*0*	*0*
Total Project Cost		**45,994**	**45,994**	**50,121**
Total Contingency (TEC+OPC)		***0***	***0***	***7,810***

		Current Total Estimate	Previous Total Estimate	Previous Validated Baseline
Total Estimated Cost (TEC)				
Design				
	Design	66,554	65,519	65,519
	Project Management	35,152	35,152	35,152
	Contingency	0	0	0
Total Design		**101,706**	**100,671**	**100,671**
Construction				
	Site Work	0	0	0
	Equipment	0	0	0
	Construction	589,100	507,456	338,999
	Construction Management	75,583	72,583	62,583
	Contingency	54,300	25,564	49,300
Total Construction		**718,983**	**605,603**	**450,882**
Total Estimated Cost (TEC)		**820,689**	**706,274**	**551,553**
Contingency, TEC		*54,300*	*25,564*	*49,300*
Other Project Costs (OPC)				
OPC except D&D				
	R&D	0	0	0
	Conceptual Planning	300	300	300
	Conceptual Design	728	728	728
	Other OPC Costs	8,283	8,263	7,453
	Contingency	0	0	0
Total OPC		**9,311**	**9,291**	**8,481**
Contingency, OPC		*0*	*0*	*0*
Total Project Cost		**830,000**	**715,565**	**560,034**
Total Contingency (TEC+OPC)		***54,300***	***25,564***	***49,300***

5. Schedule of Appropriations Requests

Request Year	Type	Prior Years	FY 2024	FY 2025	FY2026	Outyears	Total
FY 2017	TEC	151,500	0	0	0	0	151,500
	OPC	7,109	0	0	0	0	7,109
	TPC	158,609	0	0	0	0	158,609
FY 2018	TEC	151,500	0	0	0	0	151,500
	OPC	7,109	0	0	0	0	7,109
	TPC	158,609	0	0	0	0	158,609
FY 2019	TEC	151,500	0	0	0	0	151,500
	OPC	7,109	0	0	0	0	7,109
	TPC	158,609	0	0	0	0	158,609
FY 2020	TEC	163,000	0	0	0	0	163,000
	OPC	7,309	4,500	0	0	0	11,809
	TPC	170,309	4,500	0	0	0	174,809
FY 2021	TEC	507,200	0	0	0	0	507,200
	OPC	9,309	10,000	0	0	0	19,309
	TPC	516,509	10,000	0	0	0	526,509
FY 2022	TEC	507,200	0	0	0	0	507,200
	OPC	9,309	10,000	0	0	0	19,309
	TPC	516,509	10,000	0	0	0	526,509
FY 2023	TEC	437,330	129,870	0	0	0	567,200
	OPC	6,719	0	2,953	0	0	9,672
	TPC	444,049	129,870	2,953	0	0	576,872
FY 2024	TEC	437,330	126,570	33,083	0	0	596,983
	OPC	6,719	0	3,153	0	0	9,872
	TPC	444,049	126,570	36,236	0	0	606,855
FY 2025	TEC	437,330	126,570	73,083	64,000	50,000	750,983
	OPC	6,719	0	0	3,858	0	10,577
	TPC	444,049	126,570	73,083	67,858	50,000	761,560
FY 2026	TEC	437,330	127,842	73,083	150,000	77,142	865,397
	OPC	6,114	0	0	3,878	605	10,597
	TPC	443,444	127,842	73,083	153,878	77,747	875,994

6. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy	1Q FY2030
Expected Useful Life	30
Expected Future Start of D&D of this capital asset	1Q FY2060

Related Funding Requirements
(Budget Authority in Millions of Dollars)

	Annual Costs		Life Cycle Costs	
	Previous Total Estimate	Current Total Estimate	Previous Total Estimate	Current Total Estimate
Operations and Maintenance	41	41	1,240	2,798

Base year is 2025.

7. D&D Information

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

8. Acquisition Approach

The project is being managed by the NNSS Management and Operating (M&O) contractor because of operations within the PULSE complex which is an underground facility with limited access. Design and construction of the underground modifications are being performed by the NNSS M&O contractor through CLIN 001 on the M&O cost reimbursable contract.

Advanced Sources and Detectors (ASD) Major Item of Equipment (MIE)
LANL Lead (SNL, LLNL, NNSS, NRL support)
Project Data Sheet

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

Summary: The FY 2026 Request for the ASD MIE Project is $365,000,000. The FY 2026 Request will conduct testing of the Injector, two accelerator modules, and Solid-State Pulsed Power units at the Integrated Test Stand (ITS); continue fabrication of Accelerator cells and modules; continue fabrication of the remaining Solid State Pulsed Power units; and begin installation of Solid State Pulsed Power racks at the Principle Underground Laboratory for Subcritical Experiments (PULSE, formerly U1a Complex). The latest Critical Decision (CD) approved was CD-2/3, *Approve Performance Baseline and Start of Construction*, with a Total Project Cost (TPC) of $1,800,000,000 and a CD-4 date of May 2030. The cost of this project has increased to an estimated TPC of $2,228,363,000 and the CD-4 is estimated for the second quarter of FY 2033.

A Federal Project Director has been assigned to this project.

Significant Changes:

The project cost has increased to an estimated TPC of $2,228,363,000 and the CD-4 has moved out to the second quarter of FY 2033, which is expected to be approved through a Baseline Change by 1Q FY2026. The estimate and schedule have been revised to reflect the increased cost of radiographic system components and installation in the PULSE facility due to renegotiation of contracts and extended installation period.

Critical Milestone History

Fiscal Quarter or Date

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	CD-4
FY 2020	9/25/2014	6/7/2018	2/6/2019	2Q FY 2022	4Q FY 2021	2Q FY 2022	4Q FY 2025
FY 2021	9/25/2014	6/7/2018	2/6/2019	2Q FY 2022	4Q FY 2021	2Q FY 2022	4Q FY 2025
FY 2022	9/25/2014	6/7/2018	2/6/2019	2Q FY 2022	4Q FY 2021	2Q FY 2022	4Q FY 2025
FY 2023	9/25/2014	6/7/2018	2/6/2019	4Q FY 2022	3Q FY 2022	4Q FY 2022	3Q FY 2027
FY 2024	9/25/2014	6/7/2018	2/6/2019	11/30/2022	8/9/2022	11/30/2022	3Q FY 2030
FY 2025	9/25/2014	6/7/2018	2/6/2019	11/30/2022	8/9/2022	11/30/2022	3Q FY 2030
FY 2026	9/25/2014	6/7/2018	2/6/2019	11/30/2022	8/9/2022	11/30/2022	2Q FY 2033

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 Alternative Selection and Cost Range
CD-3A – Approve Long Lead Procurements – Scintillator components
CD-3B – Approve Long Lead Procurements – Injector and Pulsed power components
CD-2 – Approve Performance Baseline
Final Design Complete – Estimated/Actual date the project design will be/was complete(d)
CD-3 – Approve Start of Fabrication
CD-4 – Approve Start of Operations or Project Closeout

Fiscal Quarter or Date

Fiscal Year	Performance Baseline Validation	CD-3A	CD-3B
FY 2020	4Q FY 2021	3Q FY 2021	N/A
FY 2021	4Q FY 2021	3Q FY 2021	N/A
FY 2022	4Q FY 2021	3Q FY 2021	1Q FY 2022
FY 2023	11/25/2022	4/13/2021	1/3/2022

Project Cost History ($K)

Fiscal Year	Total Cost
FY 2020	791,600
FY 2021	1,061,355
FY 2022	939,655
FY 2023	1,284,161
FY 2024	1,800,000
FY 2025	1,841,538
FY 2026	2,228,363

2. Project Scope and Justification

Scope

The Enhanced Capabilities for Subcritical Experiments (ECSE) portfolio aims to construct a new underground laboratory in Nevada and to install large modern diagnostic systems necessary to evaluate plutonium implosion system experiments in support of the current and future stockpile. The ASD MIE Project is one of these diagnostic systems that involves installation of a linear induction accelerator into the PULSE. The ASD MIE Project will provide the capability to conduct weapons-scale, radiographically diagnosed subcritical experiments using special nuclear material (SNM). The radiographic data is required to refine the modern predictive physics models used to certify the present and future stockpile. Radiography (x-ray imaging of dense objects) is the principal tool for diagnosing dynamic weapons-scale experiments and is the key diagnostic for the National Hydrodynamic Test Program at both Los Alamos National Laboratory (LANL) and Lawrence Livermore National Laboratory (LLNL). Currently, NNSA relies on hydrodynamic tests at the Dual Axis Radiographic Hydrodynamic Test Facility (DARHT) at LANL and at LLNL's Contained Firing Facility using the Flash X-Ray machine. In these tests, surrogate materials replace SNM in the experimental assembly. The surrogate tests explore many significant aspects of primary implosion physics but cannot explore the unique behavior of plutonium. The ASD MIE Project, funded within the ECSE subprogram, addresses this need and complements other diagnostics already supporting the subcritical, scaled experiments program.

The ASD Project is composed of an MIE (called Scorpius) for four-pulse, single-axis radiographic capability at weapons-relevant scales to be integrated with the U1a Complex Enhancements Project line item-funded infrastructure improvements, which will house the MIE. The ASD MIE Project is responsible for the technology maturation, design, fabrication and installation, and commissioning of Scorpius through CD-4. The CD-3A long-lead procurement scope is for the procurement of the scintillator and imager with a total cost of $35 million and a scheduled completion of 4Q FY 2027. The CD-3B long-lead procurement scope is for components/materials to support the fabrication of the Injector and setup of the Integrated Test Stand with a total cost of $141.6 million and a scheduled completion of 4Q FY 2025.

Justification

The aggregate influences of aging, modern manufacturing techniques, modern materials, and evolving design philosophies are driving the stockpile toward the limits of the nuclear explosive testing database. In 2014, LANL and LLNL jointly identified a capability gap that challenges the ability to certify the stockpile in light of these changes, which involves the evaluation of plutonium response. In 2016, the JASON Defense Advisory Group identified the same gap in capability of the United States to carry out and diagnose such experiments. The ASD MIE Project, as part of ECSE, is designed to narrow this gap. Radiographic data from ECSE will help the validation of the W80-4 design and certification of the W87-1 Modification Program. ECSE delivery in the early 2030s supports these efforts. Funds appropriated under this data sheet may be used for contracted support services to the Federal Program Manager and the Federal Project Director to conduct independent assessments of the planning and execution of this project, per DOE O 413.3B, and to conduct technical reviews of design and construction documents. All costs associated with the conduct of independent reviews, to include travel for DOE-PM Federal staff, is funded by this MIE.

Key Performance Parameters (KPPs)

The KPPs represent the minimum acceptable performance that the project must achieve. Achievement of the KPPs will be a prerequisite for approval of CD-4, Project Completion. In summary, the MIE must be able to generate the x-ray energies and multi-pulse capability necessary to diagnose late-time dynamics in plutonium implosion experiments.

The KPPs established for CD-4 approval are:

- Four radiographic pulses
- Ability to vary the time between pulses (as measured center to center) in a ≥1500 ns window, at a pulse spacing ≤500 ns for 2 pulses
- Radiographic pulse lengths: between 20 and 80 ns with the ability to control the length (dose) of each pulse to within 5 ns
- Radiographic figure of merit: ≥1.2 line pairs per mm visible for 2 pulses with an overburden representing a nominal Object A density
- Radiographic figure of merit: ≥0.8 line pairs per mm visible for 2 pulses with an overburden representing a nominal Object C density

3. Financial Schedule[1] ($K)

	Budget Authority	Obligations	Costs
Funding			
Prior Years	812,827	812,827	671,040
FY 2024	279,580	279,580	235,597
FY 2025	276,956	276,956	331,035
FY 2026	365,000	365,000	396,872
Outyears	494,000	494,000	593,819
Grand Total	**2,228,363**	**2,228,363**	**2,228,363**

4. Details of Project Cost Estimate

Work Breakdown Structure Estimated Cost ($K)

WBS #	WBS Title	Current Estimate	Previous Estimate	CD-2/3 Baseline
1.01	Project Management	285,609	225,609	225,000
1.02	Radiographic System	1,303,516	1,140,820	1,086,200
1.03	System Engineering and Requirements	45,443	35,443	19,000
1.04	ITS Facility Installation, Major Subsystem Installation, Integration, & Testing	87,428	72,428	42,000
1.05	U1a Final Major Subsystem Installation, Integration, & Testing	146,206	70,281	61,000
1.06	Final Commissioning at U1a	23,710	13,710	12,900
	Management Reserve/Contingency/Federal Support	336,451	283,247	353,900
	Total	**2,228,363**	**1,841,538**	**1,800,000**

[1] Minor corrections to prior year Budget Authority, Obligations, and Costs to more accurately reflect funding available to the project within the ECSE program and reflect actual obligations and costs.

5. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy	2Q FY 2033
Expected Useful Life	30 years
Expected Future Start of D&D of this capital asset	2Q FY 2063

6. Acquisition Approach

The four Management and Operations contractors at the Laboratories and sites (LANL, LLNL, SNL, and NNSS) have formed a multi-site team to execute the ASD MIE Project. This management team structure enables the full engagement of LANL, LLNL, SNL and NNSS, benefiting NNSA to leverage unique capabilities of each laboratory. It also unifies the design to construction process, which is especially important, as the PULSE is an underground facility with limited access.

26-D-514, National Ignition Facility Enhanced Fusion Yield Capability (NIF EYC) Project
Lawrence Livermore National Laboratory, California
Project is for Design and Construction

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

Summary

The most recent Department of Energy (DOE) Order (O) 413.3B Critical Decision (CD) is CD-0, *Approve Mission Need*, which was approved on September 30, 2024, with a cost range of $470,000,000 to $1,000,000,000 and a CD-4 range of Q1 FY 2031 – Q4 FY 2035. The next DOE O 413.3B CD is CD-1, *Approve Alternate Selection and Cost Range,* which is expected to be approved in Q1 FY 2026. The Fiscal Year (FY) 2026 Request for the National Ignition Facility (NIF) Enhanced Fusion Yield Capability (EYC) Project is $26,000,000. Funding within the project's line-item is requested at the TPC level; funds are requested to perform both TEC-type and OPC-type activities. This Total Project Cost (TPC) request funds $1,500,000 of Other Project Cost (OPC) and $24,500,000 of Total Estimated Cost (TEC) activities. The requested TEC funds will support preliminary design, final design, and execution of long-lead procurements.

This is the initial submission of the Construction Project Data Sheet and is a new start in FY 2026. This project will begin OPC activities in FY 2025 with funding provided by the Inertial Confinement Fusion program. Due to the straightforward nature of this project, the project will seek to tailor DOE O 413.3B where able, which may significantly shorten the timelines between Critical Decisions compared to most projects. The Critical Milestone History table is a conservative estimate of CD timelines based on the level of effort required for each CD, but the project expects to achieve milestones faster than usual. The FY 2025 OPC funding is being used for the conceptual design and associated work.

A Federal Project Director (FPD) has not been assigned to this project yet, but a federal project lead has been designated for the project; it is expected that an FPD will be assigned by Q1 FY 2026.

Critical Milestone History

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	CD-4
FY 2026	09/30/2024	Q4 FY 2025	Q1 FY 2026	Q2 FY 2028	Q1 FY 2028	Q2 FY 2028	Q2 FY 2033

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
CD-4 - Approve Start of Operations or Project Closeout

Fiscal Year	CD-3A
FY 2026	Q2 FY 2026

CD-3A – Approve Site Preparation and Long-Lead Procurement

Project Cost History ($K)

Fiscal Year	TEC, Design	TEC, Construction	TEC, Total	OPC, Total	TPC
FY 2026	30,000	635,000	665,000	35,000	700,00

2. Project Scope and Justification

Scope

The NIF EYC mission seeks to benefit from the demonstrated NIF ignition platform by upgrading the NIF laser from a nominal laser energy of 2.2 MJ to 2.6 MJ.

The NIF EYC Project would consist of three primary activities:

1. Laser glass: Insertion of surplus amplifier glass into existing amplifier glass bays in the laser chain. Each bundle (8 beams) currently passes through 15 amplifier slabs; the EYC project will add 2 additional slabs to each beamline.
2. Optics upgrade: To support the higher laser fluences, the optics components would need to be replaced with higher quality alternatives or undergo certain conditioning techniques to ensure their optimal performance under the increased laser fluence. Optical components that meet the project requirements can be procured from an existing vendor base to support this upgrade, but these are long-lead items that must be ordered in the early phase of the EYC project.
3. Facility modification: The NIF must be modified to safely support the fusion yields anticipated from experiments at higher laser energy. In practice this means upgrading the facility safety basis to 120MJ (the maximum credible yield calculated for an experiment when the EYC project is complete); this would be done through minor adjustments (replacing doors, sealing gaps, replacing some aluminum components with material less prone to activation) and increased administrative controls (additional stay-out areas and recharacterization of some areas to require radiation-cleared workers).

Justification

The EYC project at the NIF would upgrade the laser output from a nominal energy of 2.2 megajoules (MJ) to 2.6 MJ, enabling fusion yields of approximately 30-40 MJ. This enhancement is crucial for achieving high-energy-density (HED) conditions, which have not been accessible since the cessation of underground nuclear testing. NIF is the only facility in the world to achieve a fusion burn chain-reaction ignition in the laboratory, and the increased laser energy will significantly advance the National Nuclear Security Administration's (NNSA's) ability to generate the conditions necessary to address pressing stockpile questions.

Many of the largest uncertainties in nuclear weapon science exist within the HED regime, a state of matter previously only achievable through underground testing. The fusion ignition experiments at NIF serve as a unique tool for reaching these conditions. The enhanced fusion yields produced by the EYC will enable the NNSA to reduce gaps and uncertainties surrounding complex HED phenomena critical to nuclear weapon design, certification, and assessment. Key areas of study at NIF include:

- Fusion Physics
- Survivability: Neutrons
- Survivability: X Rays
- Boost Physics
- Nuclear Reactions of Unstable Nuclei: Fission and Radiochemistry
- Material Properties: Opacity & Radiation Transport
- Material Properties: Equation of State (EOS)
- Hydrodynamic Mixing

The upgrade will not only enhance the Science-Based Stockpile Stewardship Program by expanding the study of dynamic physical processes and material properties under conditions similar to those in nuclear weapons, but it will also provide experimental data that improves physics modeling and design processes.

EYC aligns with the NNSA's strategic goals of maintaining a safe, secure, and effective nuclear deterrent, addressing the risks associated with future high-yield facilities, and supporting the modernization of nuclear security infrastructure. This initiative will also contribute to workforce development by providing advanced experimental capabilities and training opportunities for future stockpile scientists.

Details regarding the specific applications of NIF to these areas are outlined in the classified NIF EYC Mission Need Statement.

Key Performance Parameters (KPPs)
The Key Performance Parameters for the EYC project are derived from the mission needs considering the current configuration of existing facilities, assessments of current facility conditions and effectiveness, and current and future LLNL missions. The following table lists the program requirements for the EYC project.

#	Key Performance Parameter Description	Threshold Value
1	The solution must provide sufficient laser energy and power to enable increased fusion yields in support of activities for the current and future stockpile, fusion physics and scaling to high-yield, threat mitigation, and other nuclear weapons-related research and development.	2.6 MJ & 450 TW
2	The solution must provide optics readiness to support operations at increased laser energy.	The facility will implement the necessary optical mitigation methods, new optical components, and new optical capabilities to support reoccurring 2.6 MJ & 450 TW laser shots.
3	The solution must provide the necessary personnel radiation protection measures to support increased fusion yields.	Enable single shot operations up to 60 MJ of neutron yield.

3. Financial Schedule ($K)[1]

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
FY 2026	24,500	24,500	10,000
Out Years	5,500	5,500	20,000
Total Design	**30,000**	**30,000**	**30,000**
Construction			
Out Years	635,000	635,000	635,000
Total Construction	**635,000**	**635,000**	**6355,000**
TEC			
FY 2026	24,500	24,500	10,000
Out Years	640,500	640,500	655,000
Total TEC	**665,000**	**665,000**	**665,000**
Other Project Costs (OPC)			
FY 2024	500	500	500
FY 2025	500	500	500
FY 2026	1,500	1,500	1,500
Out Years	32,500	32,500	32,500
Total, OPC	**35,000**	**35,000**	**35,000**
Total Project Costs (TPC)			
FY 2024	500	500	500
FY 2025	500	500	500
FY 2026	26,000	26,000	21,500
Out Years	673,000	673,000	687,500
Total TPC	**700,000**	**700,000**	**700,000**

[1] The project has not yet been approved for CD-2, and therefore has not been baselined. Out year funding amounts may be revised in future budget requests as NNSA baselines the project in accordance with DOE Order 413.3B.

4. Details of Project Cost Estimate ($K)

		Current Total Estimate	Previous Total Estimate	Previous Validated Baseline
Total Estimated Cost (TEC)				
Design				
	Design	22,000	N/A	N/A
	Federal Support	2,500	N/A	N/A
	Contingency	5,500	N/A	N/A
Total Design		**30,000**	**N/A**	**N/A**
Construction				
	Site Preparation	15,000	N/A	N/A
	Long Lead Procurement	100,000	N/A	N/A
	Equipment	375,000	N/A	N/A
	Construction	26,000	N/A	N/A
	Federal Support	16,100	N/A	N/A
	Contingency	102,900	N/A	N/A
Total Construction		**635,000**	**N/A**	**N/A**
Total Estimated Cost (TEC)		**665,000**	**N/A**	**N/A**
Contingency, TEC		*108,400*	*N/A*	*N/A*
Other Project Costs (OPC)				
OPC except D&D				
	Business Case Analysis	500	N/A	N/A
	Conceptual Design	1,000	N/A	N/A
	CD-1 Preparation	500	N/A	N/A
	Federal Support	4,000	N/A	N/A
	Start-up & TTO	20,000	N/A	N/A
	Project Closeout	2,000	N/A	N/A
	Contingency	7,000	N/A	N/A
Total OPC		**35,000**	**N/A**	**N/A**
Contingency, OPC		*7,000*	*N/A*	*N/A*
Total Project Cost		**700,000**	**N/A**	**N/A**
Total Contingency (TEC+OPC)		***115,400***	***N/A***	***N/A***

5. Schedule of Appropriations Requests ($K)

Request Year	Type	Prior Years	FY 2025	FY2026	Out Years	Total
FY 2026	OPC	500	500	1,500	32,500	35,000
	TEC	0	0	24,500	640,500	665,000
	TPC	500	500	26,000	673,000	700,000

6. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	Q4 FY 2033
Expected Useful Life (number of years)	20
Expected Future Start of D&D of this capital asset (fiscal quarter)	Q4 FY 2053

Related Funding Requirements
(Budget Authority in Millions of Dollars)

Funding Requirements	Annual Costs[1]		Life Cycle Costs	
Estimate Totals	Previous Estimate	Current Estimate	Previous Estimate	Current Estimate
Operations and Maintenance	N/A	N/A	N/A	N/A

7. D&D Information

Deactivation and Decommissioning (D&D) is not included in the scope of the EYC project.

