National Nuclear Security Administration

National Technology & Engineering Solutions of Sandia, LLC

Performance Evaluation Report (PER)

NNSA Sandia Field Office

Evaluation Period:
October 1, 2021 – September 30, 2022

December 15, 2022

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Department of Energy review required before public release.

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Executive Summary

This Performance Evaluation Report (PER) provides the National Nuclear Security Administration (NNSA) assessment of the National Technology and Engineering Solutions of Sandia, LLC (NTESS) performance of the contract requirements for the period of October 1, 2021 – September 30, 2022, as evaluated against the goals defined in the Performance Evaluation and Measurement Plan (PEMP).

Pursuant to the terms and conditions of the Contract, the PEMP sets forth the criteria by which NNSA evaluates NTESS performance, as required by Federal Acquisition Regulation (FAR) Part 16.4, which outlines expectations for administering award-fee type incentive contracts. This is the type of contract in place between NNSA and its management and operating (M&O) partners. A key requirement of FAR Part 16 is to establish a plan that identifies award-fee evaluation criteria and "how they are linked to acquisition objectives which shall be defined in terms of contract cost, schedule, and technical performance."

In accordance with the regulation, the PER assesses NTESS performance against the PEMP and provides the basis for determining the amount of award fee earned by NTESS. NNSA took into consideration all inputs provided (e.g., CAS, Program Reviews) from NTESS and NNSA Program and Functional Offices both at headquarters and in the field.

NTESS earned an overall rating of Very Good during this performance period. NTESS earned Excellent ratings for Goals 2, 3, and 4, and Very Good ratings for Goals 1, 5, and 6. Specific observations for each goal are provided in the following pages.

Goal 1: Mission Execution: Nuclear Weapons: Successfully execute the cost, scope, and schedule of the Nuclear Stockpile mission work for Defense Programs work in a safe and secure manner in accordance with DOE/NNSA priorities, Work Authorizations, and Execution/Implementation Plans.

NTESS Amount of At-Risk Fee Allocation: $3,621,304

Under this goal, NTESS earned a rating of Very Good with a percentage of 87 percent. NTESS achieved many accomplishments that greatly outweigh performance issues. NTESS generally met performance expectations within expected cost. NTESS met the majority of performance requirements, with no significant issues.

Accomplishments:

NTESS applied innovative science and engineering capabilities to increase confidence in performance and survivability of nuclear deterrence systems. NTESS made notable progress to strengthen capabilities in the areas of experimental sciences, material diagnostics, radiation effects, advanced simulation and computing, and validation of performance predictions.

NTESS effectively managed the Stockpile Research, Technology, and Engineering program, producing key experimental data to support the annual NNSA certification of the nuclear weapon stockpile. NTESS applied innovative strategies and technologies to sustain the national nuclear

stockpile and improve the weapon science, technology, and engineering base. NTESS implemented effective engineering and operational solutions to sustain the Z Facility and pulsed power sciences capabilities, enabling the generation of critical experimental science data in support of the NNSA missions. In collaboration with Triad National Security, LLC (Triad), NTESS successfully obtained high-quality experimental data on the properties of aged plutonium at high compression. The experiment yielded mission critical data for high-pressure properties of Plutonium that will help inform NNSA stockpile assessments, production decisions, and agile pit manufacturing. In addition, NTESS successfully executed two tritium contained fusion experiments at the Z Facility, significantly enhancing scientific understanding and confidence in material diagnostic performance and scaling.

NTESS increased its production output of War Reserve components by 26 percent compared to last year's output, which supported 11 technology areas and more than 50 major components. NTESS manufactured Neutron Generator, Application Specific Integrated Circuit (ASIC), and Integrated Surety Architecture (ISA) parts on site. To mitigate schedule risk, NTESS developed production capabilities to fulfill programmatic critical path requirements.

NTESS successfully transitioned weapon and material accountability from the legacy Weapons Information System to a new system with no impacts to weapon accountability.

