



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
REGION II

245 PEACHTREE CENTER AVENUE NE, SUITE 1200  
ATLANTA, GEORGIA 30303-1257

October 23, 2017

Mr. Joseph W. Shea  
Vice President, Nuclear Licensing  
Tennessee Valley Authority  
1101 Market Street, LP 3R-C  
Chattanooga, TN 37402-2801]

SUBJECT: SEQUOYAH NUCLEAR PLANT – NUCLEAR REGULATORY COMMISSION  
INTEGRATED INSPECTION REPORT INSPECTION REPORT  
05000327/2017003 AND 05000328/2017003

Dear Mr. Shea:

On September 30, 2017, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Sequoyah Nuclear Plant Units 1 and 2. On October 12, 2017, the NRC inspectors discussed the results of this inspection with Mr. Tony Williams and other members of your staff. The results of this inspection are documented in the enclosed report. The inspectors did not identify any finding or violation of more than minor significance.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

*/RA/*

Alan Blamey, Chief  
Reactor Projects Branch 2  
Division of Reactor Projects

Docket Nos.: 05000327, 05000328  
License Nos.: DPR-77, DPR-79

Enclosure:  
IR 05000327/2017003 and 05000328/2017003  
w/Attachment: Supplemental Information

cc w/ encl: Distribution via Listserv

SUBJECT: SEQUOYAH NUCLEAR PLANT – NUCLEAR REGULATORY  
 COMMISSION INTEGRATED INSPECTION REPORT INSPECTION  
 REPORT 05000327/2017003 AND 05000328/2017003 October 23, 2017

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**U. S. NUCLEAR REGULATORY COMMISSION**

**REGION II**

Docket Nos.: 50-327, 50-328

License Nos.: DPR-77, DPR-79

Report Nos.: 05000327/20017003, 05000328/2017003

Licensee: Tennessee Valley Authority (TVA)

Facility: Sequoyah Nuclear Plant, Units 1 and 2

Location: Soddy-Daisy, TN 37379

Dates: July 1 – September 30, 2017

Inspectors: D. Hardage, Senior Resident Inspector  
G. Smith, Senior Resident Inspector  
W. Deschaine, Resident Inspector  
C. Franklin, Reactor Inspector (1R05, 1R11, 1R12, 1R15, 1R19)  
D. Dumbacher, Senior Resident Inspector (1R06, 1R11)  
A. Nielsen, Senior Health Physicist (2RS6, 4OA1)  
J. Panfel, Health Physicist (2RS7, 4OA5)  
W. Loo, Senior Health Physicist (2RS8)  
S. Sanchez, Sr. Emergency Preparedness Inspector (1EP2,  
1EP3, 1EP4)  
C. Fontana, Emergency Preparedness Inspector (1EP5, 4OA1,  
4OA6)

Approved by: Alan Blamey, Chief  
Reactor Projects Branch 6  
Division of Reactor Projects

Enclosure

## **SUMMARY**

IR 05000327/2017003, 05000328/2017003; 7/1/2017-9/30/2017; Sequoyah Nuclear Plant, Units 1 and 2; Routine Integrated Report Sequoyah Nuclear Plant, Units 1 and 2.

The report covered a three-month period of inspection by resident inspectors and announced inspections by regional inspectors. No findings were identified during this inspection period. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 6. The documents reviewed not identified in the Report Details are listed in the Attachment.

## REPORT DETAILS

### Summary of Plant Status:

Unit 1 operated at or near 100 percent Rated Thermal Power (RTP) for the entire inspection period.

Unit 2 operated at or near 100 percent RTP for the entire inspection period.

### 1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

#### 1R01 Adverse Weather Protection (71111.01)

External Flooding: The inspectors reviewed the updated final safety analysis report (UFSAR) and related flood analysis documents to identify those areas containing safety related equipment that could be affected by external flooding and their design flood levels. The inspectors walked down flood protection barriers, reviewed procedures for coping with external flooding, and reviewed corrective actions for past flooding events. The inspectors verified that the procedures for coping with flooding could reasonably be used to achieve the desired results. The inspectors assessed whether a flooding event could limit or preclude manual actions for areas where operator actions are credited.

The inspectors conducted walkdowns of the following risk-significant plant areas that are below flood levels and required to remain dry:

- Essential Raw Cooling Water building
- Emergency Diesel Generator building

This review constituted one external flooding sample, as defined in Inspection Procedure (IP) 71111.01.

#### b. Findings

No findings were identified.

#### 1R04 Equipment Alignment (71111.04)

##### .1 Partial System Walkdown

###### a. Inspection Scope

The inspectors performed partial walkdowns of the following systems to verify the operability of redundant or diverse trains and components when safety equipment was inoperable. The inspectors focused on identification of discrepancies that could impact the system's safety function potentially increasing risk. The inspectors reviewed applicable operating procedures, walked down control system components, and determined whether selected breakers, valves, and support equipment were in the correct position to support system operation. The inspectors also verified that the

licensee had properly identified and resolved equipment alignment problems and entered them into the corrective action program (CAP). The inspectors completed three samples, as defined in IP 71111.04.

- Unit 2 'A' safety injection pump while the 'B' safety injection pump was out of service for planned maintenance
- Unit 2 'B' residual heat removal system while the 'A' pump was out of service for planned maintenance
- Unit 1 'A' train safety injection while the 'B' safety injection pump was out of service for planned maintenance

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05)

.1 Fire Protection Tours

a. Inspection Scope

The inspectors toured the areas listed below to assess the material condition and operational status of fire protection features. The inspectors evaluated whether: combustibles and ignition sources were controlled in accordance with the licensee's administrative procedures; fire detection and suppression equipment was available for use; passive fire barriers were maintained in good material condition; and compensatory measures for out-of-service, degraded, or inoperable fire protection equipment were implemented in accordance with the licensee's fire plan. The inspectors completed four samples, as defined in IP 71111.05.

- Diesel generator building elevation 722
- Auxiliary building elevation 690 (Unit 1 side)
- Control building elevation 685
- Essential Raw Cooling Water building

b. Findings

No findings were identified.

.2 Annual Drill Observations

a. Inspection Scope

On July 14, 2017, the inspectors observed an announced fire drill. The inspectors assessed fire alarm effectiveness; response time for notifying and assembling the fire brigade; the selection, placement, and use of firefighting equipment; use of personnel fire protective clothing and equipment (e.g., turnout gear, self-contained breathing apparatus); communications; incident command and control; teamwork; and firefighting strategies. The inspectors also attended the post-drill critique to assess the licensee's

ability to review fire brigade performance and identify areas for improvement. Following the critique, the inspectors compared their findings with the licensee's observations and to the requirements specified in the licensee's Fire Protection report. This activity, along with the two drill observations documented in IR 2017-001, constitute one inspection sample, as defined in IP 71111.05.

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06)

.1 Internal Flooding

a. Inspection Scope

The inspectors reviewed related flood analysis documents and performed a walkdown of the areas listed below containing risk-significant structure, system, or components (SSCs) susceptible to flooding. The inspectors verified that plant design features and plant procedures for flood mitigation were consistent with design requirements and internal flooding analysis assumptions. The inspectors also assessed the condition of flood protection barriers and drain systems. In addition, the inspectors verified the licensee was identifying and properly addressing issues using the CAP. The inspectors completed two samples, as defined in IP 71111.06.

- Emergency Diesel Generator rooms
- 1A Charging Pump room

b. Findings

No findings were identified.