8. Acquisition Approach

The conceptual design is being led by the LLNL Management and Operating contractor and will form a management and technical team structure to perform, design, production, integration, and commissioning activities. The Acquisition Strategy will be developed for the acquisition of the design and construction of the facility as part of the CD-1 approval package.

[1] The increased laser energy at NIF does not allow for a higher number of shots executed per year, meaning overall operational costs are expected to remain unchanged from current NIF operations costs.

26-D-512, Los Alamos Neutron Science Center Modernization Project
Los Alamos National Laboratory, New Mexico
Project is for Design and Construction

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

Summary

The Fiscal Year (FY) 2026 Total Estimated Cost (TEC) Request for the Los Alamos Neutron Science Center (LANSCE) Modernization Project (LAMP) is $20,000,000. Additionally, within the FY 2026 Request for Primary Assessment Technologies, NNSA requests to fund $37,000,000 in Other Project Costs (OPCs) for a Total Project Cost (TPC) of $57,000,000 in FY 2026 for the pre-Critical Decision (CD) -1 Independent Cost Review, CD-1 approval process and the beginning of the Preliminary Design process for LAMP. The requested OPC funds and TECs assume CD-1, *Approve Alternate Selection and Cost Range*, approval in 4Q FY 2026. The cost range for the project at CD-0 is $456,000,000 to $1,007,000,000. The cost range for the project is based on the estimates provided by the Office of Programming, Analysis, and Evaluation and the Office of Cost Estimating and Program Evaluation (CEPE) as part of Mission Need Statement and independent cost estimate and was reviewed under a phase two Study Plan which was completed in 4Q FY 2024. The History, Financial Schedule, and Detailed Cost Estimates sections below are based on a Rough Order of Magnitude (ROM) point estimate of $733,062,000. The current funding profile provided will be updated once the conceptual design is complete. Current projection for CD-4, *Approve Start of Operations*, is 1Q FY 2034.

Significant Changes

The project is a new start. The DOE O 413.3B CD CD-0, *Approve Mission Need*, was approved November 25, 2024. The Analysis of Alternatives (AoA) exemption was approved in 2Q FY 2025. To support the AoA exemption various options for this project were assessed within a detailed Planning Study Report and given the unique aspects of where this project can feasibly be constructed, conducting an AoA provides limited value and would delay completion of the project, increasing the risk that the facility will fail before LAMP is completed.

The Conceptual Design and CD-1 Schedule and Cost Range is under development. The Independent Project Review is scheduled for 2Q FY 2026 in advance of the anticipated 4Q FY 2026 CD-1 Approval.

A permanent Federal Project Director (FPD) will be assigned upon completion of conceptual design review, estimated 3Q FY 2025.

Critical Milestone History

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	CD-4
FY 2026	11/25/2025	2Q FY 2026	4Q FY 2026	2Q FY 2028	2Q FY 2028	2Q FY 2028	1Q FY 2034

CD-0 – Approve Mission Need for a construction project with a conceptual scope and cost range
Conceptual Design Complete – Estimated date the conceptual design will be completed
CD-1 - Approve Design Scope and Project Cost and Schedule Ranges
CD-2 – Approve Performance Baseline
Final Design Complete - Estimated date the project design will be completed
CD-3A - Approve Long Lead Procurements
CD-3B -
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
Separate documentation will be submitted for combined CD-2/3 for each subproject

Fiscal Year	Performance Baseline Validation	CD-3A
FY 2026	N/A[1]	4Q FY 2026

Project Cost History ($K)

Fiscal Year	TEC, Design	TEC, Construction	TEC, Total	OPC, Except D&D	OPC, D&D	OPC, Total	TPC
FY 2026	170,000	669,670	839,670	160,330	0	160,330	1,000,000

2. Project Scope and Justification

Scope

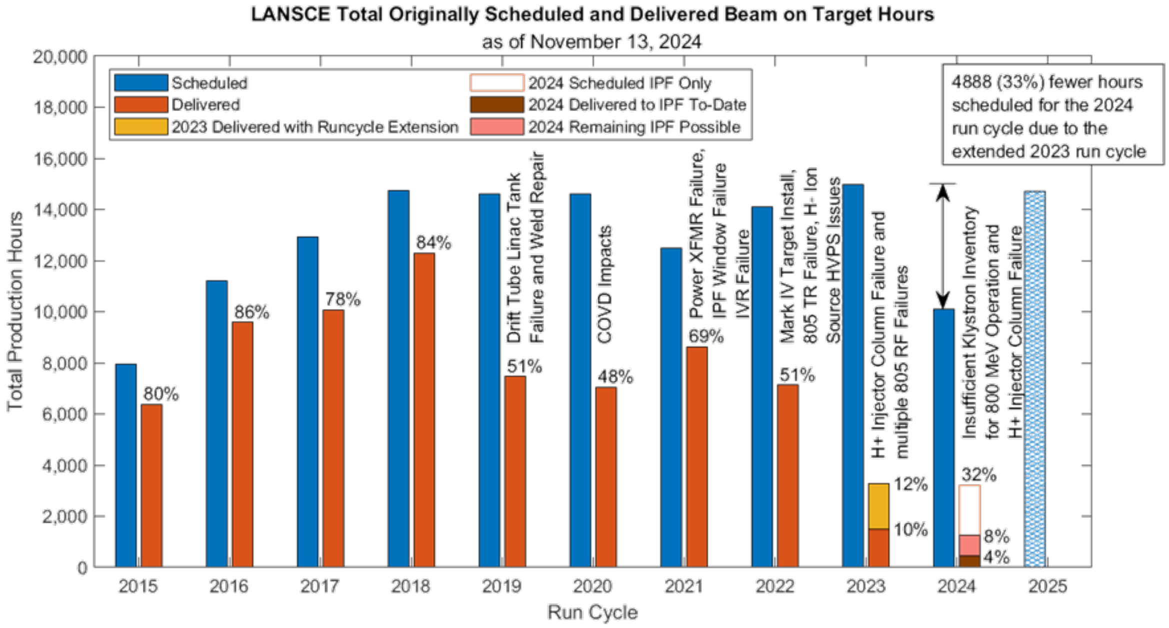
The scope of the proposed project includes modernization of the front-end portion of the LANSCE accelerator. LAMP will provide a reliable and modern dual species ion (Hydrogen - H+ and H-) beam line as a source by replacing the obsolete front-end of the accelerator with a modern configuration. The current front-end of the accelerator consists of two Cockcroft-Walton (CW) injector systems, a low-energy beam transport system, and a drift tube linear accelerator (DTL). The modern configuration will consist of two isotopic injectors, a Low Energy Beam Transport (LEBT), a modern radiofrequency quadrupole (RFQ), a Medium Energy Beam Transport (MEBT), and a more modern DTL. The DTL will be newer, easier to repair, and match the new beam current and energy of the new injection system. Ancillary equipment such as bean diagnostics, instrumentation and controls, and the vacuum system will also need to be replaced to support the new system.

Justification

LANSCE is the only U.S. accelerator facility capable of performing diverse classes of experiments simultaneously for the weapons program at a single site, an attribute stemming from its particle beam performance parameters operating within the safety and security authorization basis infrastructure suitable for the National Nuclear Security Administration (NNSA) weapon missions. The LANSCE accelerator currently supports key aspects of the enduring requirement for science-based stockpile stewardship in the absence of nuclear explosive testing such as (1) qualifying weapons components as part of sustainment of the current stockpile, (2) supporting modern and aging components and manufacturing initiatives, (3 and 4) providing nuclear data used in simulation and modeling to support development of the future deterrent and research and development (R&D), and (5) performing radiochemistry relevant to nuclear weapons science to support threat mitigation. LANSCE currently fulfills these missions through the capabilities of isotope production, dynamic multi-frame proton radiography, neutron scattering, neutron radiography, and nuclear physics R&D currently enabled by the LANSCE accelerator. The risk of losing these capabilities could delay multiple weapons modernization programs (i.e., W93, and future systems), create increased workload and expenses trying to rectify the loss (reactive versus proactive mitigation), and possibly burden other facilities not capable of fully supporting the NNSA defense program mission.

NNSA weapon missions utilizing LANSCE data will be required into the 2050s and beyond. In recent years, the reliability of the facility has significantly declined for a variety of reasons as shown in the figure below. Without modernizing the front-end of the accelerator, the LANSCE facility is at risk of not consistently delivering its mission due to frequent, unplanned interruptions, and unforeseen accelerator equipment failures.

[1] Project will be baselined at CD-2.



Key Performance Parameters (KPPs) for the beam delivery (beam energy, current, duration, pulse rate)

The Threshold KPPs, represent the minimum acceptable performance that the project must achieve. Achievement of the Threshold KPPs will be a prerequisite for approval of CD-4, Project Completion. The Objective KPPs represent the desired project performance. The proposed funding level supports slightly above the threshold KPPs.

#	Key Performance Parameter	Threshold	Objective
1	Beam Energy (MeV)	100	100
2	Beam Current (mA)	16.5	35
3	Beam pulse duration (microsecond)	625	850
4	Radio Frequency pulse rate (Hz)	120	120

KPPs for beam up-time (Operational beam hours):

Key Performance Parameter	Threshold	Objective
Beam up-time (Operational beam hours)	3,700 beam hours per annual run cycle, with greater than 80 percent beam availability while meeting threshold values of P-1 and P-2	5,300 beam hours per annual run cycle with greater than 90 percent beam availability.

P-1. The solution must provide accelerated proton ions of sufficient energy to support activities for sustainment of the current stockpile, study of modern and aged material and manufacturing, development of the future deterrent, threat mitigation, and other nuclear weapons related research and development.

P-2. The solution must have the capability to produce flexible beam patterns and pulse shapes necessary to meet the requirements of the downstream facilities.

** Note: Beam up time is P-3, while P-4 is satisfied by conducting experiments in existing facilities at LANSCE.
P-3. The solution must provide operational beam hours to enable NNSA data delivery needs.

P-4. The solution must have the ability to conduct classified, high-explosives, special nuclear material, and other hazardous work.

KPPs for end station utilization (Operational Environment Requirements):

Key Performance Parameter	Threshold/Objective
End station utilization (Operational Environment requirements	Must have the ability to conduct classified, high-explosives, special nuclear material, and other hazardous work.

The front-end of LANSCE supports 7 end stations. The end stations require a certain level of performance to meet mission needs. Due to losses along the beamline, the KPPs for each end station are required to back calculate the required performance of the front end.

KPPs for beam properties at end stations (Beam current, patterns, and pulse for the different facilities currently available)

LANSCE Facility	Threshold	Objective
The Lujan Center (using the PSR), Mode 1	80 µA average beam current, 20 hertz (Hz), 120 nanoseconds (ns) full width at half maximum (FWHM).	Same as threshold but with 100 µA average beam current.
The Lujan Center (using the PSR) Mode 2	30 µA average beam current, 30 Hz, 30 ns FWHM.	Same as threshold but with 37.5 µA average beam current.
Weapons Nuclear Research (WNR) Operational Mode 1	3.2 µA with a 625 µs beam gate, 1.8 µs between bunches.	Same as threshold but with 4 µA.
WNR Operational Mode 2	1.6 µA with a 625 µs beam gate, 3.6 µs between bunches.	Same as threshold but with 2 µA.
pRad	2.4×10^8 protons in 96 ns frames, variable 120 ns-500 ns between frames, nominally 21 frames total.	Same as threshold but with 3×10^8 protons/frame.
Ultra Cold Neutron (UCN) Facility	8 µA average macropulse current with a 625 µs beam gate, 9 to 11 macropulses at 20 Hz every 5 seconds.	Same as threshold but with 10 µA average macropulse current.
Isotope Production Facility (IPF)	100 pulses/second, 200 µA average current with a 625 µs beam gate.	Same as threshold but with 250 µA average beam current.

3. Financial Schedule ($K)[1]

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
FY 2026	10,000	10,000	9,000
Outyears	160,000	145,000	146,000
Total Design	**170,000**	**155,000**	**155,000**
Construction			
FY 2026	10,000	10,000	2,000
Outyears	659,670	507,732	515,732
Total Construction	**669,670**	**517,732**	**517,732**
TEC			
FY 2026	20,000	20,000	11,000
Outyears	819,670	652,732	661,732
Total TEC	**839,670**	**672,732**	**672,732**
Other Project Costs (OPC)			
FY 2025	13,330	13,330	13,000
FY 2026	37,000	37,000	37,000
Outyears	110,000	110,000	110,330
Total, OPC	**160,330**	**160,330**	**160,330**
Total Project Costs (TPC)			
FY 2025	13,330	13,330	13,000
FY 2026	57,000	57,000	48,000
Outyears	481,732	762,732	772,062
Total TPC	**1,000,000**	**833,062**	**833,062**

[1] The project has not yet been approved for CD-2, and therefore has not been baselined. Out year funding amounts may be revised in future budget requests as NNSA baselines the project in accordance with DOE Order 413.3B.

4. Details of Project Cost Estimate ($K)[1]

	Current Total Estimate	Previous Total Estimate	Previous Validated Baseline
Total Estimated Cost (TEC)			
Design			
Design	132,500	N/A	N/A
Federal Support	7,500	N/A	N/A
Contingency	30,000	N/A	N/A
Total Design	**170,000**	**N/A**	**N/A**
Construction			
Site Preparation	102,732	N/A	N/A
Long-Lead Procurement	80,000	N/A	N/A
Equipment	129,000	N/A	N/A
Construction	75,000	N/A	N/A
Federal Support	16,000	N/A	N/A
Contingency	266,938	N/A	N/A
Total Construction	**669,670**	**N/A**	**N/A**
Total Estimated Cost (TEC)	**839,670**	**N/A**	**N/A**
Contingency, TEC	*296,938*	*N/A*	*N/A*
Other Project Costs (OPC)			
OPC except D&D			
Analysis of Alternatives	230	N/A	N/A
Conceptual Design	8,000	N/A	N/A
Technology Maturation	85,449	N/A	N/A
Federal Support	6,251	N/A	N/A
Start-up & TTO	25,200	N/A	N/A
Project Closeout	5,200	N/A	N/A
Contingency	30,000	N/A	N/A
Total OPC	**160,330**	**N/A**	**N/A**
Contingency, OPC	30,000	*N/A*	*N/A*
Total Project Cost	**1,000,000**	**N/A**	**N/A**
Total Contingency (TEC+OPC)	***326,938***	***N/A***	***N/A***

[1] CD-0 costs estimates are ROM estimates. Cost breakdowns provided are best estimates prior to completing the point estimates. Per the GAO Cost Estimating guidance, the "cone of uncertainty" is large in the early stages of a project. NNSA is depicting this uncertainty at the early stages of a project. The cost breakdown may be revised in future budget requests as NNSA baselines the project in accordance with DOE Order 413.3B.

5. Schedule of Appropriations Requests ($K)[1]

Request Year	Type	Prior Years	FY 2025	FY 2026	Outyears	Total
FY 2026	OPC	0	13,330	37,000	110,000	160,330
	TEC	0	0	20,000	819,670	839,670
	TPC	0	13,330	57,000	929,670	1,000,000

6. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	1Q FY 2034
Expected Useful Life (number of years)	20
Expected Future Start of D&D of this capital asset (fiscal quarter)	1Q FY 2054

Related Funding Requirements
(Budget Authority in Millions of Dollars)

Funding Requirements	Annual Costs		Life Cycle Costs	
Estimate Totals	**Previous Estimate**	**Current Estimate**	**Previous Estimate**	**Current Estimate**
Operations and Maintenance	N/A	18	N/A	360

7. Deactivation and Decommissioning (D&D) Information

D&D is not included in the scope of LAMP.

8. Acquisition Approach

The conceptual design is being led by the LANL Management and Operating (M&O) contractor and will form a management and technical team structure to perform technology maturation, design, production, integration, and commissioning activities. Specific accelerator technology elements of the project may require collaborating with other Department of Energy (DOE) laboratories and/or industries that have the requisite capabilities, expertise, and experience to cost-effectively design and build such elements. The Acquisition Strategy will be developed for the acquisition of the design and construction of the facility as part of the CD-1 approval.

[1] The project has not yet been approved for CD-2, and therefore has not been baselined. Out year funding amounts may be revised in future budget requests as NNSA baselines the project in accordance with DOE Order 413.3B.

26-D-513, Combined Radiation Environments for Survivability Testing (CREST) Complex
Sandia National Laboratories, New Mexico
Project is for Design and Construction

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

Summary

The Fiscal Year (FY) 2026 Request for the Combined Radiation Environments for Survivability Testing (CREST) Complex is $52,248,000 of Total Project Cost (TPC). $48,748,000 of this budget authority is Total Estimated Cost and will initiate preliminary design, with more emphasis on the reactor and nuclear facility design and less on the office and light laboratory design. $3,500,000 of this budget authority is Other Project Cost and will continue the preparation of the preliminary design procurements.

This is the initial submittal of the Construction Project Data Sheet and is a new start in FY 2026. The project began OPC activities in FY 2019 with funding appropriated through the Stockpile Research, Technology, and Engineering Weapons Survivability program. The most recent DOE Order 413.3B, *Program and Project Management for the Acquisition of Capital Assets*, approval is Critical Decision (CD)-0, *Approve Mission Need*, which was approved on August 22, 2019, with a cost range of $380,000,000 to $1,250,000,000. The CREST Capability Analysis of Alternatives (AoA) Final Report was approved on November 18, 2021, with a cost range of $900,000,000 to $2,126,000,000, which is the current cost range until CD-1 is approved. The Deputy Secretary of Energy endorsed the selected alternative on December 21, 2021. CD-1, *Approve Alternate Selection and Cost Range*, is planned for approval by July 31, 2025.

Based on the results of the AoA, the conceptual design that is nearing completion is a hybrid of Alternatives 4a and Alternative 4d (i.e., New Facility + Existing Fuel or New Main Core Fuel + Existing Fuel or New Fuel-Ringed External Cavity (FREC) Fuel + Gamma). The chosen site location is Technical Area 5 (TA V) at Sandia National Laboratories (SNL), Albuquerque, New Mexico, for the newly constructed facility with the following traits:

- Pursue reuse of existing fuel elements and new fuel elements for neutron radiography capability and combine neutron, mechanical shock and prompt gamma.
- Include the facility needed to house the accelerator but allow for the capability to add the accelerator later.

The project is being conducted in accordance with the project management requirements in DOE O 413.3B and will be phased to improve overall execution efficiency. The planning for conceptual design began in FY 2022 after the approval of the AoA and the conceptual design is being executed in multiple packages, as follows: (1) the Nuclear Facility and the Central Utility Building (CUB) and Central Alarm Station (CAS); (2) the Reactor; (3) the Accelerator; and (4) the Office/Light-Laboratory. The ongoing conceptual design activities are slightly ahead of schedule and on budget, as detailed below.

1. The Nuclear Facility and CUB/CAS: The 30% conceptual design comment resolution was completed on June 6, 2023, ahead of schedule. The 60% conceptual design comment resolution was completed on October 25, 2023, ahead of schedule. The 90% conceptual design comment resolution was completed on March 14, 2024, ahead of schedule. The 100% conceptual design final submission was received and comments resolution was completed on May 9, 2024, ahead of schedule.
2. The Reactor: The 30% conceptual design comment resolution was completed on October 5, 2023, slightly behind schedule. The 60% conceptual design comment resolution was completed on February 7, 2024, on schedule. The 90% conceptual design comment resolution was completed on June 13, 2024, on schedule. The 100% conceptual design final submission was received and comment resolution was completed on August 1, 2024, ahead of schedule.
3. The Accelerator: The 30% conceptual design was received on July 31, 2024, on schedule, with comment resolution completed on September 10, 2024, on schedule. The 60% conceptual design comment resolution, including cost and schedule was completed on January 29, 2025, on schedule. The 90% conceptual design comment resolution was completed on May 13, 2025, ahead of schedule. The 100% conceptual design final submission is planned by July 17, 2025, on schedule. The 60% conceptual design submission provides more than 15% design maturity for this Major Item of Equipment, satisfying the conceptual design requirement for non-nuclear scope per NNSA Supplemental Directive 413.3 Appendix D.
4. Office/Light-Laboratory (OLL): The 30% conceptual design was received on August 26, 2024, on schedule, with comment resolution completed on September 18, 2024, on schedule. The 60% conceptual design comment

resolution, including cost and schedule was completed on February 3, 2025, on schedule. The 90% conceptual design comment resolution was completed on April 30, 2025, ahead of schedule. The 100% conceptual design final submission is planned by July 3, 2025, on schedule. The 60% conceptual design submission provides more than 15% design maturity for this facility, satisfying the conceptual design requirement for non-nuclear scope per NNSA Supplemental Directive 413.3 Appendix D.

Funds appropriated under this data sheet may be used for contracted support services to the Federal Program Manager and the Federal Project Director to provide federal oversight support, to conduct independent assessments of the planning and execution of this project required by DOE O 413.3B, and to conduct technical reviews of design and construction documents.

A Federal Project Director (FPD) has yet to be assigned, but a federal project lead has been designated for the project; it is expected that an FPD will be assigned by 4Q FY 2025.

Critical Milestone History

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	CD-4
FY 2026	8/22/2019	2/3/2025	4Q FY 2025	2Q FY 2031	4Q FY 2030	2Q FY 2031	4Q FY 2035

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 7)
CD-4 - Approve Start of Operations or Project Closeout

Fiscal Year	CD-3A
FY 2026	1Q FY 2030

CD-3A – Approve Site Preparation and Long-Lead Procurements

Project Cost History ($K)

($K)

Fiscal Year	TEC, Design	TEC, Construction	TEC, Total	OPC, Total	TPC
FY 2026	620,000	1,275,000	1,895,000	231,000	2,126,000

2. Project Scope and Justification

Scope

The scope of the project is being executed in multiple packages, as follows: (1) the Nuclear Facility and the Central Utility Building (CUB) and Central Alarm Station (CAS); (2) the Reactor; (3) the Accelerator; (4) the Office/Light-Laboratory; and (5) the Modular Office Complex.

1. The Nuclear Facility and CUB/CAS: The CREST Nuclear Facility is a new permanent Hazard Category (HC)-2 facility to provide a combined neutron, gamma, and mechanical shock environment capability for R&D, design, and qualification. It consists of an approximately 80,000 constructible square foot, four-story building (two stories underground, two stories above ground) located within the TA-V Limited Area (LA), and further confined with the boundaries of a Perimeter Intrusion Detection and Assessment System (PIDAS) for heightened security

posture. The facility will include six “hot cells” in the lowest level of the facility. These, and the equipment they contain, support the operation of the reactors/fuel assemblies, neutron radiography, accelerator operations, and handling of radioactive and explosive materials. The PIDAS will be designed with the CREST Nuclear Facility and CUB/CAS in collaboration with SNL-NM security personnel.

The CREST Nuclear facility is supported by a utility and security building, the CUB/CAS, that is a non-nuclear, standalone, permanent building near the nuclear Facility within the TA-V LA, providing the Nuclear Facility with necessary utility and security support identified below:

a. The utility services for the CREST Nuclear Facility (i.e., electrical, water, communications, alarms, security, operations monitoring, fire suppression loop, and emergency response) notably for the reactor systems, Reactor Movement System (RMS), accelerator and accelerator movement system, and ancillary systems.

b. Central alarm station and security system head-end equipment supporting all the critical intrusion detection, assessment, and communications within the Protected Area and CREST Nuclear Facility when the Protected Area Boundary is active.

