



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
245 PEACHTREE CENTER AVENUE N.E., SUITE 1200
ATLANTA, GEORGIA 30303-1200

January 31, 2019

Mr. Joseph W. Shea
Vice President, Nuclear Regulatory Affairs
and Support Services
Tennessee Valley Authority
1101 Market Street, LP 4A
Chattanooga, TN 37402-2801

SUBJECT: SEQUOYAH NUCLEAR PLANT – NRC INTEGRATED INSPECTION REPORT
05000327/2018004 AND 05000328/2018004

Dear Mr. Shea:

On December 31, 2018, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Sequoyah Nuclear Plant Units 1 and 2. On January 23, 2019, the NRC inspectors discussed the results of this inspection with Mr. Matt Rasmussen and other members of your staff. The results of this inspection are documented in the enclosed report.

One finding of very low safety significance (Green) is documented in this report. This finding involved a violation of NRC requirements. Additionally, a Severity Level IV violation is documented in this report. We are treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2.a of the Enforcement Policy.

If you contest the violations or the significance or severity of the violations documented in this inspection report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region II; the Director, Office of Enforcement; and the NRC Resident Inspector at the Sequoyah Nuclear Plant.

If you disagree with the cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555 0001; with copies to the Regional Administrator, Region II; and the NRC Resident Inspector at the Sequoyah Nuclear Plant.

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/

Anthony D. Masters, Chief
Reactor Projects Branch 5
Division of Reactor Projects

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

Enclosure: Inspection Report
05000327/2018004 and 05000328/2018004

cc w/ encl: Distribution via ListServ

SUBJECT: SEQUOYAH NUCLEAR PLANT – NRC INTEGRATED INSPECTION REPORT
 05000327/2018004 AND 05000328/2018004 January 31, 2019

DISTRIBUTION

M. Kowal, RII
 S. Price, RII
 K. Sloan, RII
 OE Mail RIDSNRRDIRS PUBLIC
 RidsNrrPMSequoyah Resource

ADAMS ACCESSION NUMBER: ML19031C113

OFFICE	RII/DRP	RII/DRP	RII/DRP	RII/DRP	RII/DRP	RII/DRS	RII/DRS
NAME	SNinh	WDeschaine	NChilds	PCooper	JSeat	WLoo	SDowney
DATE	1/ 30 /2019	1/ 23 /2019	1/ 18 /2019	1/ 18 /2019	1/23 /2019	1/ 17 /2019	1/ 17 /2019

OFFICE	RII/DRS	RII/DRS	RII/DRS	RII/DRS	RII/DRS	RII/DRS	RII/DRS
NAME	RCarrion	BCollins	D Lanyi	MDonithan	M Kennard	SSanchez	CFontana
DATE	1/ 18 /2019	1/ 17 /2019	1/ 17 /2019	1/ 17 /2019	1/17 /2019	1/ 22 /2019	1/ 21 /2019

OFFICE	RII/DRS	RII/DRS	RII/DRS	RII/DRS			
NAME	ANielsen	CDykes	JRivera	AMasters			
DATE	1/ 17 /2019	1/ 22 /2019	1/18 /2019	1/ 31 /2019			

OFFICIAL RECORD COPY

**U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report**

Docket Number(s): 50-327, 50-328

License Number(s): DPR-77, DPR-79

Report Number(s): 05000327/2018004 and 05000328/2018004

Enterprise Identifier: I-2018-004-0033

Licensee: Tennessee Valley Authority (TVA)

Facility: Sequoyah Nuclear Plant

Location: Soddy-Daisy, TN 37379

Inspection Dates: October 1, 2018 to December 31, 2018

Inspectors: N. Childs, Senior Resident Inspector
W. Deschaine, Resident Inspector
S. Ninh, Senior Project Engineer
J. Seat, Project Engineer
S. Downey, Senior Reactor Inspector
R. Carrion, Senior Reactor Inspector
B. Collins, Reactor Inspector
D. Lanyi, Senior Operations Engineer
M. Donithan, Operations Engineer
M. Kennard, Operations Engineer
S. Sanchez, Senior Emergency Preparedness Inspector
C. Fontana, Emergency Preparedness Inspector
W. Loo, Senior Health Physicist
J. Walker, Emergency Preparedness Inspector (trainee)
A. Nielsen, Senior Health Physicist
C. Dykes, Health Physicist
J. Rivera, Health Physicist
P. Cooper, Reactor Inspector

Approved By: A. Masters, Chief
Reactor Projects Branch 5
Division of Reactor Projects

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring licensee’s performance by conducting a quarterly integrated inspection at Sequoyah Nuclear Plant Units 1 and 2 in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC’s program for overseeing the safe operation of commercial nuclear power reactors. Refer to <https://www.nrc.gov/reactors/operating/oversight.html> for more information. NRC and self-revealed findings, violations, and additional items are summarized in the table below.

List of Findings and Violations

Failure to Adequately Document the Basis for a Change to an Emergency Plan Implementing Procedure			
Cornerstone	Severity	Cross-Cutting Aspect	Report Section
Not Applicable	Severity Level IV (SL-IV) Non-Cited Violation (NCV) 05000327,328/2018004-01 Closed	Not Applicable	71114.04 – Emergency Action Level and Emergency Plan Changes
<p>The inspectors identified a SL-IV NCV of Title 10 of the <i>Code of Federal Regulations</i> (CFR), Part 50.54(q)(3), for changes made to the Sequoyah Nuclear Plant Radiological Emergency Plan (E-Plan), and associated implementing procedures, that failed to demonstrate the changes would not reduce the effectiveness of the E-Plan. Specifically, the licensee did not provide an adequate analysis to determine whether the removal and addition of clarifying information was not a reduction in effectiveness (RIE) of the emergency action level (EAL) implementing procedure.</p>			

Inadequate Post Maintenance Testing Results in Condition Prohibited by Technical Specifications			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Barrier Integrity	Green NCV 05000327,328/2018004-02 Closed	H.5 – Work Management	71153 – Licensee Event Reports
<p>A self-revealed, Green, NCV of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” was identified on July 22, 2018, when the licensee failed to follow Section 3.2.2.A.1 of quality related procedure NPG-SPP-06.3, “Pre-/Post-Maintenance Testing,” in developing PMTs for PM 801560044, “Replacement of a flow switch electronic circuit board associated with the B-train EGTS Air Cleanup Subsystem.” Section 3.2.2.A.1 requires that PMTs shall be sufficiently comprehensive to ensure that the maintenance performed does not adversely affect the equipment’s ability to perform its intended function.</p>			

Additional Tracking Items

Type	Issue number	Title	Report Section	Status
LER	05000327,328/2018-001-00	Inadequate Post Maintenance Testing (PMT) Results in Condition Prohibited by Technical Specifications	71153 – Licensee Event Reports	Closed

PLANT STATUS

Unit 1 began the inspection period at rated thermal power (RTP). On October 24, 2018, the unit was down powered to 45 percent to investigate the source of water leakage into the Unit 1 exciter housing. The unit was returned to RTP on October 24, 2018. On December 10, 2018, the unit was down powered to Mode 3 for a planned forced outage to repair the source of main generator hydrogen leakage. The unit was returned to RTP on December 16, 2018 and remained at or near RTP for the remainder of the inspection period.

Unit 2 began the inspection period at RTP. On November 2, 2018, the unit was down powered and removed from service for a refueling outage. The unit was returned to RTP on December 11, 2018 and remained at or near RTP for the remainder of the inspection period.

INSPECTION SCOPES

Inspections were conducted using the appropriate portions of the inspection procedures (IPs) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs with their attached revision histories are located on the public website at <http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html>. Samples were declared complete when the IP requirements most appropriate to the inspection activity were met consistent with Inspection Manual Chapter (IMC) 2515, "Light-Water Reactor Inspection Program - Operations Phase." The inspectors performed plant status activities described in IMC 2515 Appendix D, "Plant Status" and conducted routine reviews using IP 71152, Problem Identification and Resolution." The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess licensee performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards."

REACTOR SAFETY

71111.01 - Adverse Weather Protection

Seasonal Extreme Weather (1 Sample)

The inspectors evaluated readiness for seasonal extreme weather conditions prior to the onset of seasonal cold temperatures.

