



# **Assessment of the Savannah River Site Nuclear Facility Training and Qualification Program as Implemented at H-Canyon and F/H Laboratory**

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## Acronyms

CRAD	Criteria Review and Approach Document
DCS	Digital Control System
DOE	U.S. Department of Energy
DOE-SR	DOE Savannah River Operations Office
EA	Office of Enterprise Assessments
F/H Lab	F/H Laboratory
IA	Instrument Air
IPAS	Instructional Package Approval Sheet
JIT	Just-in-Time
JPM	Job Performance Measure
KSA	Knowledge, Skills, and Abilities
MAR	Material at Risk
MOA	Method of Accomplishment
OFI	Opportunity for Improvement
OJT	On-the-job Training
SME	Subject Matter Expert
SRNS	Savannah River Nuclear Solutions, LLC
SRS	Savannah River Site
T&Q	Training and Qualification
TAG	Training Administrative Guide
TTM	Task to Training Matrix

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H-Canyon and F/H Laboratory**

**EXECUTIVE SUMMARY**

The U.S. Department of Energy (DOE) Office of Nuclear Safety and Environmental Assessments, within the independent Office of Enterprise Assessments (EA), conducted an assessment of the nuclear facility training and qualification program at the Savannah River Site as implemented at H-Canyon and F/H Laboratory, which are operated by Savannah River Nuclear Solutions, LLC (SRNS). The purpose of this assessment was to evaluate the SRNS implementation of the nuclear facility training and qualification program to ensure that operating personnel have the requisite knowledge, skills, and abilities to properly perform work in accordance with the safety basis of facilities at the Savannah River Site. DOE Savannah River Operations Office (DOE-SR) oversight of the SRNS nuclear facility training and qualification program was also evaluated. EA conducted this assessment from December 3 to 6, 2018.

The nuclear facility training and qualification program is effectively implemented at H-Canyon and F/H Laboratory through tailored training activities and suitable training materials. SRNS has a well-structured process in place for analyzing job requirements, which are used in conjunction with appropriate reference materials to develop content for the training and qualification program. Training materials are accurate, support the learning objectives, and promote effective delivery of training. Administrative controls are in place for the review, approval, and control of all training materials. The SRNS continuing training program effectively maintains and improves the knowledge, skills, and abilities of job incumbents. Initial and continuing training is conducted using approved and current training materials and replicates actual job conditions to the extent practicable. On-the-job training activities provide trainees with hands-on experience to allow for effective job performance. Simulator training at H-Canyon, although not required by DOE directives, is effectively and consistently presented. Overall, this assessment resulted in no findings or deficiencies. A few opportunities for improvement are provided for line management consideration in further enhancing specific aspects of the SRNS nuclear facility training and qualification program.

As the responsible DOE field office, DOE-SR has an adequately documented structure for providing effective oversight of the SRNS nuclear facility training and qualification program. DOE-SR effectively conducts the required triennial assessments of the SRNS nuclear facility training and qualification program to ensure that it is being properly implemented.

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**1.0 PURPOSE**

The U.S. Department of Energy (DOE) Office of Nuclear Safety and Environmental Assessments, within the independent Office of Enterprise Assessments (EA), conducted an assessment of the nuclear facility training and qualification (T&Q) program at the Savannah River Site (SRS) as implemented at H-Canyon and F/H Laboratory (F/H Lab), which are operated by Savannah River Nuclear Solutions, LLC (SRNS). EA performed this assessment from December 3 to December 6, 2018. The purpose of this assessment was to evaluate the effectiveness of the nuclear facility T&Q program as implemented at these facilities to ensure that personnel have the requisite knowledge, skills, and abilities (KSAs) to properly perform work in accordance with the SRS safety basis.

**2.0 SCOPE**

EA assessed the effectiveness and implementation of key elements of the SRS nuclear facility T&Q program, with specific attention to operator T&Q programs at H-Canyon and F/H Lab. These key elements included the content, design, and development of the SRNS nuclear facility T&Q program, as well as the conduct of training. EA also assessed the DOE Savannah River Operations Office (DOE-SR) processes for nuclear facility training oversight. This review scope was in accordance with the *Plan for the Office of Enterprise Assessments Assessment of Nuclear Facility Training Program at the Savannah River Site (SRS), November 2018*.

**3.0 BACKGROUND**

SRS is a key DOE industrial complex dedicated to environmental cleanup, nuclear weapons stockpile stewardship, and nuclear materials disposition, in support of U.S. nuclear non-proliferation efforts. The geographic center of SRS is approximately 23 miles southeast of Augusta, Georgia, and 15 miles south of Aiken, South Carolina, the two closest population centers. SRS covers more than 310 square miles of land. SRNS is the primary contractor responsible for the management and operation of SRS facilities not involved in the processing of liquid waste. DOE-SR provides direction and oversight for the design and operation of SRS nuclear facilities for the DOE Office of Environmental Management.

H-Canyon and F/H Lab were selected for this assessment as representative examples of the implementation of the nuclear facility T&Q program at SRS. The mission of H-Canyon is to dissolve, purify, and blend-down surplus highly enriched uranium and aluminum-clad foreign and domestic research reactor fuel to produce a low enriched uranium solution suitable for conversion to commercial reactor fuel. H-Canyon also dissolves excess plutonium and transfers it for vitrification in the Defense Waste Processing Facility at SRS. The mission of F/H Lab is to provide radiological and chemical analyses to support the processing activities in H-Canyon and to provide analytical support for waste disposition, material disposition, and area closure activities in line with Environmental Management missions.

DOE-SR provides Federal oversight for the SRNS nuclear facility T&Q program. DOE-SR is required to conduct an independent evaluation of the SRNS nuclear facility T&Q program on a three-year interval.

## **4.0 METHODOLOGY**

The DOE independent oversight program is described in and governed by DOE Order 227.1A, *Independent Oversight Program*. EA implements the independent oversight program through a comprehensive set of internal protocols, operating practices, assessment guides, and process guides. Organizations and programs within DOE use varying terms to document specific assessment results. In this report, EA uses the terms “deficiencies, findings, and opportunities for improvement” as defined in DOE Order 227.1A. In accordance with DOE Order 227.1A, DOE line management and/or contractor organizations must develop and implement corrective action plans for the deficiencies identified as findings. Other important deficiencies not meeting the criteria for a finding, if identified, should be addressed consistent with site-specific issues management procedures.

As identified in the assessment plan, this assessment considered requirements related to a nuclear facility T&Q program listed in DOE Order 426.2, *Personnel Selection, Training, Qualification, and Certification Requirements for DOE Nuclear Facilities*, Change Notice 1. In order to objectively evaluate the SRNS nuclear facility T&Q program, EA used criteria from DOE-STD-1070-94, *Criteria for Evaluation of Nuclear Facility Training Programs*, and a sample of Federal and contractor requirements from DOE Order 426.2. The following objectives from DOE-STD-1070-94 were evaluated:

- Objective 4 – Determination of Training Program Content
- Objective 5 – Design and Development of Training Programs
- Objective 6 – Conduct of Training.