2. The Reactor: The Reactor Systems include the reactor/fuel assemblies referred to as the Reactor-Actuated Neutron/Gamma Environment Radiation Systems (RANGERS), as well as all supporting ancillary systems to RANGERS. The CREST Reactor Systems will replace (and add to) the existing Annular Core Research Reactor (ACRR) capabilities, and provides gamma, neutron, mechanical shock environments, and neutron radiography. The scope of CREST includes the reuse of the ACRR fuel, but a feasibility study is ongoing to evaluate the possibility of producing new fuel as part of the project. The RANGERS consists of the below four fuel assemblies:

   a. ACRR-II (Annular Core Research Reactor-II): the replacement to the ACRR, the ACRR-II is a research reactor that creates the desired neutron/gamma radiation environment for CREST. The ACRR-II will be suspended from and operated from the RMS, which allows the ACRR-II to be brought into a location which closely couples it to either of the two (2) subcritical assemblies, namely the Fuel-Ringed External Cavity for Large Experiments (FRECLE) and Reactor-Accelerator-Shock Cavity for Large Experiments (RASCLE). ACRR-II utilizes unique uranium dioxide beryllium oxide (UO_2-BeO) fuel. ACRR-II also maintains the 9-in dry central irradiation cavity that ACRR currently has.

   b. FRECLE (Fuel-Ringed External Cavity for Large Experiments): a subcritical assembly designed with a large diameter (24 inches) dry irradiation tube allowing objects under test to be lowered from above the reactor pool to the active fuel region of the assembly core. The FRECLE, when closely coupled to the ACRR-II, utilizes the neutrons streaming from the ACRR-II. FRECLE uses Training, Research, Isotopes, General Atomics (TRIGA) uranium zirconium hydride (UZrH) fuel.

   c. RASCLE (Reactor-Accelerator-Shock Cavity for Large Experiments): a subcritical nuclear-fueled assembly with a large diameter (20 inches) dry irradiation tube allowing objects under test to be lowered from above the reactor pool to the active fuel region of the assembly core. RASCLE, when closely coupled to the ACRR-II, utilizes the neutrons streaming from the ACRR-II. The RASCLE will also have an interface between its irradiation cavity and a gamma-ray-producing high energy electron accelerator transmission line. RASCLE uses TRIGA UZrH fuel.

   d. MUNSTR (Multi-Use Neutron Science and Technology Reactor): a research reactor that provides a nominal 9-inch dry central irradiation cavity, in-core/ex-core irradiation locations, ex-core neutron thermalization chamber(s) with multiple neutron beam ports capable of delivering neutron beams to irradiation locations external to the reactor pool for neutron radiography or thermal neutron experimentation. MUNSTR uses TRIGA UZrH fuel.

3. The Accelerator: The Accelerator provides a high energy, high current electron beam suitable for prompt-gamma radiation effects testing. Housed on the lowest level of the CREST Nuclear Facility in the accelerator bay, at the same elevation as the RANGERS cores, the accelerator will sit upon an accelerator movement cart for

positioning with up to (3) three RANGERS beam ports and maintenance bays. It should be noted that the AoA Approval stated that the Nuclear Facility shall be able to house the accelerator but allow for the capability to add the accelerator at a later date. The current conceptual design accommodates the ability to add the accelerator at a future date, however, the current project execution plan is to include the accelerator as part of the current scope to be installed into the Nuclear Facility from its inception.

4. Office/Light-Laboratory: The Office and Light Laboratory Building (OLL) is a non-nuclear, standalone, permanent, administrative building near the CREST Nuclear Facility within the TA-V LA. The OLL is designed to house TA-V staff and experimenters and provide simulation and laboratory environments to replicate operations within the CREST Nuclear Facility. The OLL simulator provides critical training capabilities, which are key to two requirements stated in the AoA: 1) minimizing downtime during transition to CREST, and 2) enabling increased operational throughput.

5. The Modular Office Complex (MOC) provides temporary offices for the CREST Project, to collocate the CREST Project Team, NNSA, and General Contractor staff during preliminary and final design, construction, and start-up of the CREST Project. The MOC includes a permanent parking lot that will be used long-term for the OLL as the OLL is located within the TA-V LA where space and access are limited for personal vehicles.

Justification

The Nuclear Modernization Program is dependent on reactor-based radiation environments for hostile environment survivability qualification. Every weapon system in the stockpile has been qualified at the legacy ACRR, and this qualification capability will be required for the foreseeable modernization future. Existing operations at the 62-year-old facility housing ACRR do not provide sufficient capacity to meet mission needs. Deficiencies in the existing capability risk failure of the capability, and these deficiencies pose significant risk to the missions and programs of Defense Programs. Maintenance downtime is increasing, and this extended downtime appears likely to continue, limiting operational capacity at the ACRR and other test facilities. The facility demand is expected to increase significantly as the NNSA Stockpile Modernization Programs proceed. In addition, legacy radiation environmental test capability (ACRR and other test facilities) can test for the effects of individual neutron, gamma, and blast radiation environments but cannot produce the combined environments that are needed to ensure we are responsive to future hostile threats. Qualification with modeling alone is insufficient. Due to the unique design of the ACRR reactor capability, other reactors within the government and universities do not provide sufficient capabilities, and other commercial capabilities are nonexistent. The advanced capability needs to be in place within 10 years to replace ACRR to meet expected hostile environment survivability testing requirements for future stockpile systems.

Preliminary Key Performance Parameters (KPPs)

The preliminary threshold KPPs, represent the minimum acceptable performance that the project must achieve. Achievement of the preliminary threshold KPPs will be a prerequisite for approval of CD-4, *Project Completion*. The preliminary Objective KPPs represent the desired project performance. These initial KPPs were developed as part of the Program Requirement Document and are shown below. The threshold and objective values are not shown here due to their classification and can be found in supporting documentation.

#	Preliminary Key Performance Parameters (KPPs)	Threshold
1	Capable of irradiating classified (up to SRD/∑15) test objects, and the facility capable of storing classified objects, collecting classified data and performing classified computing and networking:	N/A
2	Capable of materials hazards assembly, handling, packaging, and storage: e.g., criticality safety, CAT 1 SNM, energetic materials, radioactive materials, explosives, etc:	
3	The dry irradiation volume shall accommodate electronic objects with dimensions up to:	
4	The dry irradiation volume shall accommodate all other objects with dimensions up to:	
5	Capable of performing dry irradiation testing of all weapon items:	
6	The irradiation volume(s) shall be capable of accommodating all objects along with any containment for safety:	
7	Provide in situ measurements from test objects during irradiation:	

#	Preliminary Key Performance Parameters (KPPs)	Threshold
8	Capable of producing single pulses, multiple pulses and shaped pulses in a combined neutron/gamma-ray environment in the same experiment:	
9	Capable of modifying the full width half max and magnitude of multiple pulse neutron/gamma environment in the same experiment:	
10	Capable of timing the neutron/gamma environment with an experiment trigger of (μsec):	
11	The full-width half-maximum for a maximum single pulse shall be able to achieve a value as low as (msec):	
12	Capable of modifying the pulse width of the neutron/gamma environment up to (sec):	
13	The fraction of neutrons in the irradiation volume with energies greater than 10 keV shall be at least:	
14	Capable of producing a steady state neutron/gamma environment of (MW):	
15	The neutron maximum pulse to pulse full width half max variability between experiments shall be no more than:	
16	Across a 9" diameter, the average variability in the irradiation volume neutron/gamma radiation source shall be no more than:	
17	Across a 20 cm height, the average variability in the irradiation volume neutron/gamma radiation source shall be no more than:	
18	Neutron fluence for a maximum pulse (n/cm2):	
19	Neutron flux (n/cm2-sec):	
20	1-MeV damage equivalent in Si neutron fluence (Si eqv.-n/cm2):	
21	Total ionizing dose in a combined neutron/gamma-ray requirement (krads(Si)):	
22	Shock environments free field (g's):	
23	Capable of generating fission heating values in plutonium of (fissions/kg):	
24	Capable of generating a cumulative dose in rad(10B) of:	
25	Capable of generating a dose rate in rad(10B)/sec of:	
26	Capable of adjusting the ratio of the 1-MeV DES fluence to the total ionizing dose in krads(Si) / 1012:	
27	Capable of producing a continuous thermal (without fast neutrons or gammas as measured in dosimetry) neutron fluence rate in n/cm2-sec that can be used to support single event upset environment of:	
28	Capable of producing a microscopic neutron cross section (probability in barns-n/cm2) of producing recoil atoms with an LET greater than 4 MeV-cm2/mg in silicon that is at least:	

3. Financial Schedule

($K)

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
FY 2026	48,748	48,748	43,748
Out Years	571,252	571,252	576,252
Total Design	**620,000**	**620,000**	**620,000**
Construction			
Out Years	1,285,000	1,285,000	1,285,000
Total Construction	**1,285,000**	**1,285,000**	**1,285,000**
TEC			

FY 2026	48,748	48,748	43,748
Out Years	1,856,252	1,856,252	1,861,252
Total TEC	**1,905,000**	**1,905,000**	**1,905,000**

Other Project Costs (OPC)			
Prior Years	44,886	44,886	28,998
FY 2024	31,668	31,668	32,000
FY 2025	24,000	24,000	35,000
FY 2026	3,500	3,500	8,056
Out Years	116,946	116,946	116,946
Total, OPC	**221,000**	**221,000**	**221,000**
Total Project Costs (TPC)			
Prior Years	44,886	44,886	28,998
FY 2024	31,668	31,668	32,000
FY 2025	24,000	24,000	35,000
FY 2026	52,248	52,248	51,804
Out Years	1,973,198	1,973,198	1,978,198
Total TPC	**2,126,000**	**2,126,000**	**2,126,000**

4. Details of Project Cost Estimate ($K)

($K)

		Current Total Estimate	Previous Total Estimate	Previous Validated Baseline
Total Estimated Cost (TEC)				
Design				
	Design	400,000	N/A	N/A
	Federal Design Review Support	5,000	N/A	N/A
	Contingency	215,000	N/A	N/A
Total Design		**620,000**	**N/A**	**N/A**
Construction				
	Site Work	30,000	N/A	N/A
	Equipment	130,000	N/A	N/A
	Construction	660,000	N/A	N/A
	Federal Support	15,000	N/A	N/A
	New Fuel	20,000	N/A	N/A
	Contingency	430,000	N/A	N/A
Total Construction		**1,285,000**	**N/A**	**N/A**
Total Estimated Cost (TEC)		**1,905,000**	**N/A**	**N/A**
Contingency, TEC		*645,000*	*N/A*	*N/A*
Other Project Costs (OPC)				
OPC except D&D			N/A	N/A
	Analysis of Alternatives	965	N/A	N/A
	Conceptual Design	90,000	N/A	N/A
	Federal Support	4,000	N/A	N/A
	Environmental & Permitting	20,000	N/A	N/A
	Start-up & TTO	60,000	N/A	N/A
	Project Closeout	10,000	N/A	N/A
	Contingency	36,035	N/A	N/A
Total OPC		**221,000**	**N/A**	**N/A**
Contingency, OPC		*36,035*	*N/A*	*N/A*
Total Project Cost		**2,126,000**	**N/A**	**N/A**
Total Contingency (TEC+OPC)		***681,035***	***N/A***	***N/A***

5. Schedule of Appropriations Requests

($K)

Request Year	Type	Prior Years	FY 2024	FY 2025	FY2026	Out Years	Total
FY 2026	OPC	44,886	31,668	24,000	3,500	126,946	231,000
	TEC	0	0	0	48,748	1,846,252	1,895,000
	TPC	44,886	31,668	24,000	52,248	1,973,198	2,126,000

6. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	4Q FY 2035
Expected Useful Life (number of years)	50
Expected Future Start of D&D of this capital asset (fiscal quarter)	4Q FY 2085

Related Funding Requirements
(Budget Authority in "Then Year" Millions of Dollars)

Funding Requirements	Annual Costs		Life Cycle Costs	
Estimate Totals	Previous Estimate	Current Estimate	Previous Estimate	Current Estimate
Operations and Maintenance[1]	N/A	$60M	N/A	$13,800-$16,900

7. D&D Information

Deactivation and Decommissioning (D&D) is the scope required to comply with the One-for-One Requirement as outlined in DOE O 413.3B to "eliminate excess facilities at least equal to the square footage of the new facilities being requested." The Deputy Administrator for Defense Programs chose to move D&D costs outside of the project and into the life-cycle cost estimate as D&D is not required for the construction of the CREST facility. As such, these D&D costs are not included in the TPC.

	Square Feet
New area being constructed by this project	150,000
Area of D&D in this project at SNL	NA
Area at SNL to be transferred, sold, and/or D&D outside the project, including area previously "banked"	150,000
Area of D&D in this project at other sites	NA

8. Acquisition Approach

The conceptual design is being led by the SNL Management and Operating (M&O) contractor utilizing multiple subcontracted Architectural and Engineering firms. The Acquisition Strategy is being developed by the Contracting Officer and FPD for the acquisition of the design and construction of the facility as part of the CD-1 approval.

[1] The current estimates are from the AoA and may be updated based on the CD-1 approval.

24-D-513, Z-Pinch Experimental Underground System (ZEUS) Test Bed (ZTBFI) Facilities Improvement
Nevada National Security Site (NNSS), Mercury, Nevada
Project is for Design and Construction

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

Summary

The Fiscal Year (FY) 2026 Request for the Z-Pinch Experimental Underground System (ZEUS) Test Bed Facilities Improvement (ZTBFI) project is $72,000,000 of Total Project Cost (TPC) funding. The FY 2026 request will continue construction activities. The most recent Critical Decision (CD) for ZTBFI was the Baseline Change Proposal (BCP) in December 2024, which increased the TPC to $69,600,000 and set the CD-4 date to February 2027 for Subproject 010.The CD-1 approval for the overall project set the preliminary cost estimate range at $49,500,000 to $125,500,000 and the projected CD-4 date at the second quarter of FY 2026, while the CD-2/3 for Subproject 010 set the original baseline TPC at $46,600,000 and the original CD-4 date at November 2025. The current estimated TPC for the total project is $233,161,000 and the current estimated CD-4 is at the first quarter of FY 2030. Subproject 020 – as well as the overall project - is projecting a CD-1R/2/3 approval in 1Q FY 2026.

A Federal Project Director has been assigned to the project.

Significant Changes:

- The project was phased into 2 subprojects as part of the transition strategy to allow ongoing construction to continue while the rest of the DOE O 413.3B requirements were developed.
- Subproject 010 executed a Baseline Change Proposal (BCP) in December 2024 which increased the TPC to $69,600,000 and set the CD-4 date to February 2027. This BCP transferred scope from subproject 020 to subproject 010 allow construction activities to occur while subproject 020 receives CD-2/3 approval. The subproject is executing the currently baselined scope on budget and on schedule.
- The total project cost for ZTBFI has increased from the CD-1 top end range estimate of $125,500,000 due to underestimation of the costs for initial new drift mining on backshift, lower productivity working in a resource-constrained environment (ventilation), double-handling of mined material during disposal due to hoist outages and other interruptions, increased costs and risks associated with the use of subcontractor labor versus in-house workforce, and a more accurate accounting of the costs necessary for readiness, commissioning, and start of operations.
- Corrections were made to align with past actual costs.

Critical Milestone History

24-D-513: Total Project

Fiscal Quarter or Date

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	D&D Complete	CD-4
FY 2024	9/25/2014	9/13/2021	3QFY2023	3QFY2024	4QFY2023	3QFY2024	N/A	2QFY2026
FY 2026	9/25/2014	9/13/2021	4/03/2024	1QFY2026	4QFY2025	1QFY2026	N/A	1QFY2030

24-D-513-010: NDSE Mining and Critical Procurements

Fiscal Quarter or Date

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	D&D Complete	CD-4
FY 2026	9/25/2014	9/13/2021	4/03/2024	4/03/2024	5/23/2023	4/03/2024	N/A	2QFY2027

24-D-513-020: NDSE Laboratory and Support Infrastructure

Fiscal Quarter or Date

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	D&D Complete	CD-4
FY 2026	9/25/2014	9/13/2021	4/03/2024	1QFY2026	4QFY2025	1QFY2026	N/A	1QFY2030

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 Alternative Selection and Cost Range
CD-2 – Approve Performance Baseline
Final Design Complete – Estimated/Actual date the project design will be/was complete
CD-3 – Approve Start of Construction/Execution
D&D Complete – Completion of D&D work
CD-4 – Approve Start of Operations or Project Closeout

Project Cost History ($K)

24-D-513: Total Project

Fiscal Year	TEC, Design	TEC, Construction	TEC, Total	OPC, Except D&D	OPC, D&D	OPC, Total	TPC
FY 2024	4,692	118,254	122,946	2,515	N/A	2,515	125,461
FY 2026	46,281	182,180	228,461	4,700	N/A	4,700	233,161

24-D-513-010: NDSE Mining and Critical Procurements

Fiscal Year	TEC, Design	TEC, Construction	TEC, Total	OPC, Except D&D	OPC, D&D	OPC, Total	TPC
FY 2026	4,081	65,519	69,600	N/A	N/A	N/A	69,600

24-D-513-020: NDSE Laboratory and Support Infrastructure

Fiscal Year	TEC, Design	TEC, Construction	TEC, Total	OPC, Except D&D	OPC, D&D	OPC, Total	TPC
FY 2026	42,200	116,661	158,861	4,700	N/A	4,700	163,561

2. Project Scope and Justification

Scope

The ZTBFI project includes the design, construction, and commissioning of the ZEUS Test Bed and systems to support dense plasma focus (DPF) diagnostics. This area will be used for Neutron Diagnosed Subcritical Experiments (NDSE). Also included are safety basis and implementation activities. The project underground scope includes an experimental room with a containment plug, process control system, safety interlock system, diagnostic infrastructure, and ancillary systems (overhead handling systems, power, cooling, ventilation, and shielding).

24-D-513-010 includes providing new access drifts and inverts for the ZEUS DPF and Gamma Ray Detectors, and necessary critical procurements for infrastructure. While driven by the same mission in the ECSE subprogram, it is a subproject that can be designed and completed separately from the other subproject.

14-D-513-020 includes the development of existing and new drifts for the ZEUS DPF, construction of a new infrastructure for the NDSE Zero Point Operations Area (ZPOA), construction of new utility infrastructure for power and chilled water, and support installation of neutron and other diagnostic equipment, including supporting equipment and rooms.

Justification

The enhancements to the Principal Underground Laboratory for Subcritical Experimentation (PULSE) Complex included in this line item will provide the drifts and the supporting structures, systems, and components necessary for NDSE measurements to diagnose the subcritical hydrodynamic integrated weapons experiments using plutonium.

NNSA plans long-term investments supporting plutonium science at the NNSS. NNSS is the only site in the United States for experiments combining high explosives and plutonium, a core capability for NNSA's Stockpile Stewardship Program. Funds appropriated under this data sheet may be used for contracted support services to the Federal Program Manager and the Federal Project Director to conduct independent assessments of the planning and execution of this project and to conduct technical reviews of design and construction documents.

The ECSE program requirements include x-radiography capability (provided via the ASD/UCEP projects), and Neutron Diagnosed Subcritical Experiment (NDSE) measurement capabilities, which will be provided through the dense plasma focus system installed in the ZEUS Testbed.

The project will be conducted in accordance with the project management requirements in DOE O 413.3B, *Program and Project Management for the Acquisition of Capital Assets*. As allowed by DOE O 413.3B, a tailoring strategy will be employed.

Key Performance Parameters (KPPs)

The KPPs represent the minimum acceptable performance that the project must achieve for approval of CD-4, *Project Completion*.

24-D-513-010: NDSE Mining and Critical Procurements

Performance Measures	Completion Criteria
Provide temporary ventilation and power sufficient to allow excavations in the new and extended drifts.	Documented in the U1a Complex – ZEUS Test Bed Drift Demolition and Mining Plan (02141-RPT-015).
Provide a drift layout suitable for invert construction and permanent utility installation in support of the ZEUS NDSE System and Vessel Ops.	Documented in the U1a Complex – ZEUS Test Bed Drift Demolition and Mining Plan (02141-RPT-015).
Provide an invert suitable for installation of the ZEUS NDSE System and Vessel Ops.	Documented in the Program Requirements Document and the Project Execution Plan.

24-D-513-020: NDSE Laboratory and Support Infrastructure

Performance Measures	Completion Criteria
Provide an invert suitable for installation of the ZEUS NDSE System and Vessel Ops.	Documented in the Program Requirements Document and the Project Execution Plan.
Provide utilities and mechanical systems sufficient to support operation and maintenance of the NDSE systems.	Documented in the Program Requirements Document and the Project Execution Plan.
Provide a structure and mechanical systems that meets requirements for conducting SCEs.	Documented in the Program Requirements Document and the Project Execution Plan.
Provide infrastructure that supports installation of a centralized control of operation system of the ZEUS DPF.	Documented in the Program Requirements Document and the Project Execution Plan.
Provide infrastructure that supports acquisition of experiment diagnostic data.	Documented in the Program Requirements Document and the Project Execution Plan.

3. **Financial Schedule**
24-D-513: Total Project

($K)

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
Prior Years	26,127	26,127	18,797
FY 2024	20,154	20,154	14,075
FY 2025	0	0	10,709
FY 2026	0	0	2,700
Total Design	**46,281**	**46,281**	**46,281**
Construction			
Prior Years	18,319	18,319	10,219
FY 2024	59,346	59,346	14,253
FY 2025	0	0	32,347
FY 2026	72,000	72,000	49,600
Out Years	32,015	32,015	75,261
Total Construction	**181,680**	**181,680**	**181,680**
TEC			
Prior Years	44,446	44,446	29,016
FY 2024	79,500	79,500	28,328
FY 2025	0	0	43,056
FY 2026	72,000	72,000	52,300
Out Years	32,015	32,015	75,261
Total TEC	**227,961**	**227,961**	**227,961**

Other Project Costs (OPC)			
Prior Years	1,015	1,015	1,015
FY 2024	500	500	0
FY 2025	0	0	0
FY 2026	0	0	500
Out Years	3,685	3,685	3,685
Total, OPC	**5,200**	**5,200**	**5,200**
Total Project Costs (TPC)			
Prior Years	45,461	45,461	30,031
FY 2024	80,000	80,000	28,328[1]
FY 2025	0	0	43,056
FY 2026	72,000	72,000	52,800
Out Years	35,700	35,700	78,946
Total TPC	**233,161**	**233,161**	**233,161**

[1] The actual costs represented here may not match the costs in the financial system because the project transitioned from a minor construction project to a line-item project in FY 2024.

