Department of Energy
National Nuclear Security Administration
Washington DC 20585

OFFICE OF THE ADMINISTRATOR

December 4, 2018

MEMORANDUM FOR NICOLE NELSON-JEAN
MANAGER
SAVANNAH RIVER FI[redacted]

FROM: WILLIAM I. WHITE
ASSOCIATE PRINCIPAL DEPUTY ADMINISTRATOR

SUBJECT: Savannah River Nuclear Solutions, LLC,
DE-AC09-SR22470 Fiscal Year 2018 Award Fee Determination

The National Nuclear Security Administration (NNSA) has completed its assessment of Savannah River Nuclear Solutions (SRNS), LLC's, performance of the contract requirements for the period of October 1, 2017, through September 30, 2018, as evaluated against the Goals defined in the NNSA Corporate Performance Evaluation and Measurement Plan (PEMP) and the Office of Environmental Management PEMP for the Savannah River National Laboratory (SRNL). Based on assessments provided in the NNSA Performance Evaluation Report, award fee amounts are as follows:

	At Risk %	Available	Final	Percent
NNSA Strategic PEMP Goals				
Goal 1: Manage the Nuclear Weapons Mission	35%	$5,478,905	$4,383,124	80%
Goal 2: Reduce Nuclear Security Threats	15%	$2,348,102	$2,230,697	95%
Goal 3: DOE and Strategic Partnership Projects Mission Objectives	0%	$0	$0	N/A
Goal 4: Science, Technology, and Engineering (ST&E)	0%	$0	$0	N/A
Goal 5: Operations and Infrastructure	35%	$5,478,905	$4,163,967	76%
Goal 6: Leadership	15%	$2,348,102	$1,995,887	85%
Total (NNSA Strategic PEMP)		$15,654,014	$12,773,675	82%
SRNL PEMP Goals				
Goal 1.07: NNSA Defense Programs		$1,007,500	$957,125	95%
Goal 1.08 Nonproliferation		$1,277,500	$1,213,625	95%

Total (SRNL PEMP)	$2,285,000	$2,170,750	95%

There is no fixed fee related to the SRNS contract. The total fee summary is provided below for your information.

Total Summary	**$17,939,014**	**$14,944,425**

National Nuclear Security Administration

Savannah River Nuclear Solutions

Performance Evaluation Report (PER)

NNSA Savannah River Field Office

Evaluation Period:
October 1, 2017-September 30, 2018

December 3, 2018

Executive Summary

This Performance Evaluation Report (PER) provides the National Nuclear Security Administration (NNSA) assessment of Savannah River Nuclear Solutions, LLC (SRNS), performance of the contract requirements for the period of October 1, 2017 through September 30, 2018, as evaluated against the Goals defined in the Performance Evaluation and Measurement Plan (PEMP). The NNSA took into consideration all input provided (e.g. CAS, Program Reviews, etc.) from NNSA Program and Functional Offices both at Headquarters and in the field.

The work performed for NNSA programs at the Savannah River Site (SRS) is conducted by SRNS under Management and Operating (M&O) Contract for Fiscal Year 2018. This is a Department of Energy (DOE) Office of Environmental Management (EM) contract under which NNSA-funded and directed work is performed.

*Note: SRNS's performance for Fiscal Year (FY) 18 on NNSA efforts are measured against two separate PEMPs, the NNSA Corporate PEMP and a separate Office of Environmental Management PEMP for the Savannah River National Laboratory (SRNL). The NNSA Corporate PEMP consists of six (6) Performance Goals supplemented with Objectives and Key Outcomes (KOs) for each Goal. Fee is distributed among the six (6) Goals as specified in the PEMP. For SRNS, Goals 3 and 4 are not applicable and therefore have no associated fee. The work measured against the NNSA Corporate PEMP is discussed under Goals 1 through 6 below. The work measured against the EM PEMP for SRNL is discussed under SRNL Performance Goals 1.07 and 1.08 below.

SRNS earned Excellent ratings on Goal 2 and SRNL Performance Goals 1.07 and 1.08, exceeding almost all the Objectives and Key Outcomes to successfully execute authorized nuclear security mission work in a safe and secure manner.