1R11 Licensed Operator Regualification Program (71111.11)

.1 Quarterly Review

a. Inspection Scope

The inspectors observed a simulator training scenario on July 13, 2017, which involved pressurizer pressure transmitter CH-L 1 PT-68-340 failing high, followed by main feedwater pump A trip with no runback, reactor coolant system leak that degrades to a large-break loss-of-coolant accident, failure of automatic Phase B containment isolation, failure of residual heat removal auto sump swap over, failure of automatic containment spray actuation, and containment air return fans trip on start. The inspectors observed crew performance for: communications; ability to take timely and proper actions; prioritizing, interpreting and verifying alarms; correct use and implementation of alarm, off-normal, and emergency response procedures; timely control board operation and manipulation, including high risk operator actions; oversight and direction provided by shift manager, including the ability to identify and implement appropriate Technical Specification (TS) action; and, group dynamics involved in crew performance. The inspectors also observed the evaluators' critique and reviewed simulator fidelity to verify

that it matched actual plant response. This activity constituted one inspection samples, as defined in IP 71111.11.

b. Findings

No findings were identified

.2 Quarterly Review of Licensed Operator Performance

a. Inspection Scope

The inspectors observed and assessed licensed operator performance in the main control room during periods of heightened activity or risk. The inspectors reviewed various licensee policies and procedures such as OPDP-1, Conduct of Operations, NPG-SPP-10.0, Plant Operations, and 0-GO-5, Normal Power Operation. The inspectors utilized activities such as post-maintenance testing, surveillance testing, unplanned transients, infrequent plant evolutions, plant startups and shutdowns, reactor power and turbine load changes, and refueling and other outage activities to focus on the following conduct of operations as appropriate:

- operator compliance and use of procedures
- control board manipulations
- communication between crew members
- use and interpretation of plant instruments, indications and alarms
- use of human error prevention techniques
- documentation of activities, including initials and sign-offs in procedures
- supervision of activities, including risk and reactivity management
- pre-job briefs

The inspectors observed licensed operator performance during the following activities:

- Realignment of Unit 1 Aux building ventilation
- Boration of 10 gallons for temperature control

This activity constituted one inspection sample, as defined in IP 71111.11.

b. Findings

No findings were identified

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors reviewed the maintenance activities, issues, and/or systems listed below to verify the effectiveness of the licensee's activities in terms of: appropriate work practices; identifying and addressing common cause failures; scoping in accordance with 10 CFR 50.65(b); characterizing reliability issues for performance; trending key parameters for condition monitoring; charging unavailability for performance; classification in accordance with 10 CFR 50.65(a)(1) or (a)(2); appropriateness of



performance criteria for SSCs and functions classified as (a)(2); and appropriateness of goals and corrective actions for SSCs and functions classified as (a)(1). The inspectors completed three samples, as defined in IP 71111.12.

- CDE 2963 – Spreading Room Supply Fan Damper
- CDE 2965 – Control Building Fresh Air Supply Tornado Damper
- CDE 2967 – Maintenance rule functional failure on 480V board room A train chillers

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13)

a. Inspection Scope

The inspectors reviewed the following activities to determine whether appropriate risk assessments were performed prior to removing equipment from service for maintenance. The inspectors evaluated whether risk assessments were performed as required by 10 CFR 50.65(a)(4), and were accurate and complete. When emergent work was performed, the inspectors reviewed whether plant risk was promptly reassessed and managed. The inspectors also assessed whether the licensee's risk assessment tool use and risk categories were in accordance with Standard Programs and Processes Procedure NPG-SPP-07.1, "On-Line Work Management," Revision 18. The inspectors completed six samples, as defined in IP 71111.13.

- 2B emergency diesel generator maintenance outage (8/14-19)
- Emergent inoperability of offsite power due to loss of grid qualification (8/29)
- Emergent inoperability of steam generator 2 turbine AFP Level Control Valve (9/22)
- 'B' train emergency core cooling system outage with vital inverter 2-IV outage
- Risk assessment done per requirement of TR 7.5.3 for the A Train H2 analyzer being non-functional greater than 30 days
- Risk Management actions for work week 9/4 - 9/10

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15)

a. Inspection Scope

For the operability evaluations described in the condition reports (CRs) listed below, the inspectors evaluated the technical adequacy of the evaluations to ensure that TS operability was properly justified and the subject component or system remained available, such that no unrecognized increase in risk occurred. The inspectors compared the operability evaluations to UFSAR descriptions to determine if the system or component's intended function(s) were adversely impacted. In addition, the inspectors reviewed compensatory measures implemented to determine whether the compensatory measures worked as stated and the measures were adequately controlled. The inspectors also reviewed a sampling of CRs to assess whether the licensee was identifying and correcting any deficiencies associated with operability evaluations. The inspectors completed five samples, as defined in IP 71111.15.

- CR 1323907: 1-FCV-68-332, PORV block valve - stoke did not meet acceptance criteria
- CR 1296320: DC vital battery board panel front panel covers bolting not in accordance with vendor requirements
- CR 1260363: 1A RHR Suction Piping Void
- CR 1305833: Evaluate the impact of having all 4 6900V shutdown board room pressurization fans broken and tagged
- CR 1290199: U2R21 Snubber SQN-2-SNUB-059-492-1-27 failed as-found drag function

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed the post-maintenance tests associated with the work orders (WOs) listed below to assess whether procedures and test activities ensured system operability and functional capability. The inspectors reviewed the licensee's test procedure to evaluate whether: the procedure adequately tested the safety function(s) that may have been affected by the maintenance activity; the acceptance criteria in the procedure were consistent with information in the applicable licensing basis and/or design basis documents; and the procedure had been properly reviewed and approved. The inspectors also witnessed the test or reviewed the test data to determine whether test results adequately demonstrated restoration of the affected safety function(s). The inspectors completed seven samples, as defined in IP 71111.19.

- WO 117857128, Unit 2 TDAFW EQ temperature switch replacement
- WO 118275821, EGTS Room Cooler A-A Clam Inspection
- WO 118312359, Diesel Gen Room 2A-A Exhaust Fan 2
- WO 117572410, Replace GR-5 relay for ERCW pump J-A breaker

- WO 118091733, Perform differential relay 87S2B calibration test on 6.9kV shutdown board 2B-B, panel 17
- WO 118349017, Perform inspection/cleaning of 125vdc vital battery II
- WO 117838546, Perform MOVAT on 2-70-156A

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

For the three surveillance tests identified below, the inspectors assessed whether the SSCs involved in these tests satisfied the requirements described in the TS surveillance requirements, the UFSAR, applicable licensee procedures, and whether the tests demonstrated that the SSCs were capable of performing their intended safety functions. This was accomplished by witnessing testing and/or reviewing the test data. The inspectors completed three samples, as defined in IP 71111.22.

In-Service Tests:

- 1-SI-SXP-003-201.B, Motor Driven Auxiliary Feedwater Pump 1B-B Performance Test, Revision 17
- 1-SI-SXP-062-202.A, Boric Acid Transfer Pump 1A-A Performance Test, Revision 17

Routine Surveillance Tests:

- 2-SI-OPS-082-007.B, Electrical Power System Diesel Generator 2B-B, Revision 68

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP2 Alert and Notification System Evaluation

a. Inspection Scope

The inspectors evaluated the adequacy of the licensee's methods for testing and maintaining the alert and notification system in accordance with NRC Inspection Procedure 71114, Attachment 02, Alert and Notification System Evaluation. The applicable planning standard, 10 CFR Part 50.47(b)(5), and its related 10 CFR Part 50, Appendix E requirements were used as reference criteria. The criteria contained in NUREG-0654, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants, Revision 1, were also used as a reference.

This inspection activity satisfied one inspection sample for the alert and notification system on a biennial basis.

b. Findings

No findings were identified.

1EP3 Emergency Response Organization Staffing and Augmentation System

a. Inspection Scope

The inspectors reviewed the licensee's Emergency Response Organization (ERO) augmentation staffing requirements and process for notifying the ERO to ensure the readiness of key staff for responding to an event and timely facility activation. The qualification records of key position ERO personnel were reviewed to ensure all ERO qualifications were current. A sample of problems identified from augmentation drills or system tests performed since the last inspection was reviewed to assess the effectiveness of corrective actions. The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 03, Emergency Response Organization Staffing and Augmentation System. The applicable planning standard, 10 CFR 50.47(b) (2), and its related 10 CFR 50, Appendix E requirements were used as reference criteria.