24-D-513-010: NDSE Mining and Critical Procurements

($K)

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
Prior Years	4,081	4,081	4,081
Total Design	**4,081**	**4,081**	**4,081**
Construction			
Prior Years	18,319	18,319	10,219
FY 2024	46,700	46,700	14,253
FY 2025	0	0	32,347
FY 2026	0	0	8,200
Out Years	0	0	0
Total Construction	**65,019**	**65,019**	**65,019**
TEC			
Prior Years	22,400	22,400	14,300
FY 2024	46,700	46,700	14,253
FY 2025	0	0	32,347
FY 2026	0	0	8,200
Out Years	0	0	0
Total TEC	**69,100**	**69,100**	**69,100**
Other Project Costs (OPC)			
FY 2024	500	500	0
FY 2025	0	0	0
FY 2026	0	0	500
Out Years	0	0	0
Total, OPC	**500**	**500**	**500**
Total Project Costs (TPC)			
Prior Years	22,400	22,400	14,300
FY 2024	47,200	47,200	14,253
FY 2025	0	0	32,347
FY 2026	0	0	8,700
Out Years	0	0	0
Total TPC	**69,600**	**69,600**	**69,600**

($K)

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
Prior Years	22,046	22,046	14,716
FY 2024	20,154	20,154	14,075
FY 2025	0	0	10,709
FY 2026	0	0	2,700
Total Design	**42,200**	**42,200**	**42,200**
Construction			
FY 2024	12,646	12,646	0
FY 2025	0	0	0
FY 2026	72,000	72,000	41,400
Out Years	32,015	32,015	75,261
Total Construction	**116,661**	**116,661**	**116,661**
TEC			
Prior Years	22,046	22,046	14,716
FY 2024	32,800	32,800	14,075
FY 2025	0	0	10,709
FY 2026	72,000	72,000	44,100
Out Years	32,015	32,015	75,261
Total TEC	**158,861**	**158,861**	**158,861**
Other Project Costs (OPC)			
Prior Years	1,015	1,015	1,015
FY 2024	0	0	0
FY 2025	0	0	0
FY 2026	0	0	0
Out Years	3,685	3,685	3,685
Total, OPC	**4,700**	**4,700**	**4,700**
Total Project Costs (TPC)			
Prior Years	23,061	23,061	15,731
FY 2024	32,800	32,800	14,075
FY 2025	0	0	10,709
FY 2026	72,000	72,000	44,100
Out Years	35,700	35,700	78,946
Total TPC	**163,561**	**163,561**	**163,561**

4. Details of Project Cost Estimate

24-D-513: Total Project

($K)

		Current Total Estimate	Previous Total Estimate	Previous Validated Baseline
Total Estimated Cost (TEC)				
Design				
	Design	42,531	3,989	N/A
	Federal Design Review Support	1,250	703	N/A
	Contingency	2,500	0	N/A
Total Design		**46,281**	**4,692**	**N/A**
Construction				
	Site Work	0	0	N/A
	Equipment	0	0	N/A
	Construction	153,045	75,495	N/A
	Federal Support	5,250	13,323	N/A
	Contingency	23,385	29,436	N/A
Total Construction		**181,680**	**118,254**	**N/A**
Total Estimated Cost (TEC)		**227,961**	**122,946**	**N/A**
Contingency, TEC		*25,885*	*29,436*	*N/A*
Other Project Costs (OPC)				
OPC except D&D		0	0	N/A
	Conceptual Planning	90	90	N/A
	Conceptual Design	925	925	N/A
	Other OPC Costs	1,200	1,500	N/A
	Start-up	2,985	N/A	N/A
	Equipment Move	0	N/A	N/A
	Contingency	0	0	N/A
Total OPC		**5,200**	**2,515**	**N/A**
Contingency, OPC		*0*	*0*	*N/A*
Total Project Cost		**233,161**	**125,461**	**N/A**
Total Contingency (TEC+OPC)		***25,885***	***29,436***	***N/A***

24-D-513-010: NDSE Mining and Critical Procurements

($K)

		Current Total Estimate	Previous Total Estimate	Previous Validated Baseline
Total Estimated Cost (TEC)				
Design				
	Design	3,831	N/A	3,831
	Federal Design Review Support	250	N/A	250
	Contingency	0	N/A	0
Total Design		**4,081**	**N/A**	**4,081**
Construction				
	Site Work	0	N/A	0
	Equipment	0	N/A	0
	Construction	56,924	N/A	34,153
	Federal Support	1,250	N/A	1,250
	Contingency	6,845	N/A	6,616
Total Construction		**65,019**	**N/A**	**42,019**
Total Estimated Cost (TEC)		**69,100**	**N/A**	**46,100**
Contingency, TEC		*6,845*	*N/A*	*6,616*
Other Project Costs (OPC)				
OPC except D&D			N/A	
	Conceptual Planning	0	N/A	0
	Conceptual Design	0	N/A	0
	Other OPC Costs	500	N/A	500
	Start-up	0	N/A	0
	Equipment Move	0	N/A	0
	Contingency	0	N/A	0
Total OPC		**500**	**N/A**	**500**
Contingency, OPC		*0*	*N/A*	*0*
Total Project Cost		**69,600**	**N/A**	**46,600**
Total Contingency (TEC+OPC)		***6,845***	***N/A***	***6,616***

($K)

		Current Total Estimate	Previous Total Estimate	Previous Validated Baseline
Total Estimated Cost (TEC)				
Design				
	Design	38,700	N/A	N/A
	Federal Design Review Support	1,000	N/A	N/A
	Contingency	2,500	N/A	N/A
Total Design		**42,200**	**N/A**	**N/A**
Construction				
	Site Work	0	N/A	N/A
	Equipment	0	N/A	N/A
	Construction	96,121	N/A	N/A
	Federal Support	4,000	N/A	N/A
	Contingency	16,540	N/A	N/A
Total Construction		**116,661**	**N/A**	**N/A**
Total Estimated Cost (TEC)		**158,861**	**N/A**	**N/A**
Contingency, TEC		*19,040*	*N/A*	*N/A*
Other Project Costs (OPC)				
OPC except D&D				
	Conceptual Planning	90	N/A	N/A
	Conceptual Design	925	N/A	N/A
	Other OPC Costs	700	N/A	N/A
	Start-up	2,985	N/A	N/A
	Equipment Move	0	N/A	N/A
	Contingency	0	N/A	N/A
Total OPC		**4,700**	**N/A**	**N/A**
Contingency, OPC		*0*	*N/A*	*N/A*
Total Project Cost		**163,561**	**N/A**	**N/A**
Total Contingency (TEC+OPC)		***19,040***	***N/A***	***N/A***

5. Schedule of Appropriations Requests

($K)

Request Year	Type	Prior Years	FY 2024	FY 2025	FY2026	Outyears	Total
FY 2024	TEC	44,446	78,500	0	N/A	N/A	122,946
	OPC	1,015	1,500	0	N/A	N/A	2,515
	TPC	45,461	80,000	0	N/A	N/A	125,461
FY 2026	TEC	44,446	79,500	0	72,000	32,015	227,961
	OPC	1,015	500	0	0	3,685	5,200
	TPC	45,461	80,000	0	72,000	35,700	233,161

6. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy	2Q FY 2030
Expected Useful Life	30
Expected Future Start of D&D of this capital asset	2Q FY 2060

Related Funding Requirements
(Budget Authority in Millions of Dollars, BY 2028)

	Annual Costs		Life Cycle Costs	
	Previous Total Estimate	Current Total Estimate	Previous Total Estimate	Current Total Estimate
Operations and Maintenance	6.3	6.3	189	189

7. D&D Information

Deactivation and Decommissioning (D&D) is not included in the scope of this project because the new area being constructed in this project is not replacing existing facilities.

8. Acquisition Approach

The project is being managed by the NNSS Management and Operating (M&O) contractor because of operations within the PULSE Complex, which is an underground facility with limited access. Design and construction of the underground modifications will be performed by the NNSS M&O contractor through the M&O cost-plus contract. The project is intending to subcontract out a significant part of the work in Subproject 020 (with the exception of some structural type work), primarily utility installation. The intent is to have the subcontractor provide the labor rather than relying on resource sharing of local labor with the other projects, which can cause delays due to availability. Elimination of the fire extinguishing system and the risks that come with design/installation of such a system will also reduce direct costs and risk profile amounts.

Academic Programs

Overview

The National Nuclear Security Administration's Academic Programs ensure that U.S. preeminence is maintained in key science, technology, engineering, and mathematics (STEM) fields required to ensure the continued safe stewardship of the nuclear weapons' stockpile. U.S. preeminence in specific fields is a vital component of global nuclear deterrence. Students are trained in these key disciplines to build a talent pipeline to fill workforce vacancies, and research is conducted in these key disciplines to ensure that the U.S. is at the forefront of technical advances that are crucial to modernizing the stockpile. Some examples of critical fields are nuclear science, radiochemistry, properties of materials under extreme conditions, energetic materials, high energy density physics, hypersonics, advanced manufacturing, modeling and simulation, verification and validation, and computational science. The program's multi-university Centers of Excellence, fellowships, awards, and other funding opportunities offer an introduction to the mission and people in national laboratories. These relationships are instrumental to establishing a workforce pathway that strengthens the future enterprise.

The objectives of Academic Programs are threefold:

1. Develop a pipeline of individuals trained in key technical disciplines to fill workforce vacancies needed to ensure the continued safe stewardship of the nuclear weapons' stockpile.
2. Ensure that expertise is in place inside of the U.S. to provide peer review, crosscheck, and ready response to emerging global challenges to nuclear security.
3. Enable scientific innovation to strengthen the basic fields of research relevant to nuclear security and to modernizing the nuclear weapons' stockpile.

Academic Programs enable powerful and comprehensive STEM research for education through a variety of methods. Investments in consortia and centers of excellence provide collaborative partnerships ready to tackle large questions through multi-disciplinary approaches, by leveraging preeminent scientists in relevant fields. Research awards and focused investigatory centers support individual principal investigators to foster new breakthroughs by providing flexibility for research innovation and career growth. Support to eligible institutions of higher education prepare an adaptable and highly-skilled workforce of talented students through strategic partnerships. Fellowships provide graduate students with opportunities to connect with NNSA mission work and provide direct experiences at nuclear security enterprise (NSE) sites. User facilities provide opportunities for academic partners to use NNSA's cutting-edge research facilities to expand the frontiers of current scientific understanding. All Academic Programs focus on quality science and developing mission-ready researchers through competitive awards, connection with NNSA mission work at national security laboratories, nuclear weapons production facilities, and nuclear security sites and provide a view into NSE's future needs and opportunities.

Academic Programs is made up of six subprograms:

1. Stewardship Science Academic Alliance (SSAA)
2. Minority Serving Institution Partnership Program (MSIPP)
3. Tribal Education Partnership Program (TEPP)
4. Joint Program in High Energy Density Laboratory Plasmas (JPHEDLP)
5. Computational Science Graduate Fellowship (CSGF)
6. Predictive Science Academic Alliance Program (PSAAP)

Academic Programs (-$21,000 million)

The decrease is due to a reprioritization across the enterprise. NNSA will focus Academic Programs activities on the core functions of research and workforce development.

Academic Programs
Funding ($K)

	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request	FY 2026 Request vs. FY 2025 Enacted	
				$	%
Academic Programs	**122,000**	**115,000**	**94,000**	**-21,000**	**-18%**
Stewardship Science Academic Alliance (SSAA)	26,143	27,746	24,971	-2,775	-10%
Minority Serving Institution Partnership Program (MSIPP)	45,000	45,000	25,000	-20,000	-44%
Tribal Education Partnership Program (TEPP)	10,000	10,000	5,000	-5,000	-50%
Joint Program in High Energy Density Laboratory Plasmas (JPHEDLP)	12,912	8,993	8,868	-125	-1%
Computational Science Graduate Fellowship (CSGF)	2,000	2,109	1,985	-124	-6%
Predictive Science Academic Alliance Program (PSAAP)	21,945	21,152	28,176	+7,024	+33%
Pipeline Development	4,000	-	-	-	-
Total, Academic Programs	**122,000**	**115,000**	**94,000**	**-21,000**	**-18%**

Stewardship Science Academic Alliance (SSAA)

Description

The Stewardship Science Academic Alliance (SSAA) subprogram supports scientific academic research programs to develop the next generation of highly trained technical workers able to support its core mission and ensure a strong community of technical peers, external to NNSA national laboratories, capable of providing peer review and scientific competition to strengthen the basic fields of research relevant to NSE.

The SSAA subprogram funds collaborative centers of excellence and individual investigator research projects which conduct fundamental science and technology research of relevance to stockpile stewardship. Current technical areas include studies of materials under extreme conditions, low-energy nuclear science, high energy density physics, and radiochemistry. SSAA funding supports research at approximately 80 universities, including training of over 200 graduate students and post-doctoral researchers. A key element of both centers of excellence and individual investigator awards is the connection of students with the NSE. These opportunities are focused on technical fields critical to stewardship science, building a field of talented researchers and committed doctoral students sharing a common desire to advance science while contributing to national security.

The SSAA subprogram also funds the Stewardship Science Graduate Fellowship (SSGF) and the Laboratory Residency Graduate Fellowship (LRGF) with the goal of addressing workforce needs by providing financial support and professional development opportunities to students pursuing a Ph.D. in fields of study that address complex science and engineering problems critical to stockpile stewardship. These fellowships require students to spend extended time working at the NNSA labs.

Highlights of the FY 2026 Budget

- Supports awards from the FY 2024 notice of funding opportunity for SSAA individual investigator research projects to solicit scientific research in areas crucial to the Stockpile Stewardship Program.
- Provides support for ongoing SSAA centers of excellence.
- Continues to provide support and hands-on training for graduate students in areas relevant to stockpile stewardship, connecting these students with opportunities at the national laboratories, by placing a new, annual cohort of fellows as part of the SSGF and LRGF graduate fellowship programs.
- Sponsors the annual SSAP symposium, bringing together research teams supported by the SSAA and the JPHEDLP Programs. In addition to highlighting current research and encouraging collaboration, a focus on students includes activities such as poster competitions, student lunch with lab representatives, and “lab hour” highlighting laboratory directions and opportunities for students/graduates.

Stewardship Science Academic Alliance (-$2.775 million)

- The decrease reflects the prioritization of core SSAA activities, including the Centers of Excellence, SSGF, LRGF, and hosting the SSAP symposium.

Minority Serving Institution Partnership Program (MSIPP) and Tribal Education Partnership Program (TEPP)

Description

The mission of the NNSA's Minority Serving Institution Partnership Program (MSIPP) and Tribal Education Partnership Program (TEPP) is to create and support a sustainable career pathway that prepares talented students to make immediate and significant contributions to the Nuclear Security Enterprise (NSE). MSIPP develops strategic partnerships between Institutions of Higher Education (IHEs) and the Nuclear Security Enterprise. MSIPP and TEPP serve as a national platform for fostering strategic collaborations between IHEs and the NSE by facilitating partnerships that leverage shared expertise and innovative research opportunities while aligning research and education with national security priorities and creating career pathways to build workforce capacity.

The two programs have the following objectives:

1. Increasing the number of competitive and highly skilled students hired into the NSE's STEM workforce.
2. Building and strengthening STEM research and educational capabilities at Institutions of Higher Education.
3. Developing collaborations and fostering a network of partnerships between IHEs and the NSE.
4. Growing the number of students seeking STEM-focused degrees.

NNSA continues to develop the next-generation workforce through MSIPP and TEPP which together fund 36 consortia consisting of 55 IHEs, including 19 Historically Black Colleges and Universities, 26 Hispanic Serving Institutions, 1 Predominantly Black Institution, and 6 Tribal Colleges and Universities, along with 15 NSE facilities.

Highlights of the FY 2026 Budget

- Supports consortium-based model focused on capacity building, research, student enrichment programs, and internships in STEM in alignment with NSE.
- Supports student engagement and internship opportunities, sustaining the career pathway for talented students into the NSE.
- Continues existing partnerships with IHEs.
- Supports existing partnerships between Junior and Community Colleges and the NSE with a focus on trade and skilled labor fields of study.

Minority Serving Institution Partnership Program (-$20.000 million)

- This decrease will continue to enable the mission of MSIPP, and sustain existing collaborations between Institutions of Higher Education and the NSE, while supporting existing STEM research, educational and technical capacity building, and student experiences offered through the program

Tribal Education Partnership Program (-$5.000 million)

- This decrease will sustain existing collaborations between Institutions of Higher Education and the NSE, while supporting educational and technical capacities, and student experiences offered through the program.

Joint Program in High Energy Density Laboratory Plasmas

Description

High Energy Density (HED) states are central to many aspects of nuclear weapons. Maintaining a strong HED academic community in this unique field will be critical for the future needs of a modern nuclear stockpile. The Joint Program in High Energy Density Laboratory Plasmas (JPHEDLP) is designed to steward the study of laboratory HED plasma physics by funding academic research of ionized matter in laboratory experiments. The program has three primary elements: individual investigator research awards, research centers of excellence, and facility access.

Individual investigator grants
NNSA's Office of Defense Programs partners with DOE's Office of Fusion Energy Sciences in the Office of Science to issue an annual joint solicitation for HED Laboratory Plasmas research. Coordination across the Department enables the support of a strong and broad academic presence in HED science, leveraging common interests while assuring NNSA specific interests in this area remain vibrant. Competitively awarded research projects are selected through joint solicitation conducted in coordination with the Office of Science.

Research Centers of Excellence
The JPHEDLP funding also supports HED centers of excellence selected under the competitive SSAA process. Centers of Excellence are an integrated, multi-institutional, collaborative effort focused on a central problem or theme. These centers work closely with NSE scientists and maintain a core set of academic expertise in key technical areas.

Facility access
Supports broad, scientific facility access to apply unique tools to accomplish cutting-edge science. Provides hands-on research experience to academic and industrial researchers using the Omega and Omega EP lasers and other NNSA facilities as tools for conducting basic research experiments. In the pursuit of fundamental science advances, the innovative development of diagnostics and platforms by user facility partners often have proven beneficial to NNSA experimental efforts. Specialized educational opportunities train and attract students in HED science. The JPHEDLP provides funding for HED summer schools and facility workshops. Additionally, JPHEDLP funding supports the ZNetUS program that provides access to a network of pulsed power facilities across the US for research and training.

Highlights of the FY 2026 Budget

- Expands opportunities for national collaboration in high energy density science research through the enhancement of existing grants and cooperative agreements, as well as the establishment of new financial assistance awards.
- Supports academic research centers of excellence in HED science.
- Awards academic research grants in HEDLP competitively awarded through annual HEDLP Funding Opportunity Announcement held jointly with DOE's Office of Science. Annual selection of NNSA supported awards will enhance flexibility, attract new researchers, and assure career opportunities.
- Supports facility access and community development through facility time, travel support, HED summer schools, and facility user workshops.

Joint Program in High Energy Density Laboratory Plasmas (-$0.125 million)
- No significant change.

Computational Science Graduate Fellowship (CSGF)

Description

The goal of the DOE Computational Science Graduate Fellowship (CSGF) program is to cultivate the next generation of scientists and engineers in computational sciences. For NNSA, CSGF supports the Advanced Simulation and Computing (ASC) and Stockpile Modernization missions by establishing academic programs for multidisciplinary simulation science and through graduate fellowships providing students the relevant experience for weapons code development through open science applications. Activities are managed by the Krell Institute and jointly funded with the DOE Office of Science's Advanced Scientific Computing Research program.

The DOE CSGF fosters a community of enthusiastic and committed doctoral students, alumni, DOE laboratory staff and various scientists who desire to have an impact on national security and energy missions while advancing their research. It increases collaboration between NNSA national security laboratories, the fellows, and their universities by enhancing the fellows' research experience at the national laboratories via access to unclassified, high-performance computing systems, and exposing them to the broader, multi-disciplinary research activities at the laboratories. The program also provides a yearly stipend, tuition fee coverage, and academic allowance.

Highlights of the FY 2026 Budget

- Collaborates with DOE Office of Science in funding a new cohort of fellows to be trained as next-generation leaders in computational science.
- Fosters a CSGF community of energetic and committed doctoral students, alumni, and DOE/NNSA laboratory staff who together serve as a support system for the new and current fellows.
- Strengthens the NNSA commitment for CSGF to support resources for ensuring a supply of scientists and engineers trained to meet NNSA workforce needs in computational science.

Computational Science Graduate Fellowship (-$0.124 million)

- No significant change.

Predictive Science Academic Alliance Program (PSAAP)

Description

The Predictive Science Academic Alliance Program (PSAAP) engages with leading U.S. universities, focusing on the development and demonstration of technologies and methodologies to solve open science and engineering application problems. The research performed by the universities in this program is discipline-focused to further predictive science and enabled by effective use of high-performance computing. Predictive science is the aim of this program and is based on verification and validation and uncertainty quantification methodologies for large-scale simulations.

PSAAP currently consists of the following types of centers: Multi-disciplinary Simulation Centers (MSC), Single-Discipline Centers (SDCs), and Focused Investigatory Centers (FIC). MSCs focus on scalable application simulations, targeting large-scale, integrated multidisciplinary problems, while SDCs focus on scalable application simulation for targeting a broad single science or engineering discipline. FICs are tightly focused on a specific research topic of interest to NNSA's mission in either a science/engineering discipline or an Exascale enabling technology.

PSAAP has a long-term goal to cultivate the next generation of scientists and engineers to support the ASC and Stockpile Modernization missions. The PSAAP centers will help their institutions develop new research techniques and strengthen existing efforts, for multidisciplinary, computational science and engineering research, while providing students and research staff relevant code development and high-performance computing (HPC) experience through open science and engineering applications.

Highlights of the FY 2026 Budget

- Initiates Artificial Intelligence Academic Strategic Alliance (AIASA), a program specifically designed to increase NNSA's research and workforce pipeline within the AI field.
- Continues to support large-scale, multi-disciplinary, predictive science, simulation-based research as a major academic applied research program.
- Promotes additional focus in PSAAP IV on new approaches in verification, validation, uncertainty quantification as well as the development and application of artificial intelligence and machine-learning technologies to improve quantified predictive capabilities.
- Selects and supports new PSAAP IV centers while strengthening engagement. The new centers will be categorized as Predictive Simulation Centers (PSCs) which focus on large-scale single-disciplinary and multidisciplinary research, and FICs that perform research focused on various exascale-enabling technologies relevant to NNSA's mission.
- Manages PSAAP IV centers for their first year to achieve annual milestone objectives.
- Administers dedicated, appropriate ASC computing resources and user support to enable the PSAAP centers to achieve their respective simulation demonstration milestones regarding their overarching research objectives.

Predictive Science Academic Alliance Program (+$7.024 million)

- The increase is to support the implementation of AIASA. AIASA is designed to respond to the workforce needs within the AI field, consistent with the President's Executive Order on Maintaining American Leadership in Artificial Intelligence.

Infrastructure and Operations

Overview

The Infrastructure and Operations program maintains, operates, and modernizes the National Nuclear Security Administration (NNSA) infrastructure in a safe, secure, and cost-effective manner to support all NNSA programs. Infrastructure and Operations efforts provide a comprehensive approach to modernizing NNSA infrastructure while maximizing return on investment, enabling program results, and reducing enterprise risk. The program also plans, prioritizes, and constructs mission-enabling facilities and infrastructure.