NTESS effectively managed required activities to support the annual NNSA stockpile certification by conducting surveillance and component assessments and delivering stockpile reports and briefings. NTESS disassembled a W78 live fire-down test unit, sampled multiple W76 and W88 hardware components for disposition, and supported the W80-1 benchtop live fire test series. NTESS recovered and evaluated multiple test units at the Tonopah Test Range, providing critical data for legacy and modernization programs. Additionally, NTESS developed an innovative technical basis approach to testing resources.

NTESS responded to the increased demand for nuclear explosive safety and weapon response activities supporting legacy programs. NTESS provided critical technical assistance necessary to garner the NNSA safety authorization to resume nuclear explosive operations of the B83 warhead disassembly and inspection process at the Pantex site.

NTESS took the initiative to add schedule margin for the W87-0 05 Firing Set Assembly first production unit (FPU) and deliver hardware to mitigate future-year risks. NTESS continued to proactively engage United States Air Force (USAF) representatives on required warhead qualification activities associated with the USAF Sentinel program.

NTESS successfully achieved the W88 ALT370 Design Review And Acceptance Group, Major Assembly Release, Phase 6.6, and W88 ALT 370 JTA8 FPU. To maintain the W88 Alt 940 program schedule, NTESS assumed production tester qualification work, documented production acceptance criteria of critical components, and provided numerous recommendations to reduce critical path production risk. NTESS also provided exceptional support to Honeywell Federal Manufacturing and Technologies, LLC (FM&T), including the quick release of necessary engineering authorizations to maintain production schedule.

While maintaining USAF delivery requirements for the W80-4, NTESS successfully demonstrated a technical basis to justify realignment of the W80-4 FPU schedule.

Through its technical and system integration efforts, NTESS contributed to the achievement of the B61-12 FPU and Phase 6.6 authorization. NTESS implemented a redesigned and qualified component ahead of schedule and delivered the Firing Control Unit (FCU), reducing USAF deployment impacts. NTESS effectively teamed with FM&T and the Consolidated Nuclear Security, LLC (CNS) to streamline production and assembly, which minimized functional component and quality issues.

NTESS completed W93 milestones ahead of schedule, enabling the early transition to Phase 2. NTESS led a collaboration with partners across the Nuclear Security Enterprise (NSE) and industry to develop an integrated Phase 2/2A schedule with milestones through FY 2026.

Issue:

NTESS did not consistently meet product delivery schedules and programmatic milestones, predominantly for pre-Phase 6.6 modernization programs and the Mobile Guardian Transporter.

Goal 2: Mission Execution: Global Nuclear Security: Successfully execute the cost, scope, and schedule of the authorized Global Nuclear Security mission work in a safe and secure manner to include the Defense Nuclear Nonproliferation, Nuclear Counterterrorism, and Counter Proliferation and Incident Response missions in accordance with DOE/NNSA priorities, Work Authorizations, and Execution/Implementation Plans.

NTESS Amount of At-Risk Fee Allocation: $905,326

Under this goal, NTESS earned a rating of Excellent with a percentage of 95 percent. NTESS achieved many accomplishments that significantly outweigh performance issues. NTESS generally met performance expectations within expected cost and with no significant issues.

Accomplishments:

NTESS provided outstanding support to the Office of International Nuclear Security, particularly in the areas of physical protection and countering unmanned aerial systems, and with partners in Europe, Asia, Middle East and North Africa (MENA), Sub-Sahara Africa, and South America. In addition to direct engagements in partner countries, this effort included the 29th International Training Course, which reached a milestone in training the 1,000th participant and with women taking increasingly prominent leadership roles in training since the course began in 1978. NTESS supported an NNSA priority goal by completing Cesium Irradiator Replacements in the United States and other nations. For U.S. law enforcement departments, NTESS provided exceptional expertise in developing radiological response capabilities and implementing radiological security enhancements and integrated security design solutions for devices with radiological material. NTESS successfully modified the Gamma Detector Response and Analysis Software and Interspec software applications to assist international partners in identifying high-risk smuggling and sanction evasion environments.

