
APPENDIX 11

REV. 5

G-FSP-G-00011

**Functional Service Agreement Between
Savannah River Nuclear Solutions, LLC
and
Savannah River Remediation, LLC**

Engineering Services

October 22, 2014

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1.0 INTRODUCTION

This Functional Service Agreement, Appendix 11 of Memorandum of Agreement (G-MOA-G-00002) describes the service exchange between the Savannah River Site (SRS) Site Management and Operations (M&O) contractor, Savannah River Nuclear Solutions, LLC (SRNS) and Savannah River Remediation LLC (SRR).

This appendix describes the Engineering Services activities to be provided. Engineering Services include programmatic responsibilities for the Site, as well as, certain tasks related to ensuring/interpreting program effectiveness and activities considered to be part of Site Landlord and Site Services. Work included under this FSA will be funded as described in Section 6/Attachment 1 of the MOA. Task-related activities outside of the agreed upon services documented in this FSA will be documented as part of the Service Level Agreements (SLAs).

Engineering as defined in this Memorandum of Agreement (MOA) appendix includes all engineering technical aspects of SRNS support to SRR discussed below. This typically includes programmatic leadership and guidance where such activities apply across all (or more than one) SRNS and SRR facilities.

The parties agree to review this FSA at least annually and revise it if changes are needed as determined by both parties.

2.0 POLICIES, PROCEDURES, AND MANUALS

The following table lists Engineering related policies, procedures, and manuals that will be maintained for the Site by SRNS and will apply when services are provided:

MANUAL NUMBER	MANUAL TITLE	APPLICABLE SECTIONS
WSRC-TM-95-1	Engineering Standards Manual	All Sections
WSRC-IM-95-58	Engineering Practices Manual	All Sections
E7	Conduct of Engineering	All Sections

SRNS-IM-2011-00003	Commercial Grade Dedication (CGD) Guidance Manual	All Sections
3E	Procurement Specification	All Sections
2Q	Fire Protection Program	All Sections
11Q	Facility Safety Documentation	All Sections
19Q	Transportation Safety	All Sections
SCD-3	Nuclear Criticality Safety Manual	All Sections
SCD-11	Consolidated Hazards Analysis	All Sections
E9	Geotechnical Engineering	All Sections
WSRC-IM-98-00033	Systems Engineering Methodology Guidance Manual	All Sections
WSRC-IM-98-00026	Systems Engineering Process Guidance Manual	All Sections
WSRC-IM-2004-0008	Site Characteristics and Program Description	All Sections

WSRC-TR-2003-00573	Technical Safety Requirements Methodology Manual	All sections
N-NCS-G-00136	Criticality Safety Program Description	All Sections

The support and coordination of the above policies, procedures and manuals provided to SRR are part of the overall Engineering Program. These policies and procedures provide engineers, safety analysts, etc., the administrative and technical requirements that promote consistency across the site and help to ensure safety and cost effectiveness. Full time leadership is required to perform tasks such as maintaining the program current with the latest U.S. Department of Energy (DOE) Orders, responding to external audits, providing timely guidance to meet field needs, maintaining alignment with other site programs, providing and implementing corrective action plans, addressing management initiatives and inquiries, etc. The following describes detailed services associated with the Engineering Program that SRNS will provide to SRR as part of this agreement:

- Providing review and consultation in response to compliance questions.
 - Incorporation and applicability of new or additional requirements (e.g., DOE Orders, DOE standards, American Nuclear Society (ANS) standards. Develop Site-wide implementation plans for new requirements in concert with input and concurrence from SRR.
 - Overseeing and controlling all Site-level engineering committees with SRR representation/co-approval for Site actions. The subject committees include but are not limited to Conduct of Engineering Committee (including the Asset Suite' Group representation, and SmartPlant Foundation (SPF) interface functions), Safety Basis Steering Committee, Site Nuclear Criticality Committee, and the Senior Electrical Review Board (SERB).
 - Maintaining the Site's Engineering Resources web page content on InSite (e.g., E7, Engineering Standards, Systems Engineering Knowledge Tools, Fire Protection Program).
 - Overseeing and controlling the Engineering document types and functional identifiers used by the Document Control Registry (DCR).
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- **Performing the role and responsibility of the Suspect Item Program Manager for Savannah River Site (SRS) as defined by MRP 5.19.**
 - **The Occurrence Reporting Official (ORO) will be based on the facility impacted by the S/CI.**