71111.04 - Equipment Alignment

Partial Walkdown (4 Samples)

The inspectors evaluated system configurations during partial walkdowns of the following systems/trains:

- (1) Spent fuel pit cooling system after Unit 2 core offload during U2R22 on November 30, 2018
- (2) Unit 2 residual heat removal (RHR) system after core reload during U2R22 on November 30, 2018
- (3) Unit 1 and Unit 2 train A 480V shutdown boards (SDBDs) with 480V SDBD 1A1-A loads aligned to alternate power supply while 480V SDBD 1A1-A was out of service for planned design modification on December 17, 2018

- (4) Unit 1 motor driven auxiliary feedwater (AFW) 'A' and 'B' trains while the turbine driven AFW pump was out of service for maintenance on December 18, 2018

71111.05AQ - Fire Protection Annual/Quarterly

Quarterly Inspection (5 Samples)

The inspectors evaluated fire protection program implementation in the following selected areas:

- (1) Unit 1 and Unit 2 Diesel Generator Rooms – elevation 722 and 740 on November 7, 2018
- (2) Unit 2 Reactor Building – elevations 679, 701, 721, and 740 on November 26, 2018
- (3) Unit 1 and Unit 2, Auxiliary Building – elevation 714 on December 18, 2018
- (4) Unit 1 and Unit 2, Auxiliary Building- elevation 690 on December 18, 2018
- (5) Independent Spent Fuel Storage Installation (ISFSI) Pad on December 19, 2018

71111.08 - Inservice Inspection Activities (1 Sample)

The inspectors evaluated pressurized water reactor non-destructive testing by reviewing the following examinations from November 12 to November 15, 2018:

- (1) Ultrasonic Examination
 - a) Top Head Torus-to-Shell Weld RSGW-D1 of Steam Generator (SG) #1, ASME Class 1 (observed)
- (2) Liquid Penetrant Examination
 - a) Integral Attachment to Centrifugal Charging Pump (CCP) 2-PMP-062-108-A, ASME Class 3 (observed)
- (3) Visual Test (VT-3)
 - a) Support 2-SIH-360 of Safety Injection Line, ASME Class 1 (observed)
- (4) Eddy Current Testing
 - a) SG 1 (tube R3C91), ASME Class 1 (observed)
 - b) SG 2 (tube R93C59), ASME Class 1 (observed)
 - c) SG 3 (tubes R22C54, R82C78), ASME Class 1 (observed)
 - d) SG 4 (tubes R97C75, R98C76), ASME Class 1 (observed)

The Inspectors evaluated the licensee's boric acid control program performance.

71111.11 - Licensed Operator Requalification Program and Licensed Operator Performance

Operator Requalification (1 Sample)

The inspectors observed and evaluated operator performance during a simulator requalification scenario which involved an anticipated transient without scram and main steam line break outside of containment on October 4, 2018.

Operator Performance (1 Sample)

The inspectors observed and evaluated operator performance for the following:

- (1) Unit 2 shutdown for refueling on November 2 and 3, 2018
- (2) Unit 2 response to excessive smoke in containment on November 26, 2018
- (3) Unit 1 pull to critical from forced outage (F119) on December 12 and 13, 2018

Operator Exams (1 Sample)

Annual Review of Licensee Requalification Examination Results: The inspectors completed an in-office review of the overall pass/fail results of the individual operating examinations, written examinations, and the crew simulator operating examinations on November 27, 2018.

Operator Requalification Program (1 Sample)

The inspectors evaluated the operator requalification program from October 9 - 11, 2018.

71111.12 - Maintenance Effectiveness

Routine Maintenance Effectiveness (3 Samples)

The inspectors evaluated the effectiveness of routine maintenance activities associated with the following equipment and/or safety significant functions:

- (1) August 2018 performance of manhole watering preventive maintenance did not generate tracking condition reports (CRs)
- (2) CDE 3039 – vital inverter 2-III failure on December 21, 2018
- (3) CDE 3052 – Unit 2 Additional Equipment Building access door breached open in support of ice condenser maintenance renders both trains of auxiliary building gas treatment system (ABGTS) inoperable on December 21, 2018

71111.13 - Maintenance Risk Assessments and Emergent Work Control (3 Samples)

The inspectors evaluated the risk assessments for the following planned and emergent work activities:

- (1) Unit 1, October 22, 2018, unit station service transformer (USST) 1B load tap changer failed to perform in auto or manual causing a loss of one offsite power supply to 1B-B 6.9KV SDBD
- (2) Unit 1 and Unit 2, November 13 – November 14, 2018, including protected equipment status reviews for 2B 6.9 kV SDBD planned maintenance (Yellow risk)
- (3) Unit 2, November 22, 2018, including protected equipment status reviews during reactor coolant system mid-loop conditions (Orange risk)

71111.15 - Operability Determinations and Functionality Assessments (6 Samples)

The inspectors evaluated the following operability determinations and functionality assessments:

- (1) Unit 2 essential raw cooling water piping to CCP 2A & 2B oil coolers was identified to be 1 ½ inch tubing installed in the plant versus 1 inch tubing that was identified on the drawing (CR 1466918), on December 20, 2018
- (2) Gas observed during safety injection pump discharge piping vent (CR 1477214), on December 20, 2018
- (3) Unit 2 Additional Equipment Building access door breached open in support of ice condenser maintenance renders both trains of ABGTS inoperable (CR 1469554), on December 26, 2018
- (4) Deficiencies and enhancement opportunities related to time critical actions (CR 1455130), on December 27, 2018
- (5) Running loads on 2-FCV-067-0146-A increased to a value that challenges the design basis function of the valve (CR 1467085), on December 27, 2018
- (6) 108 inches of water found in manhole MH9A (CR 1469922), on December 28, 2018

71111.18 - Plant Modifications (1 Sample)

The inspectors evaluated the following temporary modification:

- (1) WO 119333955, T-Mod to supply temporary power to the 480V reactor vent board on November 29, 2018

71111.19 - Post Maintenance Testing (5 Samples)

The inspectors evaluated the following post maintenance tests:

- (1) Conditional performance of 0-SI-SFT-311-001.B for PMT of "B" main control room chiller following maintenance under WO 119994979, on November 10, 2018
- (2) 2B-B containment spray pump seal replacement under WO 120038081, on November 28, 2018
- (3) Replacement of the CCP 2B-B motor under WO 116668214, on December 20, 2018
- (4) Repair oil leak on the 2A-A CCP under WO 115035428, on December 20, 2018
- (5) 2A-A RHR pump room cooler fan motor maintenance under WO 119593823, on December 21, 2018

71111.20 - Refueling and Other Outage Activities (2 Samples)

The inspectors evaluated the following outage activities:

- (1) Unit 2 refueling outage (U2R22) from November 2 to December 11, 2018
- (2) Unit 1 forced outage (F119) from December 10 to December 16, 2018

71111.22 - Surveillance Testing (7 Samples)

The inspectors evaluated the following surveillance tests:

Routine (4 Samples)

- (1) 2-SI-OPS-000-009.0, Actuation of ECCS and Boron Injection Flowpath Valves via Safety Injection Signal, on November 17, 2018
- (2) 2-SI-OPS-082-026.B, Loss of Offsite Power with Safety Injection – D/G 2B-B Test, on November 20, 2018

- (3) 2-SI-OPS-082-007.B, Electrical Power System Diesel Generator 2B-B, on December 18, 2018
- (4) 0-SI-MIN-061-109.0, U2 Ice Condenser Intermediate/Lower Inlet Doors and Vent Curtains, on December 20, 2018

Reactor Coolant System Leak Detection (1 Sample)

- (1) 0-SI-OPS-068-137.0, Unit 1 Reactor Coolant System Water Inventory, on October 17, 2018

Containment Isolation Valve (2 Samples)

- (1) 0-SI-SLT-043-258.2, Containment Isolation Valve Local Leak Rate Test Sampling System (X-92A), on November 15, 2018
- (2) 0-SI-SLT-043-258.2, Containment Isolation Valve Local Leak Rate Test Sampling System (X-92B), on November 15, 2018

EMERGENCY PREPAREDNESS

71114.01 - Exercise Evaluation (1 Sample)

The inspectors evaluated the conduct of the biennial emergency plan exercise during the week of October 1, 2018. The exercise scenario simulated a steam generator tube leak and eventual rupture, followed by a trip of a reactor coolant pump that produced foreign material that entered the reactor core area and caused fuel damage. Then a main steam line inside containment ruptured and caused containment pressure to rise. With less than one full train of containment spray available, a Site Area Emergency was declared. As containment radiation levels continued to rise, and with no means of decreasing containment pressure, a General Emergency was declared, followed by an eventual breach of containment for a release to the environment, thereby allowing the Offsite Response Organizations to demonstrate their ability to implement emergency actions.

71114.04 - Emergency Action Level and Emergency Plan Changes (1 Sample)

The inspectors evaluated submitted Emergency Action Level, Emergency Plan, and Emergency Plan Implementing Procedure changes during the week of October 1, 2018. This evaluation does not constitute NRC approval.

71114.08 - Exercise Evaluation – Scenario Review (1 Sample)

The inspectors reviewed and evaluated in-office, the proposed scenario for the biennial emergency plan exercise at least 30 days prior to the day of the exercise.

RADIATION SAFETY

71124.01 - Radiological Hazard Assessment and Exposure Controls

Radiological Hazard Assessment (1 Sample)

The inspectors evaluated radiological hazards assessments and controls.

