

From: Kontz, Craig
Sent: Monday, August 26, 2019 10:33 AM
To: Luina, Scott
Subject: RE: NRC Letter
Attachments: ML18152A748.pdf; ML18219A654.pdf

Scott,

ML18152A748 Documents the Evaluation
ML18219A654 Documents the rescinding of the violation

Let me know if this meets your need.

Thanks

Craig

From: Luina, Scott
Sent: Monday, August 26, 2019 9:29 AM
To: Kontz, Craig
Subject: NRC Letter

Can you find in ADAMS a NRC letter related to the Service Life NCV from Sequoyah.

In June 2018, the NRC withdrew the Service Like NCV based upon the Sequoyah denial letter from December 2017.

The NRC inspection report is attached.

I have the January 2018 letter which tells them the NRC is still reviewing the TVA letter.

Scott K. Luiña, Senior Special Agent
Office of Investigations, Region II
U. S. Nuclear Regulatory Commission
245 Peachtree Center Avenue, NE Suite 1200
Atlanta, Georgia 30303-1257

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Hearing Identifier: JShea_IA_NonPublic
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Subject: RE: NRC Letter
Sent Date: 8/26/2019 10:32:41 AM
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From: Kontz, Craig

Created By: Craig.Kontz@nrc.gov

Recipients:
"Luina, Scott" <Scott.Luina@nrc.gov>
Tracking Status: None

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MESSAGE	890	8/26/2019 10:32:43 AM
ML18152A748.pdf	139569	
ML18219A654.pdf	182131	

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Return Notification: No
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**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION II
245 PEACHTREE CENTER AVENUE NE, SUITE 1200
ATLANTA, GEORGIA 30303-1257

June 1, 2018

EA-18-001

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 EVALUATION OF CHANGES, TESTS,
AND EXPERIMENTS AND PERMANENT PLANT MODIFICATIONS
INSPECTION REPORT 05000327/2015007 AND 05000328/2015007 –
WITHDRAWAL OF NON-CITED VIOLATION**

Mr. Shea:

Thank you for your letter dated December 21, 2017, in response to Inspection Report Non-Cited Violation (NCV) 05000327, 328/2015007-005 "Failure to Identify Qualification Criteria Associated with Class 1E Electrical Component Static Performance Characteristics." This item was identified during an inspection conducted by region-based inspectors at your Sequoyah Nuclear Plant, Units 1 and 2 (SQN) from July 20 through July 31, 2015. The inspections were conducted to evaluate the implementation of engineering programs related to changes, tests, and experiments and permanent plant modifications.

In the December 21, 2017 letter, you denied the NCV, and also noted that the violation, as discussed in the inspection report, appeared to represent a new NRC staff position that significantly expanded the equipment qualification requirements for SQN by requiring SQN to establish qualification criteria for design life and certain performance characteristics for Class 1E molded case circuit breakers (MCCBs) in mild environments, contrary to the Commission's regulation in 10 CFR 50.49(c)(3), regulatory guidance, industry standards, and SQN's licensing basis. You contended that SQN's equipment qualification program for Class 1E MCCBs in mild environments is consistent with the Commission's regulations, guidance, and SQN's licensing basis. You also stated that if this violation is not withdrawn, your letter should serve as a Backfit Claim and the NRC Staff would be required to conduct a backfit analysis for this new staff position in accordance with 10 CFR 50.109(a)(3).

The NRC has completed its evaluation of your denial of the violation in accordance with guidance described in Section 2.2 of the NRC Enforcement Manual and determined that a violation of regulatory requirements, as documented in the inspection report, did not occur. The bases for our determination is included in the Enclosure to this letter.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and the enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of the NRC's document management system, ADAMS. ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

If you have any questions regarding this correspondence, please contact Marvin D. Sykes at (404) 997-4629.

Sincerely,

/RA/

Mark S. Miller, Deputy Director
Division of Reactor Safety

Docket Nos.: 50-327, 50-328
License Nos.: DPR-77, DPR-79

Enclosure:
NRC Evaluation and Conclusion

cc: Distribution via Listserv

SUBJECT: SEQUOYAH NUCLEAR PLANT - NRC EVALUATION OF CHANGES, TESTS, AND EXPERIMENTS AND PERMANENT PLANT MODIFICATIONS
INSPECTION REPORT 05000327/2015007 AND 05000328/2015007 –
WITHDRAWAL OF NON-CITED VIOLATION dated June 1, 2018

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ADAMS: Yes ACCESSION NUMBER: ML 18152A748 SUNSI REVIEW COMPLETE FORM 665 ATTACHED

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NAME	M. SYKES	M. MILLER	C. HANEY	M. KOWAL	G. BOWMAN	J. PERALTA	M. MILLER
DATE	3/8/2018	3/8/2018	3/8/2018	3/8/2018	5/17 /2018	5/ 31 /2018	6/ 1 /2018
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DOCUMENT NAME: S:\DRS NEWENG BRANCH 1\DRAFT RESPONSE TO

NRC EVALUATION AND CONCLUSION

A. Background

Inspection Report (IR) 05000327, 328/2015007 dated September 14, 2015 documented the results of onsite inspections conducted July 20 through July 31, 2015 at Sequoyah Nuclear Plant Units 1 and 2. The inspection was conducted for the purposes of monitoring the effectiveness of the implementation of changes to facility structures, systems, and components (SSCs), risk significant normal and emergency operating procedures, test programs, and the updated final safety analysis report (UFSAR) in accordance with the requirements of 10 Code of Federal Regulations (CFR) 50.59. The inspection also included reviews of previously implemented plant modifications to determine if the changes may have adversely affected availability, reliability, or functional capability of SSCs, or resulted in departures from design bases or the introduction of latent common cause failures.