Elements of HSS CRAD 45-21, Revision 1, *Feedback and Continuous Improvement Assessment Criteria and Approach – DOE Field Element*, were used to collect and analyze data on DOE-SR oversight activities related to nuclear facility T&Q programs.

EA examined key documents, such as T&Q program manuals and records, evaluation checklists, lesson plans, and training procedures. EA also conducted interviews with personnel responsible for developing and executing the associated programs; observed training activities; and walked down training facilities. The members of the EA assessment team, the Quality Review Board, and management responsible for this assessment are listed in Appendix A. A detailed list of the documents reviewed, personnel interviewed, and observations made during this assessment, relevant to the findings and conclusions of this report, is provided in Appendix B.

EA has not conducted a recent assessment of the SRNS nuclear facility T&Q program. Therefore, there were no items for follow-up during this assessment.

## **5.0 RESULTS**

### **5.1 Training Program Content**

The objective of this portion of the assessment was to verify that there is an appropriate evaluation of what constitutes competent job performance and that it is identified, documented, and included in the T&Q program.

**Criteria:**

- *The tasks required for competent job performance are identified and documented through a systematic analysis of job requirements. The training program is based on the results of this analysis. (DOE-STD-1070-94, Appendix, Objective 4, Criterion 4.1)*
- *Current facility safety analysis report, procedures, technical and professional references, DOE Guidelines and Orders, and industry operating experience are referenced as applicable to establish both initial and continuing training. (DOE-STD-1070-94, Appendix, Objective 4, Criterion 4.2)*
- *Training for Technical Staff personnel is based on an assessment of position duties and responsibilities. (DOE-STD-1070-94, Appendix, Objective 4, Criterion 4.3)*

**Job Task Analysis**

DOE Order 426.2 requires nuclear facility T&Q programs to utilize a Systematic Approach to Training process to ensure that personnel have the requisite KSAs to properly perform work in accordance with the safety basis. Sections 5.1.4 and 5.1.5 of SRNS Manual 4B, Procedure 3, *Analysis, Design and Development of Training*, contain the SRNS-specific requirements for conducting a job analysis and task analysis, respectively. These requirements are in accordance with DOE Order 426.2. The first part of the Systematic Approach to Training process is to identify and document the job tasks required for competent job performance through a methodical analysis of job requirements. For operator positions at H-Canyon and F/H Lab, the coordinators of the T&Q programs at these facilities worked with subject matter experts (SMEs) and line management to identify and validate the job tasks necessary for these positions. The resultant job task analyses as documented in Task to Training Matrices (TTMs) adequately describe the necessary training program content and training setting (i.e., classroom, on-the-job training (OJT), simulator) for validated job tasks.

To identify the level of training needed for validated job tasks, SRNS uses a Difficulty, Importance, and Frequency survey. The survey asks SMEs and line management to rank the job tasks based on these three criteria. The results of the survey identify whether a particular job task requires no training, normal training, or extra training (SRNS refers to these categories as No Train, Train, or Over-Train, respectively). Job tasks selected as Train or Over-Train are appropriately used as the basis for developing the training materials.

SRNS has a staff of instructional technologists who are responsible for developing and maintaining the job task analyses. Whenever there are changes in procedures, facility systems/equipment, job scope, or advances in technology, SRNS Manual 4B, Procedure 3 requires the SRNS instructional technologist to work with the SMEs to review the training materials and determine whether any changes need to be made. The H-Canyon and F/H Lab job task analyses are up to date and appropriate for the current operational practices.

Although SRNS job task analysis documents are generally adequate, the TTMs do not have a special designation for infrequently conducted job tasks that require training. The intent of a T&Q program is to provide the necessary KSAs for conducting job tasks, but some tasks might be conducted on such an infrequent basis where Just-in-Time (JIT) training could be the most effective when the task is required to be completed. H-Canyon operators stated that some job tasks listed on the TTM have not been performed in five years and in one case, nine years. These job tasks, which are performed very rarely, are not categorized as JIT training. JIT training is a type of training that can be accessed any time it is needed. The JIT training designation allows the task to be captured in the TTM without being considered part of an operator's initial qualification or requalification. (See **OFI-SRNS-1**.)

Overall, the job tasks required for competent job performance are adequately identified and documented through a systematic analysis of job requirements, and the SRNS nuclear facility T&Q program is currently based on the results of this analysis.

### **Identification of Content for Training Materials**

Section 5.2 of SRNS Manual 4B, Procedure 3 requires instructional technologists and instructors to base the design of the training “on the knowledge and skills statements, job requirements, regulatory requirements, procedure reviews, and/or facility system requirements that were identified in the analysis phase.” This procedural requirement is consistent with the DOE-STD-1070-94 specification for utilizing the relevant source documents in the development of training materials. Additionally, SRNS Site Training Administrative Guide (TAG) 10, *Documenting Use of Reference Material*, provides effective guidance on ensuring that reference materials used in the generation of training documents are accurately and routinely recorded on course approval documentation. The *SRNS Chemistry Fundamentals Training Course* materials are a good example of implementation of the requirements for utilizing relevant source documents.

Overall, SRNS uses appropriate documents as source material for the creation or revision of training materials, including course slides, various lesson plans, and student study guides.

### **Training for Technical Staff**

Chapter 1, Section 4.a of Attachment 1 to DOE Order 426.2 requires a training program to be established for technical staff personnel. Section 5.9 of SRNS Manual 4B, Procedure 2, *Qualification/Certification Program Requirements*, establishes effective site-specific training requirements for entry-level technical staff personnel who provide technical support to the operating organization. The SRNS nuclear facility T&Q program recognizes that technical staff functions vary for each operating organization, so the requisite T&Q requirements can vary. SRNS has established an appropriate base level of knowledge for technical staff personnel, and new staff members are required to take core training classes, including general site training, fundamentals training, orientation classes, and engineering technical training. This type of general training for new technical staff members follows the requirements of DOE Order 426.2.

SRNS Document PROGLAPE.TPLN.0001.02, *F-Area Complex Technical Staff Training Plan*, lists the engineering positions at F/H Lab that must be trained under the technical staff training program. At F/H Lab, the Chief Engineer or responsible manager assigns specific courses for each technical staff position. These specific courses are necessary for qualification and ensure that a minimum level of knowledge is attained. For example, the F/H Lab Glovebox Glove Systems Engineer Qualification appropriately requires completion of such training courses as human performance improvement, facility entry, facility safety basis, and nuclear criticality safety.

The H-Canyon T&Q program only requires the Shift Technical Engineer to be a part of the technical staff training program because the Shift Technical Engineer is the only engineering position required to achieve and maintain status as a watchstander. The training materials for this position enable the individual to perform his or her duties.