- **Serving as the Owner and Design Authority for SPF design, strategy, and implementation. SRR will have input and concurrence of SPF changes through the Conduct of Engineering Committee. This activity is Unit Billing System (UBS) funded. The scope of the support includes the following:**
 - **SPF Hardware Configuration**
 - **Development Administration**
 - **System Administration**
 - **Data Administration**
 - **Business process technology and workflows**
 - **Object relationship management**
 - **User group training, materials, issues, planning, & coordination**
 - **Interface with other applications (i.e., Vperson, Asset Suite, DCR)**
 - **Token management and costing**

Support from SRR to help with development of SPF changes will be charged to SRNS via a reverse SLA. Support from SRNS to SRR for application of SPF will be funded by SRR via a SLA.

- **Providing continuing training classes for SRNS/SRR including establishing necessary subcontracts. Attendance cost for Site training and cost of training materials and subcontracts will be shared by SRNS and SRR, based on seat attendance. SRR support of training (instructors or material development) will be funded by a reverse SLA.**

 - **Providing new engineering employee training classes for SRNS/ SRR employees. SRNS will provide the programmatic leadership, scheduling, coordination, etc. Responsibility for providing instructors and instruction material will be shared by SRNS and SRR. There will be no "seat time" charge for the classes and each company will account for their own employees' time. SRR support of training (instructors or material development) will be funded by a reverse SLA.**
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- Providing design input/output reviewers for the Technical Agency Identification Checklist (TAIC) functional areas that are to be used by SRR for Site-wide topical areas in support of the modification traveler process. The review of specific design output for compliance against a design input is considered a direct work covered by an SLA.
- Supporting American Society for Mechanical Engineers (ASME) Code B31.3 delegated Owner Inspectors, as requested (particularly for external procurement activities).
- Providing engineering staff for development, procedural guidance, and consolidated reporting for the DOE Energy Management Program (Note that the Infrastructure ESS budget, not the Engineering ESS budget funds the Energy Management Program. This paragraph simply acknowledges that some of the staff for the Energy Management Program is provided by the Engineering organization).
- Providing technical support for interpreting Site programs via verbal communications as well as via document reviews as appropriate.
- Maintain the Commercial Grade Dedication FileMaker databases for both SRNS and SRR to use as a reference and history when writing CGD documents
- Providing automation computer software services that include, as applicable, the procurement, access/installation, quality assurance (QA) verification/validation, maintenance, and error notification for Site-wide engineering computer programs such as, SPF, PRT, and WMS.

3.0 CODES AND STANDARDS

The Engineering Standards Program identifies and manages the application of both national consensus codes/standards, and SRS Engineering Standards and Guides. SRS standards are intended to supplement the requirements from national codes and standards, DOE Orders, local codes, and federal and state regulations. SRS engineering standards have been developed only for subject matter not contained in national codes and standards, unique Site requirements relative to existing national codes and standards, and justifiable unique Site applications or configurations.

The Engineering Standards Board (ESB) is the steering committee for the use and application of codes and standards and is responsible for sponsoring and overseeing the management of the SRS Engineering Standards Program.

The ESB will have one co-chairman from SRNS and one co-chairman from SRR. The other members of the board will be from both SRNS and SRR. The ESB is responsible for managing Technical Committees in support of the Engineering Standards Program. SRNS is responsible for appointing an ESB Engineering Standards Coordinator.

ESB Technical Committees are the Site experts on codes and standards. SRNS Technical Committee members will support consultation on specific applications of codes and standards including reviewing and concurring with such items as specific implementation issues, code/standard evaluations, and independent peer reviews, etc. There will be a co-chairman from SRNS and SRR for each of the Technical Committees.