NTESS exceeded performance expectations across the research and development (R&D) mission

space within the overall cost, schedule, and technical performance requirements. NTESS strengthened U.S. nonproliferation and nuclear security capabilities by developing concepts for arms control monitoring and verification R&D, applying data science techniques to integrate and analyze disparate data streams, and advancing weaponization detection and characterization capabilities. NTESS continued to advance U.S. nuclear detonation detection capabilities with the integration of Global Burst Detector payloads onto Global Positioning System satellites by enhancing the design and production of next-generation payloads, facilitating NNSA interagency technical interactions with the U.S. Space Force, and executing an experimental Low Yield Nuclear Monitoring campaign. NTESS demonstrated strong stewardship of nonproliferation competencies by assisting in the development of the Weaponization Center of Excellence concept for addressing emerging challenges. Also, NTESS provided useful nuclear forensics R&D solutions to improve methods to detect, characterize, and evaluate a post-detonation event.

NTESS took a leadership role in arms control monitoring and verification R&D by coordinating with Lawrence Livermore National Laboratory (LLNL), Los Alamos National Laboratory (LANL), Oak Ridge National Laboratory (ORNL), and Pacific Northwest National Laboratory (PNNL) to develop concepts for a warhead verification and monitoring venture, as well as supporting testbed activities. These capabilities will ultimately help inform policy decision makers to improve technology applications for treaty verification and international agreements.

NTESS advanced the application of the Transport Remote Monitoring Sealing Array (TRMSA) system to provide chain of custody capability for over-the-road transportation operations, which will be used in securing shipments to the Waste Isolation Pilot Plant (WIPP). NTESS quickly overcame initial field-testing issues, enabling the TRMSA system to be deployed ahead of the initial WIPP shipments while meeting the U.S. surplus plutonium disposition mission. NTESS successfully led the implementation of the U.S. High Performance Research Reactor (USHPRR) Project quality assurance program.

NTESS provided critical support to the Nuclear Compliance Verification Program by contributing valuable subject matter expertise to the Warhead Development Verification project. NTESS displayed leadership in several multi-national efforts to enhance capabilities to monitor and verify aspects of future arms control treaties and agreements, such as the U.S.-U.K. Working Group on Signatures Verification and the U.S.-U.K.-Norway-Sweden “Quad” Nuclear Verification Partnership.

NTESS exceeded expectations in supporting the Nuclear Emergency Support Team (NEST) response to Russia’s War on Ukraine. NTESS expertise proved indispensable in the deployment of radiological and nuclear detection systems and networks. In emergency events, these networks provide the most accurate and actionable information to inform public health and safety decision makers as well as attribute responsibility for these events. The NTESS Consequence Management (CM) Operational System (COSMOS) tool proved to be invalidable for supporting U.S. allies, allowing CM personnel to focus resources on prioritized and logical sequencing of incoming inquiries. In addition to the international crisis response, NTESS developed a methodology for certifying precision aim kits, resulting in the first-ever deployment of certified aim kits to all capability forward cities. NTESS successfully conducted Weapon of Mass Destruction counterterrorism capacity building training for the North Atlantic Treaty

Organization and other international partners. NTESS worked with the Render Safe community to provide a high level of readiness by developing Continuity of Operations Planning options for the Home Team response capabilities.

Goal 3: DOE and Strategic Partnership Projects Mission Objectives: Successfully execute high-impact work for DOE and Strategic Partnership Projects (SPP) Mission Objectives safely and securely. Demonstrate the value of the work in addressing the strategic national security needs of the U.S. Government.

NTESS Amount of At-Risk Fee Allocation: $0.00

Under this goal, NTESS earned a rating of Excellent with a percentage of 100 percent. NTESS achieved many accomplishments that significantly outweigh performance issues. NTESS generally met performance expectations within expected cost and with no significant issues. Both the DOE and SPP work sustained and strengthened unique capabilities, facilities, and essential skills that support the DOE/NNSA mission.