Overall, training requirements for technical staff personnel at both H-Canyon and F/H Lab are appropriately based on an assessment of position duties and responsibilities and are designed to ensure the individuals being trained obtain the necessary KSAs to be able to competently perform their assigned job, as required by DOE Order 426.2.



## Training Program Content Conclusions

Overall, the content of the SRNS nuclear facility T&Q program as implemented at H-Canyon and F/H Lab is based on a systematic analysis of job requirements. Appropriate reference materials are identified and used in the development of T&Q programs at both H-Canyon and F/H Lab. Technical staff training is based on an assessment of position duties and responsibilities and are designed to ensure that the individuals being trained obtain the necessary KSAs to enable competent job performance.

### 5.2 Design and Development of Training Programs

The objective of this portion of the assessment was to verify that the T&Q program materials are designed to ensure that trainees obtain the requisite KSAs to properly perform job tasks and to verify that the content of initial training and continuing training is designed to ensure that operators are able to continually perform their job tasks in a safe manner.

#### *Criteria:*

- *Learning objectives are derived from tasks selected for training. Learning objectives describe knowledge and skills required for successful job performance and are specified in observable and measurable terms. (DOE-STD-1070-94, Appendix, Objective 5, Criterion 5.1)*
- *Lesson plans and other training materials used in the selected training setting (e.g., classroom, laboratory, simulator, individualized instruction, on-the-job training, etc.) are accurate, support the learning objectives, and promote effective delivery of training. (DOE-STD-1070-94, Appendix, Objective 5, Criterion 5.2)*
- *Review, approval, and control requirements are established and utilized for all training materials. (DOE-STD-1070-94, Appendix, Objective 5, Criterion 5.3)*
- *A continuing training program is in place and maintains and improves the knowledge and skills of job incumbents. (DOE-STD-1070-94, Appendix, Objective 5, Criterion 5.4)*

#### Derivation of Learning Objectives

Section 5.1 of SRNS Manual 4B, Procedure 1, *Training and Qualification Program*, requires training materials to be designed, developed, and implemented based on learning objectives derived from a job task analysis describing desired performance after training. The SRNS training materials that were reviewed adequately derive learning objectives from the job task analyses for operator positions at H-Canyon and F/H Lab. The TTM appropriately identifies the training disposition of the tasks identified in the task analysis and is the basis for selection of learning objectives. Section 5.1.5 of SRNS Manual 4B, Procedure 3 states, “A task-to-training matrix shall be developed and validated by facility management, program owner, or subject matter expert and be maintained in the training program files. [SRNS Form] OSR 36-39, Task Analysis Data Collection, may be used for documentation.” Although both H-Canyon and F/H Lab have appropriately documented the operator position job task analyses in TTMs, this material was developed before the specific requirements of SRNS Manual 4B were instituted. SRNS could not locate documentation showing clear linkages between job tasks and learning objectives, as required by Manual 4B. SRNS Manual 4B, Procedure 3 does not contain adequate guidance on when a formal job task analysis needs to be applied to training material created prior to implementation of this requirement. (See **OFI-SRNS-2**.)

All reviewed SRNS training materials, including lesson plans, student study guides, OJT training guides, and job performance measures (JPMs), included appropriate terminal and enabling learning objectives as the foundation for development of the training material. By definition, terminal learning objectives describe what the trainee will be expected to perform on the job or during performance of the task, and enabling learning objectives describe elements that must be achieved to reach the complete terminal objective. The learning objectives clearly describe the KSAs required for successful job performance and are specified in observable and measurable terms. Learning objectives are adequately derived from content provided by SMEs, and the content is linked to the KSAs required to perform the job tasks being trained based on the expertise of the SME. A sample of records indicated that when training material is reviewed and/or revised, the instructional technologist, in conjunction with the SME, ensures that the learning objectives are clearly addressed.

### **Lesson Plans**

Section 5.4.4 of SRNS Manual 4B, Procedure 3 allows for lesson plans to be developed in a variety of formats, but the plans must include applicable evaluation criteria, terminal objectives and enabling objectives, as well as an introduction, presentation, and summary. The lesson plans that were reviewed for both H-Canyon and F/H Lab training were accurate, supported the learning objectives, and included the required elements. For most of the SRNS instructor-led training courses, the instructor also fills the role of the instructional technologist. Since there is usually only one individual fulfilling the role of both instructor and instructional technologist, the reviewed lesson plans included only minimal detail to allow for effective training delivery by that individual. Although the general intent of consistency is met in these lesson plans, some of the training material might be delivered differently if used by another instructor not familiar with the material.

Based on the records reviewed, SRNS training lesson plans are reviewed for accuracy at least every two years or when training material is revised. When any necessary changes are identified, they are sent to the instructional technologist who works with line management and SMEs to make the corresponding changes to the course materials. If there are minor changes, they are made immediately or held until the next scheduled course revision.

### **Administrative Control of Training Materials**

Chapter 1, Section 4.a.4 of DOE Order 426.2 requires that any changes to a facility, process, Documented Safety Analysis, Technical Safety Requirements, or procedure must be reviewed to determine whether a revision to the nuclear facility T&Q program is necessary. Section 5.3.2 of SRNS Manual 4B, Procedure 1 appropriately requires a periodic review, on a period not to exceed three years, of the nuclear facility T&Q programs as applied at each facility. Records reviewed by the team indicated that SRNS appropriately evaluated whether any changes were needed to the T&Q program.

For any new or revised training materials, Section 5.7 SRNS Manual 4B, Procedure 3 specifies the applicable requirements for review and approval of these documents. The process is in accordance with DOE-STD-1070-94 specifications for review and approval of training materials and includes a technical review performed by the SME, a peer review by other trainers and SMEs, and an instructional technologist review prior to the development and submittal of an Instructional Package Approval Sheet (IPAS). The process appropriately requires the instructional technologist to identify who will review and approve the training material on the IPAS. A sample of new and revised training materials indicated that SRNS is following this process.

## **Continuing Training**

Chapter 1, Section 7 of DOE Order 426.2 requires that a continuing training program be established to maintain and enhance the KSAs of operating personnel. Section 5.11 of SRNS Manual 4B, Procedure 2 requires facility-specific T&Q programs to define continuing training requirements for operating personnel. Both H-Canyon and F/H Lab have facility-specific continuing training plans that comply with the SRNS Manual 4B requirements and establish the continuing training requirements for operations personnel who operate, maintain, or supervise activities at these facilities. Continuing training plans were developed and implemented on a two-year schedule, as required by DOE Order 426.2.

In accordance with DOE Order 426.2, the continuing training programs are appropriately customized for specific positions identified for each facility. Continuing training consists of classroom training, operational drills, and scenario-based training. For both H-Canyon and F/H Lab, the topics for continuing training sessions are scheduled for each calendar year and cover such items as lessons learned, procedure revisions, plant or equipment changes, applied fundamentals, or emergent topics. An observed continuing training session at F/H Lab covered the expected response to a loss of steam due to a potential freeze, which has occurred in the past, and contained detailed information on the scenario presented and encouraged interaction from the attendees. For any individuals unable to attend training, the facility-specific T&Q programs appropriately require them to complete training upon returning to work, either through self-study or rescheduled training sessions.