SRNS earned Very Good ratings on Goals 1, 5, and 6 exceeding expectations on many Objectives and Key Outcomes. SRNS met performance expectations towards the completion of Defense Programs' highest priority items listed in the Getting the Job Done list. Improvements were realized in the areas of Conduct of Operations, facilities maintenance, hiring and training, and small project execution; however, SRNS experienced several challenges due to the inability to forecast, track cost, and to clearly communicate Tritium Sustainment Program funding requirements. SRNS leadership efforts drove changes in the maintenance program, hiring and training processes, and readiness for the increased production period.

Performance against the Goals summarized below resulted in an overall rating of Very Good for SRNS. Specific observations for each Goal are provided in the following pages.

Goal 1: Manage the Nuclear Weapons Mission (35%) VERY GOOD

Under this goal, SRNS earned a rating of Very Good, and 80% of the award fee allocated to this goal. SRNS exceeded many of the Objectives, and is generally meeting the overall cost, schedule, and technical performance requirements of the contract under this Goal in the aggregate. SRNS has continued to be successful in its performance under this contract as described below. The issues identified during the year have been resolved and are no longer of concern.

Savannah River Tritium Enterprise (SRTE) failed to meet shipping requirements for limited-life components (LLCs) in October. SRTE did not deliver as required. SRNS initiated an evaluation to determine the root causes.

Overall, SRNS's performance was above expectations in management of the Nuclear Weapons Mission. SRNS met performance expectations towards the completion of Defense Programs' highest priority items listed in the Getting the Job Done list.

For Weapon Surety and Quality, SRNS delivered cost plans, met budget deliverables, and remained within the 10% carry-over threshold after applying cost savings. SRNS met all stockpile systems (B61, B83, W80, W78, W87, W88, and W76-0) surveillance and maintenance (LLCE) requirements for the year. SRNS met all milestone deliverables in supporting gas and reservoir processing development. SRNS met W76-1 REST surveillance and 2X Acorn Gas Transfer System (GTS) testing, manufacturing, and shipments on schedule.

SRNS met the milestones for conducting two extractions to provide tritium inventory as required by the program.

SRNS did a great job completing the Production Readiness Review (PRR) on the B61-12 Gas Transfer System (GTS) assembly. The effort enables the on-schedule delivery of the GTS to Pantex to support the System First Production Unit (FPU). SRNS and the GTS Product Realization Team (PRT) remain ahead of schedule for the B61-12 System FPU.

Goal-2: Reduce Nuclear Security Threats (15%) EXCELLENT

Under this goal, SRNS earned a rating of Excellent, and 95% of the award fee allocated to this goal, exceeding expectations on almost all Objectives and Key Outcomes for nuclear nonproliferation, counterterrorism, and counter-proliferation mission work. No significant issues in performance exist.

SRNS provided outstanding support in the planning, coordination and execution of activities to expedite removal of 1MT of plutonium from the State of South Carolina.

SRNS completed a comprehensive, high quality Lifecycle Cost Estimate (LCCE) successfully integrating the scope, cost, schedule, and risk information in accordance with GAO best practices for the dilute and dispose approach. This achievement is a major milestone involving integration of four DOE sites/contractors (Pantex, SRS, Los Alamos National Laboratory (LANL), and the Waste Isolation Pilot Plan (WIPP)) over a two-year period and lays out the basis for a 30-year lifecycle.

SRNS is very responsive to the Research & Development Program Office and has proactively adjusted scheduling to accomplish the highest priority tasks in Life Cycle Plans while maintaining a continuous dialog with end-users. SRNS provided outstanding technical leadership of the Nonproliferation Stewardship Program strategic framework.

SRNS made progress with the development of key conceptual design documents for the Surplus Plutonium Disposition (SPD) project, including the Quality Assurance Plan; Risk Management Plan; Risk and Opportunity Assessment Report; and Cost Estimating Plan.

In support of the Surplus Plutonium Disposition program, SRNS and SRNL completed research and development activities for disposition of the Japanese Fast Critical Assemblies (FCA) material and provided an updated FCA Feasibility Study to support NNSA's selection of a technology and approach for disposition of the material.

SRNS continued with critical activities necessary to achieve lay up of NNSA scope in the HB-Line facility in FY19, including progress in de-inventory of material in the facility, completion of multiple flush sequences and preparations necessary to downgrade the security status.

Goal-3: DOE and Strategic Partnership Projects Mission Objectives (0%) N/A

This goal is N/A for Savannah River.

Goal-4: Science, Technology, and Engineering (ST&E) (0%) N/A

All work under this Goal is covered in a separate Office of Environmental Management (EM) PEMP for the Savannah River National Laboratory and are discussed later in this report under SRNL Performance Goals 1.07 and 1.08.