This inspection activity satisfied one inspection sample for the ERO staffing and augmentation system on a biennial basis.

b. Findings

No findings were identified.

1EP4 Emergency Action Level and Emergency Plan Changes

a. Inspection Scope

Since the last NRC inspection of this program area, one change was made to the Radiological Emergency Plan (Generic), no changes were made to the emergency action levels, and several changes were made to the implementing procedures. The licensee determined that, in accordance with 10 CFR 50.54(q), the Plan continued to meet the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50. The inspectors reviewed these changes to evaluate for potential reductions in the effectiveness of the Plan. However, this review was not documented in a Safety Evaluation Report and does not constitute formal NRC approval of the changes. Therefore, these changes remain subject to future NRC inspection in their entirety.

The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 04, Emergency Action Level and Emergency Plan Changes. The applicable planning standards of 10 CFR 50.47(b), and its related requirements in 10 CFR 50, Appendix E were used as reference criteria. This inspection activity satisfied one inspection sample for the emergency action level and emergency plan changes on an annual basis.

b. Findings

No findings were identified.

## 1EP5 Maintenance of Emergency Preparedness

### a. Inspection Scope

The inspectors reviewed the corrective actions identified through the Emergency Preparedness program to determine the significance of the issues, the completeness and effectiveness of corrective actions, and to determine if issues were recurring. The licensee's post-event after action reports, self-assessments, and audits were reviewed to assess the licensee's ability to be self-critical, thus avoiding complacency and degradation of their emergency preparedness program. Inspectors reviewed the licensee's 10 CFR 50.54(q) change process, personnel training, and selected screenings and evaluations to assess adequacy. The inspectors toured facilities and reviewed equipment and facility maintenance records to assess licensee's adequacy in maintaining them. The inspectors evaluated the capabilities of selected radiation monitoring instrumentation to adequately support Emergency Action Level (EAL) declarations.

The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 05, and Maintenance of Emergency Preparedness. The applicable planning standards, related 10 CFR 50, Appendix E requirements, and 10 CFR 50.54(q) and (t) were used as reference criteria. This inspection activity satisfied one inspection sample for the maintenance of emergency preparedness on a biennial basis.

### b. Findings

No findings were identified.

## 1EP6 Drill Evaluation (71114.06)

### a. Inspection Scope

Resident inspectors evaluated the conduct of routine licensee emergency drill on August 29, 2017, to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the simulated control room to verify that event classification and notifications were done in accordance with EPIP-1, Emergency Plan Classification Matrix, Revision 52. The inspectors also attended the licensee critique of the drill to compare any inspector observed weakness with those identified by the licensee in order to verify whether the licensee was properly identifying deficiencies. The inspectors completed one sample, as defined in IP 71114.06.

### b. Findings

No findings of significance were identified.

## 2. RADIATION SAFETY

Cornerstones: Occupational Radiation Safety and Public Radiation Safety

### 2RS6 Radioactive Gaseous and Liquid Effluent Treatment

#### a. Inspection Scope

Radioactive Effluent Treatment Systems: The inspectors walked down selected components of the gaseous and liquid radioactive waste (radwaste) processing and effluent discharge systems. To the extent practical, the inspectors observed and evaluated the material condition of in-place waste processing equipment for indications of degradation or leakage that could constitute a possible release pathway to the environment. Inspected components included waste gas decay tanks, monitor tanks, waste processing equipment, and associated piping and valves. The inspectors interviewed licensee staff regarding equipment configuration and effluent monitor operation. The inspectors also walked down and reviewed surveillance test records for the Unit 2 (U2) containment purge exhaust filtration system.

Effluent Sampling and Discharge: The inspectors observed the collection and processing of weekly gaseous effluent samples from the Unit 1 and U2 Shield Building Exhaust Vents. Technician proficiency in collecting, processing, and preparing the applicable release permits was evaluated. The inspectors reviewed recent liquid and gaseous release permits including pre-release sampling results, effluent monitor alarm setpoints, and public dose calculations. For the Auxiliary Building Vent Monitor (0-R-90-101B), Liquid Waste Monitor (0-R-90-122), and U2 Shield Building Vent Monitor (2-R-90-400), the inspectors reviewed calibration and functional test records for radiation detection and flow monitoring elements and evaluated the adequacy of radioactive sources used during testing. The inspectors also evaluated the licensee's capability to collect high-range post-accident effluent samples from these monitoring systems. The inspectors reviewed and discussed with licensee staff the methodology used to determine stack flow rates and compared current vent flows to design values in the UFSAR.

The inspectors reviewed the 2015 and 2016 Annual Radioactive Effluent Reports to evaluate reported doses to the public, review unplanned releases, and to review Offsite Dose Calculation Manual (ODCM) changes. The inspectors also reviewed compensatory sampling data for time periods when selected radiation monitors were out of service. The inspectors reviewed the results of interlaboratory cross-checks for laboratory instruments used to analyze effluent samples. The inspectors also reviewed licensee effluent source term characterizations and changes to effluent release points. In addition, the inspectors evaluated recent land use census results.

Problem Identification and Resolution: The inspectors reviewed and discussed selected CAP documents associated with gaseous and liquid effluent processing and release activities including licensee sponsored assessments. The inspectors evaluated the licensee's ability to identify and resolve issues.

Inspection Criteria: Radwaste system operation and effluent processing activities were evaluated against requirements and guidance documented in the following: 10 CFR Part 20; 10 CFR Part 50 Appendix I; ODCM; UFSAR Section 11; Regulatory Guide (RG)

1.21, "Measuring, Evaluating, and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials in Liquid and Gaseous Effluents from Light-Water-Cooled Nuclear Power Plants"; RG 1.109, "Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50 Appendix I"; and Technical Specifications (TS) Section 5. The inspectors completed six samples.

b. Findings

No findings were identified.

2RS7 Radiological Environmental Monitoring Program (REMP)

a. Inspection Scope

REMP Implementation: The inspectors reviewed the 2015 and 2016 Annual Radiological Environmental Operating Reports and the 2015 and 2016 Annual Radioactive Effluent Release Reports. Selected environmental measurements were reviewed for consistency with licensee effluent data, evaluated for radionuclide concentration trends, and compared with detection level sensitivity requirements as described in the ODCM. The inspectors assessed the licensee's response to any missed or anomalous environmental samples. The inspectors also reviewed the results of interlaboratory cross-checks for laboratory instruments used to analyze environmental samples. Any changes to the ODCM, Land Use Census, or environmental program processes were discussed with licensee staff.

The inspectors observed routine collection of air and surface water samples at selected locations as required by the licensee's ODCM. The inspectors noted the material condition of the continuous air samplers and environmental dosimeters. The inspectors also reviewed calibration and maintenance records for the environmental sampling equipment.

Meteorological Monitoring Program: The inspectors observed the physical condition of the meteorological tower and its instrumentation and discussed equipment operability and maintenance history with licensee staff. The inspectors evaluated transmission of locally generated meteorological data to other licensee groups such as emergency operations personnel and main control room operators. Calibration records for the meteorological measurements of wind speed, wind direction, and temperature were reviewed. The inspectors also reviewed meteorological measurement data recovery for the calendar year 2016 and first quarter of 2017.

Ground Water Protection: The inspectors reviewed the licensee's continued implementation of the industry's Ground Water Protection Initiative (Nuclear Energy Institute (NEI) 07-07) and discussed any changes to the program. The inspectors discussed program guidance for dealing with spills, leaks, and unexpected discharges with licensee staff and reviewed recent monitoring well results and any voluntary communications. The inspectors also reviewed recent entries into the 10 CFR 50.75(g) decommissioning file. The inspectors reviewed and discussed the licensee's program for monitoring of structures, systems, and components with the potential to release radioactive material to the environment. Potential effluent release points due to onsite surface water bodies were also evaluated.