As verified by a sample of reviewed records, the level of knowledge examinations are administered semiannually at both H-Canyon and F/H Lab, and remedial training is performed for individuals who do not obtain a score of 80% or higher. Additionally, all operating personnel requalify biennially through a comprehensive examination and performance demonstration, as required by DOE Order 426.2. Both facility-specific T&Q programs also require operating personnel to participate in four conduct of operations and emergency preparedness drills per year, in accordance with the requirements of DOE Order 426.2.

## **Design and Development of Training Programs Conclusions**

Overall, the design of the SRNS nuclear facility T&Q program provides a solid foundation for ensuring that trainees obtain the requisite KSAs to properly perform job tasks. Learning objectives that are used in the development of training materials are suitably derived from job task analyses. Lesson plans and other training materials are accurate, support the learning objectives, and promote effective delivery of training. Administrative controls are in place and implemented for the review, approval, and control of all training materials. SRNS has an effective continuing training program that maintains and improves the KSAs of job incumbents.

### **5.3 Conduct of Training**

The objective of this portion of the assessment was to verify that training is conducted in the setting most suitable for the particular training content and that training is consistently and effectively presented using approved lesson plans and other training guides.

#### ***Criteria:***

- *Training is conducted using approved and current training materials. (DOE-STD-1070-94, Appendix, Objective 6, Criterion 6.1)*

- *Training replicates actual job conditions to the extent practical, and allows for direct participation by the trainees. (DOE-STD-1070-94, Appendix, Objective 6, Criterion 6.2)*
- *On-the-job training is conducted and evaluated by designated personnel who have been instructed in program standards and methods. (DOE-STD-1070-94, Appendix, Objective 6, Criterion 6.3)*
- *Simulator training is effectively and consistently presented, where appropriate. (DOE-STD-1070-94, Appendix, Objective 6, Criterion 6.5)*

### **Relevance of Training Materials**

Section 5.1 of SRNS Manual 4B, Procedure 4, *Training Implementation and Evaluation*, requires training managers and instructors to ensure that training is implemented in accordance with current, approved training materials, facility procedures, and other documents. Reviewed H-Canyon and F/H Lab OJT guides and conduct of observed classroom training indicate that SRNS is conducting training using current and approved training materials. The reviewed OJT guides are well organized and current and are linked to job tasks identified in the currently approved TTM. The OJT guides are developed in accordance with SRNS Site TAG 8, *OJT/JPM*, which establishes a sitewide standard for creating and conducting an OJT.

The instructors for the portion of OJT conducted in the classroom were knowledgeable of the training material, encouraged direct participation from the trainees, and used appropriate instructional techniques to ensure that the learning objectives were met. The instructors stated that they prepared for the training by going over the training materials in detail and identifying any necessary revisions to the materials. This preparation method is effective because it helps the instructor become intimately familiar with the training materials and allows for impromptu changes to be made when teaching the material.

Overall, SRNS uses effective and accurate training materials in the delivery of training, and the conduct of classroom instruction provides the trainees with sufficient guidance and supporting materials for achieving the learning objectives. This element of the SRNS nuclear facility T&Q program meets the applicable requirements of DOE Order 426.2.

### **Setup of Training Environment**

Section 5.6 of SRNS Manual 4B, Procedure 3 requires training materials to emphasize or replicate job-related information and actual job conditions to the extent practicable. An observed OJT training activity on how to operate instrument air (IA) for F/H Lab building operators indicated that training is conducted in an appropriate environment that replicates actual job conditions. The OJT training activity consisted of classroom training describing how the operation should be conducted, and then the OJT instructors evaluated the trainees with a JPM, which indicated how well the trainees completed the task being trained. The OJT instructors demonstrated and coached the trainees, then had them practice before performing or simulating the job tasks. The task being performed for the OJT activity involved valves and instrumentation located in the overhead, which would normally require the use of a ladder to access. The performance of the OJT activity did not actually require the use of a ladder and only verbally discussed these portions of the procedure. Although there should be considerations for operator safety, requiring the use of a ladder during OJT is a reasonable practice. Upon discussing the practicality of this OJT training activity, SRNS OJT instructors stated that they would reevaluate the conduct of this OJT activity and make any necessary changes. This was an isolated situation not identified in the conduct of other OJT training activities.

For the IA OJT activity, the instructor used the currently approved procedure with necessary tools and equipment, and conducted the activity in the physical location of the job task, which meets the requirements of DOE Order 426.2. The other observed OJT activities at H-Canyon and F/H Lab were also conducted in accordance with approved procedures.

The environments in which operators are trained at H-Canyon and F/H Lab are slightly different. In general, differences in approaches are allowable due to the difference in material at risk (MAR) at each facility: the MAR at H-Canyon is higher than the MAR at F/H Lab. At H-Canyon, all OJT activities are administered while the trainee is assigned on shift in an under-instruction status, while at F/H Lab, the OJT activities are administered while the trainee is in a full-time training status not assigned on shift. Once the trainee fully completes the qualification/certification program, the operator at H-Canyon is allowed to perform the full duties of that position, while at F/H Lab, the new operator has to be supervised for a period of time before being allowed to perform his or her full duties. Section 3.2.1 of DOE-HDBK-1078-94, *Training Program Handbook: A Systematic Approach To Training*, states that the training environment should be consistent with the task being trained. Although there are no specific requirements for whether the OJT activities are to be administered either while on shift in a under-instruction status or in a training status, neither the H-Canyon or the F/H Lab T&Q programs provide guidance on the training environment for OJT activities.

### **On-The-Job Training**

Section 5.1 of SRNS Manual 4B, Procedure 1 requires qualification training programs to consist of a combination of classroom-type training and OJT. OJT guides for H-Canyon and F/H Lab operators are developed in accordance with SRNS Site TAG 8 and in a manner consistent with DOE-HDBK-1206-98 (Archived), *Guide to Good Practices for On-The-Job Training*, which contains best practices for developing effective OJT activities.

In an OJT training activity for new F/H Lab building operators on how to operate IA, the OJT evaluator was a full-time trainer assigned to the F/H Lab training department. The OJT was not performed on shift, but was conducted in the actual plant environment. The instructor was knowledgeable of the systems and the OJT instructional methods and was very effective in transferring and verifying the level of knowledge and performance of the trainees. The OJT guides provided an appropriate level of detail and information to ensure consistent delivery of the training by different instructors.

At H-Canyon, EA observed two OJT activities (one for the performance of the Safety System Alarm Signal test and another for a simulated performance of transferring the second level sumps using the approved procedure) in which the OJT evaluators were qualified operators and the OJT was performed while the trainees were on shift. The H-Canyon OJT evaluators were very familiar with the operator job tasks and integrated plant operations. Based on interviews and document reviews, all observed OJT evaluators are trained and qualified on the process for evaluating trainees.