Goal-5: Operations and Infrastructure (35%) VERY GOOD

Under this goal, SRNS earned a rating of Very Good, and 76% of the award fee allocated to this goal. SRNS exceeded many of the Objectives and Key Outcomes, and is generally meeting the overall cost, schedule, and technical performance requirements of the contract under this Goal. SRNS has continued to be successful in its performance under this contract as described below. SRNS's accomplishments greatly outweighed issues.

In March of FY18, SRNS requested an immediate distribution of up to $4.5M to cover incurred labor costs and to continue programmatic work at the site. Previous projections indicated that SRNS could cover all costs through April. With a continuing resolution seriously limiting funding allocations in FY18, this disconnect in accrued costs represented a serious lag in the SRNS financial management system's ability to track costs and thus for program managers, both federal and M&O, to control costs. In addition, funds had been provided to begin procurement of a waste cask in early FY18. Due to SRNS's inability to track and manage funding and expenditures SRNS delayed procurement of the waste cask. Because of SRNS inability to develop a financial forecast, understand and communicate the work scope, and plan for resources to operate the facility, risk was driven into other areas of the Tritium Sustainment program at SRS and other sites.

Even though requested, SRNS did not provide a risk mitigation strategy that identified areas where they might take on an acceptable level of risk and continue to move the program forward. In addition, an additional distribution representing 15 percent of SRNS's FY18 Tritium Sustainment budget was provided to SRNS mid-year. Due to continued concerns with management of funds, the Program Office withheld seven percent of FY18 budget for FY19 carryover if needed. SRNS was required to take steps to improve management and forecasting of funds. To that end, SRNS performed a Value Stream Analysis (VSA) of their Budget, Planning, and Execution process within the Tritium financial management area. SRNS held three Rapid Improvement Events (RIE) to address the three major areas of improvements identified: RIE#1 -Establish a Baseline, RIE#2 - Change Management/ Controls, RIE#3 - Metrics/ Tools. Additionally, SRNS will test and implement some of the new processes during the planning and execution of FY19 program management.

Conduct of Operations performance for FY18 was significantly improved from FY17. In the span of one year, SRNS went from an unprecedented number of Technical Safety Requirement (TSR) violations (4) attributed to weak disciplined operations to zero TSR

violations. In addition, SRTE successfully completed extraction operations in Tritium Extraction Facility (TEF) as well as comprehensive open glovebox activities in H-Area New Manufacturing (HANM). Senior facility management enhanced and integrated risk analysis with scheduled work activities to mitigate potential issues. SRNS also implemented their sustainability plan and other proactive measures to address adverse performance trends. Conduct of Operations challenges for the year included logic related equipment perturbations in TEF which led to a contamination migration event; unapproved tool usage in TEF; two events involving unexpected levels of tritium contamination in HANM; and work execution issues in H-Area Old Manufacturing (HAOM) auxiliary operations.

SRNS continues efforts to address SRTE staffing shortfalls due to a high number of personnel transfers/ retirements. Efforts to streamline hiring and training processes appear promising, and SRNS is making progress in stemming losses in some critical skill areas, such as Control Room Operators (CROs).

The SRTE facilities maintenance program significantly reduced the corrective maintenance (CM) backlog (4.5 Man-Weeks) in FY18 and maintained solid performance metrics for Preventative Maintenance (PM) deferrals, PM delinquencies, and Mechanic utilization. Implementation of the Maintenance Excellence Plan continues; the work package "ready-ready" process is fully implemented at SRTE facilities; rollout of the enhanced Work Scope Prioritization tool continues; and set-up of two Autocribs (including training) began late in FY18. SRTE still needs improvement in schedule effectiveness.

Small Projects execution has improved over the last year. SRNS met the FY18 goal of completing greater than 50% of the authorized spend out for projects, however, SRNS has struggled to integrate project execution with facility operations. While the Recapitalization project portfolio is small, SRNS is unable to take on additional work needs. SRTE took steps to increase the execution of project work, not only by adding personnel, but also using continuous improvement tools to reduce design review times, implementing a project visual management board, and improving integration with Operations through TIER meetings. These changes have resulted in better planning and execution of project work.