Accomplishments:

NTESS delivered innovative and transformative scientific and technological solutions that directly supported DOE missions for energy, science, nuclear, economic, and environmental stewardship programs. NTESS leveraged its expertise in crude oil properties and underground storage to support the emergency drawdown of 180 million barrels of crude oil from the Strategic Petroleum Reserve, the largest in history. This ensured DOE met the Presidential Order to release oil quickly and safely while managing inventory and preserving cavern integrity. NTESS developed a capability known as the Artificial Diversity and Defense Security (ADDSec) system for automatically detecting malware through machine-learning algorithms and responding to the threat using moving-target defense. NTESS successfully demonstrated ADDSec in the microgrid as a viable technology option for protecting critical infrastructure. NTESS significantly exceeded the expected number of Foreign Nuclear Weapons Intelligence Initiative (FNWII) assessments by 40 percent, with one assessment being the most-read analytical report produced by DOE in the history of the FNWII. Several of these mission critical assessments resulted in immediate actions and were well received by the Intelligence Community. NTESS collaborated with the DOE Puerto Rico team and PNNL to investigate various electricity generation options in Puerto Rico. NTESS modeled and evaluated three options for feasibility and resiliency in preparation for future electric distribution disruptions and natural disasters in Puerto Rico.

NTESS effectively managed NNSA resources across the laboratories to address many of the Nation's most challenging national security projects through SPP, receiving recognition for its dedication, resourcefulness, and professionalism. NTESS applied its core capabilities to effectively develop new solutions and advance DOE/NNSA technologies, capabilities, and expertise. NTESS successfully delivered a hypersonic glide vehicle that was launched on schedule using a commercially developed launch vehicle. NTESS launched a series of missiles that carried numerous experiments, closing critical testing gaps for hypersonic weapons and nuclear deterrence applications. NTESS successfully demonstrated a combined sensor platform to enhance radio-frequency imaging capabilities for nuclear deterrence applications. NTESS completed security and command and control system refreshes to Department of Defense

capabilities, enhancing reliability, information assurance, and physical security capabilities while reducing operating costs. NTESS developed an open-architecture software platform with industry partners to improve airport cybersecurity capabilities, enhancing federal response agility to changing air travel security threats.

NTESS successfully collaborated with FM&T in manufacturing an Arming Fuzing Assembly Flight Test Unit (FTU) and the Joint Test Assembly telemetry hardware, delivering flight test hardware ahead of schedule that supported a successful flight test for a critical USAF-sponsored mission.

Goal 4: Mission Execution: Science, Technology, and Engineering (ST&E): Successfully advance national security missions and advance the frontiers of ST&E. Effectively manage Laboratory Directed Research and Development (LDRD) and Technology Transfer, etc. in a safe and secure manner in accordance with DOE/NNSA priorities, Work Authorizations, and Execution/Implementation Plans.

NTESS Amount of At-Risk Fee Allocation: $0.00

Under this goal, NTESS earned a rating of Excellent with a percentage of 100 precent. NTESS achieved many accomplishments that significantly outweigh performance issues. NTESS met performance expectations within expected cost and with no significant issues.

Accomplishments:

NTESS achieved significant science and technology advances in the forefront of national security mission areas. Through its research strategy, NTESS focused on anticipating and continually analyzing emerging threats and developing responsive technical solutions. NTESS enabled R&D projects through its discipline-based research foundations and research investments that yielded transformational advances in science, technology, and engineering that significantly enhanced critical mission capabilities.

NTESS achieved many ST&E accomplishments that were leading-edge, high-quality advances in the frontiers of science and engineering. NTESS demonstrated the first high-speed computational optics spectral imager for increased imaging fidelity for experiments and tests. NTESS developed an environmentally friendly method of extracting rare-earth metals from coal ash, providing an alternate source of rare-earth metals that reduces reliance on foreign sources. NTESS discovered, developed, and demonstrated a mega-sonic concept for transmitting energy and information, providing potential new capabilities for various applications. NTESS discovered a layered nanocomposite of sugar and silica imitating the structure of a seashell that was strong and stable enough to protect satellites from exo-atmospheric debris. In addition, NTESS earned five R&D 100 awards for the Ultra-Stable Thermally Excellent Advancements in Material Strength (USTEAMS), Automated Threat Estimator for Networks and Applications (ATHENA), Iron Nitride Soft Magnetics, Proactive Intrusion Detection and Mitigation System (PIDMS), and collaborative PNNL and Idaho National Laboratory award for MOSAICS: Bringing the Future of Industrial Cybersecurity Into Focus.