Regarding the administration of OJT, the method of accomplishment (MOA) for each job task is selected as either perform, simulate, or discuss, in that order of preference per SRNS Site TAG 7, *Operational Evaluations and Performance Demonstration*. For the IA OJT activity at F/H Lab, SRNS stated that the simulate MOA option was selected due to the potential for interruption of critical operations. Although this is a valid consideration, the same considerations should apply to the H-Canyon building operator OJT activities. In the case of H-Canyon operations, the trainees are allowed to perform a significant portion of the job tasks during on shift OJT. Section 2.3.3 of SRNS Site TAG 7 states, "Tasks should be performed rather than simulated whenever operational conditions permit, since actual performance provides better indication of the Candidate's ability." For the observed OJT activities at both H-Canyon and F/H Lab,

the SRNS Site TAG-7 guidance on the MOA selected for OJT activities was not uniformly applied. (See **OFI-SRNS-3.**)

### **Simulator Training**

DOE Order 426.2 only requires a full scale simulator for Category A Reactors; however, a simulator at H-Canyon is used for hands-on training on the digital control system (DCS). The H-Canyon training plan states that the DCS simulator is used for performing control manipulations, operational drills, OJT/JPMs, and Operational Evaluations, and for demonstrating process-specific casualty response.

The H-Canyon TTM identifies the simulator as the preferred method for accomplishing infrequently performed activities, such as operations that involve interrelated systems, integrated plant responses to abnormal events, and emergency response. The control room operator TTM identifies the simulator as the preferred training method for approximately 30% of the job tasks. The simulator was used as intended during initial training to demonstrate operational characteristics and for normal, abnormal, and emergency facility/process conditions.

During a practice simulator session for an H-Canyon Loss of Air System Anomaly Scenario, simulator training guides were utilized. Two simulator instructors noted that real-time programming is necessary to establish the proper initial conditions and suggested that having pre-defined scenarios with proper initial conditions would increase the flexibility and overall use of the DCS simulator. In this training session, SRNS effectively used the simulator to build operational skills and enhance the effectiveness of hands-on skill training when the use of the actual control room is not feasible. Simulator instructors appropriately discussed differences between the simulator and real-life processes in the training session.

Use of the simulator for continuing training is broadly identified, but specific scenarios and evaluations for initial qualification and requalification have not been formally developed. DOE-HDBK-1078-94 states that simulators are “suited for training tasks requiring a high degree of trainee-system interaction, but for which OJT is not appropriate.” Even though not required, the initial qualification and requalification processes could be enhanced by formally integrating the use of the DCS simulator into the H-Canyon T&Q program.

### **Conduct of Training Conclusions**

Overall, the SRNS nuclear facility T&Q program is conducted in a manner that ensures that trainees obtain the requisite KSAs needed to properly perform job tasks. Training is conducted using approved and current training materials and replicates actual job conditions to the extent practicable. OJT activities provide trainees with hands-on experience to allow for effective job performance. Simulator training at H-Canyon is effectively utilized for developing operational skills.

## **5.4 DOE Field Element Oversight**

The objective of this portion of the assessment was to verify that DOE-SR has established and implemented effective oversight processes as they relate to the SRNS nuclear facility T&Q program and that assurance system programs and processes related to the SRNS nuclear facility T&Q program are in accordance with DOE Policy 226.1B, *Department of Energy Oversight Policy*, and applicable DOE directives.

**Criteria:**

- *The DOE field element line oversight program includes written plans and schedules for planned assessments, focus areas for operational oversight, and reviews of the contractor's self-assessment of processes and systems. (DOE Order 226.1B, 4b (2))*
- *Oversight processes are tailored according to the effectiveness of the contractor assurance systems, the hazards at the site/activity, and the degree of risk, giving additional emphasis to potentially high consequence activities. (DOE Order 226.1.B, 4b (5))*
- *Heads of field organizations/field element manager for NNSA operations or designee must evaluate contractor training and qualification programs using the methodology described in DOE-STD-1070-94, Criteria for Evaluation of Nuclear Facility Training Programs. (DOE Order 426.2, 4(c))*

DOE-SR has effectively established and implemented oversight processes that evaluate SRNS's nuclear facility T&Q program for effectiveness of performance and compliance with applicable requirements. Savannah River Operations Office Implementing Procedure 426.2, *Oversight of Contractor Technical Training and Qualification (T&Q) Program for Nuclear Facilities*, describes the methodology used for oversight of SRNS training activities. DOE-SR designates one person as the nuclear facility training SME, responsible for general oversight of nuclear facility training at SRNS. This individual effectively conducts monitoring of SRNS's training organization by reviewing any revisions to the SRNS nuclear facility T&Q program and implementing procedures. In accordance with DOE Order 426.2, DOE-SR previously reviewed and approved the most recent revision of the SRNS nuclear facility T&Q program. The DOE-SR nuclear facility training SME maintains cooperative relationships with SRNS staff, resulting in strong communications and a high level of engagement in the implementation of the SRNS nuclear facility T&Q program.

Facility Representatives learn the basic elements of nuclear facility training as a part of general technical base training, and they learn the specifics of the training programs at their facilities as they qualify for each facility. Facility Representatives conduct oversight of SRNS training activities as a cross-cutting element while performing routine facility status reviews. For example, several routine Facility Representative assessment reports included training as an element that is covered in those documents. The DOE-SR nuclear facility training SME interfaces with the Facility Representatives on periodic visits to the facilities, and maintains open communications with them in order to address issues as they arise. Based on interviews, the Facility Representatives are sufficiently knowledgeable about training programs at their facilities.

The Facility Representative at K- and L-Areas identified a training issue during facility operator final qualification boards where there was a negative trend on knowledge of operational principles. DOE-SR documented this specific issue in a letter to SRNS, dated November 8, 2018, and SRNS has committed to fixing the issue, which is being tracked to closure in the SRNS issues management system. Although this issue was not identified at H-Canyon or F/H Lab, it shows that DOE-SR is placing attention on the SRNS nuclear facility T&Q program and that it is part of routine oversight activities.

DOE-SR uses Savannah River Operations Office Manual 226.1.1F, *Integrated Performance Assurance Manual*, to develop an oversight schedule that includes oversight of the SRNS nuclear facility training program. The oversight schedule is required to be planned on an annual basis, and one of the required elements is an assessment of the SRNS nuclear facility T&Q program. The DOE-SR annual assessment plan is further augmented by a three-year, forward-looking planning schedule, which also requires the inclusion of training assessments. In accordance with DOE Order 426.2, DOE-SR has conducted

effective assessments of selected elements of the SRNS nuclear facility T&Q program on an annual basis so that all elements of DOE-STD-1070-94 are covered within the three-year requirement. In general, because training is a cross-cutting area, assessments of training are usually performed in conjunction with, or in support of, assessments of broader functional areas (e.g., operations, maintenance, system reviews). The nuclear facility training SME proposes input to the schedule, which is approved by the DOE-SR Assistant Manager for Safety and Quality Assurance. The current schedule contained an appropriate level of oversight of the SRNS nuclear facility T&Q program.