Instructions to Workers (1 Sample)

The inspectors evaluated worker instructions.

Contamination and Radioactive Material Control (1 Sample)

The inspectors evaluated contamination and radioactive material controls.

Radiological Hazards Control and Work Coverage (1 Sample)

The inspectors evaluated radiological hazards control and work coverage.

High Radiation Area and Very High Radiation Area Controls (1 Sample)

The inspectors evaluated risk-significant high radiation area and very high radiation area controls.

Radiation Worker Performance and Radiation Protection Technician Proficiency (1 Sample)

The inspectors evaluated radiation worker performance and radiation protection technician proficiency.

71124.02 - Occupational As Low As Reasonably Achievable (ALARA) Planning and Controls

Radiological Work Planning (1 Sample)

The inspectors evaluated the licensee's radiological work planning by reviewing the following activities:

- (1) Reactor Assembly and Disassembly
- (2) Steam Generator Eddy Current Testing
- (3) Valve Testing

Verification of Dose Estimates and Exposure Tracking Systems (1 Sample)

The inspectors evaluated dose estimates and exposure tracking.

Implementation of ALARA and Radiological Work Controls (1 Sample)

The inspectors reviewed ALARA practices and radiological work controls by reviewing the following activities:

- (1) Steam Generator Eddy Current Testing
- (2) Residual Heat Removal Heat Exchanger Eddy Current Testing
- (3) Residual Heat Removal Heat Exchanger Initial System Breach
- (4) Seal Table Eddy Current Testing

Radiation Worker Performance (1 Sample)

The inspectors evaluated radiation worker and radiation protection technician performance.

71124.03 - In-Plant Airborne Radioactivity Control and Mitigation

Engineering Controls (1 Sample)

The inspectors evaluated airborne controls and monitoring.

Use of Respiratory Protection Devices (1 Sample)

The inspectors evaluated respiratory protection.

Self-Contained Breathing Apparatus for Emergency Use (1 Sample)

The inspectors evaluated the licensee's self-contained breathing apparatus program.

71124.04 - Occupational Dose Assessment

Source Term Characterization (1 Sample)

The inspectors evaluated the licensee's source term characterization.

External Dosimetry (1 Sample)

The inspectors evaluated the licensee's external dosimetry program.

Internal Dosimetry (1 Sample)

The inspectors evaluated the licensee's internal dosimetry program.

Special Dosimetric Situations (1 Sample)

The inspectors evaluated the licensee's performance for special dosimetric situations.

71124.05 - Radiation Monitoring Instrumentation

Walk Downs and Observations (1 Sample)

The inspectors evaluated radiation monitoring instrumentation during plant walkdowns.

Calibration and Testing Program (1 Sample)

The inspectors evaluated the licensee's calibration and testing program.

OTHER ACTIVITIES – BASELINE

71151 - Performance Indicator Verification

The inspectors verified licensee performance indicator (PI) submittals listed below for the period from January 1, 2017, through December 31, 2017. (4 Samples)

- (1) Unit 1/2 RCS Leakage on December 26, 2018. (2 samples)
- (2) Unit 1/2 RCS Activity on December 26, 2018. (2 Samples)

The inspectors verified licensee PI submittals listed below for the period from July 1, 2017, through June 30, 2018. (3 Samples)

- (3) EP01: Drill & Exercise Performance (1 Sample)
- (4) EP02: Emergency Response Organization Drill Participation (1 Sample)
- (5) EP03: Alert & Notification System Reliability (1 Sample)

The inspectors verified licensee performance indicators submittals listed below for the period from June 1, 2017, through September 30, 2018. (2 Samples)

- (6) OR01: Occupational Exposure Control Effectiveness (1 Sample)
- (7) PR01: Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual Radiological Effluent Occurrences (RETS/ODCM) Radiological Effluent Occurrences (1 Sample)

71152 - Problem Identification and Resolution

Semiannual Trend Review (1 Sample)

The inspectors reviewed the licensee's corrective action program and associated documents for trends that might be indicative of a more significant safety issue. The review nominally considered the six month period of July 2018 through December 2018. The inspectors did not identify any new trends.

Annual Follow-up of Selected Issues (2 Samples)

The inspectors reviewed the licensee's implementation of its corrective action program related to the following issues:

- (1) Operating Experience Smart Sample 2018/01, 10 CFR Part 21 notification of the potential existence of defects related to control rod drive mechanism thermal sleeves (CR 1468138), on November 30, 2018
- (2) SG, refueling water storage tank (RWST), and containment sump level functional tests not performed per required surveillance test interval (STI) since improved technical specification (ITS) conversion in October 2015 (CR 1452772), on December 26, 2018

71153 - Follow-up of Events and Notices of Enforcement Discretion

Events (2 Samples)

The inspectors evaluated the following events:

- (1) Unit 1 rapid shutdown (AOP-C.03) to 45% to investigate/troubleshoot source of water leakage into the main generator exciter, on October 24, 2018

- (2) Notification of Unusual Event for excessive smoke in Unit 2 containment and the licensee's response, on November 26, 2018

Licensee Event Reports (1 Sample)

The inspectors evaluated the following licensee event report which can be accessed at <https://lersearch.inl.gov/LERSearchCriteria.aspx>:

- (1) Licensee Event Report (LER) 05000327, 328/2018-001-00, Inadequate PMT Results in Condition Prohibited by Technical Specifications, on December 31, 2018

OTHER ACTIVITIES – TEMPORARY INSTRUCTIONS, INFREQUENT AND ABNORMAL

60855.1 - Operation of an Independent Spent Fuel Storage Installation

The inspectors performed a walkdown of the onsite ISFSI on December 19, 2018.

71003 - Post-Approval Site Inspection for License Renewal

License Renewal – Phase I (0 Samples)

The inspectors reviewed a sample of license renewal activities scheduled for the Unit 2 fall 2018 refueling outage. The inspectors selected this refueling outage because it would present the best opportunity to observe the implementation of Aging Management Programs (AMPs) associated with license renewal commitments specific to Unit 2. The inspection observed the implementation of the following license renewal activities;

- (1) One-Time Inspection Program (UFSAR Section A.1.29)
- a) Eddy Current: RHR Hx, SQN-2-HEX-074-0027
 - b) Visual Examination: Test Connection, 2-VLV-001-0925
 - c) Visual Examination: Condensate Booster Pump Drain Valve, 2-DRV-002-1161B
 - d) Visual Examination: RHR Hx Tubesheet, 2-HEX-074-0027
- (2) Above Ground Metallic Tanks (UFSAR Section A.1.1)
- a) Visual Examination: Condensate Storage Tank 2-TNK-2-232

INSPECTION RESULTS

Minor Violation	71152 – Annual Follow-up of Selected Items
<p>Minor Violation: On October 2, 2018, the licensee discovered that surveillance requirement (SR) 3.3.2.4, “Channel Operational Test,” was not being performed for some instruments at the appropriate interval required by the surveillance frequency control program (SFCP). The licensee determined that the test intervals were inadvertently changed during the improved technical specifications (ITS) conversion project in 2015. 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” requires in part that applicable regulatory requirements and the design basis are correctly translated into technical specifications, drawings, procedures, and instructions. The failure to translate the licensing basis requirement to perform SR 3.3.2.4 as required by the SFCP into the surveillance implementing procedures was a performance deficiency.</p> <p>Screening: This performance deficiency was determined to be minor because the licensee was able to confirm operability of the affected instruments through successful completion of the missed surveillance activities. The issue did not result in any adverse consequences or loss of safety function.</p> <p>Enforcement: The failure to comply with 10 CFR Part 50, Appendix B, Criterion III constitutes a minor violation that is not subject to enforcement action in accordance with the NRC’s Enforcement Policy.</p>	

Observation	71152 – Annual Follow-up of Selected Items
<p>The inspectors conducted a detailed review of CR 1452772, “Surveillances not performed per SR 3.3.2.4.” This sample was selected due to the safety significance of the components involved. Specifically, SQN Unit 1 and Unit 2 channel operational tests for SG level, RWST level, and containment sump level instrumentation were not being implemented in accordance with the SFCP, which specified a performance frequency of 92 days. The frequencies of the surveillance implementing procedures were inadvertently changed to a 184 day frequency during the ITS conversion project in 2015.</p> <p>When the condition was identified on October 2, 2018, the licensee invoked SR 3.0.3, and performed the required risk assessment to delay the requirement to declare the LCO not met up to 24 hours or the limit of the required frequency. The inspectors noted that there were a total of 24 surveillance instructions that were inadvertently changed during the ITS conversion, but only seven of those had not been performed within the required test interval of 92 days (plus 25% grace). The inspectors reviewed the licensee’s risk evaluation, which concluded that there was no significant increase in risk due to the missed surveillances and, therefore, acceptable to delay the performance an additional surveillance interval of 92 days (by January 2, 2019). The inspectors verified that the licensee successfully completed the missed surveillances by October 3, 2018, well before the end of the additional 92 day period. The inspectors also reviewed the licensee’s extent of condition review and concluded that</p>	

reasonable corrective actions had been taken to correct the condition. The licensee's corrective actions are documented in CR 1452772 and included actions to re-baseline all 24 affected surveillances to the required 92-day frequency and perform a 10% random sampling of other SRs on a 184-day frequency to ensure they were at the proper frequency. The inspectors documented one minor violation associated with this issue.