SRNS will provide programmatic support oversight of the Engineering Standards Program. SRNS will maintain the ESB manuals, and an SRNS engineer will serve as the ESB Engineering Standards Coordinator. The scope of the support is part of Engineering Services and includes:

- Support Engineering Standards Board.
 - Support Technical Committees.
 - Develop MRPs and charters related to Engineering Standards.
 - Maintain Engineering Standards Manual (WSRC-TM-95-1).
 - Maintain Engineering Practices Manual (WSRC-IM-95-58).
 - Manage Archived DuPont Standards and Archived Engineering Standards Manual (WSRC-TM-92-10).
 - Maintain InSite access to the Engineering Standards Program documents.
 - Manage access to National Codes and Standards most often used at SRS via the IHS network. This includes ensuring sufficient seats are provided to support SRNS and SRR activities.
 - Provide Site-required specifications such as high efficiency particulate air (HEPA) filters, welding, etc.
 - Maintain ASME Code Stamps (U), (R), and (VR). This activity includes such items as programmatic assistance on ASME code stamp issues, coordination of authorized inspector reviews, scheduling code stamp certification evaluations, support of the valve shop for VR stamp activities. Review of a facility/ project-specific work scope will be addressed by an SLA.
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- **Maintain welding and non-destructive evaluation Nondestructive Examination (NDE) programs and site manual maintenance.**
- **Lead Pressure Protection Program and Pressure Equipment Protection Committee (PEPC). This includes documentation requiring PEPC review.**
- **Manage Seismic Qualification Reporting and Testing Standardization (SQRSTS) Program.**
- **Provide subject matter expertise in the application of codes and standards. This includes the development and/or approval of calculations required by codes/standards, the review of Code Standard Equivalencies upon request, establishment of technical positions regarding code requirements, etc.**
- **Provide Technical support for issues concerning delegated International Building Code (IBC) Deputy Building Official duties upon request.**

4.0 ENGINEERING SERVICES

4.1 Geotechnical Services

Site Geotechnical Engineering will be responsible for ensuring site Geotechnical programs, site ground motion response spectra, site geologic information, and site seismic information are developed and implemented in accordance with DOE requirements for all SRS facilities. These efforts for SRR facilities are part of Engineering Services and include the following:

- **Design and maintain SRS subsurface database consisting of seismological, geological, and geotechnical data acquired since the beginning of SRS to the present. Maintain and upgrade hardware and software required for retrieval and interpretation of subsurface data.**
 - **Utilize subsurface database to provide Site-wide seismological, geological, and geotechnical information required by SRS, DOE (e.g., 10-year update reviews), regulatory agencies, and the public.**
 - **Coordinate any seismic, geologic, and/or ground motion response spectra updates with SRS to ensure impacts to SRR facilities are identified and SRR actions are identified.**
 - **Utilize subsurface database to generate inputs and updates to SRS General Safety Analysis Report as well as facilities' performance assessments.**
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- Design, deploy, operate, and maintain SRS seismic monitoring system.
- Monitor, evaluate, and report SRS and regional earthquake activities.
- Interface with SRS Emergency Operations in the event of a damaging earthquake affecting SRS.
- Define seismic hazards and provide design earthquake parameters for SRS.
- Resolve SRS Site-wide seismological, geological, and geotechnical issues required by SRS, DOE, Defense Nuclear Facility Safety Board (DNFSB), and regulatory agencies.

4.2 Systems Engineering Services

SRNS will provide and maintain systems engineering process and methodology guidance manuals WSRC-IM-98-00033 and WSRC-IM-98-00026. If the manuals are revised, they will be reviewed for concurrence by SRNS and SRR. Final approval and issuance will be the responsibility of SRNS.

4.3 Packaging and Transportation Services

The Packaging and Transportation Services organization (P&TS) which is a part of the Nuclear & Criticality Safety Engineering, provides services for the safe, efficient, and compliant shipment (off-site) and transfer (on-site) of hazardous and radioactive materials at SRS as specified in Manual 19Q, Transportation Safety.