### **DOE Field Element Oversight Conclusions**

Overall, DOE-SR is meeting the requirements of DOE Order 426.2 and has implemented a functioning oversight program for evaluating the effectiveness of SRNS's nuclear facility T&Q program. The DOE-SR oversight program appropriately includes training as a part of broader functional area assessments. DOE-SR actively and effectively conducts oversight of SRNS training program activities and provides the results to the contractor to improve safety and mission performance.

## **6.0 FINDINGS**

EA did not identify any findings during this assessment.

## **7.0 OPPORTUNITIES FOR IMPROVEMENT**

EA identified some OFIs to assist cognizant managers in improving programs and operations. While OFIs may identify potential solutions to findings and deficiencies identified in appraisal reports, they may also address other conditions observed during the appraisal process. EA offers these OFIs only as recommendations for line management consideration; they do not require formal resolution by management through a corrective action process and are not intended to be prescriptive or mandatory. Rather, they are suggestions that may assist site management in implementing best practices or provide potential solutions to issues identified during the assessment.

### **Savannah River Nuclear Solutions, LLC:**

**OFI-SRNS-1:** Consider utilizing a JIT designation in the nuclear facility T&Q program for infrequently performed job tasks that require specific KSAs.

**OFI-SRNS-2:** Consider adding guidance in the nuclear facility T&Q program procedures on when a formal job task analysis should be documented for training material created prior to the implementation of the latest revision of SRNS Manual 4B.

**OFI-SRNS-3:** Consider better defining the MOA selection for OJT activities in accordance with the SRNS Site TAG-7 guidance to improve the overall effectiveness of the nuclear facility T&Q program.



## **Appendix A Supplemental Information**

### **Dates of Assessment**

Onsite Assessment: December 3-6, 2018

### **Office of Enterprise Assessments (EA) Management**

Nathan H. Martin, Director, Office of Enterprise Assessments  
John S. Boulden III, Acting Deputy Director, Office of Enterprise Assessments  
Thomas R. Staker, Director, Office of Environment, Safety and Health Assessments  
C.E. (Gene) Carpenter, Jr., Director, Office of Nuclear Safety and Environmental Assessments  
Kevin G. Kilp, Director, Office of Worker Safety and Health Assessments  
Gerald M. McAteer, Director, Office of Emergency Management Assessments

### **Quality Review Board**

John S. Boulden III  
Steven C. Simonson  
Michael A. Kilpatrick

### **EA Site Lead for Savannah River Site**

Kevin M. Witt

### **EA Assessors**

Kevin M. Witt – Lead  
Deepa J. Khatri  
Albert E. MacDougall  
Lawrence D. Palmer

**Appendix B**  
**Key Documents Reviewed, Interviews, and Observations**

**Documents Reviewed**

- 2017-SA-004571, Assessment Summary – Oral Examination for Certified Position in HB-Line, 01/12/2018
- 2018-SA-002950, Assessment Summary – H-Canyon Building Crane First Line Manger Operational Evaluation (Oral Board), 07/10/2018
- 2018-SA-002981, Assessment Summary – SRNS 4B Manual Procedure 2 Revision 11 evaluation and DOE-SR Manager Approval Recommendation IAW DOE-O-426.2, 06/05/2018
- AMCMES00.NALY.0001.00, Training Needs Analysis, Rev. 00, 09/13/2018
- AMCMES00.TTTM.0001.00.xlsx, Asset Management Chemical Safety Environmental Management Stems (AMCMES) Task to Training Matrix
- AMCMES01.DIFF.0001.00, Difficulty, Importance and Frequency Rating Definitions and Task Selection Guidelines, Rev. 00, 11/05/2018
- AMCMES01.RRSN.0001.00, Navigating the User Interface Chemical Safety Environmental Management Systems (CHMEMS) Software Required Reading, Rev. 00, 11/05/2018
- AMCMES14.SBRF.0001.00, Chemical Management Business Process (CMBP) Briefing, Rev. 00, 11/16/2018
- CFACSB09.CIFM.0005.00, Course Information, Bldg. 772-F LabMod Radionuclide Inventory SBSeminar, Rev. 02, 02/06/2018
- CFACSB09.IPAS.0001.00, Instructional Package Approval Sheet, Bldg. 772-F LabMod Radionuclide Inventory SBSeminar, Rev.00, 11/28/2017
- CFACSB09.SBTS.0001.00, Building 772-F Laboratory Module Radionuclide Inventory Scenario-Based Training Seminar, TSR Rev. 17 LCO 3.2.7, Rev.00, 02/06/2018
- CFACSB14.CIFM.0005.00, Course Information, Bldg. 235-F, Puff Enclosure LoDP Alarm SBT Seminar, Rev.00, 06/27/2018
- CFACSB14.IPAS.0005.00, Instructional Package Approval Sheet, Bldg. 235-F, Puff Enclosure LoDP Alarm, SBT Seminar, Rev. 00, 06.27/2018
- CFACSB14.SBTS.0001.00, Building 235-F, Puff Enclosure Low Differential Pressure Alarm Scenario-Based Training Seminar, TSR Rev. 3, LCO 3.3.3, Rev. 00, 02/20/2018
- CLFREEZE.SBRF.0001.00, PowerPoint, F-Area Complex Loss of Steam Response Briefing, Rev. 00, 11/17/2016
- CLOP4003.TPGS.0001.04, PowerPoint – F&H Lab Instrument Air System, Rev. 04, 12/10/2015
- CLOP4103.PTGS.0001.05, PowerPoint – F/H Lab Steam System, Rev. 05, 10/23/2017
- CLOP4103.STGD.0001.05, Student Study Guide, Steam System, Rev. 05, 10/23/2017
- CLOP4305-LPLN-0001-06, 772-F / 4F Air Monitoring, Rev. 06, 05/01/17
- CLOP4306.CIFM.0001.03, Course Information, 772-1F Air Monitoring, Rev. 03, 02/20/2018
- CLOP4306.IPAS.0001.03, Instructional Package Approval Sheet, 772-1F Air Monitoring, Rev. 03, 11/16/2017
- CLOP4306.STGD.0001.03, Student Study Guide 772-1F Air Monitoring, Rev. 03, 02/20/2018
- CLOP4306.TPGS.0001.03, PowerPoints, 772-1F Air Monitoring, Rev. 03, 02/20/2018
- CLOP5107.JPMZ.0001.00, OJT/JPM, Verify Freeze Protection, Rev. 00, 09/27/2016
- CLOP5303.JPMZ.0001.06, On-the-Job Training (OJT) Guide & Job Performance Measures (JPM), Operate Instrument Air 772-F/1F, 03/06/2017
- CLOPFREZ.PRFC.0001.00, Practical Factor, F-Area Complex, Response to Complete Loss of Steam During Freezing Conditions, Rev. 00, 03/18/2015
- CLOPOPEV.OPSE.0001.01, F-Area Complex Operations Operational Evaluation, 12/25/2015