Failure to Adequately Document the Basis for a Change to an Emergency Plan Implementing Procedure			
Cornerstone	Severity	Cross-Cutting Aspect	Report Section
Not Applicable	Severity Level IV (SL-IV) Non-Cited Violation (NCV) 05000327,328/2018004-01 Closed	Not Applicable	71114.04 – Emergency Action Level and Emergency Plan Changes
<p>The inspectors identified a SL-IV NCV of Title 10 of the <i>Code of Federal Regulations</i> (CFR), Part 50.54(q)(3), for changes made to the Sequoyah Nuclear Plant Radiological Emergency Plan (E-Plan), and associated implementing procedures, that failed to demonstrate the changes would not reduce the effectiveness of the E-Plan. Specifically, the licensee did not provide an adequate analysis to determine whether the removal and addition of clarifying information was not a reduction in effectiveness (RIE) of the emergency action level (EAL) implementing procedure.</p>			
<p><u>Description:</u> The licensee implemented a revised E-Plan and new EAL scheme in early 2018 that had been approved by the NRC. Prior to implementation of the NRC-approved E-Plan, the licensee identified many changes they wanted to make before issuing the revision to the EAL implementing procedure. The inspectors performed a detailed review of the changes to EAL implementing procedure EPIP-1, Emergency Plan Classification Matrix. The inspectors identified multiple occurrences of specific or clarifying wording that was either removed or added as part of this revision. An example of a specific clarification provided in the document that was removed was the following: “if an EAL for a higher classification was exceeded, but the present situation indicates a lower classification, the fact that the higher classification occurred shall be reported to the NRC and Central Emergency Control Center (CECC), but should not be declared.” Removal of this information from the document would be considered a RIE if it resulted in members of the Emergency Response Organization (ERO) no longer understanding or being unable to perform what the phrase dictated as their responsibility. Also, if by removing a paragraph that provided specific definitions for indications, reporting, or conditions, as it is related to supporting timely classifications or declarations of emergencies, it would be considered a RIE if, as a result, members of the ERO took delayed actions. Lastly, the inspectors found that a note added to the fission product barrier matrix flow chart bases that read: “Multiple events could occur which result in the conclusion that exceeding the loss or potential loss thresholds is IMMEDIATE. In IMMEDIATE loss situations use judgement and classify as if the thresholds are exceeded.” This addition would be considered a RIE if, as a result, members of the ERO were affected by the change such that it caused a delay in taking appropriate action. The inspectors found in the 50.54(q) change documentation, that the licensee categorized these changes as editorial in nature. By</p>			

categorizing the changes as editorial, an analysis to determine whether the changes were a RIE of the EAL implementing procedure was not conducted. The inspectors determined that these changes were more than editorial and required an analysis be performed to justify whether the changes could provide the necessary and clarifying information to ensure that delayed actions would not occur.

Corrective Action(s): The licensee entered the issue into the corrective action program and on October 25, 2018, revised the 10 CFR 50.54(q) analysis for EPIP-1.

Corrective Action Reference: CR 1453687

Performance Assessment:

The licensee's failure to provide an analysis demonstrating that changes to the EAL implementing procedure was not a reduction in effectiveness was determined to impede the NRCs ability to perform its regulatory function and is dispositioned using the Traditional Enforcement process.

Enforcement:

Severity: This finding is a violation of NRC requirements because it had the potential for impacting the NRC's ability to perform its regulatory function. Therefore, traditional enforcement is applicable, in accordance with Inspection Manual Chapter 0611 and 0612, Appendix B, Figure 2. This finding is determined to be a SL-IV violation in accordance with Section 6.6.d.1 of the Enforcement Policy because it involves the licensee's ability to meet or implement a regulatory requirement not related to assessment or notification such that the effectiveness of the emergency plan is reduced.

Violation: Title 10 of the *Code of Federal Regulations*, Part 50.54(q)(3) states, in part, that a licensee may make changes to its emergency plan without NRC approval only if the licensee performs and retains an analysis demonstrating that the changes do not reduce the effectiveness of the plan and the plan, as changed, continues to meet the requirements in Appendix E to this part.

Contrary to the above, from July 3, 2018, through October 25, 2018, the licensee failed to perform an analysis demonstrating that changes to their E-Plan, and associated implementing procedures, did not reduce the effectiveness of the plan. Specifically, the licensee did not provide an analysis to determine whether the addition and removal of specific and clarifying words, as identified in the noted examples above, would not hinder or delay ERO actions, and result in a reduction in effectiveness of the approved Sequoyah E-Plan and associated EALs.

Disposition: This violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy.

Inadequate Post Maintenance Testing Results in Condition Prohibited by Technical Specifications			
Cornerstone	Significance	Cross-cutting Aspect	Report Section

Barrier Integrity	Green NCV 05000327,328/2018004-02 Closed	H.5 – Work Management	71153 – Licensee Event Reports
<p><u>Introduction:</u> A self-revealed, Green, NCV of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” was identified on July 22, 2018, when the licensee failed to follow Section 3.2.2.A.1 of quality related procedure NPG-SPP-06.3, “Pre-/Post-Maintenance Testing,” in developing PMTs for PM 801560044, “Replacement of a flow switch electronic circuit board associated with the B-train EGTS Air Cleanup Subsystem.”</p>			
<p><u>Description:</u> On June 26, 2018, at 0902 eastern daylight time, a flow switch electronic circuit board associated with the B-train EGTS Air Cleanup Subsystem relative humidity heaters was replaced due to the circuit board approaching the end of its environmentally qualified life. Following board replacement, the flow switch was calibrated and the B-train of EGTS was returned to service in the standby condition. The post maintenance testing (PMT) did not require or recommend operability testing.</p> <p>On July 22, 2018, Operations personnel performed a surveillance instruction for Surveillance Requirement (SR) 3.6.10.1 and identified that the B-train relative humidity heaters did not energize as required by the SR. Operators declared Limiting Condition for Operation 3.6.10, EGTS Air Cleanup Subsystem, not met and entered Condition A for one EGTS Air Cleanup Subsystem train being inoperable. On July 23, 2018, the flow switch circuit board for the B-train EGTS relative humidity heaters that had previously been removed on June 26, 2018, was reinstalled. Following reinstallation of the board, the B-train of EGTS was able to meet SR 3.6.10.1 and was declared operable July 24, 2018, at 0115.</p> <p>A past operability evaluation (POE) was completed by the licensee and they determined that the B-train of the EGTS Air Cleanup Subsystem had been inoperable from June 26, 2018, at 0902 until July 24, 2018 at 0115. TS 3.6.10, Condition A allows 7 days to restore one train of the EGTS Air Cleanup Subsystem to operable status. TS 3.6.10 Condition B requires the unit to be in Mode 3 within 6 hours if the Required Action and associated Completion Time for Condition A are not met. Because one train of the EGTS Air Cleanup Subsystem was inoperable for greater than 174 hours (7 days plus 6 hours) without entering Mode 3, this event was reportable in accordance with 10 CFR 50. 73(a)(2)(i)(B) as any operation or condition which was prohibited by the plant's Technical Specifications (TSs).</p> <p>The inspectors reviewed the licensee’s LER and Corrective Actions associated with the event and determined they were adequate.</p> <p><u>Corrective Actions:</u> The licensee determined that the cause of the event was the lack of formality in determining PMTs and return to operability (RTO) tests even though the procedure NPG-SPP-06.3, “Pre-/Post-Maintenance Testing,” Section 3.2.2, “Determining PMT Requirements,” provides adequate guidance for this determination. The licensee identified the following corrective actions: (1) To conduct information sharing with each Operations Crew and the Work Planners to determine PMT and RTO requirements in accordance with the maintenance procedure; and (2) Update the preventive maintenance instructions associated with the work order for replacing a flow switch electronic circuit board on the EGTS Air Cleanup Subsystem.</p>			

Corrective Action References: CR 1433166 and 1436225

Performance Assessment:

Performance Deficiency:

Failure to follow quality related procedure NPG-SPP-06.3, "Pre-/Post-Maintenance Testing," Section 3.2.2 in developing PMTs for PM 801560044, "Replacement of a flow switch electronic circuit board associated with the B-train EGTS Air Cleanup Subsystem was a performance deficiency (PD). Specifically, on June 26, 2018, PM 801560044 was implemented but an adequate PMT was not performed, nor included in the PM package, to assure that all Operability and surveillance requirements had been satisfied as required by procedure NPG-SPP-06.3, "Pre-/Post-Maintenance Testing."