Operations of Facilities

The Operations of Facilities program provides the funding required to operate NNSA facilities in a safe and secure manner. Operations of Facilities is fundamental to achieving NNSA's plutonium, uranium, tritium, lithium, high explosives, and other mission objectives. This program includes essential support such as water and electrical utilities; safety systems; and lease agreements.

Safety and Environmental Operations

The Safety and Environmental Operations program provides funding to support the Department's Nuclear Criticality Safety Program (NCSP) subprogram, Nuclear Safety Research and Development (NSR&D) subprogram, Packaging subprogram, Nuclear Materials Integration (NMI) subprogram, and Environmental Operations (EO) subprogram.

Maintenance and Repair of Facilities

The Maintenance and Repair of Facilities program (Maintenance) provides direct-funded maintenance activities across the NNSA enterprise for the recurring day-to-day work required to sustain and preserve NNSA facilities in a condition suitable for their designated purpose. These efforts include predictive, preventive, and corrective maintenance activities to maintain facilities, property, assets, systems, roads, and vital safety systems.

Recapitalization

The Recapitalization program is key to modernizing NNSA's infrastructure. A sustained investment in Recapitalization is needed to address numerous obsolete support and safety systems; revitalize facilities that are beyond the end of their design life; and improve the reliability, efficiency, and capability of core infrastructure to meet mission requirements. The Recapitalization program modernizes NNSA infrastructure by prioritizing investments including the acquisition of new facilities or discrete projects to improve the condition and extend the life of structures, capabilities, and systems. Recapitalization investments help achieve operational efficiencies and reduce safety, security, and program risk.

Line-Item Construction

Infrastructure and Operations line-item construction projects are critical to revitalizing mission-enabling infrastructure. These projects will replace obsolete, unreliable facilities and infrastructure to reduce safety and program risk while improving responsiveness, capacity, and capabilities. NNSA uses a prioritization methodology for mission enabling line-item construction that evaluates investments on closing mission gaps, reducing infrastructure risk and safety risk, and reducing deferred maintenance.

Infrastructure Modernization Initiative (IMI)

As part of the IMI, NNSA has deployed BUILDER, a system developed by the U.S. Army Corps of Engineers and recognized by the National Academy of Sciences as a best-in-class practice for infrastructure management. The BUILDER system uses comprehensive inventory, lifecycle, cost, and assessment data and risk-informed standards and policies to recommend repairs and replacements at the most opportune time, thus improving NNSA's ability to pinpoint and prioritize investments. Using BUILDER-based calculations provides a more accurate and transparent understanding of NNSA's infrastructure. Historical approaches had greatly underestimated the Replacement Plant Value (RPV) of NNSA's facilities (for example, RPV for Y-12's 9212 was historically $949 million and is now $4.7 billion). NNSA's new calculated RPV is $147.5 billion, of which $4.8 billion is excess facilities. NNSA completed the deployment of BUILDER for Other Structures and Facilities (OSFs) in FY 2024. BUILDER-based calculations for all OSFs were included in NNSA's assessment of RPV and Deferred Maintenance (DM). These calculations replaced less accurate, subjective data with BUILDER data and also drove changes in RPV and DM. The overall physical condition of NNSA's infrastructure did not decline. (Table 1)

As a result of our data-driven and risk-informed infrastructure tools, NNSA has transitioned from a financially driven (e.g., DM) to a risk-driven plan for improving infrastructure. While many of our projects will inherently reduce DM, DM reduction is not the primary metric driving project selection.

Table 1

NNSA Deferred Maintenance (DM) as a Percentage of Replacement Plant Value (RPV) of Active Facilities			
Metric	**FY 2022**	**FY 2023**	**FY 2024**
DM	$6.5B	$7.7B	$9.0B
RPV	$131.0B	$144.5B	$142.8B
DM/RPV Ratio	4.95%	5.30%	6.30%
Note: DM & RPV totals calculated for the IMI exclude excess facilities			

In response to GAO recommendations, the following information is provided to improve transparency in the budget. Table 2 below lists total DM for Active and Excess facilities at NNSA sites, including a breakdown of that DM at different stages of facilities' design lives.

Table 2

NNSA Deferred Maintenance (DM) as of FY 2024 (dollars in thousands) on Active and Excess Facilities				
Metric	**DM**	**% of Total DM**	**RPV**	**DM/RPV**
Excess facilities	**107,100**	**1.17%**	**4,819,277**	**2.22%**
Active facilities	**9,012,119**	**98.83%**	**142,727,096**	**6.30%**
Total	**9,119,219**	**100.00%**	**147,546,373**	**6.18%**
Facilities beyond their 40-year design life	7,032,022	77.11%	86,430,442	8.14%
Facilities within ten years of their 40-year design life	1,377,614	15.11%	22,264,579	6.19%
Facilities within the first 30 years of their 40-year design life	709,582	7.78%	38,851,352	1.83%

Excess facilities are associated with approximately $107M or 1.17 percent of total DM. Approximately 92 percent of NNSA's DM is associated with facilities that are approaching or surpassed their 40-year design life. As part of a prudent investment strategy, NNSA will intentionally not perform some of the maintenance and repair on facilities with near-term replacement strategies or those that are or soon will become excess. NNSA is prioritizing its investments based on reducing mission risk, and it will take time and sustained investment in new construction to replace aged facilities and reverse operational risks from this legacy infrastructure.

NNSA annually screens excess facilities to identify the highest risks to mission, workers, the public, and the environment to support risk-informed decision making. Table 3 lists the highest-risk facilities.

Table 3

NNSA's Highest-Risk Excess Facilities				
Site	**Owner**	**Facility**	**Year Built**	**Year Shut Down**
Y-12	NNSA	Alpha 5, Building 9201-05[1]	1944	1983
Y-12	NNSA	Beta 4, Building 9204-04[1]	1945	2007
Y-12	SC	Beta 1, Fusion Energy-Eng Tech, Building 9204-01[1]	1944	2011
Y-12	NNSA	Production, Building 9206[1]	1944	1993
Y-12	NE	Beta 3, Isotope Separations, Building 9204-03[2]	1945	2016
LLNL	NNSA	Heavy Elements Facility, Building 251[1,3]	1956	1995
LLNL	EM	Livermore Pool-Type Reactor, Building 280[1,3]	1956	1980
LLNL	NNSA	Rotating Target Neutron Source Facility, Building 292[1]	1979	1987
LLNL	NNSA	Explosives & High-Pressure Testing, Building 343[1]	1960	2014
LANL	NNSA	Ion Beam Facility, Building TA-3-0016[1,3]	1953	1999

[1] Requires DOE EM to disposition.
[2] Beta 3, Isotope Separations, Building 9204-03 cannot be disposed (designated historical).
[3] Facilities for which disposition is currently funded and are in the process of being demolished.

Infrastructure and Operations
Funding ($K)

	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request	FY 2026 Request vs FY 2025 Enacted	
				$	%
Operations of Facilities	1,053,000	1,378,725	1,722,000	+343,275	+25%
Safety and Environmental Operations	139,114	154,970	194,360	+39,390	+25%
Maintenance and Repair of Facilities	708,000	919,600	1,391,000	+471,400	+51%
Recapitalization	609,665	741,671	1,284,179	+542,580	+73%
Total, Operating	**2,509,779**	**3,194,966**	**4,591,539**	**+1,396,573**	**+44%**
25-D-511 PULSE New Access, NNSS	0	5,000	48,000	+43,000	+860%
25-D-510 Plutonium Mission Safety & Quality Building, LANL	0	48,500	0	-48,500	-100%
24-D-510 Analytic Gas Laboratory, PX	0	36,000	0	-36,000	-100%
23-D-517 Electrical Power Capacity Upgrade, LANL	75,000	70,000	85,000	+15,000	+21%
Total, Mission Enabling Construction	**75,000**	**159,500**	**133,000**	**-26,500**	**-17%**
Total, Infrastructure and Operations	**2,584,779**	**3,354,466**	**4,724,539**	**+1,370,073**	**+41%**

Operations of Facilities

Description

The Operations of Facilities program provides the funding required to operate NNSA facilities in a safe manner. Operations of Facilities is fundamental to achieving NNSA's plutonium, uranium, tritium, lithium, high explosives, and other mission objectives. It includes essential support such as water and electrical utilities, safety systems, lease agreements for facilities and land, emergency response services, and other critical systems. This program also provides resources for environment, safety, health, and quality (ESH&Q) costs associated with ensuring compliance with Federal, state, and local environmental, worker safety, and health regulations as well as applicable DOE Orders and Directives.

The Operations of Facilities program also funds facility waste management activities, including treatment, storage, and waste disposition of both hazardous and newly generated radiological wastes. It provides for the daily operations and staffing to ensure facilities, systems, and capabilities are available to meet mission requirements.

The following scope transfers to the Safety and Environmental Operations account in FY 2026.

- Site Wide Environmental Impact Studies (SWEIS)
- Safety Analytics, Forecasting, Evaluation, and Reporting (SAFER)
- Waste management reserve

Funding for facility waste operations and treatment remains within Operations of Facilities. This includes systems and equipment needed to support operations.

FY 2024-FY 2026 site allocations for the Operations of Facilities program are provided in Table 4 below.

Table 4

Site	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request
Kansas City National Security Campus	85,480	113,100	155,555
Lawrence Livermore National Laboratory	80,000	111,000	132,000
Los Alamos National Laboratory	337,355	455,000	616,517
Nevada National Security Site	107,300	119,500	143,750
Pantex Plant	85,200	99,700	103,900
Sandia National Laboratories	95,000	120,000	136,000
Savannah River Site	90,000	105,000	228,072
Savannah River National Laboratory	34,000	34,000	0
Y-12 National Security Complex	105,000	131,000	153,184
Headquarters[1]	1,500	57,210	53,022
SAFER	24,645	23,240	0
SWEIS	4,950	5,225	0
Waste Management	2,570	4,750	0
TOTAL	**1,053,000**	**1,378,725**	**1,722,000**

[1] The Operations of Facilities allocation under "Headquarters" includes funding to quickly respond to emergent unforeseeable issues. Funding is distributed to the sites during execution, which is consistent with industry's best practices.

Highlights of the FY 2026 Budget Request

Operations of Facilities (+$343.275 million)

- The increase enables the program to keep pace with increased programmatic mission tempo across the nuclear security enterprise. This includes increased support for high explosives, test & experiments, design & certification, and tritium missions as well as progress towards 24/7 operations to achieve a 30 pits per year (PPY) capacity at Los Alamos National Laboratory (LANL) by 2028. The increase includes additional support for the expanded Kansas City National Security Campus (KCNSC). In addition, includes funding for activities supporting the transition of SRS to an enduring mission site, including those at K-area, which were previously funded through the Defense Environmental Cleanup appropriation. At Nevada National Security Site (NNSS), increases will support Device Assembly Facility (DAF) staffing and the already-expanded operational footprint at PULSE associated with the Enhanced Capabilities for Subcritical Experiments. Funding at Sandia National Laboratory (SNL) will support staffing and supplies needed for Microelectronics mission increases and growth in capabilities across the complex. At Y-12 National Security Complex (Y-12), increases support site separation and waste activities due to increased mission tempo. This increase is partially offset by a realignment in scope and funding to the Safety and Environmental Operations program. The increase is also partially offset by Defense Environmental Cleanup taking funding responsibility for operations at Savannah River National Laboratory.

Safety and Environmental Operations

Description
The Safety and Environmental Operations (SEOps) program includes a suite of activities that crosscut the various missions within NNSA. These include direct funded activities such as the Department's Nuclear Criticality Safety Program (NCSP) and Nuclear Safety Research and Development subprograms, the Nuclear Packaging subprogram, the Environmental Operations (EO) subprogram, and the Nuclear Materials Integration subprogram (NMI). These activities form elemental building blocks used by the line organizations to implement their missions.

The Long-Term Stewardship (LTS) activities within the EO subprogram address residual contamination remaining at NNSA mission sites after cleanup projects are completed and long-term remedy operations are established. It ensures safe cleanup levels are met by operating and maintaining remediation systems, performing surveillance and maintenance of engineered controls, and monitoring contaminant levels in the soil and groundwater while ensuring compliance with environmental regulations.

SEOps has also developed tools to accomplish its mission to include data and information management tools such as Safety, Analytics, Forecasting, Evaluation, and Reporting (SAFER) and the Nuclear Materials Management and Safeguard System (NMMSS) to address potential risk throughout the enterprise.

NA-ESH serves as the NNSA lead organization for the disposition planning of excessed and difficult to dispose of waste and materials from throughout the Enterprise. Its goal is to identify process improvements, address Enterprise-wide issues, and expand waste minimization capabilities to reduce redundancy and consolidate multiple NNSA site issues and opportunities by (a) identifying and mitigating significant risks to the NNSA mission, and (b) developing, sharing, and implementing lessons learned and process improvements.

SEOps has oversight of NNSA's National Environmental Policy Act (NEPA) Program which completes local, state, regional, and national impact analyses required by NEPA to ensure communities are informed of potential environmental and economic impacts via Site Wide Environmental Impact Statements (SWEIS). In addition, SEOps funds the New Mexico Environment Department and other Agreement-in-Principle/grant type activities to fully support both New Mexico sites (Los Alamos National Laboratory and Sandia National Laboratories-New Mexico), as well as sites in California and Texas.

Table 5

Subprogram	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request
Nuclear Criticality Safety Program	30,189	31,141	34,789
Nuclear Safety Research and Development	789	3,159	3,153
Packaging	21,977	23,259	32,690
Environmental Operations[a]	62,290	72,450	98,872
Nuclear Materials Integration	23,869	24,961	24,856
TOTAL	**139,114**	**154,970**	**194,360**

Highlights of the FY 2026 Budget Request

Provides funding for the Department's Nuclear Criticality Safety Program, Nuclear Safety Research and Development subprograms, Packaging subprogram, Nuclear Materials Integration subprogram, and a new Environmental Operations subprogram.

Safety and Environmental Operations (+$39.390 million)

- **Nuclear Criticality Safety Program**
    - The increase supports additional integral experimental activities at National Criticality Experiments Research Centerand student trainees requiring the Nuclear Criticality Source course which supports the Plutonium Mission.

- **Nuclear Safety Research and Development**
  - N/A
- **Packaging**
  - The increase for Packaging reflects the procurement of additional Defense Programs Packages (DPP-1) to support planned W87-1 pit production, additional DPP-2 packages to support Canned Sub-Assemblies (CSA) shipping for the W76 and W93, and additional DPP-3 loading basket assemblies for storage of CSAs in the DT-399. The increase will also support the design, testing, and fabrication of a small Type B package that can be used for shipping small plutonium samples offsite to support pit production. Finally, the increase supports development and replacement of Device Shipping Containers that meet the requirements for making onsite movements for subcritical device assemblies.
- **Environmental Operations**
  - The increase reflects the realignment of scope and funding for the SAFER platform, SWEIS activities, and Radioactive Waste Management optimization funding from Operations of Facilities.
  - The increase supports procuring shielded containers at SNL to complete the repackaging and shipment to Waste Isolation Pilot Plant of the final 14 remote handled (RH) transuranic (TRU) waste material containers.
- **Nuclear Materials Integration**
  - N/A

Maintenance and Repair of Facilities

Description

The Maintenance and Repair of Facilities program provides direct-funded maintenance activities across the NNSA enterprise, including DOE owned federal Field Office space, for the recurring day-to-day work required to sustain and preserve facilities and equipment in a condition suitable for their designated purpose. These efforts include predictive, preventive, and corrective maintenance activities to maintain facilities, property, assets, systems, roads, and vital safety systems. This program also funds maintenance of excess facilities (including high-risk excess facilities) necessary to minimize the risk posed by those facilities prior to disposition.

Maintenance and Repair of Facilities is prioritized within an enterprise risk management framework based on mission needs; probability of failure of a system or a component; and risk determination regarding safety, security, and environmental requirements. Investments focus on those structures, systems, and components that are considered essential to the national security mission. FY 2024-FY 2026 Infrastructure and Operations site allocations for direct-funded maintenance are provided in Table 6 below.

This program also funds the Roof Asset Management Program (RAMP) and the Cooling and Heating Asset Management Program (CHAMP). RAMP provides a dedicated approach to managing roofing assets through a single prioritized list of roofing needs across the nuclear security enterprise. The successful RAMP methodology has been expanded to other common components/systems under the Asset Management Program (AMP). Other systems will be analyzed as possible AMPs to achieve additional efficiencies.

Table 6

Site	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request
Kansas City National Security Campus	25,000	44,800	49,840
Lawrence Livermore National Laboratory	45,000	51,090	114,280
Los Alamos National Laboratory	154,000	212,000	325,617
Nevada National Security Site	76,000	103,388	198,700
Pantex Plant	126,000	140,000	188,756
Sandia National Laboratories	25,000	33,000	56,000
Savannah River Site	36,000	47,000	82,162
Savannah River National Laboratory	8,000	8,000	-
Y-12 National Security Complex	128,000	180,811	229,240
Enterprise Acquisitions*	85,000	99,511	146,405
TOTAL	**708,000**	**919,600**	**1,391,000**

*The Maintenance and Repair of Facilities allocation under “Enterprise Acquisitions” includes funding for Asset Management Programs, which achieve economies of scale and maintenance standardization for critical building systems that are common across the enterprise (e.g., roofs, HVAC) and to quickly respond to emergent unforeseeable issues. Funding is distributed to the sites during execution, which is consistent with industry’s best practices.

Highlights of the FY 2026 Budget Request

Maintenance and Repair of Facilities (+$471.400 million)

- Increases in Maintenance and Repair of Facilities funding support all key NNSA missions, including stockpile stewardship, nonproliferation, and global security. Key capabilities within NNSA’s 6000 + real property assets, with 60% rated in poor condition, will be addressed as part of this funding increase. The funding increase positions the maintenance program to perform preventive, predictive and corrective maintenance, as well as perform risk reduction work. The increase supports the sites ability to address emergent events and sustain ongoing risk reduction efforts without compromising schedules.
- This increase reflects the increased tempo at NNSA’s sites. LANL’s plutonium facilities will require additional maintenance as the site ramps up to a 30 PPY production capacity. LANL’s facilities that perform specialized tests and experiments also required additional maintenance to support stockpile modernization schedules. The increase also supports a significant facility revitalization of LLNL’s National Ignition Facility (NIF). NNSS will address deferred maintenance at the Principal Underground Laboratory for Subcritical Experimentation or PULSE, as well as provide additional support to the Device Assembly Facility (DAF). The increase also funds the

Global Security facilities at NNSS. PX will address many high risk projects, including restarting the replacement of the domestic water system, which has been delayed to address higher-priority emergent maintenance needs. PX will also perform replacement of critical HVAC systems to ensure humidity levels are at appropriate levels in the Bays and Cells that store the NNSA stockpile. Increased funding is also included to begin transitioning SRS to an enduring mission site. SRS will need to perform numerous maintenance activities to ensure the Site can operate at the required tempo as plutonium activities ramp up. Y-12 's increased funding will initiate more than 20 projects that are considered high risk. These projects will reduce the risk to facilities supporting the Depleted and Enriched Uranium capabilities and limit the impacts to operations.

Recapitalization

Description

The Recapitalization program, a key to modernizing NNSA infrastructure, prioritizes investments to improve the condition and extend the design life of the structures, capabilities, and/or systems which improves the reliability, productivity, and efficiency of NNSA's infrastructure to reduce overall operating costs. It also reduces safety, environmental, and program risk associated with facilities and systems that are often well beyond their design life.

The Recapitalization program includes costs for minor construction projects, real property purchases, like for like replacements projects general contract support for construction project management, and Other Project Costs (OPC) for mission enabling infrastructure line-item construction projects. Recapitalization also funds deactivation and disposal of excess infrastructure, including stabilization and risk reduction activities at high-risk excess facilities, resulting in surveillance and maintenance cost avoidance and reduced risk to workers, the public, environment, and programs.

50 U.S. Code 2746 requires that if the estimated cost of completing conceptual design for a construction project exceeds $5,000,000, the Secretary shall submit to Congress a request for funds for the conceptual design before submitting a request for funds for the construction project. NNSA anticipates that the estimated cost to complete the conceptual design for the PULSE New Access (PNAP) construction project will exceed the $5,000,000 threshold.

Tables 7 show the plans for Recapitalization projects to be executed with FY 2026 funding based on the status of enterprise infrastructure as of May 2025. This plan may need to be updated before the FY 2026 execution year to respond to emerging infrastructure conditions and requirements.