P&TS includes the Hazardous Material Transportation Representative (HMTR) Group, which provides support to SRNS and SRR when shipping hazardous material or waste offsite. The HMTR ensures compliance with 49 CFR requirements by classifying hazardous materials and waste, reviewing and certifying offsite shipping documentation and performing packaging selection and ordering.

As a Procurement Specification Authority per Manual 3E for Hazmat packaging and related components, P&TS functions include:

- writing specifications, data sheets or other procurement related documents.
 - coordinating the acquisition of up to and including Type A radiological Hazmat packaging.
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- serving as the primary liaison between vendors, site experts, customers and Document Control for the review, approval and processing of packaging vendor document submittals.

P&TS is responsible for the site Federal Motor Carrier Safety Program (FMCSA) and functions as the Department of Transportation (DOT) Authority who:

- manages the Site's DOT program to ensure DOT compliance,
- is the Site Subject Matter Expert and Program Owner for DOT-related issues including Federal Motor Carrier Safety Regulations (FMCSR) interpretation, DOT registration/licenses and inspections,
- and, maintains the required site systems for DOT record keeping, driver files and medical records and ensures timely notification of expirations and updates.

P&TS provides shipment routing and scheduling of commercial off-site shipments, which includes negotiation of freight rates with commercial carriers, payment of freight invoices, coordination of household goods movements, and administration / oversight of the Automated Transportation Management System.

P&TS is responsible for maintaining site level Manual 19Q, serving as the Functional Area Manager for FA-19 of SCD-4 and FA-13 of the S/RIDS , communicating DOT regulatory changes and providing assistance to Emergency Preparedness to maintain response proficiency.

P&TS serves as the Cognizant Technical Function (CTF) and the primary contact for all matters concerning radiological Hazmat packaging including:

- developing and maintaining processes that ensure traceability is established between radiological Hazmat packaging and associated loading, closing, handling and storage instructions,
 - serving as the authority for final acceptability of packaging designed by others (e.g. vendors) to be used at SRS to ship or transfer radiological/nonradiological Hazmat,
 - serving as the Transportation Safety Basis Regulatory Authority responsible for oversight of the Transportation Safety Question program required by 10 CFR 830,
 - managing the Onsite Safety Assessment (OSA) and Non Routine Transfer processes,
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- managing the Package Review Committee (PRC) process and the Radioactive Packaging Approval Log,
- and, maintaining the site Transportation Safety Document (TSD).

For all of the P&T functions described, P&TS deliverables that provide a benefit to all site customers will be funded via the SRNS ESS budget (e.g., P&TS efforts to maintain the TSD). Services and deliverables that benefit a single PBS or customer will be funded via direct funding from the requesting customer (e.g., P&TS participation in a PRC review of a facility-specific implementing procedure for OSA-3 or OSA-25).

4.4 Fire Protection Engineering Services

SRNS will execute the site's Fire Protection Program Owner responsibilities. SRNS will provide the following services as part of the Engineering Services:

- Perform program administration for 2Q, Fire Protection Program Manual, SCD-4 Assessment Performance Objective Criteria, and 2Q6 Fire Protection System Testing and Inspection Manual.
 - Maintain and publish (via Web access) a Master List of SRS Fire Protection Request for Approval (RFA) documents that are approved by the U.S. Department of Energy-Savannah River (DOE-SR). RFA documents are prepared and submitted for the purpose of seeking equivalency/exemption/variance to applicable S/RID, DOE Order/Guide or Code Requirements. SRR will approve and transmit engineering evaluations prepared by their personnel. SRR will transmit to SRNS the DOE-SR approved RFA document for inclusion of the document in the Master List. SRNS will obtain approval of SRR on any transmittals pertaining to SRR facilities prior to transmittal.
 - Provide consultation for issue resolution and peer review of technical information for alignment with programmatic requirements.
 - Provide consultation regarding interpretation and compliance with DOE Orders, Guides and Standards.
 - Coordinate SRS Fire Program Reviews by external organizations including response preparation and resolution for SRS Programmatic issues.
 - Coordinate site reviews and input to revised national codes, associated regulations and potential implementation impacts from new requirements.
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- Maintain cognizance of industry standards/trends and their potential impacts to SRS fire protection program.
- Provide technical oversight of fire protection emergency response facilities and equipment.
- Develop and maintain the SRS Fire Comprehensive Assessment Program and conduct the associated Program Performance Analysis. The actual execution of assessments as required by Manual 2Q and the resulting Performance Analysis is performed under the direction of SRR for SRR facilities. The SRR approved Performance Analysis is transmitted to SRNS as validation that the required assessment was performed. SRR may request SRNS staff to support or perform the assessment as a service level agreement task. SRR will retain the final approval for the assessment and responsibility for development of identified facility specific corrective actions. SRR recommended programmatic revisions will be transmitted to SRNS for processing through approved processes (PCR, SPPC, etc.).
- Maintain a central record of fire system impairments requiring written Authority Having Jurisdiction notification per NFPA 72.
- Provide Halon System Program Coordination and Oversight including standardization of Halon replacement through site standards and procedures.
- Provide ownership of the Fire Protection Coordinator (FPC) Program, including FPC responsibilities and SRS Fire Protection Program overview briefing materials. SRNS will provide the briefing material (computer disc) to SRR for distribution and qualification of SRR personnel as required.

4.5 Nuclear and Criticality Safety Program Services

SRNS will develop, provide, and maintain Site-level, programmatic nuclear and criticality safety manuals, procedures, and supporting databases. This documentation will be implemented by both SRNS and SRR and integrated into the respective operations of both organizations. These services are part of Engineering Services.

Nuclear and criticality safety analysis procedures, manuals, and related programmatic documents will be reviewed and updated as appropriate to stay current with DOE/NNSA requirements and applicable guidance, and to promote continuous performance improvement. These documents and programs provide guidance for the performance of nuclear and criticality safety analyses, nuclear facility hazards analyses, safety documentation, regulatory interpretation and guidance, unreviewed safety questions (USQ), potential inadequacy in the safety analysis (PISA) processing, safety basis strategies, safety design strategies, conceptual safety design reports, preliminary safety

design reports, preliminary documented safety analyses, technical safety requirements, safety basis implementation, radioactive waste management bases, authorization agreements, management of safety basis changes, linking documents, administrative limits, and other programmatic items as may be necessary or required.

SRR may request that SRNS make changes to these Site-level nuclear and criticality safety manuals, procedures, and related programmatic documents or may request addenda needed to address SRR-specific needs or emergent issues.

SRNS will provide coordination and leadership of the Safety Basis Steering Committee (SBSC) and maintenance of its charter. SRR will provide a member to the SBSC.

SRR personnel will be included on Site-level committees associated with the development and maintenance of the SRS nuclear and criticality safety programs.

SRNS will provide integration of the Site-wide Nuclear and Criticality Safety Program and serve as the primary interface with DOE-SR on such matters. Communications regarding SRR specifically must be coordinated with SRR.

Nuclear and Criticality Safety Program support services provided by SRNS specifically include the following:

- Providing available Technical Authority/Subject Matter Experts associated with Nuclear and Criticality Safety.
 - Maintaining Manual 11Q, SCD-3, SCD-4 (Functional Area [FA]-06 and FA-15), SCD-11, MP 4.5, and MRP 4.19 as they pertain to nuclear and criticality safety and their associated methodology manuals.
 - Providing and maintaining eCHAP.
 - Maintaining the SRS Documented Safety Analysis Support Document—Site Characteristics and Program Description (WSRC-IM-2004-00008) and the Technical Safety Requirements Methodology Manual (WSRC-TR-2003-00573).
 - Maintaining the Site-level Criticality Safety Program Description Document, N-NCS-G-00136.
 - Managing the Site-level USQ and nuclear and criticality safety programs including providing the general training for those programs. SRR will provide any SRR facility specific training required.
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- Coordinating SRS responses to DOE/DNFSB requests for areas covered by both SRNS and SRR. These responses and any associated actions will be concurred with or approved by SRR (or exceptions noted) prior to transmittal.
 - Providing coordination and leadership of the Site Nuclear Criticality Safety Review Committee (NCSRC) and maintenance of its charter. SRR will provide a member to the NCSRC. SRNS will provide a member to the SRR Nuclear Criticality Safety Committee.
 - Providing and maintaining the necessary databases associated with the nuclear and criticality safety programs (e.g., PISA Database, LDD Database, and SafetyNet).
 - Maintaining program-required verified/validated nuclear and criticality safety computer codes, necessary software plans, and licenses for DOE/ SRNS/ SRR use. Access to SRNS platforms will be provided as requested.