Screening:

This PD was associated with the maintenance procedure quality attribute of the barrier integrity cornerstone and adversely affected the cornerstone objective to provide reasonable assurance that physical design barriers, such as containment systems, protect the public from radionuclide releases caused by accidents or events. Specifically, failure to perform an adequate PMT on the B-train EGTS system prior to returning it to service led to the licensee exceeding the allowable TS LCO action completion time and the inoperability of the B-train EGTS. The EGTS Air Cleanup subsystem, which is considered a containment system, reduces the radioactive content in the shield building atmosphere following a Design Basis Accident (DBA). A loss of this system could cause site boundary doses, in the event of a DBA, to exceed the values given in the licensing basis for the site.

Significance:

This performance deficiency was associated with the barrier integrity cornerstone. The inspectors screened this finding using IMC 0609, Appendix A, "The Significant Determination Process (SDP) For Findings At-Power," dated June 19, 2012. Because both questions in Section B, "Reactor Containment," of Exhibit 3, "Barrier Integrity Screening Questions," were answered "no," the finding screened as Green.

Cross-cutting Aspect:

The inspectors determined that the finding has a cross-cutting aspect of work management in the human performance area because the failure of the licensee to perform an adequate PMT, as required by procedure NPG-SPP-06.3, "Pre-/Post-Maintenance Testing," did not ensure that nuclear safety was maintained (i.e. TS equipment shall be operable, but can be removed from service as long as it's within the allowed action times). (H.5)

Enforcement:

Violation: 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," states, in part, that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings.

Contrary to the above, prior to July 22, 2018, the licensee did not accomplish activities affecting quality in accordance with prescribed procedures. Specifically, NPG-SPP-06.3, "Pre-/Post-Maintenance Testing," is a quality related procedure and section 3.2.2.A.1 requires that PMTs shall be sufficiently comprehensive to ensure that that the maintenance performed

does not adversely affect the equipment's ability to perform its intended function. The licensee did not follow this procedure when developing PMTs for PM 801560044, "Replacement of a flow switch electronic circuit board associated with the B-train EGTS Air Cleanup Subsystem"

Disposition: This violation is being treated as a Non-Cited Violation, consistent with Section 2.3.2 of the Enforcement Policy

EXIT MEETINGS AND DEBRIEFS

The inspectors verified no proprietary information was retained or documented in this report.

- On January 23, 2019, the inspector presented the quarterly resident inspector inspection results to Mr. Matt Rasmussen and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure 71111.01

Procedures

0-PI-OPS-000.006.0, Freeze Protection, Revision 62
1-PI-EFT-234-706.0, Freeze Protection Heat Trace Function Test, Revision 45
2-PI-EFT-234-706.0, Freeze Protection Heat Trace Function Test, Revision 24

Condition Reports

1462276; 1465437; 1465553; 1466682; 1468846

Inspection Procedure 71111.04

Procedures

0-SO-74-1, Residual Heat Removal System, Revision 104
1-SO-201-1, 480V Shutdown Boards, Revision 23
1-SO-3-2, Auxiliary Feedwater System, Revision 58
0-SO-78-1, Spent Fuel Pit Cooling System, Revision 78

Other

DCN, Replacement of Shutdown Board PCB 6.9kV/480V Transformers, Revision A
Clearance Tagout 1-TO-2018-0050, Section 1-201-1309-W/W, 1A1-A 480V Shutdown Board
Transformer Replacement, issued December 4, 2018

Inspection Procedure 71111.05

Procedures

DGB-0-722-00, Fire Protection Pre-Fire Plans Diesel Generator Building El. 722, Revision 7
ISFSI, Fire Protection Pre-Fire Plans ISFSI Pad and Haul Route, Revision 1
RXB-0-679-02, Fire Protection Pre-Fire Plans Reactor Building El. 679, Revision 3
RXB-0-701-02, Fire Protection Pre-Fire Plans Reactor Building El. 701/721, Revision 3
RXB-0-734-02, Fire Protection Pre-Fire Plans Reactor Building El. 734, Revision 3
AUX-0-714-00, Fire Protection Pre-Fire Plans Auxiliary Building El. 714, Revision 4
AUX-0-690-00, Fire Protection Pre-Fire Plans Auxiliary Building El. 690, Revision 4

Inspection Procedure 71111.08

Procedures

0-PI-DXX-000-105, Boric Acid Leak Monitoring Program, Revision 0003
0-TI-DXX-000-097.1, Boric Acid Corrosion Control Program, Revision 0013
DWPS GT11-O-1-N, G29 Detailed Welding Procedure Specification (DWPSs) ASME/ANSI -
GWPS 1.M.1.2, Revision 2
MMDP-10, Controlling Welding, Brazing, and Soldering Processes, Revision 0016
NPG-SPP-09.7, Corrosion Control Program, Revision 0007
NPG-SPP-09.7.4, Boric Acid Corrosion Control Program, Revision 0004
N-UT-19, Ultrasonic Examination of Welds in Vessels Greater Than 2-Inches in Wall Thickness,
Revision 0020
N-VT-1, Visual Examination Procedure for ASME Section XI Preservice and Inservice,
Revision 0048

N-VT-3, Visual Examination of Weld Ends, Fit-Ups, and Dimensional Examination of Weld Joints, Revision 0031
N-VT-17, Visual Examination for Leakage of PWR Reactor Head Penetrations, Revision 0010

Condition Reports

1407189, Water Leaking from Cracks in Concrete below Fuel Transfer Canal
1417967, Thermal Sleeve Wear Part 21 Notice
1465512, Foreign Objects Found in SG #4 during SQN U2R22 SG Inspection
1466071, Foreign Objects Found in SG #3 during SQN U2R22 SG Inspection
1466429, Foreign Objects Found in SG #2 during SQN U2R22 SG Inspection
1466456, Excessive Probe Usage during SQN U2R22 SG Inspection
1466460, NRC Identified Administrative Error on Vision Certification Record
1465030, Foreign Objects Found in SG #1 during SQN U2R22 SG Inspection
1466642 U2R22 NRC ISI Boric Acid Containment Walkdown with Engineering Programs (Boric Acid)
1466645 U2R22 NRC ISI Boric Acid Containment Walkdown with Engineering Programs (Boric Acid)
1466650 U2R22 NRC ISI Boric Acid Containment Walkdown with Engineering Programs (Boric Acid)
1466654 U2R22 NRC ISI Boric Acid Containment Walkdown with Engineering Programs (Boric Acid)
1466655 U2C22 NRC ISI Boric Acid Containment Walkdown with Engineering Programs (Boric Acid)
1466849, RVCH Coating vs. Bare Metal Exam

Non-Destructive Examination Reports

NDE Report #R-0153, Visual Examination remote visual enhanced (VE) examinations NDE of the outside surface of the Reactor Pressure Vessel (RPV) Lower Head bottom mounted instrument (BMI) penetrations
NDE Report #R-0193, Visual Examination (VT-3) of Support 2-SIH-360 of Safety Injection Line
NDE Report #R-0194, Ultrasonic Examination of the Top Head Torus-to-Shell Weld of Steam Generator #1
NDE Report #R-0203, Liquid Penetrant Test of an Integral Attachment to Centrifugal Charging Pump 2-PMP-062-108-A

Drawings

ISI-0401-C-03, Sequoyah Nuclear Plant Unit 2, Steam Generator (Replacement), Revision 01
ISI-0449-C-22, Sequoyah Nuclear Plant Unit 2, High Pressure Safety Injection System Support Locations (Safety Injection), Revision 00
ISI-0467-C-01, Sequoyah Nuclear Plant Unit 2, Centrifugal Charging Pump Weld and Support Locations, Revision 01
SQ-108, Sequoyah Nuclear Plant Unit 0, Replacement Steam Generator Calibration Block As-Builts, Revision 00

Other Documents Reviewed

ASME Code Case N-722-1, Additional Examinations for PWR Pressure Retaining Welds in Class 1 Components Fabricated With Alloy 600/82/182 Materials, Section XI, Division 1
ASME Code Case N-729-4, Alternative Examination Requirements for PWR Reactor Vessel Upper Heads with Nozzles Having Pressure-Retaining Partial-Penetration Welds, Section XI, Division 1
B88 101112-840, Doosan Heavy Industries and Construction Co. Replacement Steam