Table 7

Site	Project Name	FY 2026 Allocation ($K)
National Nuclear Security Administration Recapitalization Planned FY 2026 Recapitalization Projects - As of May, 2025		
KC	Bldg 23 North Surveillance Production Activities Expansion Buildout [Design] (Minor Construction)	2,302
	Bldg 23 North Additive Manufacturing Expansion Buildout (Minor Construction)	23,142
	Bldg 5 Industrial Waste Treatment System Upgrade (Minor Construction)	1,277
	Bldg 23 Redundant Power Supply (Minor Construction)	3,200
Subtotal, Kansas City National Security Campus		**29,921**
LLNL	Bldg 411 Shipping and Receiving Seismic Upgrade [Execution] (Minor Construction)	18,305
	U291 Cooling Tower Upgrade (Minor Construction)	18,150
	Bldg 170 SE Wing Upgrade (Minor Construction)	16,675
	New Site 200 Automated Materials Development Facility (STAR) [Execution] (Minor Construction)	27,220
	New Site 300 Energetic Materials Development Enclave Campus (EMDEC) Office Bldg and Site Development [Design] (Minor Construction)	1,877
	U328C Electrical Upgrades (Minor Construction)	11,325
	Site 300 Bldg 843 Corp Yard Upgrade (Minor Construction)	5,980
	Site 300 Zone 2 Water Supply Line Replacements	15,300
	3700 Block Disposition	14,674
	Bldg 435 AVLIS Equipment Removal	5,395
Subtotal, Lawrence Livermore National Laboratory		**134,901**
LANL	WETF Redundant Fire Loop Installation [Execution] (Minor Construction)	13,883
	Sigma Process Water Cooling Tower Replacement	19,429
	New TA-03 Weapons Archive Records Facility (WARF) (Minor Construction)	18,834
	New TA-22 Secure Detonator Support and Storage Facility (STAR) (Minor Construction)	27,659
	CMR Wing 3 Basement Risk Reduction	2,600
	PHERMEX Firing Point Deinventory Zone 3	4,500
Subtotal, Los Alamos National Laboratory		**86,905**
NNSS	DAF Workplace Upgrade [Execution] (Minor Construction)	8,100
	Area 6 Fleet Compound Water Line Upgrade [Execution] (Minor Construction)	14,900
	New DAF Engineering & Maintenance Facility 06-541 (Minor Construction)	25,800
	Area 6 Tweezer Solar PV and Storage Installation (Minor Construction)	27,500
	RNCTEC & Substation Watershed Drainage Upgrades [Execution] (Minor Construction)	11,000
	Mission Corridor Redundant 34.5kV Power Upgrade (Minor Construction)	4,300
	PULSE Fire Detection and Alarm System Upgrades (Minor Construction)	4,000
	DAF Area Watershed Drainage Upgrades [Execution] (Minor Construction)	13,800
	Buildings 12-32, 12-34, 12-35, 12-37, 22-2210, and 23-810A Disposition	4,400
Subtotal, Nevada National Security Site		**113,800**

National Nuclear Security Administration Recapitalization Planned FY 2026 Recapitalization Projects - As of May, 2025		
Site	**Project Name**	**FY 2026 Allocation ($K)**
PX	Bay & Cell FDS, & Lead-In Improvements Portfolio	17,959
	Bay & Cell RAMS Replacement Portfolio	15,211
	Bldg 15-34 Pump House HPFL Secondary Feed Installation (Minor Construction)	7,850
	New Zone 12 South Maintenance Facility (Minor Construction)	24,300
	Zone 12 Sectional Switch Upgrades (Minor Construction)	9,000
	Zone 11 4 Facilities Prep for Disposition (HESE D&D)	13,200
Subtotal, Pantex Plant		**87,520**
SNL	New CA Materials Science and Diagnostics Lab Facility (MSDL) (STAR) [Design] (Minor Construction)	1,900
	Substation 41 Replacement [Execution] (Minor Construction)	12,486
	New CA Secure Weapons Integration Center (SWIC) [Execution] (Minor Construction)	23,900
	New Production Storage Facility [Execution] [Execution] (Minor Construction)	16,100
	New CA Complex Central Utility Building [Design] (Minor Construction)	1,900
	Bldg 827 PSL Mechanical Calibration Lab Addition (Minor Construction)	24,525
Subtotal, Sandia National Laboratories		**80,811**
SRS	Bldg 233-H GS-PLC Upgrade (Minor Construction)	6,419
	235-H Fire System Upgrades (Minor Construction)	3,832
	A-Area Service Water Line Upgrades (Minor Construction)	3,250
	Bldg 105-K Transformer Rooms HVAC Installation (Minor Construction)	1,489
	New Radiological Response Operations Center (Minor Construction)	31,202
	Bldg 221-12F Classified Storage Conversion (Minor Construction)	15,000
	238-H Deactivation Contaminated Hood Removal	6,025
Subtotal, Savannah River Site		**67,217**

National Nuclear Security Administration Recapitalization Planned FY 2026 Recapitalization Projects - As of May, 2025		
Site	**Project Name**	**FY 2026 Allocation ($K)**
Y-12	Bldg 9204-02E South Fire and Potable Water Laterals Replacement [Execution] (Minor Construction)	14,800
	Bldg 9998 Supply Fan H2-1 Replacement [Execution]	12,020
	Area 5 Pole Loop Sectional Switches Installation (Minor Construction)	1,800
	Bldg 9201-01 Supply Fan SF-308 Reheat Upgrade (Minor Construction)	4,500
	New West End Production Change House [Design] (Minor Construction)	3,000
	Bldg 9201-01 Supply Fan SF-308 AHU Upgrade (Minor Construction)	9,300
	Area 5 Loop Failed Utility and Power Pole Replacements	12,500
	Building 9204-2 Electrical Upgrade (Minor Construction)	8,000
	9201-05 Ancillary Facility Disposition (9416-14, 9803, 9811-03, 9976, 9983-HF, 9622, 9404-20, 9422-13)	6,000
	9201-05 External Utility Isolations and Excess Utility Line Removal [Design]	3,000
	Bldgs 9811-06, 9811-07, and 9409-15 Disposition	4,500
	Building 9723-14 Preparation for Disposition	5,200
Subtotal, Y-12 National Security Complex		**84,620**
	Planning, Assessments, Infrastructure Management Tools, and Purchases	588,159
	Construction Other Project Costs (OPC)	10,325
Grand Total, Recapitalization		**1,284,179**

Highlights of the FY 2026 Budget Request

Recapitalization (+$542.508 million)

- The increase provides significant funding to support multiple phases of the Kansas City Non-Nuclear Expansion Transformation (KC NExT). It will allow outfitting execution for the first office building, initiating procurements for the first manufacturing phase, enabling execution of a purchase and sales agreement for various support facilities, and initiate design the next manufacturing phase. The concurrent execution of the phases will enable NNSA to deliver significant capacity expansion to support the growing non-nuclear capability mission demands at Kansas City.

  The increased funding will also allow the program to increase the pace of modernization across the Nuclear Security Enterprise by initiating nearly three dozen new infrastructure projects. With the additional funding the program will fund 50% more new projects than in the previous year. The additional investments will deliver a diverse set of targeted mission enabling projects, including projects that will upgrade power and water utilities to support increased mission demands and more efficient operations. The additional funding will also enable the program to deliver more than a dozen new and modern, state-of-the-art office, light lab, support facilities across several NNSA sites, supporting weapons design and certification, high explosives, non-nuclear components, and Global Security mission areas. Funding is also included to continue transitioning SRS to an enduring mission site. The increase also includes funding for Line-Item Construction Other Project Costs to advance several projects through ongoing Critical Decisions.

Construction

Description

The Construction program plays a critical role in revitalizing the nuclear security enterprise. Investments from this program will improve the responsiveness and capabilities of infrastructure across the Complex. The program designs and delivers mission-enabling projects that support national security objectives. Table 8 shows the breakout of funding by line-item.

FY 2026 funding will complete the design efforts for the PULSE New Access project (formerly U1a Complex) at NNSS. The project will provide reliable underground access for larger experimental vessels as well as the additional staff required to operate multiple testbeds at the PULSE facility in support of the nuclear security enterprise's maintenance and certification programs of the NNSA Stockpile Stewardship Program.

FY 2026 funding will continue to support construction for the Electrical Power Capacity Upgrade project at LANL. The project will increase the LANL electrical transmission system capacity and the LANL distribution system capacity and redundancy. Current transmission/distribution capacity is insufficient to provide redundant and reliable power supply essential to all future programmatic missions at LANL.

Table 8

Project	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request
Mission Enabling Construction			
25-D-511, PULSE New Access, NNSS	-	5,000	48,000
25-D-510, Plutonium Mission Safety & Quality Building, LANL	-	48,500	-
24-D-510, Analytic Gas Laboratory, PX	-	36,000	-
23-D-517, Electrical Power Capacity Upgrade, LANL	75,000	70,000	85,000
Total, Mission Enabling Construction	**75,000**	**159,500**	**133,000**

Highlights of the FY 2026 Budget Request

Mission Enabling Construction (-$26.500 million)

- Decrease due to fully funded projects in FY 2025: Plutonium Mission Safety & Quality Building, LANL and Analytic Gas Lab, PX. Offset by completion of design efforts for the PULSE New Access project (formerly U1a Complex) at NNSS. Continue construction for the Electrical Power Capacity Upgrade project at LANL.

25-D-511, PULSE New Access Project
Nevada National Security Sites (NNSS), Mercury, Nevada
Project is for Design and Construction

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

Summary

The FY 2026 request for the Principal Underground Laboratory for Subcritical Experimentation (PULSE) New Access Project (PNAP) is $48,000,000 and will be used to complete the construction design scope. The most recent Critical Decision (CD) for PNAP was the approval of CD-0, *Approve Mission Need*, on April 26, 2023, with a preliminary cost estimate range of $85,000,000 to $303,000,000 and a CD-4, *Approve Start of Operations or Project Completion*, range of September 2028 to September 2034. The current working top end of the cost range is $337,049,000 and project completion date is 3Q FY 2032. The project will provide reliable underground access for larger experimental vessels and staff to operate multiple testbeds at the PULSE facility.

Funds appropriated to this project may be used for contracted support services to the Federal Program Manager and the Federal Project Director to conduct independent assessments of the planning and execution of this project required by Department of Energy (DOE) Order (O) 413.3B and to conduct technical reviews of design and construction documents. All costs associated with the conduct of Independent Cost Reviews/Independent Cost Estimates (ICRs/ICEs), to include Federal staff travel, is funded by this 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*. As allowed by DOE O 413.3B, work will be phased to improve overall efficiency.

Other Project Costs (OPCs) are funded out of the Recapitalization Program under Infrastructure and Operations.

A Federal Project Director has been assigned to this project.

Significant Changes

The Analysis of Alternatives (AoA) was initiated on June 7, 2023, and concluded on June 17, 2024, with the approval of a single shaft/single hoist alternative. Conceptual Design was initiated on June 25, 2024, with a projected completion date of July 2025. Following the AoA and initial conceptual design work, this Future Years Nuclear Security Program (FYNSP) funds the project at the top end of the preliminary cost estimate range of $337,049,000 based on: 1) an updated cost estimate for the Conceptual Design; 2) the need to incorporate an Operational Readiness Review/Readiness Assessment (ORR/RA) as the project is considered a modification to a Hazard Category (HC)-2 Nuclear Facility; and 3) additional escalation following the one-year delay to conceptual design completion. A CD-3A for long lead procurement was added for consideration in FY 2027.

The CD-0 to CD-4 approval range was FY2028 to FY2034 to give the project flexibility in planning to ensure that project execution would not impede the current line-item projects in the PULSE facility. Based on the proposed acquisition strategy and construction strategy developed during the conceptual design, the project will be constructed in parallel with the other line-item projects in the PULSE facility, which allowed the CD-4 date to be appropriately adjusted to 3Q FY 2032 based on the design and construction schedule.

50 U.S. Code 2746, requires that if the estimated cost of completing conceptual design for a construction project exceeds $5,000,000, the Secretary shall submit to Congress a request for funds for the conceptual design before submitting a request for funds for the construction project. NNSA anticipates that the estimated cost to complete the conceptual design for PNAP will exceed the $5,000,000 threshold.

Critical Milestone History

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	D&D Complete	CD-4
FY 2025	4/26/2023	4QFY2024	1QFY2025	1QFY2027	3QFY2026	1QFY2027	N/A	4QFY2034
FY 2026	4/26/2023	4QFY2025	2QFY2026	1QFY2028	3QFY2027	1QFY2028	N/A	3QFY2032

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 Alternative Selection and Cost Range
CD-2 – Approve 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
CD-4 – Approve Start of Operations or Project Complete

Fiscal Year	CD-3A
FY 2026	1QFY2027

CD-3A – Approve Long-Lead Procurement

Project Cost History ($K)

Fiscal Year	TEC, Design	TEC, Construction	TEC Total	OPC, Except D&D	OPC, D&D	OPC Total,	TPC
FY 2025	53,000	242,000	295,000	15,244	N/A	15,244	310,244
FY 2026	53,000	250,000	303,000	34,049	N/A	34,049	337,049

2. Project Scope and Justification

Scope
PNAP will provide reliable underground access for larger experimental vessels as well as the additional staff required to operate multiple testbeds at the PULSE facility in support of the NNSA Defense Programs' Stockpile Stewardship Program (SSP). The project must provide a means for reliable underground ingress and egress to support the continuing mission of the PULSE facility, including personnel and current and future Enhanced Capabilities for Subcritical Experiments (ECSE) experimental equipment. A new shaft and hoist capable of meeting personnel, equipment, experimental vessel, and experiment package ingress and egress requirements will be provided. Based on the results of the conceptual design, the project will consider the use of long-lead procurements (CD-3A) prior to CD-2/3 to meet schedule requirements.

Justification
The PULSE facility, formerly referred to as the U1a Complex, is located in the NNSS Mission Corridor. It isa premiere NNSA nuclear HC-2 underground experimental facility providing critical experimental capabilities and data to the nation's nuclear security enterprise. The PULSE facility supports the SSP and is the only location where relevant quantities of plutonium can be combined with high explosives to perform subcritical experiments (SCEs).

PULSE is challenged with an increased number of SCEs, which will continue to increase with significant NNSA investment to include a new surface building complex, upgraded utilities and the underground infrastructure enabling ECSE for the next 30+ years. ECSE investments include the U1a Complex Enhancements Project (UCEP), Advanced Sources and Detectors (ASD) project (Scorpius machine), and Neutron Diagnosed Subcritical Experiments (NDSE) installations (consisting of the Z-pinch Experimental Underground System [ZEUS] and ZEUS Testbed Facilities Improvement [ZTBFI] Project) which are outfitting the PULSE facility. These mission investments drive new underground requirements, including extensive expansion of the underground drift network, accommodation of larger six-foot experimental vessels, substantial increase in numbers of underground personnel, and construction and commissioning of two new experimental testbeds, including a vastly more powerful, larger radiographic machine (Scorpius) and a dense plasma focus machine (ZEUS).

The two main shafts that support PULSE operations, U1a shaft and U1h shaft, are each equipped with hoisting capabilities for personnel, equipment, and materials. Two shafts/hoists are required for PULSE operations for safety and effectiveness. These underground access capabilities present significant risk to the NNSA's ability to fully operate the PULSE in support of planned increased and enhanced experimental requirements. Both the U1a and U1h shafts/hoists are degrading more rapidly than previously planned due to heavy usage with current downtimes for maintenance and repair at 20 percent and increasing. The expected future experimental operations schedule will be even more difficult to maintain with the existing PULSE access capabilities, increasing risk of significant mission delays. A new underground access capability is imperative for the PULSE facility to meet NNSA mission requirements over the next 30+ years.

Key Performance Parameters (KPPs)

These preliminary KPPs represent the minimum acceptable performance that the project must achieve and support the current cost and schedule estimates:

Key Performance Parameter	Description	Threshold
KPP-1	Reliable ingress/egress capability	New components shall have a minimum service life determined during conceptual design & ability to support a shift change of no less than 100 workers to exit and/or enter within a 30-minute time window
KPP-2	Underground ingress and egress of current and future experimental vessels and transportation cart/execution stand	Meet the design basis for UCEP/ASD relative to enabling ingress and egress of a 6' vessel with transportation cart/execution stand or other equipment of 8 feet wide x 8 feet deep x 10 feet high and a live load of 36,000 lbs.
KPP-3	Support experimental package transport to and from the underground by integrating DOE Safety-in-Design in the project	Meet the Documented Safety Analysis requirements to enable transport of experimental package to and from the underground

3. Financial Schedule

($K)

	Budget Authority (Appropriations)	Obligations	Costs
Design			
FY 2025	5,000	5,000	0
FY 2026	48,000	48,000	13,250
Out Years	0	0	39,750
Total Design	**53,000**	**53,000**	**53,000**
Construction			
Outyears	250,000	250,000	250,000
Total Construction	**250,000**	**250,000**	**250,000**
TEC			
FY 2025	5,000	5,000	0
FY 2026	48,000	48,000	13,250
Out Years	250,000	250,000	289,750
Total TEC	**303,000**	**303,000**	**303,000**
Other Project Costs (OPC)			
Prior Years	8,709	8,094	416
FY 2024	4,909	3,799	4,026
FY 2025	3,312	5,037	8,997
FY 2026	2,119	2,119	5,610
Out Years	15,000	15,000	15,000
Total, OPC	**34,049**	**34,049**	**34,049**
Total Project Costs (TPC)			
Prior Years	8,709	8,094	416
FY 2024	4,909	3,799	4,026
FY 2025	8,312	10,037	8,997
FY 2026	51,119	51,119	18,860
Out Years	265,000	265,000	304,750
Total TPC	**337,049**	**337,049**	**337,049**

4. Details of Project Cost Estimate

($K)

		Current Total Estimate	Previous Total Estimate	Previous Validated Baseline
Design				
	Design	45,000	45,000	NA
	Federal Design Review Support	1,000	1,000	NA
	Contingency	7,000	7,000	NA
Total Design		**53,000**	**53,000**	**NA**
Construction				
	Site Work	20,000	20,000	NA
	Equipment	50,000	50,000	NA
	Construction	134,000	126,000	NA
	Federal Support	11,000	11,000	NA
	Contingency	35,000	35,000	NA
Total Construction		**250,000**	**242,000**	**NA**
Total Estimated Cost (TEC)		**303,000**	**295,000**	**NA**
Contingency, TEC		*42,000*	*42,000*	*NA*
Other Project Costs (OPC)				
OPC except D&D				
	Analysis of Alternatives	416	500	NA
	Conceptual Design	11,344	3,000	NA
	CD-1 Documents/Fed Support	5,861	8,044	NA
	Start-up	15,000	2,700	NA
	Contingency	1,428	1,000	NA
Total OPC		**34,049**	**15,244**	**NA**
Contingency, OPC		*1,428*	*1,000*	*NA*
Total Project Cost		**337,049**	**310,244**	**NA**
Total Contingency (TEC+OPC)		***43,428***	***43,000***	***NA***

5. Schedule of Appropriations Requests

($K)

Request Year	Type	Prior Years	FY 2024	FY 2025	FY2026	Outyears	Total
FY 2025	TEC	0	0	25,000	90,000	180,000	295,000
	OPC	8,095	3,945	150	150	2,904	15,244
	TPC	8,095	3,945	25,150	90,150	182,904	310,244
FY 2026	TEC	0	0	5,000	48,000	250,000	303,000
	OPC	8,709	4,909	3,312	2,119	15,000	34,049
	TPC	8,709	4.909	8,312	50,119	265,000	337,049

6. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	3QFY2032
Expected Useful Life (number of years)	30
Expected Future Start of D&D of this capital asset (fiscal quarter)	3QFY2062

Related Funding Requirements ($M)

Funding Requirements	Annual Costs		Life Cycle Costs	
Estimate Totals	**Previous Estimate**	**Current Estimate**	**Previous Estimate**	**Current Estimate**
Operations and Maintenance	15	15	450	450

7. D&D Information

The new area being constructed in this project does not replace existing facilities.

	Square Feet
New area being constructed by this project at NNSS	4,750
Area of D&D in this project at NNSS	NA
Area at NNSS to be transferred, sold, and/or D&D outside the project, including area previously "banked"	4,750
Area of D&D in this project at other sites	NA

8. Acquisition Approach

The project is being managed by the NNSS Management and Operating (M&O) contractor because the PULSE facility is an operating underground nuclear facility with limited access. Design and construction of the surface to underground access are expected to be performed by a subcontractor specializing in that type of work, where the underground modifications are expected to be performed by the NNSS M&O contractor through the cost-plus contract.

23-D-517 Electrical Power Capacity Upgrade
Los Alamos National Laboratory (LANL), Los Alamos, New Mexico
Project is for Design and Construction

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

Summary:
The Fiscal Year (FY) 2026 Request for the Electrical Power Capacity Upgrade (EPCU) Project is $88,000,000 and will be used to support construction activities. The project will resolve projected future shortfalls in the electrical transmission and distribution system at Los Alamos National Laboratory (LANL), increasing capability and improving reliability and resiliency. The approved CD-1 Total Project Cost range is $214,947,756 to $349,000,000 and the CD-4 schedule range is June 15, 2028, to June 5, 2030. The project achieved CD-1 on November 16, 2022. The high end of the preliminary CD-1 Class 3 estimate included allowances above contingency and management reserve for market volatilities and uncertainties. A CD-3A approval was authorized to enable procurement of long lead electrical equipment in support of the construction schedule. Recent condition assessments of transmission and distribution equipment may lead to additional equipment costs, which are being tracked in the risk register.

Significant Changes:
- This Construction Project Data Sheet (CPDS) is an update of the FY 2025 CPDS and does not include a new start for the budget year.
- Planned final National Environmental Policy Act (NEPA) approvals were delayed from April 2022 to June 2025, primarily because of external stakeholder and interagency collaboration resulting in modifications to the proposed action, and an extended Draft Environmental Assessment (EA) public comment period. NEPA process delays resulted in reconfiguration of the design schedule, shifting the forecasted CD-2/3 decision.
- The authorization of CD-3A for long lead procurement allowed design to accelerate to originally anticipated rates. Vendor technical data sheet and design interaction, authorized by procurement authorization, was necessary for design progression.
- The Management and Operating (M&O) contractor is working with its contracted Design Build vendor to progress the design maturity to the maximum extent possible.
- Design progression, of the portion of the project through Bureau of Land Management (BLM) and United States Forest Service (USFS) land, is limited by lack of a requested geotechnical investigation permit.
- The Total Project Cost (TPC) has increased based on the most accurate estimate information available before CD-2/3 approval. This increase is attributable to: 1) rising equipment costs, 2) higher construction labor rates, 3) environmental and cultural mitigations driven by NEPA and National Historic Preservation Act (NHPA) compliance, and 4) updated condition assessments of existing electrical infrastructure.

Critical Milestone History

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	D&D Complete	CD-4
FY 2023	8/24/2018	8/18/2021	4Q FY 2022	2Q FY 2024	4Q FY 2024	3Q FY 2024	N/A	1Q FY 2028
FY 2024	8/24/2018	8/18/2021	11/16/2022	4Q FY 2024	4Q FY 2024	4Q FY 2024	N/A	1Q FY 2029
FY 2025	8/24/2018	8/18/2021	11/16/2022	2Q FY 2025	1Q FY 2026	2Q FY 2025	N/A	3Q FY 2030
FY 2026	8/24/2018	8/18/2021	11/16/2022	4Q FY 2025	1Q FY 2026	4Q FY 2025	N/A	3Q FY 2030

Fiscal Year	CD-3A
FY 2026	02/25/2025

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 complete(d)
CD-3 – Approve Start of Construction/Execution
D&D Complete – Completion of D&D work (see Section 9)
CD-4 – Approve Start of Operations or Project Completion

Project Cost History

Fiscal Year	TEC, Design	TEC, Construction	TEC, Total	OPC Except D&D	OPC, D&D	OPC, Total	TPC
FY 2023	24,000	260,000	284,000	9,938	N/A	9,938	293,938
FY 2024	29,000	260,000	289,000	14,140	N/A	14,140	303,140
FY 2025	67,683	221,317	289,000	14,140	N/A	14,140	303,140
FY 2026	62,195	286,805	349,000	14,140	N/A	14,140	368,140

2. Project Scope and Justification

Scope

In support of LANL's mission growth, the EPCU project will improve the electrical power capacity for the Laboratory as it will allow load growth from 116 MVA (existing limit) up to a minimum of 200 MVA. Improvements include a new offsite 115 KV import transmission line, crossing BLM, USFS, and DOE administered land. Additionally, an on-site 115kV transmission line approximately 4.5 miles long; upgrades for three 115 KV/13.8 KV substations; addition of medium-voltage, underground, and substation inter-tie circuits and switchgear; and addition of medium-voltage feeder circuits and switchgear to increase power capacity to support 60 MW for strategic computing platforms at LANL.

Justification

The mission of the project is to resolve the projected future shortfalls in the Laboratory's electrical transmission and distribution system to ensure it can reliably support the power demands from all programs performing work at LANL while maintaining compliance with applicable Federal Energy Regulatory Commission (FERC) / North American Electric Reliability Corporation (NERC) requirements for utility operations. The site will exceed peak power demand for the Norton Line (NL), which is one of two 115kV transmission lines that feeds power to LANL. The NL is forecasted to exceed its operating limit within the 2026/2027 timeframe without operational constraint. LANL anticipates an increase in power demands across several mission areas including integrated nuclear programs, science & technology experiments, and infrastructure re-investment over the next ten years. While most of this demand growth is temporally distributed, growth in high-performance computing for large computing platforms is a key schedule driver. Without sufficient electrical capacity and capability, the DOE's and NNSA's core mission pillars at LANL will be fundamentally compromised.