4.6 Process Control and Automation Engineering Services (Base load for software ownership and program management; upon request for task related activities)

The SRNS Process Control & Automation Engineering (PCAE) organization provides programmatic support focusing on technical expertise, software quality assurance, DOE interface, and maintenance of certain applications utilized by SRR as part of Engineering Base load Services.

Program Management and Support:

SRNS will provide programmatic support focusing on software quality assurance, DOE interface, and technical expertise. The scope of the support includes, but is not limited to, the following:

- Providing Software QA subject matter expert support.
 - Work with QA on the site Safety Software Inventory List.
 - Providing responses for and assistance with DOE-Headquarters (HQ) assessments related to the site Software Quality Assurance (SQA) Program, DOE Safety Software Expert Working Group(SSEWG).
 - Managing and coordinating the SQA training course
 - Providing Quality Assurance Program (QAP) 1Q 20-1, E7 procedure supports used by both SRNS and SRR (SQA, etc.).
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- Providing Quality Assurance Management Program (QAMP) update inputs related to SQA.
- Interfacing and coordinating ANS, Nuclear Information Technology Strategic Leadership (NITSL), Nuclear Energy Institute (NEI), Electrical Power Research Institute (EPRI), and ASME NQA-1.
- Evaluating the impact (S/RID) of DOE Orders related to process control.
- Providing contact, response, and assistance to DOE, DNFSB, NRC.
- Providing Energy Facility Contractors Group (EFCOG) SQA/Commercial/Grade Dedication (CGD) sub-committee representation as appropriate.

For software owned by SRNS and utilized by SRR, SRNS will be the responsible organization for software QA for that package. SRR is responsible for notifying SRNS of any errors discovered. SRNS will inform SRR of any issues upon notification by the vendor. SRR will be responsible for determining impacts and corrective actions.

For software that is used for both companies, SRNS will be responsible for maintaining the software QA records in accordance with Manual 1Q. For software used by SRR at a higher level than was procured by SRNS, it will be SRR's responsibility to ensure that the software QA meets the proper requirements. Each company is responsible for notifying the other of any errors discovered and the impact/ corrective action determination.

5.0 INTERFACE CONTROL INFORMATION

Other than this FSA there are no additional scope approval documents required for SRR to request or SRNS to perform the agreed upon scope. Routine correspondence via email or verbal interaction is adequate for SRR and SRNS to agree upon any specific deliverables and/or dates for such delivery under the FSA. The actual scope to be performed under this FSA is assumed to be funded under the SRNS Essential Site Services/ Landlord Services (ESS/LLS) budget unless noted differently above. The scope narratives found in the approved ESS/LLS baseline budget are therefore the controlling documents on when and if "emergent scope" is covered under the FSA. Differences of opinion on services included under the FSA will be reconciled as defined in the MOA Section 15.

6.0 SERVICE UNIT INFORMATION

For SRR, see Section 6 and the Attachment 1 of this MOA (G-MOA-G-00002).

7.0 POINTS OF CONTACT

SRNS: Russ Jones, Engineering Business Manager

SRNS: Dennis Conrad, Engineered Methods Manager

SRR: Noel Chapman, Engineering Programs

8.0 APPROVALS

SRNS:



J. C. Wallace, III
SRNS Site Chief Engineer

10/23/14
Date

SRR:



J. K. Fortenberry
SRR Chief Engineer

10/30/14
Date