NTESS maintained a healthy research environment that enhanced technical workforce competencies and research capabilities. Through its university partnerships, NTESS greatly

extended its capabilities in new and emerging areas, such as artificial intelligence, radio frequency technology, and electrodialysis. NTESS increased scientific understanding of energy storage device performance by demonstrating the application of pressure, vacuum, and relative humidity to accurately replicate natural aging in batteries.

NTESS facilitated mission relevant cooperative R&D through its Partnerships and Technology Transfer programs that enhanced technical competencies across the laboratories. Partnerships with industry and academia provided opportunities for NNSA investments to support its missions while enhancing NTESS core competencies and capabilities. NTESS received various awards and accolades for excellence and leadership in Partnerships and Technology Transfer programs. NTESS successfully managed a new Technology Transfer for Mission program that enabled the adoption and commercialization of NTESS-developed technologies in support of high-level national security missions. NTESS assisted 130 New Mexico small businesses in 15 counties, which fostered economic growth and security for businesses seeking technology commercialization. NTESS received $9.3M from the DOE Office of Technology Transitions Technology Commercialization Fund to address Clean Energy Commercialization Infrastructure. NTESS initiated cooperative projects with federal, state, and local communities that rely on the adoption of NTESS-developed technologies and systems, yielding significant economic development for the New Mexico and California economies.

Goal 5: Mission Enablement: Effectively and efficiently manage the safe and secure operations of the Sandia National Laboratories, in accordance with cost, scope, and schedule, while maintaining an NNSA enterprise-wide focus; demonstrating accountability for mission performance and management controls; successfully executing cyber, technical, informational, and physical security requirements, and assuring mission commitments are met with high-quality products and services while partnering to improve the site infrastructure. Performance will be measured by the contractor's assurance system, NNSA metrics, cost control, business and financial operations, project baselines, implementation plans, assessment, and audit results, etc., with a focus on mission enablement.

NTESS Amount of At-Risk Fee Allocation: $2,715,978

Under this goal, NTESS earned a rating of Very Good with a percentage of 89 percent. NTESS achieved many accomplishments that greatly outweigh performance issues. NTESS generally met performance expectations within expected cost and with no significant issues.

Accomplishments:

NTESS made significant progress in the startup and restart processes at the Technical Area 5 (TA-V) nuclear facilities as demonstrated by the successful completion of three sets of contractor and federal readiness reviews from 2021 to 2022, which resulted in only one finding. These assessments demonstrated NTESS readiness to perform a series of tests at the Annular Core Research Reactor for LANL experiments, which were completed in September 2022, and a series of LLNL tests to be completed in early 2023. These are the first experiments requiring safety significant and safety class containment at TA-V in over 20 years, directly supporting nuclear weapons stockpile stewardship.

NTESS teamed with the Carlsbad Field Office, Northwind Portage, Inc., N3B Los Alamos, and Triad National Security, LLC to successfully remove and transport expended Plutonium

Isentropic Compression Experiment (Pu-ICE) assemblies from Sandia National Laboratories SNL to LANL. NTESS also successfully dispositioned more than 100 accountable items.

NTESS proactively developed and implemented a new Administrative Operating Procedure for environmental compliance assessments at remote sites. NTESS also established a single point of contact for all environmental compliance areas. These actions support continued mission activities at remote sites without unnecessary delays or complications.

NTESS provided critical support enabling NNSA to execute an Interagency Agreement with the Western Area Power Administration to acquire power for NNSA New Mexico sites (Sandia and Los Alamos), Los Alamos County, and Kirtland Air Force Base (KAFB) to meet current and future needs, achieving an SNL cost avoidance of approximately $450M over a thirty-year period.

The DOE Office of Enterprise Assessments recognized the NTESS Memoranda of Understanding (MOU) review and comment process for establishing agreements between SNL Protective Forces, KAFB Security Forces, and Local Law Enforcement Agencies as a Best Practice.

NTESS led resolution of a long-standing USAF Global Strike inspection finding at the USAF-permitted explosive bunkers, strengthening the NNSA, NTESS, and KAFB partnership.