Generator Quality Verification Documentation Package: RSG 2A – 2D, Rev. 00
Certificate of Certification for MAGNAFLUX® Ultragel II Batch #14K007, dated 10/03/2014
Focused Self-Assessment Report for Assessment No. CRP-ENG-F-13-031, Fleet Assessment
of Boric Acid Corrosion Control Program (BACCP) at Sequoyah and Watts Bar Nuclear
Plants dated 10/28/13
Krautkramer Branson Certificate of Compliance for Miniature Angle Beam Block, Serial Number
5098, dated 04-05-91
Krautkramer Transducer Certification for Serial Number 023DDT, dated 6/2/2011
Krautkramer Transducer Certification for Serial Number 023DDW, dated 6/2/2011
Krautkramer Ultrasonic Flaw Detector 2B00W2N1, Serial Number 2B00W2N1, dated
07/14/2017
NDE Certifications for D. Allen, B. Calvery, P. Heath, A. Kelleher, M. Kleinjan, F. Leonard,
B. McDonald, and M. Welch
Notice of Indication 2-SQ-455, Component ID: RVLWRHEAD, Evidence of Leakage,
Accumulated Residue, Discoloration. All Conditions Were Not Present During the Last
Examination Conducted In R20.
Steam Generator Eddy Current Personnel Certification Summary for SQN U2R22
Sequoyah Nuclear Plant Unit 2 Replacement Steam Generator Eddy Current Examination
Guideline, Rev. 2
SQN-ENG-FSA-16-002, Steam Generator Focused Self-Assessment, dated 11/10/2016
TVA Report of Calibration for Infrared Thermometer, Serial Number 170328193, dated
05/02/2018
TVA Report of Calibration for Infrared Thermometer, Serial Number 11107476, dated
06/13/2018
Visual Examination Card Size Verification Form, Cal date 12/28/2012
Weld Data Sheet for Weld Number 2-PE-127F, ASME Class MC
Welder Certifications for J. Densmore, C. Hamilton, and H. O’Conner
Work Order (WO) 119458700, DCN 21899 Stage 9 Disconnect/Remove/Replace Pen 7 During
U2R22
WO 119011254, U2R22 ISI UT Exam of RSGW-D1

Inspection Procedure 71111.11

Condition Reports

1255183; 1319080; 1404962; 1421324

Simulator Exam

SX-204, Revision 0
SX-205, Revision 0
SX-209, Revision 0
SX-212, Revision 0

JPM

0-SI-OPS-062-214.0 [02], Revision 5
0-SO-82-1 [1], Revision 59
0-SO-85-1 [3], Revision 47
0-SO-250-2 [01A], Revision 66
1-SI-OPS-082-007.A [02], Revision 69
AOP-C.04 [4], Revision 42
EA-32-2 [01], Revision 1
EPIP-1 [02], Revision 1

AOP-M.09 [01], Revision 7
ES-1.4 [01], Revision 7

Written

LOR 2018 A.1 (RO), September 10, 2018
LOR 2018 A.1 (SRO), September 10, 2018

Simulator Tests

2017 CC04, CCW Line Break in Containment
2017 FW05, MFP Trip
2017 FW07, AFWP Trip
2017 RC01, RCP Locked Rotor
2017 RH04, RHR Suction Line Blockage
2017 Static Tests at 48%, 67%, and 100%
2017 Transient Test TT-03, All MSIVs Close
2017 Transient Test TT-08, LOCA with LOOP
2017 Drift Test

Other

Simulator Exercise Guide SEG-200, ATWS with MSLB Outside Containment, Revision 0
Medical Records (8 files)
Training Attendance (10 files)
Active License Maint (10 files)
Reactivation Packages (7 files)
Remediation Packages (2 files)

Inspection Procedure 71111.12

Procedures

TI-4, Maintenance Rule Performance Indicator Monitoring, Trending, and Reporting –
10CFR50.65, Revision 31
NPG-SPP-03.4, Maintenance Rule Performance Indicator Monitoring, Trending, and Reporting
– 10CFR50.65, Revision 3

Condition Reports

1453339; 1460357; 1462648; 1469554; 1469922

Work Orders

119949086; 120031318;

Other

CDE 3039, Vital Inverter 2-III Failure
Engineering Work Request EWR-13-ENG-317-152, The Water Level at Which Subject Safety-
Related Cable Conduits Would be in Contact for Specific Hand Holes/Manholes, Revision 5
CDE 3052 – Unit 2 Additional Equipment Building Access door breached open in support of Ice
Condenser Maintenance renders both trains of Auxiliary Building Gas Treatment System
(ABGTS) inoperable

Inspection Procedure 71111.13

Procedures

NPG-SPP-07.3, Work Activity Risk Management Process, Revision 25
NPG-SPP-10.6, Infrequently Performed Test or Evolutions, Revision 1

Condition Reports

760336; 1458489; 1466269; 1469235; 1469238

Work Orders

119963316;

Drawings

1-45N1534-15-3, Schematic Diagram USST 1A and 1B LTC Control and Indication, Revision 0

Inspection Procedure 71111.15

Procedures

EA-202-2, Operating Equipment from 6.9 KV Shutdown Board, Revision 0
ES-1.3, Transfer to RHR Containment Sump, Revision 23
EPM-3-ES-1.3, Basis Document for ES-1.3, Revision 18
NEDP-22, Operability Determinations and Functional Evaluations, Revision 19
NPG-SPP-09.11.2, Risk Assessment Methods for Technical Specifications, Revision 3

Calculations

NDQ0063980038, RWST and Containment RHR Sump Safety and Operational Limits, RWST
Setpoint Required Accuracy and LBLOCA, SBLOCA Sump Minimum Levels, Revision 17
SQN-SQS2-0110, Emergency and Abnormal Operating Procedure Setpoints, Revision 27

Condition Reports

760336; 1239909; 1455130; 1466918; 1467085; 1469554; 1477214; 1473076

Work Orders

117211549; 117211567; 120011394

Drawings

SQN-L0-45603, U1&U2 Lube Oil Piping Drawing, Revision 3

Other

Sequoyah Operations Department Standing Order SO-18-040, ACMP 2-FCV-67-146 Degraded
Stroke Values, dated November 30, 2018
Prompt Determination of Operability (PDO) for CR 1455130, Deficiencies and Enhancement for
Time Critical Actions, approved October 17, 2018
PDO for CR 1467085, 2-FCV-067-0146-A High Running Loads, Revision 0
Past Operability Evaluation (POE) for CR 1469554, Unit 2 door A118 breeched, dated
December 6, 2018
50.59 Screening review for ES-1.3 Rev 23, Revision 0
50.59 Screening review for EA-202-2 Rev 0, Revision 0

Inspection Procedure 71111.18

Procedures

NPG-SPP-09.5, Temporary Modifications – Temporary Configuration Changes, Rev. 14

Work Orders

119333955;

Other

Technical Evaluation for WO 119333955, Temporary Power for 480V Reactor Vent Bd 2B-B and Reactor MOV Bd 2B-B, Rev. 0

Inspection Procedure 71111.19

Procedures

2-SI-SXP-072-201.B, Containment Spray Pump 2B-B Performance Test, Revision 18
0-SI-SXV-000-206.0, U2 Stroking valves for PMT of 2A-A RHR pump maintenance
0-SO-74-1, Residual Heat Removal System, Revision 104
2-SI-SXP-062-203.0, 2A-A and 2B-B CCP Comprehensive Section XI Test, Revision 8
0-SI-SFT-311-001.B, Control Room Air-Conditioning System Train B, Revision 5

Condition Reports

1466149; 1470503

Work Orders

120038081, 2B-B Containment Spray Pump Seal Replacement
119593823, 2A-A RHR pump room cooler fan motor current check, bearing lube and cleaning
120001752, Conditional performance of 0-SI-SFT-311-001.B for Main Control Room Chiller B
116668214, Replacement of the Centrifugal Charging Pump 2B-B Motor
115035428, Repair oil leak on the 2A-A Centrifugal Charging Pump

Inspection Procedure 71111.20

Procedures

0-GO-2, Unit Startup from Hot Standby to Reactor Critical, Revision 47
0-GO-3, Power Ascension from Reactor Critical to Less than 5 Percent Reactor Power, Revision 27
0-GO-7, "Unit Shutdown from Hot Standby to Cold Shutdown," Revision 85
0-GO-13, "Reactor Coolant System Drain and Fill Operations," Revision 96
0-GO-15, "Containment Closure Control," Revision 47
0-SI-NUC-000-001.0, Estimated Critical Conditions, Revision 13

Condition Reports

1455082; 1463546; 1461477; 1462583; 1467032

Inspection Procedure 71111.22

Procedures

0-SI-OPS-068-137.0, Reactor Coolant System Water Inventory, Revision 39
0-SI-SLT-043-258.2, Containment Isolation Valve Local Leak Rate Test Sampling System, Revision 18
2-SI-OPS-000-009.0, Actuation of ECCS and Boron Injection Flowpath Valves via Safety Injection Signal, Revision 14

Condition Reports

1457459; 1457557

Work Orders

119206577; 119254625

Drawings

1,2-47W881-8, Mechanical Flow Diagram Water Quality and Sampling System, Revision 4