- CLSMSP01.SPTX.0001.00, F/H Laboratory Operations, Loss of Instrument Air, SOM Self-Paced Scenario, Rev. 01, 08/10/2017
- HSBGCRII.STGD.0001.03, 221-H Control Room General Study Guide, Rev. 03, 04/11/2017
- HSBGSY17.LPLN.0001.07, 221/211-H Electrical Distribution and Diesel Generator Systems, Rev. 07, 08/01/2018
- HSBGSY17.STGD.0001.07, 221/211-H Electrical Distribution & Diesel Generator System, Rev. 07, 08/01/2018
- L4.02-30095, Instrument Air System Procedure, F/H Labs, 1/15/2013
- L4.02-20000.59, Instrument Air Low Pressure Alarm Response Procedure, 6/8/2010
- Letter from Jack R. Craig, Savannah River Site Manager, to Richard M. Sprague, Senior Vice President, Savannah River Nuclear Solutions, LLC, Request for Approval of Savannah River Site Training Program Plan (Manual 4B Procedures), 08/10/2017
- Letter from Michael D. Budney, Savannah River Site Manager, to Richard M. Sprague, Senior Vice President, Savannah River Nuclear Solutions, LLC, Request for Approval of Savannah River Site Training Program Plan (SRS Manual 4B Procedures) Procedure 2, Revision 11 (Your letter, SRNS-C0000-2018-00010, dated May 21, 2018), 06/13/2018
- Letter from Michael A. Mikolanis, Assistant Manager for Nuclear Material Stabilization, to Wyatt Clark, Senior Vice President, Savannah River Nuclear Solutions, LLC, Concurrent Recognition of Recent Adverse Trend in Disciplined Operations, 11/08/2018
- Letter from Michael A. Mikolanis, Assistant Manager for Nuclear Material Stabilization, to Wyatt Clark, Senior Vice President, Savannah River Nuclear Solutions, LLC, Department of Energy Savannah River Operations Office (DOE-SR) Assistant Manager for Nuclear Material Stabilization Monthly Assessment Report for September 2018, 11/15/2018
- Manual 4B, Glossary, Training and Qualification Program Manual, Rev. 03, 08/10/2017
- Manual 4B Procedure 1, Training and Qualification Program Manual, Training and Qualification Program, Rev. 08, 08/10/2017
- Manual 4B Procedure 2, Training and Qualification Program Manual, Qualification/Certification Program Requirements, Rev. 11, 06/14/2018
- Manual 4B Procedure 3, Training and Qualification Program Manual, Analysis, Design and Development of Training, Rev. 04, 08/10/2017
- Manual 4B Procedure 4, Training and Qualification Program Manual, Training Implementation and Evaluation, Rev. 04, 08/10/2017
- Manual 4B Procedure 5, Training and Qualification Program Manual, Training Processes, Records and Documentation, Rev. 05, 08/10/2017
- Memorandum from J. Craig (DOE-SR) to Distribution, DOE-SR Calendar Year 2018 Annual Performance Assurance Plan for Approval, 12/21/2017
- N235FET2, 235-F and F-Area Complex Facility Entry Training, Rev. 02
- N235RRCH.TPGS000101, 235-F Risk Reduction TRU Container Handling, Rev. 00, 01/11/17
- NSAOTSR.LPLN.0001.05, F-Canyon Complex Safety Basis for Operators, Rev. 05, 12/15/16
- NSBG95LL.SBRF.0001.00, H-Canyon Vessel 9.5 Liquid Level Anomaly, Rev. 00, 12/14/2017
- NSBGAR01SBRF000100, H-Canyon Operations Training, H-Canyon Loss of Air Systems Anomaly – Scenario, 9/7/2017
- NSBGCRII.LPLN.0001.03, 221-H-Canyon, Control Room General, PowerPoints, Rev. 03, 04/11/2017
- NSBGCRII.OJTG.0001.05, H-Canyon Training, Control Room Operator, On-the-Job (OJT) Guide, Rev. 5, 04/11/2017
- NSBGCRII.OPSE.0001.03, 221-H-Canyon, Control Room General, Certification and Recertification, Operational Evaluation (OE), Rev. 03, 04/30/2015

- NSBGCR11.QCRD.0001.17, 221-H Control Room General Certification, Qual Card, Rev. 17, 02/20/2018
- NSBGEDRTLPLN000100, H-Canyon Operations Training, H-Canyon Electrical Distribution – Refresher/Scenario, 12/21/2017
- NSBGNIM7.SBRF.000100, Scenario: Loss of Nuclear Incident Monitor (NIM) Coverage, 11/2/17
- NSBGNMR.STGD.0001.00, Nuclear Safety, Nuclear Safety Management Fundamentals, Rev. 00, 07/11/2018
- NSBHfir7.SBRF.0001.00, Double Contingency Analysis (DCA), Rev. 13, Documented Safety Analysis (DSA), Rev. 12, Technical Safety Requirements (TSR), Rev. 12, High Flux Isotope Reactor (HFIR), PowerPoints, Rev. 00, 07/12/17
- NSBOARGP.QCRD.0001.13, 211-8H Control Room Operator Qualification, Qual Card, Rev. 13, 10/19/17
- NSBOARRF.SLGD.000100, 211-H Acid Recovery Unit (ARU) Refresher Training Simulator Guide
- NSBOBLDG.LPLN.0001.04, 221-H Building Operator, Lesson Plan, Rev. 04, 05/02/2017
- NSBOBLDG.OJTG.0001.06, 221-H-Canyon, Building Operator, On the Job Training Guide, Rev. 6, 02/28/2018
- NSBOBLDG.OPSE.0001.01, 221-H-Canyon Operational Evaluation Guide, 8/14/2018
- NSBOBLDG.QCRD.0001.18, 221-H Building Operations Qualification, Qual Card, Rev. 18, 01/17/2018
- NSBOBLDG.STGD.0001.04, 221-H Building Operators Study Guide, Rev. 04, 05/02/2017
- NSBOHC08.LPLN.0001.07, 221-H Canyon Dissolving / Head End Operator, Rev. 07, 11/12/2015
- NSBOHC08.OJTG.0001.11, 221-H-Canyon Dissolving/Head End Process Operator, Initial Certification Only, On-the-Job-Training (OJT) Guide, Rev. 11, 10/29/2015
- NSBOHC08.OPSE.0001.03, 221-H-Canyon Dissolving/Head End Certification and Recertification Operational Evaluation (OE), Rev. 03, 10/29/2015
- NSBOHC08.QCRD.0001.18, 221-H Dissolving/Head End Operator, Certification, Qual Card, Rev. 18, 01/16/2018
- NSBOHC08.STGD.0001.07, 221-H Dissolver/Head End Process Student Study Guide, Rev. 07, 10/28/2015
- PROGALAP.TPLN.0001.01, Analytical Laboratories Area Projects Training Plan, Effective: 4/26/2017
- PROGALTM.TTTM.0001.01 (LAB), F-Complex Laboratory Task-to-Training Matrix
- PROGALTM.TTTM.0001.01 (OPS), F-Complex Operations Task-to-Training Matrix
- PROGAMCM.PDES.0001.00, Chemical Safety Environmental Management Systems (CHMEMS) Software Training Program Description, Rev. 00, 11/05/2018
- PROGINST.PDES.0001.05, Instructional Staff Training and Qualification Program Description, Rev. 05, 05/01/2014
- PROGLAPE.TPLN.0001.02, F-Area Complex Tech Staff Training Plan, 8/17/2017
- PROGLAPO.PDES.0001.15, (F-Complex Operations TQPD)
- PROGLAPO.PDES.0001.15, F-COMPLEX OPERATIONS Training and Qualification Program Description, Addendum to SRSTPD01, SRS Operations Training Program Description, Rev. 15, 09/19/2018
- PROGLAPO.TCSD.0001.01, F-Area Complex Operations, Technical Qualification of Instructors, 04/24/2018
- PROGLAPO.TTTM.0001.00, Task to Train Matrix F-Area Complex Operations, 8/7/2017
- PROGLAPW.PDES.0001.01, Analytical Labs & F-Area Complex, Training Program Description, Rev. 01, 02/24/2016