NTESS collaborated with DOE and NNSA counsel to provide urgent and critical support to the U.S. Department of Justice in defending federal litigation related to the COVID-19 Global Health Pandemic, enabling the Department to ensure the Court had an accurate factual basis for potentially deciding issues of national public safety impact.

NTESS processed over 1,500 packages to migrate DOE/NNSA enterprise networks and information systems to the Cerberus environment. NTESS also finalized roadmaps to support the migration of SNL systems to Cerberus.

NTESS continued to exceed performance expectations in executing the Emergency Operations Center project. NTESS demonstrated exemplary performance in implementing Enhanced Minor Construction and Commercial standards, including the Occupational Safety and Health Administration (OSHA)+ tailored safety approach. For example, NTESS proactively initiated a safety pause for a potentially unsafe work condition that led to site condition improvements and enhanced safe work practices. NTESS proactively implemented procurement strategies to overcome supply chain issues due to current market conditions, resulting in the prevention and mitigation of schedule impacts.

NTESS took steps to stem the historically high attrition of critical skill employees by implementing retention programs in the areas of cybersecurity and nuclear weapons work as well as increasing compensation through new mid-year compensation adjustments.

DOE recognized NTESS for its outstanding commitment to small business development and maximizing small business opportunities with the Mentor of the Year, Protégé of the Year, and Small Business Program Manager of the Year awards. NTESS achieved a total strategic cost saving rate of 8.22 percent, far exceeding the Supply Chain Management Center goal of 4 percent.

NTESS accounted for 28.12 percent of the NNSA total strategic cost savings, significantly contributing to the NNSA current rate of 5.97 percent. In small business subcontracting, NTESS achieved a rate of 66 percent, exceeding its annual small business goal by 6 percent as well as exceeding its goals in all five socio-economic categories.[1] NTESS partnered with NNSA to complete a structured improvement activity to streamline funds-out interagency agreement process performance, achieving a 30 percent reduction in average cycle time.

NTESS completed the Final Design Review of the Scorpius Injector design ahead of schedule, enabling CD-2/3 approval and procurement of long-lead items.

Issues:

NTESS continued to experience issues with project execution, resulting in schedule delays, cost increases, and project cancellations. Examples include: Geosciences Facility (cost estimating and scope changes); National Security Flexible Facility (cost estimating); Light Initiated Explosive High Explosive Test Facility (LIHE) (project planning and cost estimating); Energetics Manufacturing Science and Technology Facility Project (EMSAT) (cost estimating, siting, and scope changes); Radiation Instrument Calibration Laboratory Facility (project planning, cost estimating, siting, and scope changes); Gen 3 Particle Plant production (G3P3) (project planning and scope changes); Technical Area 4 (TA-IV) District Chilled Water Expansion (cost estimating and scope changes); Weapons Evaluation Test Laboratory (WETL) centrifuge addition (cost estimating); Tonopah Test Range (TTR) Main Substation (project planning); Agile Facility build out (cost estimating); and the West Feeder Upgrade (project planning). While NTESS took steps to address these long-standing issues, there continued to be a lack of formality and corporate integration necessary to prevent recurrence. NTESS also did not evaluate all design and construction projects to ensure that 95 percent of the projects were within the initial requested cost baseline.

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NTESS realized cost increases and schedule delays on the West End Protected Area Reduction (WEPAR) project, which were caused by a combination of design challenges, subcontractor default, coordination and planning issues with CNS, and changing field conditions. NTESS and CNS developed an issue escalation process for the WEPAR project and the Security Infrastructure Revitalization Project, enabling the resolution of several major issues to allow construction work to continue, such as the Communication Line site turnover, Electrical Design-2nd Street, and the Potable Water Tie-In.

NTESS experienced multiple issues meeting design and schedule milestones supporting the NNSA NSE Security Infrastructure Revitalization Project (SIRP) at several sites, increasing risk in NNSA's ability to obtain support from stakeholders (e.g., Weapons Activities (WA) Account

[1] This information was not considered for the Award Fee for this goal because the Contract has a separate Small Business Incentive Fee.

Integrator, Office of Management and Budget, and Congress) for future security infrastructure projects across the NSE.