Problem Identification and Resolution: The inspectors reviewed CAP documents in the areas of radiological environmental monitoring and meteorological tower maintenance. The inspectors evaluated the licensee's ability to identify and resolve the issues. The inspectors also reviewed recent self-assessment results.

Inspection Criteria: The inspectors evaluated REMP implementation and meteorological monitoring against the requirements and guidance contained in: 10 CFR Part 20; Appendices E and I to 10 CFR Part 50; TS Section 6; ODCM Rev. 60; FSAR Chapter 2; RG 4.15, Quality Assurance for Radiological Monitoring Programs (Normal Operation) - Effluent Streams and the Environment; Branch Technical Position, "An Acceptable Radiological Environmental Monitoring Program" – 1979; RG 1.23, "Meteorological Monitoring Programs for Nuclear Power Plants"; NEI 07-07, "Industry Groundwater Protection Initiative – Final Guidance Document"; and approved licensee procedures. The inspectors completed three samples.

b. Findings

No findings were identified.

2RS8 Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation

a. Inspection Scope

Radioactive Material Storage: The inspectors walked down indoor and outdoor areas inside the protected area as well as the Dry Active Waste (DAW) Building and selected Radioactive Material Storage Areas. During the walk-downs, the inspectors observed the physical condition and labeling of storage containers and the radiological postings for satellite radioactive material storage areas. The inspectors also reviewed the licensee's radwaste procedures for routine surveys and waste storage.

Radioactive Waste System Walkdown, Characterization and Classification: The inspectors walked down accessible sections of the liquid and solid radwaste systems to assess material condition and conformance of equipment with system design diagrams. This included storage tanks, transfer piping, resin dewatering and packaging components, and abandoned radwaste processing equipment located in the Auxiliary Building. The inspectors discussed the function of radwaste components and possible changes to the radwaste processing systems with cognizant radwaste staff. The processes for the dewatering of resins, spent resin tank recirculation, resin sampling, and transfer of resins from the Processing Pads to the shipping casks and temporary storage casks were reviewed and discussed with cognizant licensee staff.

The inspectors reviewed the 2015 and 2016 Radioactive Effluent Release Reports and the 2015 - 2016 radionuclide characterization and classification for the DAW and dewatered resin waste streams. The inspectors evaluated analyses for hard-to-detect nuclides, reviewed the use of scaling factors, and examined quality assurance comparison results between licensee waste stream characterizations and outside laboratory data. The inspectors also evaluated how changes to plant operational parameters were taken into account in waste characterization.



Shipment Preparation and Records: The inspectors observed the preparation and shipment activities for a limited quantity shipment that contained 10 CFR Part 61 samples. The inspectors reviewed five shipping records for consistency with licensee procedures and compliance with NRC and Department of Transportation (DOT) regulations. This included review of emergency response information, waste classification, radiation survey results, information on the waste manifest, and the authorization of the receiving licensee to receive shipments. Training records for selected individuals currently qualified to ship radioactive material were also reviewed.

Problem Identification and Resolution: The inspectors reviewed CAP documents in the areas of radwaste/shipping. The inspectors evaluated the licensee's ability to identify and resolve the issues. The inspectors also reviewed recent self-assessment results.

Inspection Criteria: Radioactive material and waste storage activities were reviewed against the requirements of 10 CFR Part 20. Radwaste processing activities and equipment configuration were reviewed for compliance with the licensee's Process Control Program. Waste stream characterization analyses were reviewed against regulations detailed in 10 CFR Part 20, 10 CFR Part 61, and guidance provided in the Branch Technical Position on Waste Classification (1983). Transportation program implementation was reviewed against regulations detailed in 10 CFR Part 20, 10 CFR Part 71 (which requires licensees to comply with DOT regulations in 49 CFR Parts 107, 171-180, and 390-397), as well as the guidance provided in NUREG-1608. Training activities were assessed against 49 CFR Part 172 Subpart H. The inspectors completed seven samples.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

40A1 Performance Indicator (PI) Verification (71151)

a. Inspection Scope

Cornerstone: Mitigating Systems

The inspectors sampled licensee submittals for the six PIs listed below for the period from July 2016 through June 2017 for both Unit 1 and Unit 2. Definitions and guidance contained in Nuclear Energy Institute (NEI) 99-02, Regulatory Assessment Indicator Guideline, Revision 7, were used to determine the reporting basis for each data element in order to verify the accuracy of the PI data reported during that period.

- Mitigating Systems Performance Index: Emergency AC Power
- Mitigating Systems Performance Index: High Pressure Injection System
- Mitigating Systems Performance Index: Heat Removal System (AFW)
- Mitigating Systems Performance Index: Residual Heat Removal System
- Mitigating Systems Performance Index: Cooling Water System
- Safety System Functional Failures

The inspectors reviewed portions of the operations logs and raw PI data developed from

monthly operating reports and discussed the methods for compiling and reporting the PIs with engineering personnel. The inspectors also independently calculated selected reported values to verify their accuracy and compared graphical representations from the most recent PI report to the raw data to verify that the data was correctly reflected in the report. For the Mitigating Systems Performance Index (MSPI), the inspectors reviewed the basis document and derivation reports to verify that the licensee was properly entering the raw data as suggested by NEI 99-02. For Safety System Functional Failures, the inspectors also reviewed licensee event reports issued during the referenced timeframe.

#### Cornerstone: Emergency Preparedness

- Drill/Exercise Performance (DEP)
- Emergency Response Organization (ERO) Readiness
- Alert and Notification System (ANS) Reliability

For the specified review period, the inspectors examined data reported to the NRC, procedural guidance for reporting PI information, and records used by the licensee to identify potential PI occurrences. The inspectors verified the accuracy of the PI for ERO drill and exercise performance through review of a sample of drill and event records. The inspectors reviewed selected training records to verify the accuracy of the PI for ERO drill participation for personnel assigned to key positions in the ERO. The inspectors verified the accuracy of the PI for alert and notification system reliability through review of a sample of the licensee's records of periodic system tests. The inspectors also interviewed the licensee personnel who were responsible for collecting and evaluating the PI data. This inspection satisfied three inspection samples for PI verification on an annual basis.

#### Cornerstone: Public Radiation Safety

The inspectors evaluated Radiological Control Effluent Release Occurrences PI data from December 2016 through June 2017 and reviewed recent PI results. For the assessment period, the inspectors reviewed liquid and gaseous release permits, the 2016 Annual Effluent Release Report, and CRs related to effluent control issues. The inspectors also reviewed licensee procedural guidance for collecting and documenting PI data.

#### b. Findings

No findings were identified.

### 4OA2 Problem Identification and Resolution (71152)

#### .1 Daily Review

##### a. Inspection Scope

As required by Inspection Procedure 71152, Identification and Resolution of Problems, and in order to help identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the

licensee's CAP. This was accomplished by reviewing the description of each new CR and attending daily management review committee meetings.

b. Findings and Observations

No findings were identified.

4OA5 Other Activities

.1 Failure to Meet the Deadline for Voluntary Reporting of an Onsite Spill Containing Licensed Material

During performance of Inspection Procedure 71124.07, "Radiological Environmental Monitoring Program (REMP)," the inspectors noted that on December 5, 2016, the licensee identified an onsite spill of approximately 3000 gallons of water with a tritium concentration of 1560 picoCuries per Liter from Condensate Storage Tank A to a storm drain leading to the Sequoyah Yard Drainage Pond. Nuclear Energy Institute 07-07, Objective 2.2, "Voluntary Communication", states that spills containing detectable licensed radioactive material greater than 100 gallons shall be reported to State and local officials by the end of the following business day. Contrary to this, no report was made until December 13, 2016, when licensee staff recognized the need to analyze the spill for tritium. Reports were then made to State and local officials as well as the NRC (Event Number 52426). The licensee had previously documented this issue in CRs 1239824 and 1241282. The inspectors noted that no elevated tritium levels were detected at the drainage pond before or after the event. No violations of regulatory requirements were identified.