The funds appropriated under this data sheet may be used for contracted support services to the Federal Program Manager and the Federal Program Director (FPD) to conduct independent assessments of the planning and execution of this project required by DOE O 413.3B and to conduct technical reviews of design and construction documents. 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. As allowed by DOE O 413.3B, work will be phased to improve overall efficiency.

Key Performance Parameters (KPPs)

Preliminary Key Performance Parameters (KPPs) were established at CD-0. The Threshold KPPs consider minimum import capacity, power system reliability, distribution capacity to serve the Strategic Computing Center, and service restoration. Achievement of the Threshold KPPs is a prerequisite for approval of CD-4, *Project Completion*. These preliminary KPPs will be finalized when the project is baselined at CD-2/3. The TPC approved at CD-1 is based on the Threshold KPPs stated below.

Performance Measure	Threshold KPP	Objective KPP
Power redundancy[1]	T1 - Provide a minimum capacity of 200 Megavolt-Amperes (MVA) 100 percent redundancy, N-1, for all off-site and on-site transmission at 115 kilovolt (kV).	O1a - Provide 234 MVA capacity 100percent redundancy, N-1, for all off-site and on-site transmission lines at 115 kV. O1b - Provide 266 MVA Capacity 100 percent redundancy, N-1, for all off-site and on-site transmission lines at 115 kV.
Power distribution	T2 - N-2, for substation transformers and substation interties and, N-1, for the balance of feeder circuits. (For example: If a long lead item fails (e.g., a distribution duct or transformer) the system will still operate while allowing maintenance or failure of a second major component.)	O2a – Provide active Volt-amp- reactive (VAR) devices support on key distribution circuits (voltage support). O2b – Provide additional substation interties to increase operational flexibility. O2c – Provide on-site storage to reduce peak demand and provide VAR power.
Power capacity	T3 – Provide 60 MVA capacity distribution feeder circuits and switchgear to SCC.	O3 – Provide 80 MVA capacity distribution feeder circuits and switchgear to SCC.

[1] Administrative changes to KPP are expected prior to CD-2/3 that do not affect project scope

3. Financial Schedule

($K)	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
Prior Year	24,000	24,000	1,563
FY 2024	35,000	35,000	18,174
FY 2025	3,195	3,195	23,732
FY 2026	0	0	18,726
Out Years	0	0	0
Total Design	**62,195**	**62,195**	**62,195**
Construction			
Prior Year	0	0	0
FY 2024	40,000	40,000	0
FY 2025	66,805	66,805	30,906
FY 2026	85,000	85,000	98,401
Out Years	95,000	95,000	157,498
Total Construction	**286,805**	**286,805**	**286,805**
TEC			
Prior Year	24,000	24,000	1,563
FY 2024	75,000	75,000	18,174
FY 2025	70,000	70,000	54,638
FY 2026	85,000	85,000	117,127
Out Years	95,000	95,000	157,498
Total TEC	**349,000**	**349,000**	**349,000**
Other Project Costs (OPC)			
Prior Year	11122	11122	9,765
FY 2024	0	0	1,290
FY 2025	190	190	92
FY 2026	3000	3000	2000
Out Years	4,828	4,828	5,993
Total, OPC	**19,140**	**19,140**	**19,140**
Total Project Costs (TPC)			
Prior Year	35,122	35,329	11,328
FY 2024	75,000	74,793	19,464
FY 2025	70,190	70,190	54,730
FY 2026	88,000	88,000	119,127
Out Years	99,828	99,828	163,491
Total TPC	**368,140**	**368,140**	**368,140**

4. Details of Project Cost Estimate

($K)

		Current Total Estimate	Previous Total Estimate	Previous Validated Baseline
Total Estimated Cost (TEC)				
Design				
	Design	47,787	54,099	TBD
	Contingency	14,408	13,584	TBD
Total Design		**62,195**	**67,683**	**TBD**
Construction				
	Site Work	0	3,271	TBD
	Equipment	65,461	44,826	TBD
	Construction	117,008	83,411	TBD
	Title III Services	2,807	4,907	TBD
	Oversight & Management	45,508	31,075	TBD
	Contingency	56,021	53,827	TBD
Total Construction		**286,805**	**221,317**	**TBD**
Total Estimated Cost (TEC)		**349,000**	**289,000**	**TBD**
Contingency, TEC		*70,429*	*67,411*	TBD
Other Project Costs (OPC)				
OPC except D&D				
	Project Definition	784	784	
	Conceptual Design	3,305	3,305	TBD
	NEPA & Contracting	6,472	5,582	
	Start-up	2,993	3,758	TBD
	NHPA MOA Stipulations	5,000	0	TBD
	Other Project Costs	586	586	TBD
	Contingency	0	125	TBD
Total OPC		**19,140**	**14,140**	**0**
Contingency, OPC		*0*	*125*	*TBD*
Total Project Cost		**368,140**	**303,140**	**TBD**
Total Contingency (TEC+OPC)		***70,429***	***67,536***	***TBD***

5. Schedule of Appropriation Requests

($K)

Request Year	Type	Prior Year	FY 2024	FY 2025	FY 2026	Out Years	Total
FY 2023	TEC	24,000	95,000	86,000	79,000	0	284,000
	OPC	7,127	0	0	0	2,811	9,938
	TPC	31,127	95,000	86,000	79,000	2,811	293,938
FY 2024	TEC	24,000	75,000	86,000	104,000	0	289,000
	OPC	11,329	0	0	0	2,811	14,140
	TPC	35,329	75,000	86,000	104,000	2,811	303,140
FY 2025	TEC	24,000	75,000	70,000	85,000	35,000	289,000
	OPC	11,122	0	190	0	2,828	14,140
	TPC	35,122	75,000	70,190	85,000	37,828	303,140
FY 2026	TEC	24,000	75,000	70,000	85,000	95,000	349,000
	OPC	11,122	0	190	3,000	4,828	19,140
	TPC	35,122	75,000	70,190	88,000	99,828	368,140

6. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	1Q FY 2029
Expected Useful Life (number of years)	41
Expected Future Start of D&D of this capital asset (fiscal quarter)	1Q FY 2070

Related Funding Requirements
(Budget Authority in Millions of Dollars)

	Annual Costs[1,2]		Life Cycle Costs[1,2]	
	Current Total Estimate	Previous Total Estimate	Current Total Estimate	Previous Total Estimate
Operations and Maintenance	3.90	4.08	160	160

7. D&D Information

There is no new area being constructed in this construction project. This scope of this project does not include adding any floor space to an existing facility.

8. Acquisition Approach

The Project will be managed and constructed by the LANL M&O contractor, which in turn is using a Design-Build firm fixed-price, best value procurement subcontract.

[1] Annual and Life Cycle O&M cost estimates will be updated following CD-2/3 approval
[2] Dollars are base year FY 2023 dollars

Secure Transportation Asset

Overview

The Secure Transportation Asset (STA) is responsible for the safe, secure transport of the Nation's nuclear weapons, weapons components, and special nuclear materials throughout the Nuclear Security Enterprise (NSE). Cargo is transported in highly modified secure tractor-trailers and escorted by Federal Agents (FA) providing security and national incident command system response in the event of emergencies. Stockpile modernization programs, limited-life component exchanges, surveillance, dismantlement, nonproliferation activities, and experimental programs rely on safe, secure, and on-schedule transport of STA cargos.

STA currently has the mission capacity to meet National Nuclear Security Administration' (NNSA) stockpile sustainment priorities, strategic material and component transfers, and other NSE workloads. STA will continue to balance and prioritize customer requests against capacity. Since its establishment in 1974, STA has maintained its legacy of safety and security to include no loss of cargo and no radiological release on any shipment. STA is facing challenges on-boarding and sustaining the FA workforce to keep up with turnover. Significant hiring initiatives were implemented in Fiscal Year (FY) 2023 and FY 2024 and continue to be assessed to ensure the FA workforce is properly staffed and postured for successful mission execution. STA continues to address vehicle maintenance/refurbishment and enhanced communication requirements. STA challenges include ensuring mission assets meet modernization and replacement schedules associated with obsolete technology, limited vendor availability, and essential expertise to address specialized equipment.

The FY 2026 Budget Request of $448,785,000 is 26.7 percent above FY 2025 Enacted. The STA program includes the Operations and Equipment (OPS) and Program Direction (PD) subprograms.

Secure Transportation Asset
Funding ($K)

	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request	FY 2026 Request vs FY 2025 Enacted	
				$	%
Operations and Equipment	239,008	236,160	299,541	+63,381	+27%
Program Direction	118,056	118,056	149,244	+31,188	+27%
Total, Secure Transportation Asset	**357,064**	**354,216**	**448,785**	**+94,569**	**+27%**
Federal FTEs	**504**	**495**	**486**	**-9**	**-2%**

	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request	FY 2026 Request vs FY 2025 Enacted	
				$	%
Mission Capacity	60,500	59,654	71,029	+11,375	+19%
Security/Safety Capability	23,353	23,878	33,990	+10,112	+42%
Infrastructure and C5 Systems	47,301	40,122	55,005	+14,883	+37%
Program Management	8,888	8,886	9,032	+146	+2%
Mobile Guardian Transporter	98,966	103,620	130,485	+26,865	+26%
Total Operations and Equipment	**239,008**	**236,160**	**290,541**	**+54,381**	**+23%**
Salaries and Benefits	87,250	83,885	115,127	+31,242	+37%
Travel	7,004	7,869	8,025	+156	+2%
Other Related Expenses	23,802	26,302	26,092	-210	-1%
Total, Program Direction	**118,056**	**118,056**	**149,244**	**+31,188**	**+26%**
Total, Secure Transportation Asset	**357,064**	**354,216**	**448,785**	**+94,569**	**+27%**
Federal FTEs - Program Direction Funded	**495**	**495**	**486**	**-9**	**-2%**

Secure Transportation Asset
Operations and Equipment

Description

The OPS subprogram budget supports modernization and sustainment of STA transportation assets, including life extension of the Safeguard Transporter (SGT) until replaced by the Mobile Guardian Transporter (MGT). The MGT First Production Unit (FPU) is planned for completion in FY 2029. Additionally, funding provides for maintenance and replacement of specialized mission vehicles and aircraft, minor construction, command and control system platforms, equipment for the Federal Agent Candidate Training (FACT) program, and support service contracts assisting in several areas (aviation, information technology, and engineering).

Within the STA OPS subprogram, five (5) activities make unique contributions to the safety and security of the transport of the nuclear stockpile. These activities accomplish the following:

(1) Mission Capacity – provides mission-essential agent equipment, maintenance, modification and replacement of the transportation fleet, and aviation services.
(2) Security/Safety Capability – Conducts three FACT courses to help keep up with losses due to mandatory retirements and attrition. Develops and implements new fleet technologies, Counter Uncrewed Aircraft Systems (C-UAS), agent sustainment training equipment, and implements Security, Safety, and Emergency Response programs.
(3) Infrastructure and Command and Control, Communication, Computer and Cyber (C5) Systems – provides support for minor construction projects, and C5 systems.
(4) Program Management – provides corporate functions and business operations that control, assist, and direct secure transport operations.
(5) Mobile Guardian Transporter (MGT) – allows for the design, development, testing, and fabrication of the MGT.

Mission Capacity
Sustains STA systems through equipment purchases to fulfill transportation requirements. Current assets include agent equipment, tractors, trailers, escort vehicles, other support vehicles, and aircraft. Lifecycle replacement of the transportation infrastructure is critical to support current and future missions. Modernizing and sustaining these assets requires an integrated, long-term strategy and substantial investment. STA's strategy includes retiring outdated assets, refurbishing existing assets to extend their useful life, and procuring new assets with increased capabilities to meet our customers' ever-changing needs and evolving threats.

STA's efforts include:

- Lifecycle replacement of aging vehicles with new vehicles includes the design, engineering, testing, and fielding of specialized vehicles, tractors, and trailers necessary for successful convoy operations.
- Maintenance, sustainment and lifecycle replacement of STA's aircraft fleet ensuring availability and reliability for STA and the Office of Counterterrorism and Counterproliferation's mission operations.
- Sustain the required readiness posture of STA vehicles and aircraft fleet to support the NSE commitments to DoD in strengthening the nuclear posture.

Security/Safety Capability
Sustains STA systems capacity through integration of safety and security capabilities. This includes the following activities:

- Identify, design, and test new fleet and mission technologies. Deliverables include enhancements to the secure trailers, data analysis, information dissemination, and use of emerging physical security technology.
- Conduct three FACT classes each year to increase FA workforce through training and equipping FA candidates with the best products and tools available for mission requirements.
- Sustain specialized FA skills and qualifications by providing technical equipment, logistics, curriculum development, and staffing necessary to conduct Special Response Force training, Operational Readiness Training, Comprehensive Force-on-Force exercises, and Agent Sustainment Training. Sustainment Training includes surveillance detection, tactics, advanced driving skills, and firearms instruction. In addition, funding supports contracts for mission operation support and off-site training venues capable of supporting unit or FA commands during training activities.
- Maintain security and safety programs by conducting liaison activities with state and local law enforcement organizations, analysis of security methods and equipment, vulnerability assessments, development of Safeguards

and Security Plans, and combat simulation computer modeling. Furthermore, validation of needed safety and security measures, execution of safety studies recommendations and review of engineering analysis results, execution of Nuclear Explosive Safety protocols and risk reduction of over-the-road safety issues.
- Maintain the Emergency Operations Center and the Transportation Emergency Control Center (TECC) in Albuquerque, New Mexico, train, and exercise the STA emergency response capability. Includes the Emergency Management Program, FA Incident Command System refresher, and sustainment training.
- The unmanned systems program continues to investigate, develop, acquire, and support the integration of unmanned technologies for use in the STA mission to conduct safe and secure operations. Unmanned capabilities, air and ground, enhance situational awareness during emergencies or off-normal events involving critical STA mission assets. Funding provides for the initial implementation of a C-UAS program into STA operations.

Infrastructure and Command, and Control, Communication, Computer, and Cyber
Sustains the system platforms operated by STA to provide critical information obtained, analyzed, and disseminated prior to and during missions. Includes continuous monitoring of all data for accuracy, validity and constant communication within convoys and between convoys and headquarters (HQ) to ensure mission success. These activities must be accomplished in real-time while balancing cybersecurity requirements, reliability, and integrity. STA leverages other systems technology supporting business processes and operations which improve efficiency and effectiveness of STA operations. Additionally, provide for the necessary facility infrastructure to support the STA workforce and mission-essential functions. This funding supports the following sub-elements:
- Modernize and sustain C5 systems activities to maintain vigilant oversight of nuclear convoys. Operate the TECC and maintain the New Mexico Relay Station, and communications systems across the STA.
- Maintain and expand the Mission Management System, a secure unclassified to classified controlled interface. This allows communications from unclassified to classified systems, and maintenance and enhancement of a common operating picture for the TECC as well as convoys.
- Expand, upgrade, and maintain the STA facilities and equipment in support of mission requirements. STA strives to minimize operational safety and health risks by addressing facility maintenance promptly at all four (4) of its sites. Facilities include FA commands, vehicle mechanical and electronic maintenance shops, training command, and support staff buildings. Activities to sustain these facilities include repair, maintenance, and minor construction projects.

Program Management
Creates a well-managed, responsive, and accountable organization by employing effective business practices for the STA program. This activity includes:
- Corporate functions such as technical document support and business processes that control, assist, and direct secure transport operations (includes supplies, equipment, and regulation control procedures).
- Assess, evaluate, and improve functions and processes including self-assessments, configuration management, quality assurance program, and business integration activities.

Mobile Guardian Transporter
Provides for the design, production, and testing of the MGT (replacement for the existing SGT). The MGT will assure the safety and security of cargo and containers, protect the public, meet nuclear explosive safety requirements associated with accident scenarios, reduce the risk to security threats, and provide for enhanced communications. This includes the following activities:
- Build two (2) MGT Training Trailers
- Rolling Chassis Procurement
- Mechanical Systems Development
- Electronics and Auxiliary Systems Development
- Active Delay System Development
- Enhanced Cargo Restraint Systems

Highlights of the FY 2026 Budget Request

The development, design, production, and maintenance of specialized mission vehicles, tractors, trailers, escort vehicles, training of FAs, and robust communications systems.

FY 2026 Funding Specifically Supports:

- SGT life extension and risk reduction activities include charging system, internal module, and trailer communication for the aging fleet. SGT life extension is required until the MGT is integrated into mission operations.
- Design and production work of the MGT to include critical system testing, and procurement of components toward the FPU.
- Replacement and refurbishment of armored tractors, escort vehicles, and support vehicles.
- Minor construction projects to provide safe and secure facility infrastructure to support training, manpower, transportation, and independent operations. Specifically supports the construction of a Training Command (TRACOM) multi-use building.
- Sustainment of system platforms operated by STA, including continuous monitoring of all data and communication within and between convoys and headquarters to ensure mission success.
- A C-UAS program initial implementation for integration into STA operations.

Operations and Equipment (+$63.381 million)
The increase reflects funding for the delivery of the MGT rolling chassis, final engineering releases for FPU, Pre-Production Unit Testing, and acquisition of Enhanced Cargo Restraints; mechanical and electric fleet maintenance services; initial implementation of the C-UAS program and minor construction associated with STA sites including TRACOM Multi-Use facility construction.

- **Mission Capacity**
  - Refurbishment, sustainment and lifecycle replacement of mission assets require additional funding driven by cost growth in the Armored Tractor recapitalization program and growth from pre-COVID estimates for the Escort Vehicle Generation 4 program.
- **Security/Safety Capability**
  - The increase supports replenishment and cost increases associated with munitions necessary to support FA training, cargo restraint maintenance, technical analysis, and hardware testing for over-the-road and nuclear explosive safety. Additionally, funding supports the initial implementation of a C-UAS program.

- **Infrastructure and C5 Systems**
  - The increase supports construction of the TRACOM multi-Use Facility in Fort Chaffee, Arkansas.

- **Program Management**
  - The increase supports rebaselining of requirements.

- **Mobile Guardian Transporter**
  - The increase supports design and production work to include critical system testing, and procurement of components toward the FPU.

Secure Transportation Asset
Program Direction

Description

The PD subprogram budget provides for personnel ensuring the safety and security of the nuclear stockpile while in transport. The total planned Full Time Equivalents (FTE) supports the FA force, federal pilots, emergency management personnel to execute plans/activities, security and safety programs, C-UAS personnel and training, and other key elements of the STA mission. STA is committed to a stable human resources strategy to achieve an optimal agent force to meet the NNSA NSE priorities and mission requirements. The optimal FA force is determined by analysis of the projected workload and the resources required to support the NSE weapon modernization and production schedule. STA implemented initiatives to attract, hire, and retain the FA workforce, such as increased salaries, recruitment bonuses, career ladder positions and a special pay table.

Salaries and Benefits
Salaries and Benefits provide for 486 federal FTEs located in Albuquerque, New Mexico, Fort Chaffee, Arkansas, Oak Ridge, Tennessee, Amarillo, Texas and the District of Columbia. Funding includes FA initiatives to attract, hire and retain the FA workforce, overtime, worker's compensation, and Permanent Change of Station (PCS) associated with FAs and support staff.

Travel
Travel funds utilized for secure convoys, training at military installations and other facilities, and program oversight.

Other Related Expenses
Provides for support service contracts including Human Reliability Program (HRP) for FAs and designated staff, provides for Energy Information Technology Services/DOE Common Operating Environment (EITS/DOECOE), and other contractual service requirements to include facility maintenance (janitorial and ground maintenance), intelligence and administrative support. Additionally, PD funding provides professional development training for all STA federal employees including new employee orientation, job specific training, supervisory, professional, leadership and soft skills, certification training for pilots, FA's and other key personnel, leadership development programs, and group training not related to FA unit training. Provides uniforms or allowances for uniforms, as authorized by 5 U.S.C. 5901-5902 for select STA staff as outlined in STA Policy 1.22E.

Highlights of the FY 2026 Budget Request

The FY 2026 request supports FA and staff FTEs for STA mission execution and priorities. This includes:
- Support for 486 Federal FTEs, including FA hiring initiatives to attract, hire and retain FAs, federal pilots, TECC personnel, and staff.
- Travel to support mission, operational, and training requirements.
- EITS/DOECOE fees, support service contracts, HRP, and facility maintenance costs.
- C-UAS personnel and training.
- Certification and training to sustain skills for FAs and staff.

Program Direction (+$31.188 million)
The increase supports 486 federal FTEs including federal pilots, TECC personnel and efforts to increase and sustain FA manpower by implementing competitive pay and other hiring initiatives. Funding also includes travel for mission, operations, and training, C-UAS personnel and training, HRP, security clearances, and facility maintenance contract for the new Agent Operation Western Command Vehicle Maintenance Facility (VMF) and Federal Agent Facility (FAF). The increase also reflects one week of payroll into FY 2027 to prevent mission disruption during the fiscal year transition.

Program Direction
Activities and Explanation of Changes
($K)

FY 2025 Enacted	FY 2026 Request	Explanation of Changes FY 2026 Request vs FY 2025 Enacted
Program Direction **$118,056**	**Program Direction** **$149,244**	**Program Direction** **+$31,188**
Salaries and Benefits *$87,674*	*Salaries and Benefits* *$115,155*	*Salaries and Benefits* *+$27,481*
• Recruited, hired, and retained quality personnel based on current and future mission needs. • Filled FA and pilot vacancies to sustain workload requirements. • Conducted three FACT courses (projections consider gains from FACT and losses due to mandatory retirements and attrition). • Continued recruitment, salary, and retention incentives for FAs.	• Continue to fill FA and secondary staff vacancies to sustain workload requirements. • Administer three FACT courses. • Continue to support recruitment, salary, and retention incentives for FAs. • C-UAS personnel and training	• Increase supports the FA hiring incentives to include a 25 percent recruitment incentive upon FACT graduation, career ladder promotion, and increase starting salary, special rate table (7.7 percent). • Newly hired federal pilots. • Hiring of TECC personnel. • Increased worker's compensation costs. • Carryover of one week into the new FY for federal FTEs.
Travel *$6,909*	*Travel* *$8,025*	*Travel* *+$1,116*
• Travel required to transport nuclear weapons, components, and special nuclear materials. • Funding supported travel to facilities that provide unique training to maintain FA skills. • Charter plane contract funded biennially as a contingency plan to support requirements when current STA aircraft are unavailable.	• Travel is required to support safe and secure transportation of nuclear weapons, components, and special nuclear materials. Includes FA and support staff. • Funding supports travel to facilities that provide unique training to maintain FA skill sets. • Charter planes contract funded biennially as a contingency plan to support requirements when current STA aircraft is unavailable.	• Increase supports travel requirements to support the NSE.
Other Related Expenses *$23,473*	*Other Related Expenses* *$26,064*	*Other Related Expenses* *+$2,591*
• Continuous medical evaluations of individuals assigned to HRP duties and additional medical training for FA medics. • Support FACT at the Federal Law Enforcement Training Center (FLETC). • Support processing security clearances. • Support EITS/DOECOE costs. • Support service contracts for facility maintenance, intelligence analysts, and other administrative staff at multiple STA sites. • Provide the necessary training to sustain competencies associated with the job responsibilities (FA, pilots, and technical staff).	• Medical evaluations for individuals assigned to HRP and additional medical training for FA medics. • Support FACT at FLETC which provides FA training for legal, use of force and vehicle stops. • Support processing security clearances. • Support EITS/DOECOE costs. • Support service contracts for facility maintenance, intelligence analysts, and other administrative staff at multiple STA sites. • Professional development training for all STA Federal employees. • C-UAS personnel and training.	• The increase supports facility maintenance contract costs at the new Agent Operations Western Command VMF and FAF. As well as personnel and training for C-UAS implementation.