Advanced Sources and Detectors (ASD) project (Scorpius Injector) cost growth of over 50 percent and schedule growth of four years forced reaffirmation prior to CD-2. NTESS management and cost estimating performance were responsible for approximately $62M of the $78M of growth on the NTESS portion of work.

Goal 6: Mission Leadership: Successfully demonstrate leadership in supporting the direction of the overall DOE/NNSA mission, cultivating a Performance Excellence Culture that encompasses all aspects of operations and continues to emphasize safety and security, improving the responsiveness of NTESS leadership team to issues and opportunities for continuous improvement internally and across the Enterprise, and parent company involvement/commitment to the overall success of the Sandia National Laboratories and the Enterprise.

NTESS Amount of At-Risk Fee Allocation: $1,810,652

Under this goal, NTESS earned a rating of Very Good with a percentage of 90 percent. NTESS achieved many accomplishments that greatly outweigh performance issues. NTESS generally met performance expectations within expected cost and with no significant issues.

Accomplishments:

NTESS supported the DOE complex and international partners by conducting criticality safety assessments at LLNL, Nevada National Security Site (NNSS), and PNNL, providing criticality safety training for the DOE Criticality Safety Program, University of New Mexico, and the United Kingdom, and conducting criticality safety experiments for France.

NTESS aggressively supported DOE/NNSA Energy Initiatives, which included: Energy Savings Performance Contracts (ESPC) and Building Net Zero Plans at the SNL New Mexico and California sites. NTESS also initiated the Concentrated Solar Power Plant study and completed climate initiative activities to include: Site Sustainability Plan, Zero Emission Vehicle Plan, Vulnerability Assessment and Resilience Planning, and Carbon Free Energy Plan.

NTESS provided vital support in preparing the enterprise for the launch of the new Government (G)-Invoicing system for intragovernmental transactions by supporting policy development, authoring administrative guidelines, and sharing lessons learned.

NTESS demonstrated enterprise leadership in advancing fraud risk management and internal controls through its efforts in completing Phase III of the DOE OMB A-123 Site-Centric Program Pilot. NTESS implemented a unique end-to-end process for risk analysis and testing of the accounting cycle framework, demonstrating a more comprehensive approach that exceeded the DOE standard.

In support of the NNSA Strategic Vision Mission Priority for Emerging Challenges, NTESS leadership embarked on strategically positioning the laboratories to develop and strengthen

capabilities that leverage transformative science, technology, and engineering in anticipation of future nuclear and national security threats.

Prompted by increasing global nuclear threats, NTESS leadership initiated a novel Labs-wide Rally Cry to re-emphasize the NNSA core missions, attracting critical talent to support the nuclear deterrence modernization programs.

The leadership teams of NTESS and FM&T avoided Pantex assembly delays by working collaboratively to respond to emerging production issues. The successful partnership also resulted in the acceleration of the FPU for the updated Trajectory Stronglink/Fireset Control Unit (TSL/FCU) and Electronics Assembly design, which supported the USAF Initial Operational Capabilities.

The Enhanced Capabilities for Sub-Critical Experiments (ECSE)/ASD project partners (NTESS, Triad, Lawrence Livermore National Security, LLC, and Mission Support and Test Services, LLC) continued to demonstrate strong collaboration.

NTESS leadership engagement was key to achieving significant sustainable progress in enhancing formality and rigor of operations at TA-V by adopting a learning organization approach, implementing readiness activities to prepare for independent reviews, and making investments in equipment.

Issues:

NTESS did not consistently demonstrate performance results through the institutional utilization of its performance assurance system. Several examples include: lack of quality in facility and project related documents (e.g., Energetics Manufacturing Science and Technology Facility Project Authorization for Project Execution); insufficient or late integration with mission enablement subject matter experts (e.g., Radiological Instrument Calibration Laboratory project, Temporary Tent at Spoonbill Recreational Vehicle Park Ultra-Lite Preliminary Real Estate Plan, Scaled Wind Farm Technology safety project); and lack of measures and metrics across multiple areas (e.g., project management, real estate planning).

NTESS leadership did not proactively respond to emerging program execution issues and collaborate early with NNSA to mitigate impacts to the nuclear deterrence mission.