.2 Review of the Operation of an Independent Spent Fuel Storage Installation (ISFSI) (60855.1)

a. Inspection Scope

The inspectors reviewed the dry-cask-loading campaign of the ISFSI to verify that operations were conducted in a safe manner in accordance with approved procedures and without undue risk to the health and safety of the public. The inspectors observed fuel loading operations and other processes on several multi-purpose canisters (MPCs) to verify that the specified fuel assemblies were placed in the correct locations and that other MPC processes were implemented in accordance with approved procedures. The inspectors reviewed problem reports discovered during the campaign to ensure that issues were placed in the corrective action program. The inspectors also reviewed ISFSI document control practices to verify that changes to the required ISFSI procedures and equipment were performed in accordance with guidelines established in local procedures and 10CFR72.48.

b. Findings

No findings were identified.

4OA6 Meetings, Including Exit

.1 Exit Meeting Summary

On October 11, 2017, the resident inspectors presented the inspection results to Mr. Tony Williams and other members of his staff, who acknowledged the findings. The inspectors asked the licensee whether any of the material examined during the inspection should be considered proprietary. No proprietary information was identified.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### **Licensee personnel**

Z. Baze, Emergency Preparedness Specialist  
B. Brigman, Manager of Site Security  
D. Charlton, Manager of Quality Assurance  
D. Dimopoulos, Director Plant Support  
S. Farlett, Technical Advisor  
P. Gain, Manager of Emergency Preparedness  
G. Garner, Director Training  
A. Hirko, Emergency Preparedness Specialist  
H. Howle, Superintendent Nuclear Operations  
S. Hunnewell, Director of Work Management  
J. Johnson, Program Manager Licensing  
W. Lee, Corporate Emergency Preparedness Director  
M. Lovitt, Chemistry Manager  
T. Marshall, Director Operations  
M. McBrearty, Licensing Manager  
J. Moser, Senior Manager of Projects  
M. Rasmussen, Plant Manager  
C. Reneau, Director Engineering  
J. Rolph, Radiation Protection  
A. Salatka, Fleet Emergency Preparedness Supervisor  
A. Williams, Site Vice President

#### **NRC personnel**

A. Hon, Project Manager, Office of Nuclear Reactor Regulation

## LIST OF DOCUMENTS REVIEWED

### **Section R01: Adverse Weather Protection**

#### Procedures

AOP-N.03 Part 1, External Flooding, revision 58  
AOP-N.03 Part 2, External Flooding (Appendixes), revision 58  
AOP-N.03 Part 3, External Flooding (Attachments), revision 57  
0-FP-MXX-000-016.0, Flood Preparation- Sealing ERCW Building Deck Drains, revision 8

#### Other documents

SQN-DC-V-12.1, Flood Protection Provisions, revision 18

### **Section R04: Equipment Alignment**

#### Procedures

2-SO-63-5, Att. 1, Emergency Core Cooling System Power Checklist 2-63-5.01, Effective Date: 05-16-2014  
2-SO-63-5, Att. 2, Emergency Core Cooling System Valve Checklist 2-63-5.02, Effective Date: 02-22-2016  
I-SI-OPS-063-012.0, ECCS Valve Alignment Verification, revision 11

#### Other documents

SQN-0-47W810-1, Flow Diagram Residual Heat Removal System, revision 54  
SQN-0-47W811-1, Flow Diagram Safety Injection System, revision 61

### **Section R05: Fire Protection**

#### Procedures

0-PI-FPU-317-299.W, Att. 8, Shift Check List, Revision 42  
FPDP-1, Conduct of Fire Protection, Revision 7  
NPG-SPP-18.4.5, Fire Protection Quality Assurance, Revision 2  
SQN- FPR-Part-II, SQN Fire Protection Report Part II – Fire Protection Plan, Revision 35  
PFP No: AUX-0-690-01, Pre-Fire Plan Auxiliary Building El. 690 (Unit 1 Side), revision 9  
PFP No: DGB-0-722-00, Pre-Fire Plan Diesel Generator Building El. 722, revision 6

### **Section R06: Flood Protection Measures**

#### Procedures

AOP-M.08 "Internal Flooding" revision 4

#### CRs

1328850 – NRC identified clog drains in EDG building

#### Other documents

TVA / SQN calculation SQN-SQS4-0056, rev 13  
Calculation 3c37-0686-001, revision 3  
SQN-DC-V-1.1.11, "Evaluating the Effects of a Pipe Failure outside Containment

### **Section R11: Licensed Operator Regualification**

SEG # S-107, LBLOCA, Revision #0

**Section R12: Maintenance Effectiveness**Procedures

NPG-SPP-03.4, Maintenance Rule Performance Indicator Monitoring, Trending, and Reporting - 10CFR50.65, Revision 3

TI-4, Maintenance Rule Performance Indicator Monitoring, Trending, and Reporting – 10CFR50.65, Revision 30

CRs

1276046

1286762

1334593

Other documents

CDE 2967 – maintenance rule functional failure on 480V board room A train chillers

CDE #2963 – Spreading Room Supply Fan Damper

CDE #2965 – CB Fresh Air Supply Tornado Damper

**Section R13: Maintenance Risk Assessments and Emergent Work Evaluation**Procedures

NPG-SPP-07.3, Work Activity Risk Management Process, Revision 19

NPG-SPP-07.2.4, Forced Outage or Short Duration Planned Outage Management, Revision 6

NPG-SPP-07.2, Outage Management, Revision 5

GOI-6, Apparatus Operations, Revision 172

CR 1337000

**Section R15: Operability Evaluations**Procedures

NEDP-22, Operability Determinations and Functional Evaluations, Rev. 17

NPG-SPP-03.5, Regulatory Reporting Requirements, Revision 13

OPDP-8, Operability Determination Process/Limiting Conditions for Operation Tracking, Rev. 23

NPG-SPP-03.5, Regulatory Reporting Requirements, Revision 13

CRs

1260363

1323907

1296320

**Section R19: Post Maintenance Testing**Procedures

NPG-SPP-06.3, Pre-/Post-Maintenance Testing, Revision 1

NPG-SPP-06.5, Foreign Material Control, Revision 11

NPG-SPP-06.9, Testing Programs, Revision 1

NPG-SPP-06.9.1, Conduct of Testing, Revision 10

NPG-SPP-06.9.3, Post-Modification Testing, Revision 8

**Section R22: Surveillance Testing**Procedures

2-SI-OPS-082-007.B, Electrical Power System Diesel Generator 2B-B, Revision 68

1-SI-SXP-003-201.B, Motor Driven Auxiliary Feedwater Pump 1B-B Performance Test, Revision 17

1-SI-SXP-062-202.A, Boric Acid Transfer Pump 1A-A Performance Test, Revision 17

Work Orders  
118409507

## **Section 1EP2: Alert and Notification System Evaluation**

### Procedures and Reports

NP-REP, Appendix B, Sequoyah Nuclear Plant Radiological Emergency Plan, Rev. 104  
Sequoyah FEMA REP-10 Report, Volumes 1 and 2, September 2014  
EPFS-1, Administration Control and Distribution of EP Field Support Procedures, Rev. 10  
EPFS-2, Control Room Notification, Rev. 6  
EPFS-3, Servicing of Meteorological Equipment at Environmental Data Stations, Rev. 16  
EPFS-7, Radio and Meteorological Tower Station, Rev. 5  
EPFS-9, Inspection, Service, and Maintenance of the Alert Notification System (ANS) at Browns Ferry, Sequoyah, and Watts Bar Nuclear Plants, Rev. 10  
EPFS-12, Repair and Preventative Maintenance Procedure for Radiological Environmental Monitoring Air Sampling System, Rev. 2  
EPDP-14, Evaluation of Changes to ANS, Rev. 1  
Federal Signal 508 Electro-Mechanical Siren Installation & Operating Instructions, Rev. 12/11