- PROGNSBP.PDES.0001.15, H Canyon / H-Outside Facilities Operations, Training and Qualification Program Addendum to SRSTPD01, SRS Operations Training Program Description, Rev. 15, 08/30/2017
- PROGNSBP.TPLN.0001.06, 221-H-Canyon/211-H-Outside Facilities CY18 Continuing Training Plan, Rev. 06, 01/01/2018
- PROGNSBP.TTTM.0001.02, 221-H Canyon/221-H Outside Facilities Task List and Task to Training Matrix, Rev. 02, 07/25/2016
- PROGRISK.TPLN 000104, F-Complex 235-F Building Risk Reduction Project Training Plan, Rev. 04, 03/25/15
- PROGRISK.TPLN.0001.04, F-Complex, 235-F Building Risk Reduction Project Training Plan, Rev. 04, 3/25/2015
- SA021208.JPMZ.0001.00, Tritium Analysis On-the job Training (OJT) Guide and Job Performance Measure (JPM), Rev.00, 07/16/18
- SA021208.JPMZ.0001.00, Tritium Analysis, On-the Job Training (OJT) Guide & Job Performance Measures (JPM), Effective Date: 07/16/2018
- SA021504.JPMZ.0001.00 , IR Oil Analysis Infracal, On-the Job Training (OJT) Guide & Job Performance Measures (JPM), Effective Date: 05/09/2018
- SA021600.JPMZ.0001.01, Stack Monitoring, On-the Job Training (OJT) Guide & Job Performance Measures (JPM), Effective Date: 05/07/2018
- SA090400.JPMZ.0001.03, Reagent Standardization, On-the Job Training (OJT) Guide & Job Performance Measures (JPM), Effective Date: 06/25/2018
- SA090501.JPMZ.0001.00, Quality Control Standards Dispensing and Control, On-the Job Training (OJT) Guide & Job Performance Measures (JPM), Effective Date: 06/25/2018
- SA091001.JPMZ.0001.03, Reagent Preparation, On-the Job Training (OJT) Guide & Job Performance Measures (JPM), Effective Date: 06/25/2018
- SA260020.JPMZ.0001.00, F/H Labware QC Lab Training, On-the Job Training (OJT) Guide & Job Performance Measures (JPM), Effective Date: 08/06/2018
- SA260971.JPMZ.0001.02, I.H. Analysis of Beryllium by Optical Fluorescence, On-the Job Training (OJT) Guide & Job Performance Measures (JPM), Effective Date: 06/05/2018
- SG152909.CIFM.0001.12, Course Information, F/H Lab Safety Basis, Rev. 12, 09/04/2018
- SG152909.IPAS.0001.12, Instructional Package Approval Sheet, F/H Lab Safety Basis, Rev. 12, 07/24/2018
- SG152909.TPGS.0001.12, PowerPoint, F/H Labs Safety Basis, Rev. 12, 08/13/2018
- SRNSTG01.TCSD.0007.00, SRNS Training Administrative Guide 7 – Operational Evaluations and Performance Demonstrations, Rev. 00, 02/20/2015
- SRNSTG01.TCSD.0008.00, SRNS Training Administrative Guide 8 – OJT/JPM, Rev. 00, 02/20/2015
- SRNSTG07, SRNS Site Training Administrative Guide 7 – Operational Evaluations and Performance Demonstrations, 2/20/2015
- SRNSTG19, SRNS Training Administrative Guide 19- Technical Safety Requirements Initial Issue and Revision Training, 1/23/2017
- STNS-HCANTAN-2015-0004, Training Control Manipulations (CM) Action Plan, (as of 10/30/2018)
- TTFGCH1A-LPLN-0001-07, Chemistry Fundamentals Training Course Lesson Plan, Revision 7, Approved 11/27/2018
- TTFGCH1A-LPLN-0001-05, Chemistry Fundamentals Training Course Lesson Plan Revisions/Edits List

## **Interviews**

### **SRNS**

- Deputy Training Manager
- F/H Lab Building Operators (2)
- F/H Lab Instructional Technologist / Instructor
- F/H Lab OJT Instructor
- F/H Lab Training Lead
- H-Canyon Building Operator
- H-Canyon Control Room Operator
- H-Canyon Senior Instructor / Instructional Technologist
- H-Canyon Senior Operational Instructor / Instructional Technologist
- H-Canyon OJT Evaluators (2)
- H-Canyon OJT Instructors (2)
- H-Canyon Operators Under Instruction (2)
- H-Canyon Training Lead

### **DOE-SR**

- Deputy Assistant Manager for Nuclear Material Stabilization
- Facility Representatives (4)
- Nuclear Facility Training Program Subject Matter Expert
- Nuclear Materials Operations Division Director

## **Observations**

- Classroom Continuing Training Seminar, Freeze Protection
- F/H Laboratory Operations Operate Instrument Air 772-F/1F ON the Job Training (OJT) and Job Performance Measures for 3 Operators in Training
- F/H Laboratory Continuing Training Session on Loss of Steam Response
- Chemistry Fundamentals Classroom Training
- H-Canyon Control Room Operator OJT Activity (Safety System Alarm Test)
- H-Canyon Building Operator OJT Activity (Transfer Second Level Sumps to Tank 181)