Inspection Procedure 71114.01

Procedures

CECC EPIP-1, Central Emergency Control Center (CECC) Operations, Rev. 66
CECC EPIP-21, Emergency Duty Officer Procedure for Notification of Unusual Event, Alert, Site Area Emergency, and General Emergency, Rev.17
EPIP-1, Emergency Plan Classification Matrix, Rev. 53
EPIP-6, Activation and Operation of the Technical Support Center, Rev. 51
NP-REP, Radiological Emergency Plan (Generic Part), Rev. 108
NP-REP Radiological Emergency Plan Appendix B, Sequoyah Nuclear Plant, Rev. 106
NPG-SPP-22.300, Corrective Action Program, Rev. 11

Records and Data

Sequoyah Nuclear Plant Units 1 and 2, 2018 Emergency Preparedness Biennial Exercise Scenario
2018 SQN Graded Exercise management debrief presentation, dated October 4, 2018
Control Room Simulator, Operations Support Center, Technical Support Center, and Central Emergency Control Center /Joint Information Center - Documentation packages (logs, Event Notification Forms, Protective Action Recommendations, Media Releases, and Radiological Dose Assessments)

Condition Reports

1340205, Error in SQN FEMA REP-10 report (NRC identified)
1340365, NRC identified unlocked compartment door in REP van
1340856, NRC identified EPIP-13 Administration Enhancements
1453384, SQN Graded Exercise 10/3/18 – Objective A.4 met with comments
1453467, SQN Graded Exercise 10/3/18 – evaluate assembly & accountability process & implementation
1453489, SQN Graded Exercise 10/3/18 – TAT ringdown line to PAT not functioning
1453502, Failed Objective A.9

Inspection Procedure 71114.04

Procedures

EPDP-1, Procedures, Maps, and Drawings, Revs. 14 and 15
EPDP-17, 10 CFR 50.54(q) Evaluations of Emergency Plan Changes, Rev. 6
EPIP-1, Emergency Plan Classification Matrix, Revs. 52 and 53
NP-REP, Radiological Emergency Plan (Generic Part), Rev. 107 and 108
NP-REP Radiological Emergency Plan Appendix B, Sequoyah Nuclear Plant, Revs. 105 and 106

Change Packages

CECC 2017-002, Screening and Evaluation Form for REP Appendix A in Section A.2.2, Rev. 107, dated 1/11/17

CECC 2017-015, Screening and Evaluation Form for REP-9., Rev. 107, dated 6/9/17
 CECC 2017-015, Effectiveness Evaluation Form for REP-9, Rev. 107, dated 6/9/17
 CECC 2017-016, Screening and Evaluation Form for Generic REP, Rev. 107, dated 6/9/17
 CECC 2017-017 R1, Screening and Evaluation Form for Generic REP, Rev. 107, dated 6/21/17
 CECC 2017-023, Screening and Evaluation Form for Generic REP, Rev. 107, dated 7/19/17
 CECC 2017-025, Screening and Evaluation Form for Generic REP, Rev. 107, dated 9/6/17
 CECC 2017-026, Screening and Evaluation Form for Generic REP, Rev. 107, dated 9/6/17
 CECC 2017-027, Screening and Evaluation Form for Generic REP, Rev. 107, dated 9/6/17
 CECC 2017-028, Screening and Evaluation Form for Generic REP, Rev. 107, dated 9/6/17
 CECC 2017-029, Screening and Evaluation Form for Generic REP, Rev. 107, dated 9/6/17
 CECC 2017-038 Revision 1, Screening and Evaluation Form for Generic REP, Rev. 108, dated 1/9/18
 CECC 2017-039, Screening and Evaluation Form for Generic REP, Rev. 107, dated 10/27/17
 CECC 2018-037, Screening Effectiveness Form for Radiological Emergency Plan (REP) (Generic) Rev. 108, REP App. A, Rev. 110, REP App. B, Rev. 106, and REP App. C, Rev, 113, dated 06/27/18
 CECC 2018-037, Screening Evaluation Form for Radiological Emergency Plan (REP) (Generic) Rev. 108, REP App. A, Rev. 110, REP App. B, Rev. 106, and REP App. C, Rev, 113, dated 06/27/18
 CECC 2018-037, Screening Evaluation Form for Radiological Emergency Plan (REP) (Generic) Rev. 108, dated 06/27/18
 CECC 2018-041, Screening Evaluation Form for Radiological Emergency Plan (REP) App, B, Rev. 106, dated 06/25/18
 CECC 2018-042, Screening Evaluation Form for Radiological Emergency Plan (REP) App, B, Rev. 106, dated 06/25/18
 CECC 2018-043, Screening Evaluation Form for Radiological Emergency Plan (REP) App, B, Rev. 106, dated 06/25/18

Condition Reports

1339893, PCR NRC identified REP revision for exercise cycles
 1453687, NRC identified 2018 biennial inspection: 10 CFR 50.54(q) SQN-2017-008E issue

Inspection Procedure 71114.08

Procedures

EPDP-3, Emergency Plan Exercises & Preparedness Drills, Rev. 15
 EPDP-8, Emergency Preparedness Quality Assurance, Rev. 5
 EPIP-1, Emergency Plan Classification Matrix, Rev. 53
 EPIP-2, Notification of Unusual Event, Rev. 35
 EPIP-3, Alert, Rev. 37
 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-8, Personnel Accountability & Evacuation, Rev. 21
 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-18.3, Emergency Preparedness, Rev. 13

Records and Data

Sequoyah Nuclear Plant Units 1 and 2, 2018 Emergency Preparedness Biennial Exercise Scenario

2016 "D" Team Training Drill, dated 3/23/16
2016 "C" Team Training Drill, dated 4/13/16
2016 "B" Team Training Drill, dated 7/26/16
2016 "A" Team Training Drill, dated 8/17/16
2016 "A" Team Training Drill, dated 9/14/16
2017 "D" Team Training Drill, dated 8/2/17
2017 "A" Team Training Drill, dated 11/1/17
2018, "C" Team Training Drill, dated 1/31/18
2018 March SAMG, dated 3/7/18
2018, SQN June Training Drill, dated 6/6/18
SQN Integrated Training Drill, dated 8/17/16
SQN Graded Exercise, dated 9/14/16

Inspection Procedure 71124.01

Procedures, Guidance Documents, and Manuals

NISP-RP-07, Control of Radioactive Material, Rev 0
NPG-SPP-05.1.1, Alpha Radiation Monitoring Program, Rev. 6
NPG-SPP-05.18, Radiation Work Permits, Rev. 7
NPG-SPP-22.300, Corrective Action Program, Rev 12
RCDP-22, Control of High Radiation Areas and Very High Radiation Areas, Rev 0
RCI-101, Radiation Protection Operations Routines, Rev 4

Condition Reports

1295339; 1298939; 1303619; 1306140; 1321049; 1329404; 1388525; 1400783; 1406879;
1424147; 1450745; 1465496; 1467149

Records and Data

Airborne Radioactivity Calculation Worksheet, 653' 2A RHR Pump Room, 11/14/18
Air Sample Detail Report, Survey ID 110618007, Location 2CTM693R202, 11/6/18
Air Sample Detail Report, Survey ID 110718010, Location 2CTMALLR202, 11/7/18
Air Sample Detail Report, Survey ID 111318005, Location 2AUX690A415, 11/12/18
Monthly Superintendent Inventory Verification, Containment / Padlock Key Index, 10/11/18
NQA Form 4.02, Monthly Inspection of Radioactive Material Storage Areas, 7/27/17
NSTS Annual Inventory Reconciliation Report, 1/12/18
Sealed Source Leak Testing and Inventory Record, 5/7/18
RWP 18210033, U2R22 – U2 Aux Bldg – Locked High Radiation Area – VMG Activities, Rev. 0
RWP 18210054, U2R22 – U2 Aux Bldg – High Radiation Area – RHR ECT and Support Activities, Rev 0
RWP 18210743, U2R22 – U2 Aux Bldg – Locked High Radiation Area – VMG Activities, Rev. 0
RWP 18220042, U2R22 – U2 Lower CTMT – High Radiation Area – Seal Table ECT and Associated Work to Include Seal Table Disassembly / Reassembly, Rev 0
VSDS Survey # SQN-M-20170925-4, Y110 ISFSI Pad Quarterly, 9/25/17
VSDS Survey # SQN-M-20171124-5, Y110 ISFSI Pad Quarterly, 11/24/17
VSDS Survey # SQN-M-20181103-3, R241U2R22LC Initial Entry, 11/3/18
VSDS Survey # SQN-M-20181103-11, R206 U2R22LC Initial Entry Acc# 4, 11/3/18
VSDS Survey # SQN-M-20181107-4, U2R22LC Seal Table Leak, 11/7/18