### Records and Data

Weekly Silent Tests, July 2015 - June 2017  
Monthly Siren Tests, July 2015 – June 2017  
EPFS-9, Alert & Notification Trouble Report/Checklist, 2016 & 2017  
Sequoyah FEMA REP-10 Report, Volumes 1 & 2, dated 9/4/14  
Federal Signal letter describing new siren bearing design, dated 8/11/16

### Corrective Action Program Documents (Condition Reports)

CR 1077067, A&NS siren SQN-0-PNS-901-043 failed to rotate during a growl test  
CR 1077805, A&NS siren rotation failures  
CR 1179139, SQN trend CR dealing with SQN ANS siren rotation failures  
CR 1257509, ANS siren SQN-0-PNS-901-035 failed to sound during monthly test  
CR 1340205, Error in SQN FEMA REP-10 report (NRC identified)

## **Section 1EP3: Emergency Response Organization Staffing and Augmentation System**

### Procedures

TRN-30, Radiological Emergency Preparedness Training, Rev. 36  
EPDP-2, Emergency Duty Officer, EP Staff and Operations Duty Specialist Notifications Procedures, Rev. 7  
EPDP-3, Emergency Plan Exercises and Preparedness Drills, Rev. 15  
EPDP-5, Emergency Public Information, Rev. 2  
EPDP-7, Review of Agreement Letters and Contracts, Rev. 4  
EPDP-8, Emergency Preparedness Quality Assurance, Rev. 5  
EPDP-10, Facilitation of the Alert & Notification System & Notification Tests, Rev. 7  
NPG-SPP-18.3.6, Extended Staffing Under Abnormal Conditions, Rev. 1

### Records and Data

EPDP-10, Facilitation of the A&NS & Notification Tests, Rev. 6, Att. 1 for 10/9/15 - 10/4/16  
EPDP-10, Facilitation of the A&NS & Notification Tests, Rev. 7, Att. 2 for 10/27/16 - 9/1/17  
Evacuation Time Estimates for SQN Plume Exposure Pathway EPZ, November 2012



ARCADIS letter for Annual Population Update for Sequoyah Nuclear Plant, 10-mile Emergency Planning Zone, December 2016  
 Select ERO Augmentation test results for 2016 and 2017

Corrective Action Program Documents

CR 1092894, 10/9/15 unannounced TEENS test – I&C briefer slow to respond due to issues with TEENS

CR 1234600, PSC identified: REP muster attendance

CR 1262395, Three positions not represented at REP muster

CR 1309957, SQN 6/2/17 flood drill – CECC not ready to receive notifications

CR 1311877, Routine TEENS notification test 6/27/17

**Section 1EP4: Emergency Action Level and Emergency Plan Changes**

Procedures

EPDP-17, NPG Emergency Plan Effectiveness Review [10 CFR 50.54(q)], Rev. 5

EPIP-4, Site Area Emergency, Rev. 38 and 39

EPIP-5, General Emergency, Rev. 47 and 48

EPIP-12, Emergency Equipment and Supplies, Rev. 11 and 12

EPIP-13, Dose Assessment, Rev. 17 and 18

NP-REP Radiological Emergency Plan (Generic), Rev. 106 & 107

Change Packages

CECC 2017-015, Screening Evaluation Form for Radiological Emergency Plan (Generic) Rev. 107, CECC EPIP-9, Rev. 57, & CECC EPIP-16, Rev. 10, dated 6/9/17

CECC 2017-015, Effectiveness Evaluation Form for Radiological Emergency Plan (Generic) Rev. 107, CECC EPIP-9, Rev. 57, & CECC EPIP-16, Rev. 10, dated 6/9/17

CECC 2017-016, Screening Evaluation Form for Radiological Emergency Plan (Generic) various Sections, Rev. 107, dated 6/9/17

CECC 2017-017-R1, Screening Evaluation Form for Radiological Emergency Plan (Generic) Section 14.2, Rev. 107, dated 6/22/17

CECC 2017-023, Screening Evaluation Form for Radiological Emergency Plan (Generic) Section 3.2, Rev. 107, dated 7/19/17

SQN 2017-003, Screening Evaluation Form for EPIP-4 Rev. 39, dated 5/31/17

SQN 2017-004, Screening Evaluation Form for EPIP-5 Rev. 48, dated 5/31/17

SQN 2017-010, Screening Evaluation Form for EPIP-12, Rev. 11, dated 7/24/17

SQN 2017-011, Effectiveness Evaluation Form for EPIP-12, Rev. 11, dated 8/7/17

SQN 2017-012, Screening Evaluation Form for EPIP-12, Rev. 12, dated 7/24/17

SQN 2017-012, Effectiveness Evaluation Form for EPIP-12, Rev. 12, dated 7/24/17

SQN 2017-013, Screening Evaluation Form for EPIP-12, Rev. 11, dated 8/7/17

SQN 2017-014, Screening Evaluation Form for EPIP-12, Rev. 11, dated 7/24/17

SQN 2017-014, Effectiveness Evaluation Form for EPIP-12, Rev. 11, dated 7/24/17

SQN 2017-015, Screening Evaluation Form for EPIP-12, Rev. 11, dated 7/24/17

SQN 2017-015, Effectiveness Evaluation Form for EPIP-12, Rev. 11, dated 7/24/17

SQN 2017-017, Screening Evaluation Form for EPIP-12, Rev. 11, dated 8/7/17

SQN 2017-018, Screening Evaluation Form for EPIP-12, Rev. 11, dated 7/25/17

SQN 2017-005, Screening Evaluation Form for EPIP-13, Rev. 18, 6/26/17

SQN 2017-005, Effectiveness Evaluation Form for EPIP-13, Rev. 18, 6/26/17

SQN 2017-007, Screening Evaluation Form for EPIP-13, Rev. 18, 6/26/17

SQN 2017-008, Screening Evaluation Form for EPIP-13, Rev. 18, 6/26/17

SQN 2017-008, Effectiveness Evaluation Form for EPIP-13, Rev. 18, 6/26/17

SQN 2017-009, Screening Evaluation Form for EPIP-13, Rev. 18, 6/26/17

SQN 2017-009, Effectiveness Evaluation Form for EPIP-13, Rev. 18, 6/26/17  
 SQN 2017-010, Screening Evaluation Form for EPIP-13, Rev. 18, 6/26/17  
 SQN 2017-010, Effectiveness Evaluation Form for EPIP-13, Rev. 18, 6/26/17

Corrective Action Program Documents

CR 1093684, NP-REP omitted information - NRC identified  
 CR 1093694, NP-REP revision log does not match NP-REP Generic – NRC identified  
 CR 1147104, Review SQN EIPs  
 CR 1153234, Procedure enhancement for EPIP-7  
 CR 1161923, Tracking of EPIP-12 revisions to be incorporated in Rev 11  
 CR 1206882, Evaluate revising EPIP-6, Appendix F  
 CR 1219267, EPIP-12 monthly communication checks completed late  
 CR 1280828, EPIP-2 correction  
 CR 1339893, PCR NRC identified revision for exercise cycles