SRNS completed the replacement of the Automatic Transfer Switch. SRNS successfully removed all classified information from Building 238-H, pending eventual destruction. SRNS completed the biennial nuclear material control and accountability inventory and performance assurance program testing within the Tritium Facilities with no issues identified. SRNS completed one phase of the Tritium Argus project by extending Argus to three doors in HAOM and HANM. SRNS sustained continuous improvement throughout the year, including security behavior-based observations, attending TIER 2 meetings, and various security briefings during training cycles.

SRNS executed Disposition scope as planned including completing their demolition project under budget and is accomplishing planning of disposition that has provided opportunities to pursue additional risk reducing activities.

SRNS Enterprise Cyber Security Operations (ECSO) and Tritium Process Control provided an effective and efficient Information Technology (IT)/cyber security program and continued performance in the areas of network, storage and Automated Reservoir Management System (ARMS) II support. Of significance, SRNS completed certification and accreditation activities to institute an Unclassified Accreditation Boundary (UAB) for NNSA assets within Tritium. Additionally, SRNS developed a process to migrate all unclassified information assets into the new accreditation boundary over a 3-year period. Establishment of the UAB is essential to NNSA managing, controlling and maintaining information and information assets to required federal standards. SRNS continues to meet expectations regarding Information Technology and Cyber Security.

Goal-6: Leadership (15%) Very Good

Under this goal, SRNS earned a rating of Very Good, and 85% of the award fee allocated to this goal. SRNS exceeded many of the Objectives, and is generally meeting the overall cost, schedule, and technical performance requirements of the contract under this Goal in the aggregate. SRNS has continued to be successful in its performance under this contract as described below. Issues that were identified during the year have been resolved and are no longer of concern.

SRNS management focus on the FY18 budget planning and execution process for TEF was inadequate to meet program needs. Despite early indications of financial problems in TEF funding, SRNS was slow to bring the required internal organizations together to correct the cost forecasting, scheduling, and communication problems. The TEF forecast costs and actual costs had huge swings during the year. After projecting large cost overruns in TEF, SRNS ended the year with a large uncosted balance. Management emphasis must be given to the implementation of the corrective actions resulting from the three RIEs to ensure proper financial accountability and resource availability to meet mission requirements.

SRNS demonstrated significant management focus on efforts to expedite removal of 1MT of plutonium from the State of South Carolina. SRNS has significantly focused on planning for the increased production period which has decreased risk. SRTE management of phased Argus installations resulted in projects consistently completed within schedule and budget.

SRNS continued its engagement in the development and implementation of a strategic plan managing the aging infrastructure of the Tritium Facility. SRNS provided exceptional support in the development of an enterprise-wide effort to develop a life-cycle cost estimate for the Surplus Plutonium Disposition Dilute and Dispose initiative. SRNS continued the maturation and implementation of the Tiered Operating Production System (TOPS) within SRTE. Safety continued to be a strong area for SRTE with over 3.2 million man-hours without a Days Away, Restricted, and Transfer (DART) case.

SRNS's leadership efforts to drive changes in streamlining hiring and training processes are showing positive results. Additionally, nontraditional hiring initiatives have provided some relief associated with low staffing levels. This includes soliciting and hiring qualified candidates with clearances from Nuclear Navy Bases. Retention bonuses, certification bonuses, and license bonuses have been put in place and are slowing attrition.

SRTE's focus on maintenance program improvements and partnering with SRFO to review maintenance execution and work planning and control performance has resulted in positive changes. SRTE and SRFO are using a new metrics portfolio and assessment results to analyze execution and develop corrective actions. However, continued challenges remain and SRTE leadership must continue focusing on this area to ensure sustained improvement in work planning, control, and execution.

In the last half of the year, the Tritium Facilities have experienced incremental progress in Disciplined Operations/Con Ops. NNSA attributes this improvement to the implementation of the SRTE Performance Improvement Plan's targeted actions. To enhance a continued focus on safety SRTE partnered with SRFO to establish a risk identification process to improve the work planning and TOPS processes following an event in TEF. SRTE management needs to continue to place greater emphasis on risks and hazards associated with work being planned.

SRNL Performance Goal 1.07: Defense Programs — EXCELLENT

Under this goal, SRNS earned a rating of Excellent, and 95% of the award fee allocated to this goal. SRNS exceeded almost all of the Objectives and Key Outcomes, and is generally meeting the overall cost, schedule, and technical performance requirements of the contract under this Goal in the aggregate. The contractor has continued to be successful in its performance under this contract as described below. Issues that were identified during the year have been resolved and are no longer of concern.