VSDS Survey # SQN-M-20181111-1, U2R22SG – SG 1/4 Primary Platform Insert Removal / Shield Doors Installed, 11/10/18
VSDS Survey # SQN-M-20181111-3, Remove Inserts U2 SGR 2/3, 11/11/18
VSDS Survey # SQN-M-20181113-18, A415 RHR/CS 2B-B HX Breach, 11/13/18
VSDS Survey # SQN-M-20181113-18, A212 2A-A RHR Pump Room, 11/13/18
VSDS Survey # SQN-M-20181114-7, A415 RHR & Containment Spray Heat Exchangers 2B-B, 11/14/18
SQNRPSA18006 Self-Assessment Report, Radiological Hazard Assessment & Exposure Controls for Nov 2018 NRC Inspection, 7/19/18

Inspection Procedure 71124.02

Procedures, Guidance Documents and Manuals

NPG-SPP-05.2.1, Operational ALARA Planning and Controls, Rev. 7
NPG-SPP-05.2.5, TEDE ALARA Evaluations, Rev. 3
N2M-001, Site-Specific Engineering Specification for Cobalt Reduction, Rev. 0

Records and Data

U2R22 Estimated vs Actual Dose Curve, 11/12/18 – 11/30/18
ALARA Plan No. 2018-211, Reactor Assembly and Disassembly
ALARA Plan No. 2018-237, S/G Primary and Secondary Maintenance/Inspection
ALARA Plan No. 2018-228, MOVATS
ALARA Work-In-Progress Review No. 2018-211, Reactor Assembly and Disassembly, 11/26/18
Temporary Shielding Request Form No. 18-26, Reactor Cavity Drain Line, 10/15/18

Inspection Procedure 71124.03

Procedures, Guidance Documents, and Manuals

0-PI-FPU-049-401.M, Self-Contained Breathing Apparatus, Rev 31
NISP-RP-08, Use and Control HEPA Filtration and Vacuum Equipment, Rev 0
NPG-SPP-22.300, Corrective Action Program, Rev 12
RCDP-24, Maintenance and Field Setup of HEPA Units and Vacuums, Rev 1
RCI-04.01, Selection, Issue, and Use of Respiratory Protection Devices, Rev 11
TVA-TSP-18.916, Respiratory Protection, Rev 3

Condition Reports

1275572; 1294012; 1314049; 1409020

Records and Data

Air / Gas Quality Report & Certificate, SN 11040, 4/12/18 and 9/28/18
MSA AirHawk SCBA Training Slides, R12
Posi3 USB Test Results, SCBA AH37, 7/25/17 and 8/6/18
Posi3 USB Test Results, SCBA CR12, 7/24/17 and 8/8/18
Posi3 USB Test Results, SCBA CR 4, 8/8/18
RCI-18.01, Attachment 1, HEPA/HEPA Vacuum DOP Test Certification, HEPA no. 500-2679, 10/10/18
RCI-18.01, Attachment 1, HEPA/HEPA Vacuum DOP Test Certification, HEPA no. 700-8, 3/1/18
Respirator Inspection Log, 9/25/18 – 10/31/18
WO 118300169, 0-SI-SFT-030-132.A Auxiliary Building Gas Treatment System Filter Train A, 2/6/18

WO 119112079, 1-SI-SFT-030-007.B Cntmt Purge Air, 9/10/18
SQNRPSSA18009 — Snapshot Self-Assessment Report, In-Plant Airborne Radioactivity
Control & Mitigation for Nov 2018 NRC Inspection, 5/24/18

Inspection Procedure 71124.04

Procedures, Guidance Documents and Manuals

RCDP-7, Bioassay and Internal Dose Program, Rev. 8
NPG-SPP-05.1.1, Alpha Radiation Monitoring Program, Rev. 6

Records and Data

2017 Annual Radionuclide Trending and Assessment Report
Nuclide Distribution Report, Dry Active Waste, 2/15/17
CEDE Calculation Spreadsheet for Intake, 11/11/18
Radiological Survey SQN-M-20181113-18
Radiological Survey SQN-M-20181111-8
Declared Pregnant Worker Dosimetry Records, 11/1/16 – 11/28/18
NVLAP Certifications for Dosimetry Processor, 2017-2018

Inspection Procedure 71124.05

Procedures, Guidance Documents and Manuals

Channel Calibration of Upper Inside Containment Post Accident Hi Range Area Monitor 2-SI-
ICC-090-272.0, 2-R-90-272
Channel Calibration of Lower Inside Containment Post Accident Hi Range Area Monitor 2-SI-
ICC-090-274.0, 2-R-90-274
RCI-05.400, Criteria for Setting Portable Radiation Protection Instrument Response Check
Windows
NPG-SPP-22.300, Corrective Action Program, Rev. 0012

Condition Reports

1294012; 1454831; 1295321; 1325391; 1321223

Records and Data

Sequoyah Radiation Instrument Performance Review FY18 Second Quarter Trend 10/15/18
Sequoyah Radiation Instrument Performance Review FY18 Third Quarter Trend 7/19/18
Sequoyah Radiation Instrument Performance Review FY17 Third Quarter Trend 5/1/18
Sequoyah Radiation Instrument Performance Review FY17 Second Quarter Trend 8/30/17
Calibration Data Sheets: Telepole II TVA #951449, 10/23/17; RADEYE B-20TVA #951184,
5/3/18, 9/27/17; Ludlum Model 3/3A TVA #860855 01/26/18, 11/29/16; Ludlum 9-3 TVA
#860886 9/11/18, 8/16/16; Ludlum 12 w/43-92 Probe TVA 1/4/18, 10/18/16; StandFAST II
System TVA01, 02/20/18; 2-SI-ICC-090-274.0, 2-R-90-274, 11/15/18; Ludlum 3030P TVA #
951047, 10/30/19, 3/8/19; QA Form 3.40 SAM-11 #860324 12/13/16, 12/5/17; GEM-5
Efficiency #12PM 02/01/2017, 01/26/2018; Cronos #951454 09/21/2018, 09/29/17; ARGOS
#860587 02/16/18, 02/28/17;
Self-Assessment SQN-RP-SA-18-013, 9/24-28/2018
Eckert & Ziegler Cross Check Program 3/2018, 6/2018, 9/2018
SQN-RP-SA-18-013 Self-Assessment Report 09/24/2018
Sequoyah Nuclear Plant, Annual Radionuclide Trending and Assessment Report for 2017

Inspection Procedure 71151

Procedures

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. 38
Desktop Guide for Reporting of NEI 99-02 Performance Indicators: RETS/ODCM
RADIOLOGICAL EFFLUENT OCCURRENCE

Records and Data

DEP opportunities documentation for 3rd & 4th quarters 2017, & 1st & 2nd quarters 2018
Siren test data for 3rd & 4th quarters 2017, & 1st & 2nd quarters 2018
Drill & exercise participation records of ERO personnel for 3rd & 4th quarters 2017, & 1st & 2nd quarters 2018
SQN RCS Activity data, January 2017 through January 2018
SQN RCS Leakage data, January 2017 through January 2018
10 CFR 50 Appendix I Dose Calculations, Monthly Summaries, 1/2/18 – 10/3/18
SRD Alarm Logs, 5/1/17 – 10/31/18

Condition Reports

1340761, NRC identified during participation review – PI not fixed in ROP
1335792, SQN ANS siren SQN-0-PNS-901-072 failed to sound during test
1371816, ANS siren SQN-0-PNS-088 failed to respond to silent test
1373778, ANS siren SQN-0-PNS-083 failed to respond to the monthly scheduled full sound test
1376983, Required bi-weekly test of SQN and WBN A&NS sirens not performed on time

Other

TVA Nuclear Performance Report, December 2017

Inspection Procedure 71152

Procedures

0-TI-SFCP-000-004.0, Surveillance Test Interval Control, Revision 11
0-TI-SFCP-000-002.0, Surveillance Test Risk Informed Documented Evaluation (STRIDE) Process, Revision 0
TI-59, Listing of Technical Specification, TRM, ODCM, and CoC Instruments, Revision 20

Condition Reports

1452772; 1455144; 1464855; 1466429; 1466636; 1466641; 1467343

Other

PRA Evaluation Response SQN-0-18-131 for CR 1452772, Revision 0
LTR-RIDA-18-305, Evaluation of Thermal Sleeve Flange Wear Conditions and Recommendations for Sequoyah Unit 2 (TEN) Fall 2018 Inspection, Revision 0
SQN Site Trimester Performance Assessment, June – September, 2018
SQN Engineering Department Performance Assessment, October – November 2018
SQN Maintenance Department Performance Assessment, October – November 2018
SQN Operations Department Performance Assessment, October – November 2018

Inspection Procedure 71153

Procedures

NPG-SPP-06.3, Pre/Post-Maintenance Testing, Revision 2

Condition Reports

1469616; 1470168; 1470195; 1470432; 1457122; 1436225; 1433166

PMs

801560044, Revision 3 & 4

Inspection Procedure 71003 - Post-Approval Site Inspection for License Renewal

Work Orders

117511742; 118656741; 119593108; 117511712; 118948609