**Section 1EP5: Maintenance of Emergency Preparedness**

Procedures

0-SI-ICC-052-075.0, Calibration of Kinematics AHUs Condor System Triaxial Accelerometer  
 Annual population update for Sequoyah Nuclear Power Plant 10-mile Emergency Response  
 Zone, Dec. 2016  
 QA-SQ-15-015, Sequoyah Nuclear Plant (SQN) – Quality Assurance (QA) Emergency  
 Preparation for the NRC Baseline Readiness  
 TEENS Test Performance documentation, 9/9/17  
 WO# 116218448, 0-SI-ICC-052-075.0, Calibration Kinematics Triaxial Accelerometer FBA-3,  
 7/12/16  
 Equipment Important to Emergency Preparedness (EITER), LCO tracking records  
 2017 Calendar, Emergency Information: State of Tennessee, Cleveland/Bradley County  
 Emergency Management Agency, Hamilton County Emergency Services, Tennessee Valley  
 Authority  
 FBA-3, (Seismic Monitor Surveillance Instrumentation) Rev. 25  
 EPDP-3, Emergency Plan Exercises and Preparedness Drills, Rev. 15  
 EPDP-17, NPG Emergency Plan Effectiveness Review [10 CFR 50.54(q)], Rev. 5  
 EPIP-1, Emergency Plan Classification Matrix, Rev. 52  
 EPIP-4, Site Area Emergency, Rev. 39  
 EPIP-5, General Emergency, Rev. 48  
 EPIP-6, Activation and Operation of the Technical Support Center, Rev. 50  
 EPIP-7, Activation and Operation of the Operations Support Center, Rev. 31  
 EPIP-10, Medical Emergency Response, Rev. 29  
 EPIP-13, Dose Assessment, Rev. 18  
 EPIP-14, Radiation Protection Response, Rev. 23  
 EPIP-15, Emergency Response Guidelines. Rev. 10  
 EPIP-17, Fire Emergency Procedures, Rev. 26  
 NPG-SPP-03.19, Conduct of Quality Assurance Internal Audits, Rev. 5  
 NPG-SPP-03.5.1, Reporting Requirements for Loss of Emergency Preparedness Capabilities,  
 Rev. 1  
 NPG-SPP-18.3, Emergency Preparedness, Rev. 13  
 NPG-SPP-18.3.5, Equipment Important to Emergency Response, Rev. 6  
 NPG-SPP-18.3.7, Alternate Facility Activation & Operation, Rev. 2  
 NPG-SPP-22.300, Corrective Action Program, Rev. 9

NP-REP Appendix B, Sequoyah Emergency Plan, Rev. 104  
 REP-Generic, Radiological Emergency Plan, Rev. 107

#### Records and Data

TVA Quality Assurance Audit Report SSA 1501, dated 3/24/15  
 TVA Quality Assurance Audit Report SSA 1612, dated 10/25/16  
 Reaffirmation of Agreement Letters, medical services and fire department, 2017  
 Reports for Drills and Exercises conducted on 3/23/16, 7/26/16, 8/17/16, 9/14/16, 10/21/16,  
 11/18/16, 6/2/17, and 8/2/17  
 SO-16-017, Standing Order: REP/EAL Guidance During U1/U2 Shield Bldg Rad Monitor  
 Replacement, Rev. 1  
 SQN-EP-SSA-16-001, NRC Graded Exercise Self-Assessment, 08/03/16  
 SQN-EP-SSA-17-001, Self-Assessment for Off-Year Exercise, 06/13/17  
 SQN-EP-SSA-17-003, OSART EP Self-Assessment, 06/13/17

#### Corrective Action Documents

CR 1089046, REP Drill not scheduled according to NPG procedure requirements  
 CR 1093289, REP van #2 has loose door seal  
 CR 1093297, Response check due dates for survey meters in REP van #3 were out of date  
 CR 1096404, EAL 2.9 mode applicability different than REP Appendix B  
 CR 1097978, Deficiencies during PASS Drill  
 CR 1107813, EPIP-12 Appendix H needs revision  
 CR 1157566, March 23 2016 Drill procedure compliance issues  
 CR 1162960, SQN 4/13/16 Drill – staging area manager checklist not in binder  
 CR 1164352, SQN4-13-16 drill broke/fix equipment issues  
 CR 1195749, ENS phone on Unit 1 not functioning  
 CR 1197139, July 26 2016 Drill objective A.3 failure  
 CR 1197145, July 26 2016 Drill objective A.5 failure  
 CR 1197155, July 26 2016 Drill procedure issues  
 CR 1204825, SQN Integrated Training Drill 8/17/16-Envirnmental Vans mobile phones not  
 working  
 CR 1212994, NRC identified EPIP-13 issue during 2016 Graded Exercise  
 CR 1215368, SQN Graded Exercise 2016: NRC identified - evaluate ICS point 1F0626A on  
 simulator  
 CR 1215379, SQN Graded Exercise 2016: NRC identified - Emergency Class board was not  
 displayed in OSC or TSC  
 CR 1215386, SQN Graded Exercise 2016: controllers having non-drill related discussions  
 CR 1215399, SQN NRC 2016 evaluation: NRC identified site EPIP review  
 CR 1222792, Graded Exercise 9/14/15, NRC General comments for TSC  
 CR 1227503, Met Tower Sonic Wind Speed Sensor accuracy questions  
 CR 1231831, Repeat drill comment for dose rate data on PASS drill  
 CR 1293217, M&TE issued to Emergency Preparedness past due for calibration  
 CR 1307300, EPIP-6 Appendix J incorrect information  
 CR 1309996, Emergency Response tool kit  
 CR 1310682, Wireless Emergency Alert System  
 CR 1323966, REP drill van radio issue  
 CR 1334402, SQN 8/2/17 Training Drill – Failed Drill Objective P5  
 CR 1340365, NRC identified inside REP van exterior compartment door found unlocked

**Section 2RS6: Radioactive Gaseous and Liquid Effluent Treatment****Procedures, Guidance Documents, and Manuals**

0-TI-CEM-016-001.4, Shield Building Radiation Monitor Sampling Methods, Rev. 1  
 0-SI-CEM-077-400.1, Liquid Waste Effluent Batch Release, Rev. 65  
 0-SI-ICC-090-122.0, Channel Calibration of Waste Disposal System Liquid Effluent Radiation Monitor 0-R-90-122, Rev. 35  
 0-MI-IPM-090-001.0, Cleaning of Gas and Liquid Effluent Radiation Monitor RD-32, RD-33, RD-39, and RD-53 Detector Housing, Rev. 9  
 NPG-SPP-22.300, Corrective Action Program, Rev. 9  
 Offsite Dose Calculation Manual, Rev. 58 and Rev. 60

**Records and Data**

10 CFR 61 Analysis, Dry Active Waste, 2/15/17  
 Annual Radioactive Effluent Release Report, 2015 and 2016  
 Certificate of Gamma Standard Source, Cs-137 Serial No. 90-1229, 5/15/1990  
 Certification of Compliance, Cs-137 Serial Nos. 86-1040 and 86-1041, 2/28/86  
 EDC No. E21855, 7/20/06  
 Gaseous Radioactive Waste Release Permit no. 2017063.031.017.G  
 List of Effluent Radiation Monitors Out-of-Service since February 2015  
 Liquid Radioactive Waste Release Permit no. 2017108.008.007.L  
 Results of Radiochemistry Cross-Check Program, 3<sup>rd</sup> Quarter 2016 – 4<sup>th</sup> Quarter 2016  
 Work Order 114725130, Containment Purge Air Exhaust Filter 2A Test, 8/28/14  
 Work Order 115252637, Shield Building Monitor 2-R-90-400 Calibration, 10/3/14  
 Work Order 115762857, Shield Building Vent Effluent Monitor Flow 2-FE-90-400/452 Functional Test, 11/24/14  
 Work Order 115713198, Waste Disposal System Liquid Effluent Radiation Monitor 0-R-90-122 Calibration, 8/28/15  
 Work Order 115974409, Shield Building Vent Effluent Monitor Flow 2-FE-90-400/452 Functional Test, 2/20/15  
 Work Order 115993544, Aux Building Vent Gaseous Radiation Monitor 0-R-90-101B & Flow Monitor 0-F-30-174 Calibration, 3/1/15  
 Work Order 116170728, Containment Purge Air Exhaust Filter 2A Test, 2/10/16  
 Work Order 116344905, Shield Building Monitor 2-R-90-400 Calibration, 10/14/15  
 Work Order 117179314, Waste Disposal System Liquid Effluent Radiation Monitor 0-R-90-122 Calibration, 4/27/16  
 Work Order 117496606, Aux Building Vent Gaseous Radiation Monitor 0-R-90-101B & Flow Monitor 0-F-30-174 Calibration, 9/2/16