In early FY18, SRNL identified seven FY17 Plant Directed Research and Development (PDRD) projects which were over spent for the fiscal year. SRNL, in coordination with SRFO, made changes to the PDRD Project Execution Plan to ensure better project controls, including periodically presenting spending data for each PDRD project at the Technology Management Council (TMC). The data presented is helpful in ensuring that individual projects that are having funding issues get management attention in a timely manner, resulting in no FY18 PDRD projects being over spent.

The Tritium Technology Development Plan was issued in July. The plan was developed by SRNL and the Tritium Facilities. This plan will provide programs with a better understanding of specific technology needs of the production facilities and a perspective on how these new technologies will benefit the future of the Tritium Enterprise. SRNL is now taking steps to 1) prioritize the technology needs, 2) pursue supporting infrastructure, and 3) develop an implementation schedule.

SRNL completed unloading inert gas filled W84 reservoirs using the Big Blue Function Tester in 723-A. This mission was performed at the request of SRTE as an innovative approach to provide an alternate unloading method for these reservoirs and alleviate workload in Tritium facilities. SRNL achieved this milestone two months early.

SRNL successfully installed and operated their new Additive Manufacturing machine. With this new machine, SRNL printed an operational and optimized tool then inserted the tool into SRTE operations.

SRNS and SRNL jointly developed the Ten Year Strategic Plan for the NNSA activities at SRS. The plan was jointly presented to NNSA and DOE leadership. The plan maps strategic actions along a path toward goals that are in partnership and alignment with NNSA and EM missions, values, and priorities. The plan was issued on schedule. Also, SRNL completed a comprehensive Tritium Supply Chain Risk Assessment and incorporated recommendations into the Tritium Sustainment Risk Management Program.

Initially, the SRNL delayed issuance of the Packaging Program Implementation Plan due to inadequate safety basis documentation for addition of new content to the 9977 container, resulting in more than a two-month slip. Resolution of technical issues and quality of safety basis documentation required an inordinate amount of time and effort from NNSA to help SRNL meet the mission.

SRNL Goal 1.08: Nonproliferation — EXCELLENT

Under this goal, SRNS earned a rating of Excellent, and 95% of the award fee allocated to this goal. SRNS exceeded almost all of the Objectives and Key Outcomes, and is generally meeting the overall cost, schedule, and technical performance requirements of the contract under this Goal in the aggregate. The contractor has continued to be successful in its performance under this contract as described below. Issues that were identified during the year have been resolved and are no longer of concern.

SRNL achieved quality research outcomes in nuclear forensics studies to quantify aging of plutonium oxides and has continued to deliver exemplary project management services associated with the Mk-18a Target Recovery Project.

SRNL continues to assist in the development of domestic Molybdenum (Mo)-99 technologies in support of the Mo-99 Program. SRNL provides support for tritium management through their Tritium Purification System (TPS) design and testing for the Office of Material Management and Minimization (M3) Cooperative Agreement Partners. SRNL also provides review of technical documents produced by Cooperative Agreement Partners and provides technical assistance for one of M3's Cooperative Agreement Partners in areas of architect and engineering work support, Mo-99 production facility design

updates, and program management.

SRNL provides technical and project management support for M3's nuclear material removal efforts. During this evaluation period, SRNL provided excellent support to the Gap Program developing an innovative packaging and receipt strategy for the removal of high-priority highly enriched uranium (HEU) from Japan. This support resulted in the signing of a Statement of Intent in August 2018. SRNL continued to successfully support execution of the U.S.-origin program's National Research Universal/National Research Experimental (NRU/NRX) and Target Residue Material (TRM) shipments and both projects remain ahead of schedule. The NRU/NRX and TRM shipments are both highly complex transportation projects and SRNL exceeded expectations in its ability to support the aggressive receipt schedules despite numerous challenges throughout FY18.

SRNL did an excellent job providing technical and project management support for the Emerging Threats Program, ensuring M3's ability to expeditiously remove separated plutonium. SRNL quickly and efficiently increased the readiness level of the Mobile Plutonium Facility (MPF) and its team, reducing the response time by half. The MPF program supported innumerable internal and interagency planning meetings and efforts. SRNL pursued completion of the next generation Mobile Plutonium Glovebox Facility through design and contracting activities and began formulating the functions and requirements for a next-generation mobile system to address problematic materials.