Program Direction
Activities and Explanation of Changes
($K)

	Total	Prior Years	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request	Outyears Total
Capital Equipment (> $500K)						
Total Non-MIE Capital Equipment (TEC <$10M)	N/A	N/A	9,163	9,513	9,787	40,686
Mobile Guardian Transporter	1,623,026	485,078	98,966	103,620	130,485	832,237
Replacement Aircraft (Lifecycle Replacement 737)	64,000	0	0	0	0	64,000
Total, Capital Equipment	**N/A**	**N/A**	**108,129**	**113,133**	**140,272**	**936,923**

Defense Nuclear Security

Overview

The Defense Nuclear Security (DNS) program leads, develops, and implements the National Nuclear Security Administration's (NNSA) security program, enabling its nuclear security enterprise missions. DNS protects NNSA personnel, facilities, nuclear weapons, and special nuclear materials from a full spectrum of threats, ranging from minor security incidents to acts of terrorism, at its national laboratories, production plants, processing facilities, Nevada National Security Site, and satellite facilities for Federal staff. Employing more than 2,200 Protective Force officers, DNS secures more than 6,000 buildings and protects more than 65,500 personnel. Today, the program is charting a course of transformative change necessary to ensure DNS's mission-enabling function keeps pace with the increasing work scope across all elements of the NNSA mission set into future years.

Defense Nuclear Security
Funding ($K)

	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request	FY 2026 Request vs. FY 2025 Enacted ($)	FY 2026 Request vs. FY 2025 Enacted (%)
Protective Forces	527,195	544,709	665,983	+121,274	+22%
Physical Security Systems	196,167	190,111	235,443	+45,332	+24%
Information Security	68,960	72,061	80,043	+7,982	+11%
Personnel Security	58,976	63,565	76,763	+13,198	+21%
Nuclear Material Control and Accountability	49,583	53,411	63,798	+10,387	+19%
Security Program Operations and Planning	87,504	106,228	123,388	+17,160	+16%
Total, Operations and Maintenance	**988,385**	**1,030,085**	**1,245,418**	**+215,333**	**+21%**
17-D-710 West End Protected Area Reduction Project, Y-12	50,000	54,000	0	-54,000	-100%
Total, Defense Nuclear Security	**1,038,385**	**1,084,085**	**1,245,418**	**+161,333**	**+15%**

Operations and Maintenance

Description

The DNS Operations and Maintenance program integrates personnel, equipment, and procedures to protect physical assets and resources against theft, sabotage, diversion, or other criminal acts. Each National Nuclear Security Administration (NNSA) contract mission partner has an approved Site Security Plan (SSP) detailing protection measures and resources needed to protect site security interests.

Protective Forces (PF) include duties, specialized training, performance testing, facilities, equipment, weapons/firearms, ammunition, vehicles, and other expenses. These forces are each site's primary frontline protection and consist of armed, uniformed officers. PF officers are integral to a site's security posture and are trained in tactics and techniques necessary to protect NNSA sites.

Physical Security Systems include Counter Uncrewed Aircraft Systems (CUASs), intrusion detection and assessment systems, performance testing and certification/recertification, access control systems, barrier and delay mechanisms, canine explosive detection programs, and tactical systems. This subprogram funds investments in critical security systems and infrastructure upgrades to address assets that are well beyond their designed lifecycles and require increased maintenance and testing. This subprogram includes funding for the Physical Security Center of Excellence (PSCOE) at Sandia National Laboratories in New Mexico, the centrally managed Argus program at Lawrence Livermore National Laboratory in California, and the effort to replace the aging centrally managed Argus system with Caerus, a modern security system at sites with Category I quantities of special nuclear material.

The Physical Security Systems subprogram includes the Security Infrastructure Revitalization Program (SIRP), which executes high-priority replacement and refurbishment projects. SIRP projects include refreshing barriers, sensors, cameras, lighting, communication, power, critical systems, and smaller capital equipment projects. The urgent need to repair systems with the highest risk of failure is driving this program's requirements.

Information Security provides classification guidance, technical surveillance countermeasures, operations security, and classified matter protection and control.

Personnel Security includes access authorizations, badging, the Human Reliability Program, classified and unclassified visits, and foreign visits and assignments. It encompasses the administrative support for the site clearance process, including security clearance determinations at each site.

Material Control and Accountability controls and accounts for special and alternative nuclear materials through measurements, quality assurance, accounting, containment, surveillance, and physical inventory. This activity also includes the Local Area Nuclear Materials Accountability Software application and training, and operational support provided to the Department of Energy (DOE) and NNSA sites and facilities.

Security Program Operations and Planning includes the development of budgets, responses to audits and information requests, SSPs, vulnerability/risk assessments, and performance testing and assurance activities. Additionally, it includes security incident and reporting management, security surveys and self-assessments, activities related to deviation requests, and control of security technology transfer activities. Security Program Operations and Planning also supports facility clearance processing and Foreign Ownership, Control, or Influence determinations for security contracts.

Highlights of the FY 2026 Budget Request

The Budget Request reflects the transfer of Savannah River Site's (SRS's) Safeguards and Security (S&S) scope to NNSA from the Office of Environmental Management (DOE-EM), and funding to support key security programs across all S&S functional areas to implement a risk-based, layered protection strategy at sites. It supports increased security needs from known mission growth across the nuclear security enterprise (NSE), including pit production at Los Alamos National Laboratory, Kansas City expansion efforts, and Uranium Processing Facility (UPF) testing and transition to operations. In addition, the request continues to support the initiative to replace the aging Argus system with a modern security system (Caerus), continuous improvement initiatives through the Center for Security Technology, Analysis, Response, and Testing (CSTART) system and PSCOE activities, and capability to adapt to rapidly evolving technologies.

This request also includes funding SIRP projects, addressing critical security systems and related security infrastructure and equipment refresh needs.

Operations and Maintenance (+$215.333 million)

- A significant portion of the increase reflects the assumption of funding and scope for safeguards and security at the Savannah River Site following the transition of SRS management to NNSA from DOE's Office of Environmental Management. This also reflects the transfer of funding responsibility for Protective Force posts and patrols at K-Area previously funded through Defense Nuclear Nonproliferation. The budget will also enhance SRS's security posture to reflect the growing number of high-consequence activities NNSA will perform at SRS, including the deployment of additional security systems at the K-Area Complex.
- The increase also reflects labor rate increases for Protective Forces and other contractor staff, as well as the growth of security requirements associated with continued mission growth across the NNSA NSE, including plutonium pit production, Kansas City expansion efforts, and preparation for UPF testing and transition to operations
- NNSA is making substantial investments in next-generation CUAS. These investments include hardware and software updates to existing CUAS platforms, and acquisition of new technology CUAS platforms. NNSA continues collaborating with the Idaho National Laboratory using its dedicated CUAS range to evaluate future-generation CUAS acquisitions. This testing identifies potential solutions for enhancing NNSA's CUAS capabilities.
- Additional increases support Bearcat replacements at multiple sites and Protective Forces shooting range upgrades,
- The increase also reflects the transfer of funding and responsibility from the Federal Salaries and Expenses appropriation to DNS for conducting security investigations for NNSA's federal personnel and support service contractors, excluding those in NNSA's Office of Secure Transporation and Office of Naval Reactors.

Construction

Description

DNS construction supports critical physical security infrastructure with NNSA NSE. The West End Protected Area Reduction (WEPAR) project will install a new Perimeter Intrusion Detection and Assessment System section and entry control facility to reduce the Y-12 National Security Complex Protected Area by approximately 50% and integrate with UPF.

17-D-710 West End Protected Area Reduction Project, Y-12 (-$54.000 million)

- Reflects completion of funding in FY 2025.

Capital Equipment ($K)

	Total	Prior Years	FY 2024 Enacted	FY 2025 Request	FY 2026 Request	Outyears
Capital Equipment (> $500K)						
Total Non-MIE Capital Equipment (TEC <$10M)	N/A	N/A	666	680	694	N/A
Total, Capital Equipment	**N/A**	**N/A**	**666**	**680**	**694**	**N/A**

Defense Nuclear Security
Other Information ($K)

Full Cost Recovery Estimates

The Budget Request provides direct funding for mission-based DNS programs. Strategic Partnership Projects (SPPs) will continue to fund an allocable share of the base program through full cost recovery. Extraordinary security requirements for SPPs, such as dedicated security for special projects or exercises on an extended basis, will be a direct charge to those customers.

	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request	FY 2026 Request vs FY 2025 Enacted	
				($)	(%)
Site					
Kansas City National Security Campus	2,106	1,398	3,713	+2,315	110%
Lawrence Livermore National Laboratory	11,324	11,000	11,000	-	-
Los Alamos National Laboratory	4,739	4,531	4,739	+208	4%
NNSA Production Office	2,051	4,521	2,140	-2,381	-116%
Nevada National Security Sites	1,400	1,100	1,700	+600	43%
Sandia National Laboratories	24,003	23,927	26,168	+2,241	9%
Total	**45,623**	**46,477**	**49,460**	**+2,983**	**6.5%**

Information Technology and Cybersecurity

Overview

The NNSA IT and Cybersecurity Program focuses on investments in technology to effectively support the Nuclear Security Enterprise (NSE). These investments are fundamentally redesigning the NNSA IT and cybersecurity environments, providing a more resilient, secure, and agile set of capabilities that include integrated communication, cloud infrastructure, collaboration services, and improved zero trust architectures (ZTAs). This approach aims to provide commodity services for NNSA Management and Operating (M&O) partners at laboratories, plants, and sites that improve the security of sensitive NNSA data and shared services.

To effectively achieve its mission, the NNSA Office of Associate Administrator for Information Management and Chief Information Officer organizational structure is comprised of three offices: the Office of IT, the Office of Cybersecurity, and the Office of Mission Integration. NNSA collaborates and coordinates with the Department of Energy's (DOE) Office of the Chief Information Officer (DOE OCIO) on the development and deployment of IT and cybersecurity solutions to protect DOE information and information assets. Risk management, agility, trust, and partnership serve as essential guiding tenets for NNSA, where aligning people, processes, and technology directly contributes to the IT and Cybersecurity Program's success.

Information Technology and Cybersecurity
Funding ($K)

	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request	FY 2026 Request vs. FY 2025 Enacted	
				($)	(%)
Site Infrastructure	138,588	149,524	181,314	+31,790	+21%
Enterprise Operations	185,926	181,540	240,293	+58,753	+32%
Subtotal, Cybersecurity	**324,514**	**331,064**	**421,607**	**+90,543**	**+27%**
Information Technology	253,865	267,315	389,601	+122,286	+46%
Total, Information Technology and Cybersecurity	**578,379**	**598,379**	**811,208**	**+212,829**	**+36%**

Cybersecurity

Description

The Cybersecurity Program is organized into two subprograms: Site Infrastructure and Enterprise Operations.

The Site Infrastructure subprogram supports cybersecurity operations and activities at NNSA sites. Funds provided for the Site Infrastructure subprogram sustain local cybersecurity operations at laboratories, plants, and sites in support of NNSA mission priorities and in accordance with DOE and NNSA policy. Approximately 85% of these funds directly support the cybersecurity workforce and the remaining 15% support cybersecurity systems at the laboratories, plants, and sites. Recent initiatives have focused on improving the detection and resolution of cyber risks and issues including, but not limited to, operational technologies and industrial control systems that support the NNSA mission.

The Enterprise Operations subprogram provides essential cybersecurity support and operations to the NSE through active defensive cyber operations, assessments (including exercises, penetration testing, and Red and Blue Teaming tests of NNSA systems and incident response procedures), policy, management, planning, and training. NNSA manages an enterprise Cybersecurity Operations Center (SOC) that provides 24/7/365 cybersecurity services to NNSA and DOE networking enclaves. The NNSA SOC provides near real-time network defense and incident response services that protect these classified and unclassified enclaves and information from attacks. As a participant with DOE's Integrated Joint Cybersecurity Coordination Center (iJC3) Program, the NNSA SOC supports enterprise-level cyber threat management and situational awareness for DOE. The Enterprise Operations subprogram is also responsible for developing and advancing policies and initiatives that support short- and long-term solutions to specific cybersecurity requirements at NNSA sites and headquarters locations. This subprogram also manages enterprise solutions, including the implementation of ZTA enablers, to create a more secure environment. NNSA continues to transition from a defense-in-depth cybersecurity posture towards ZTA.

An enterprise-level identity model, strong multifactor authentication (MFA), and a centralized monitoring and analysis capability function to secure the infrastructure system required to sustain the stockpile stewardship program and other core information assets, networks, applications, and systems. This broad base of security and network services includes application integration, authentication services, directory services, enterprise data resource management, the NNSA SOC and Network Operations Center (NOC), Identity and Access Management (IAM), Public Key Infrastructure (PKI), and security monitoring and intrusion detection.

The Cybersecurity Program provides critical resources to address Federal requirements. Additionally, investments align with the roadmap of recommendations from an independent third-party assessment of NNSA's Cybersecurity Program. Informed by these cybersecurity requirements, NNSA continues to invest in people and in systems to reduce cyber risks. Such efforts are building NNSA's capacity to meet evolving IT and cybersecurity threats, gain operational efficiencies, and achieve enterprise-wide improvements for IT infrastructure. NNSA has established stronger protection across the NSE by developing a unified approach to cybersecurity spending at the laboratories, plants, and sites.

Highlights of the FY 2026 Budget Request

- Improve enterprise-wide cyber programs and infrastructure, including the NNSA SOC and operational technology security.
- Further develop and strengthen cybersecurity across the ZTA pillars, leveraging investments in tools such as Endpoint Detection and Response (EDR) and other ZTA enablers to enhance resilience within the NSE cybersecurity posture.
- Continue to evolve integrated communications capabilities to enhance information sharing between other government agencies (OGAs) and NNSA, facilitating expanded partnerships, the sharing of lessons learned, and modernizing mission execution.
- Assess cybersecurity threats to NNSA information assets and prioritize risk management activities to increase information assurance.
- Counter malicious actors and nation states through detection, prevention, and disruption of suspicious activity using continuous monitoring activities and innovative tools.
- Respond quickly and effectively to cybersecurity incidents through coordinated enterprise-wide response efforts.
- Strengthen the resiliency of the NSE by expanding supply chain management collaboration and supply chain risk management.

- Sustain investment and deployment of Security Data Integration (SDI) across laboratories, plants, and sites.
- Continue to harness artificial intelligence and machine learning (AI/ML) cybersecurity capabilities, integrating with SDI for a proactive defensive posture against evolving cyber defense capabilities.
- Continue expansion of NNSA's exercise program as well as Red and Blue Team cybersecurity operations.
- Implement cloud-based Enterprise Governance Risk and Compliance (eGRC), enhancing the ability to analyze and share critical cybersecurity risk information and improving enterprise situational awareness.
- Sustain Controlled Unclassified Information (CUI) protocols to safeguard information.

Cybersecurity (+$90.543 million)

- The funding increase reflects investments in enterprise solutions that enable ZTA and capability innovation through the Enterprise Operations subprogram. Funding implements ZTA projects at the laboratories, plants, and sites and invests in enterprise tools, including EDR, and industry-driven innovation. Expanded funding facilitates investment in enterprise-level cybersecurity tools and services, ensuring NNSA meets stringent Federal cybersecurity standards.
- Site Infrastructure subprogram funding supports consolidation of NNSA cybersecurity functions at the Savannah River Site (SRS) and the Kansas City Non-Nuclear Expansion Transformation (KCNExT). Additional increases reflect workforce expansion across NNSA facilities, driven by mission growth. This increase bolsters cybersecurity programs at NNSA facilities, ensuring they meet evolving mission demands through workforce development and enhanced capabilities.

Information Technology

Description

NNSA directs the design, development, and maintenance of all aspects of computing and provides staff with the IT resources necessary to achieve mission goals and objectives. The IT Program supports infrastructure and protection for classified and unclassified computing networks, secure communications, applications, systems, and logical environments. It ensures electronic information and information assets are operating efficiently and effectively and are protected from unauthorized access and malicious acts that would adversely affect national and economic security. The IT Program provides enterprise-level classified computing infrastructure and unclassified applications services to NNSA Federal staff in support of the NNSA mission. Where applicable, the IT Program leverages cloud-based services and solutions to support infrastructure hosting and application development, operations, and maintenance.

IT classified computing enables laboratories, plants, and sites to communicate and share information regarding NNSA's mission. The program supports IT systems and networks and serves as DOE's computer network defense service provider for the Secret Fabric.

- The funding increase enhances NNSA's worldwide radiological and nuclear emergency response missions through assured communications. Additional investment continues to modernize IT infrastructure, network architecture, and classified IT systems, including the Emergency Communications Network (ECN). Costs associated with classified infrastructure and capabilities, implementation of cloud infrastructure, and unclassified IT services are included. Reflecting digital transformation and digital engineering priorities, investments enhance unclassified and classified collaboration tools and network services as well as provide redundancy and improve performance for mission partners globally.
- The NNSA Secret Network (NSN) supports the processing of Secret/National Security Information (NSI) and the interconnection with DOD SIPRNET.
- ECN supports DOE/NNSA mission elements by providing continuous, effective, and secure network services (data-video-voice) for all DOE/NNSA response components that are reliably maintained at rest and throughout operational emergencies. Additionally, implementation of the Nuclear Emergency Support Team Network (NEST.Net) will provide assured communications in support of NNSA's worldwide radiological and nuclear emergency response missions.
- The Enterprise Secure Network (ESN) environment operates at the Secret/Restricted Data (S/RD) level and consists of independent site installations of standardized hardware and software integrated through a common infrastructure, shared policies, and procedures. ESN serves as the base network for classified commodity services, which entails an approach to classified collaborative computing that uses a secure Virtual Desktop Infrastructure (VDI) to facilitate information sharing among disparate DOE/NNSA entities.
- Other classified networks enable communication and sharing of information in support of NNSA's mission.

To think, behave, and respond as one cohesive agency with a shared, critical national security mission, it is necessary to reengineer telecommunications networks and improve service offerings. Such efforts outfit employees with effective communication tools and maximize efficiency, lower operational costs, remove technical barriers, and facilitate collaboration. Additionally, the footprint of the enterprise networks continues to expand as NNSA's mission requirements increase and/or change. To that end, the IT Program enhances enterprise services to support emerging technologies and the NNSA mission, investing to:

- Improve connectivity between laboratories, plants, and sites and leverage IT modernization projects to support digital transformation, digital engineering, and AI initiatives.
- Enhance IT commodity-based computing infrastructure to facilitate effective collaboration and information sharing for NNSA Federal employees and support contractors.
- Provide classified IT infrastructure enhancements and improvements to support both nuclear security and non-nuclear security activities across the DOE enterprise.
- Leverage modern systems and secure data transfer technologies to improve collaboration and coordination.
- Increase automation capabilities to perform rapid, reliable, consistent, and secure technology deployments.
- Use new techniques and technology to achieve rapid development in a modern cloud environment.
- Partner with DOE to ensure technology services meet organizational requirements.

Highlights of the FY 2026 Budget Request

- Implement a strong and comprehensive IT Program that supports the NSE mission through the recapitalizing and modernizing of aging infrastructure.
- Implement data management and governance practices and develop common IT ecosystems across the enterprise to strengthen interoperability and data fidelity.
- Invest in inter-site connectivity, support the modernization of networks, and leverage cloud and AI technologies to strengthen redundancies and advance digital transformation and digital engineering across the enterprise.
- Strengthen inherited legacy networks, systems, and applications.
- Further implement the NNSA Application Modernization Strategy for both mission and non-mission applications.
- Finalize modernization efforts of Enterprise Secure Computing (ESC) environments by enhancing core services and collaborative capabilities, consolidating disparate network infrastructure, and beginning transition activities.
- Support the modernization of networks and leverage cloud technologies to strengthen redundancies.
- Improve the reliability of video teleconferencing (VTC) capabilities and invest in wireless solutions for classified systems.
- Invest in classified mobile solutions, improving critical capabilities to improve manufacturing and logistics systems and for senior leaders to effectively communicate and collaborate.
- Implement upgrades to the Secret/Restricted Data (S/RD) exchange and storage across the enterprise.
- Strengthen resiliency through network architecture changes, migration to a commercial data center, and cloud deployment.
- Modernize technology to support integrated communications and collaboration services for classified and unclassified networks.
- Enhance NNSA's worldwide radiological and nuclear emergency response missions by providing interagency communication and collaboration capabilities at the Secret level.

Information Technology (+$122.286 million)

- Increased funding enhances digital transformation and digital engineering through investment in cloud environments, building business agility while supporting comprehensive security controls and reducing hardware recapitalization costs and complexity. Additional funding supports inter-site connectivity by providing upgrades to the Energy Sciences Network (ESNet) to enable a better-connected enterprise and provide a seamless flow of digital engineering data and models.
- Funds the expanded use of classified commercial cloud-based technologies through ECN and NEST.Net. Implementation of NEST.Net will provide assured communications in support of NNSA's worldwide radiological and nuclear emergency response missions.
- The increase in funding reflects continued modernization of network architecture and classified systems. NNSA's IT program modernizes classified computing and networks to ensure secure communication and data sharing across the enterprise. These investments support critical national security missions by enhancing collaboration, improving network resilience, and modernizing applications across the enterprise.

Information Technology and Cybersecurity
Other Information

The FY 2026 Budget Request supports funding for mission-driven activities to achieve IT and cybersecurity solutions. Because some support is directed to other programs for materials and services provided to OGAs, these costs will be allocated to Strategic Partnership Program (SPP) customers as work is accomplished at the laboratories, plants, and sites. The table below provides an estimate of costs that will be recovered from SPP customers.

Full Cost Recovery Estimates ($K)

	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request	FY 2026 Request vs FY 2025 Enacted	
				($)	(%)
Site					
Kansas City National Security Campus	1,151	1,151	1,151	-	-
Lawrence Livermore National Laboratory	3,002	4,813	4,813	-	-
Los Alamos National Laboratory	1,448	2,007	2,430	+423	+21.1%
Nevada National Security Site	800	600	600	-	-
NNSA Production Office	109	-	-	-	-
Pantex Plant	-	55	57	+2	+3.6%
Y-12 National Security Complex	-	107	95	-12	-11.2%
Sandia National Laboratories	14,872	16,628	17,377	+749	+4.5%
Total, Information Technology and Cybersecurity	**21,382**	**25,361**	**26,523**	**+1,162**	**4.6%**