**Corrective Action Program (CAP) Documents**

CR 1060876  
 CR 1189531  
 CR 1230515  
 CR 1239346  
 CR 1246672  
 SQN-RP-SSA-17-004, Self-Assessment, Radioactive Gaseous and Liquid Effluent Treatment, 5/5/17

**Section 2RS7: Radiological Environmental Monitoring Program (REMP)****Procedures, Guidance Documents, and Manuals**

0-ODI-999-001, Collection of Radiological Environmental Monitoring Samples, Rev. 6  
 0-ODI-999-003, Land Use Surveys, Rev. 0

0-PI-CEM-000-010.3, Ground Water Monitoring, Rev. 17  
 0-TI-ENV-000-003.0, Integrated Pollution Prevention Plan and Spill Response Plan, Rev. 23  
 EDS-SQN-Module II, Meteorological Monitoring, Rev. 12  
 EPFS-3, Servicing of Meteorological Equipment at Environmental Data Stations, Rev. 16  
 Offsite Dose Calculation Manual, Rev. 60  
 NPG-SPP-05.14, Guide for Communicating Inadvertent Radiological Spills/Leaks to Outside Agencies, Rev. 4  
 NPG-SPP-22.300, Corrective Action Program, Rev. 9

#### Records and Data

Annual Radiological Environmental Operating Report, 2015 and 2016  
 Annual Radioactive Effluent Report, 2015 and 2016  
 2016 Annual Quality Assurance Report for the REMP, GEL Laboratories, 03/03/17  
 Meteorological Data Recoverability Report, 2016 and Q1 2017  
 Work Order 117667195, SI-89 Meteorological Monitoring instrumentation Semi-Annual CC, 11/03/16  
 Work Order 117158265, SI-89 Meteorological Monitoring instrumentation Semi-Annual CC, 05/05/16  
 Risk Analysis of Systems, Structure and Components and Work Practices that Involve a Credible Mechanism for Licensed Material to Impact Groundwater, June 2011  
 Calibration Data Sheets, Radiological Environmental Monitoring Air Sampler Gas Meter Serial Nos. 14436692, 1030579, 16313134, 1030593, 14436696, 1030600; 04/11/16 and 04/06/17  
 TVA Form 41124, Response to Contaminated Spills/Leaks, CST A Spill/Leak, 12/14/16  
 Site Conceptual Model Update, 03/2017  
 Groundwater Monitoring Well Results, Q1-4 2016, Q1-2 2017

#### CAP Documents

SQN-CEM-SSA-17-005, Radiological Environmental Monitoring Program, 05/19/17  
 CR 1252442  
 CR 1314317  
 CR 1315795  
 CR 1241282  
 CR 1252442  
 CR 1182390  
 CR 1252083  
 CR 1105371

### **2RS8: Radioactive Solid Waste Processing and Radioactive Material Handling**

#### Procedures, Guidance Documents, and Manuals

0-SO-77-29, Waste Processing, Rev. 20  
 NPG-SPP-05.7, Radwaste Management, Rev. 2  
 NPG-SPP-05.9.1, Radioactive Material/Waste Shipments, Rev. 3  
 NPG-SPP-09.3, Plant Modifications and Engineering Change Control, Rev. 24  
 NPG-SPP-22.300, Corrective Action Program, Rev. 9  
 Process Control Program (PCP) Rev. 5  
 Radioactive Material Shipment Manual (RMSM), Rev. 45  
 Radioactive Material Shipment Manual (RMSM), Vol. I – Information, Rev. 41  
 Radioactive Material Shipment Manual (RMSM), Vol. II – Radioactive Material Shipment, Rev. 42  
 Radioactive Material Shipment Manual (RMSM), Vol. III – Radwaste Shipment, Rev. 39  
 RCI-21, Control of Radioactive Materials, Rev. 23

RHSI-1.1, Packaging Filters and Items of High Levels of Radiation, Rev. 7  
 RHSI-7, Utilization of Polyethylene High Integrity Containers (HICs) and HIC Overpacks, Rev. 9  
 RHSI-11, Control of Radioactive Material and Training, Rev. 6  
 RHSI-13, Administration and Control of Onsite Storage of Low Level Radioactive Waste, Rev. 4  
 RWTP-101, 10 CFR 61 Waste Characterization, Rev. 2  
 SQN-DC-V-22.1, Gaseous and Liquid Waste Disposal System, Rev. 9

#### Records and Data

10 CFR 61 Analysis for 2016 RCS Clippings and Spent Resin Storage Tank Resin; and 2017 DAW

Admin Qual Matrix Report for Radwaste Packer/Loader and Radwaste Shipper – RWShipper, 07/12/17

Annual Radioactive Effluent Release Reports for 2015 and 2016 Monitoring Periods

Radioactive Material Storage Areas Current List, 04/24/17

Shipment No. SNP-16-0505, LQ, Spent Fuel Pool Coupon

Shipment No. SNP-16-0602, Type A, Equipment

Shipment No. SNP-17-0310, LSA-II, Dewatered Bead Resin

Shipment No. SNP-17-0604, Type B, Specimen Debris

Shipment No. SNP-17-0702, LQ, 10 CFR Part 61 Samples

SQN Shipment Logs, 11/01/15 – 07/13/17

#### CAP Documents

CR 1177925

CR 1236853

#### **Section 71151: Performance Indicator (PI) Verification**

##### Procedures, Guidance Documents, and Manuals

Desktop Guide for Reporting of NEI 99-02 Performance Indicators: RETS/ODCM Radiological Effluent Occurrence

NPG-SPP-02.2, Performance Indicator Program, Rev. 10

EPDP-11, Emergency Preparedness Performance Indicators, Rev. 8

NPG-SPP-22.300, Corrective Action Program, Rev. 9

TRN-30, Radiological Emergency Preparedness Training, Rev. 36

#### Records and Data

DEP opportunities documentation for 3<sup>rd</sup> & 4<sup>th</sup> quarters 2016, 1<sup>st</sup> & 2<sup>nd</sup> quarters 2017

Siren test data for 3<sup>rd</sup> & 4<sup>th</sup> quarters 2016, 1<sup>st</sup> & 2<sup>nd</sup> quarters 2017

Drill & exercise participation records of ERO personnel for 3<sup>rd</sup> & 4<sup>th</sup> quarters 2016, 1<sup>st</sup> & 2<sup>nd</sup> quarters 2017

Gaseous Radioactive Waste Release Permit no. 2017068.027.018.G

Liquid Radioactive Waste Release Permit no. 2017107.007.047.L

#### Corrective Action Documents

CR 1177625, Failed DEP opportunity during LOR

CR 1213689, SQN Graded Exercise failed objective for SAE declaration

CR 1220302, Failed DEP opportunity during LOR

CR 1228955, Drill & Exercise participation PI reporting error

CR 1340761, NRC identified: during ERO participation review it was identified PI numbers not fixed in ROP

CR 1291033

**Section 40A5: Other Activities**

0-GO-17, Spent Fuel/Dry Cask Operations, Revision 6

NPG-SPP-01.2, Administration of Site Technical Procedures, Revision 15

SQN-DCS-300.11, Supplemental Cooling System Operation, Revision 11

SQN-DCS-300.1FW, Spent Fuel Cask Loading Verification (FW), Revision 1

SQN-DCS-300.2FW, Alternate Cooling Water System Operation (FW), Revision 4

SQN-DCS-300.10, Forced Helium Dehydration System Operation (100S), Revision 23

SQN-DCS-200.0, Dry Cask Campaign Review Program, Revision 5

SQN-DCS-200.2, SQN-MPC-Loading and Transport Operations, Revision 40