Inspection Report NCV 0500327, 328/2015007-005, *Failure to Establish Static Performance Characteristics for the Qualification of Class 1E Electrical Equipment* documented a violation involving the failure to translate design requirements into programs and procedures to accomplish an activity affecting quality. The specific activity involved identifying and establishing qualification criteria for safety-related Class 1E replacement MCCBs installed under Design Change Notices (DCNs) 23085 and 23082. The breakers from DCN 23085 are MCCBs for the normal and alternate supply to the 480 Volt (V) Essential Raw Cooling Water (ERCW) Motor Control Centers (MCCs). The breaker from DCN 23082 is a MCCB for the 480V reactor vent boards that feed the ice condenser air handling units. As described in the *Analysis* of the identified performance deficiency, the licensee did not define Class 1E static and dynamic performance characteristics as noted in Institute of Electrical and Electronics Engineers (IEEE) Standard (Std.) 323-1971, Section 5 and as required by IEEE Std. 279-1971, "Criteria for Protection Systems for Nuclear Power Generating Stations" during the qualification review of these replacement breakers.

Non-Cited Violation (NCV) 050000327, 328/2015007-005 was cited as a violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," which states, in part, that "Measures shall be established for the selection and review for suitability of application of materials, parts, equipment, and processes that are essential to the safety-related functions of the structures, systems and components." Contrary to the requirements, since 2013, the licensee failed to establish measures for the selection and review for suitability of application of materials, parts, equipment, and processes that are essential to the safety-related functions of the structures, systems and components. Specifically, the licensee failed to establish measures for the selection and review for suitability of static and dynamic performance characteristics used in the design and qualification of Class 1E electrical equipment.

B. Specific Bases for Disputing Violation 05000-327,328\2015007-005

In a letter dated December 21, 2017, the licensee disputed the NRC's identification of non-cited violation (NCV) 05000327, 328/2015007-005 and stated that 10 CFR Part 50, Appendix B, Criterion III, "Design Control," had been appropriately applied to the design, selection and installation of the safety-related MCCBs described in the violation. The licensee affirmed that the replacement breakers described in the NCV are functionally equivalent to the original breakers installed in the plant, and comply with the same design requirements as the original breakers. Consistent with the original breakers, once installed, station surveillance and preventive maintenance programs, through implementing procedures, provide continued review of the circuit breakers for suitability and quality. This practice was described as being consistent with SQN's approved licensing basis, and with long-established NRC rules and guidance for safety-related electrical equipment located in mild environments.

The licensee provided the following reasons for disputing the NRC's conclusion that the violation occurred as described:

1. There is no requirement under NRC regulations or SQN licensing basis to establish qualification criteria for design life for Class 1E for the MCCBs cited in the SQN NCV.
2. The finding effectively treats safety-related electrical equipment located in mild environment similarly to the treatment of such equipment located in a harsh environments.
3. The NRC finding is requiring the replacement breakers to satisfy a different requirement than the original breakers; i.e., the requirements for equipment installed in harsh environments.
4. 10 CFR Part 50.49 establishes requirements for environmental qualification of electrical equipment important to safety for nuclear power plants, and 10 CFR Part 50.49(c) specifically states, "requirements for (1) dynamic and seismic qualification of electric equipment important to safety, (2) protection of electric equipment important to safety against other natural phenomena and external events, and (3) environmental qualification of electric equipment important to safety located in a mild environment are not included within the scope of this section."
5. When TVA replaced the subject equipment described in the NCV, the procurement specifications were consistent with the procurement specifications for the original equipment during initial plant licensing.
6. TVA's program for safety-related equipment located in a mild environment is consistent with the NRC position/requirements delineated in Generic Letter 82-09, Question and Answer (Q&A) 4.
7. The NRC has introduced a new staff position/interpretation regarding requirements for safety-related equipment located in a mild environment; specifically with respect to the NRC's interpretation that static and dynamic performance characteristics require specification of a shelf life and design life.

The licensee also asserted that this interpretation effectively extends the rules for safety-related equipment located in harsh environments to safety-related equipment located in mild environments. The licensee stated that this new position conflicts with existing NRC rules and guidance specifically for equipment located in mild environments. The violation described in IR 327, 328/2015007 conflicts with the NRC staff position delineated in GL 82-09, and establishes new requirements for safety-related equipment located in a mild environment.

C. NRC Evaluation of Licensee's Response

The staff conducted a review of a broad range of relevant requirements for the qualification of Class 1E equipment to complete this review. The scope of the review was focused primarily on assessing the accuracy and soundness of the disputed violation. The conclusions reached as a result of this review should not be assumed to represent a broader agency position, nor should it be assumed to validate or refute any of the specific assertions made by the licensee in its denial letter.

Specifically, the Commission's regulations in 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," requires that structures, systems, and components important to safety in a nuclear power plant be designed to accommodate the effects of environmental conditions (i.e., remain functional under postulated accident conditions) and that design control measures such as testing be used to check the adequacy of design.

These design requirements are embodied in General Design Criteria 1, 2, 4, and 23 of Appendix A, "General Design Criteria for Nuclear Power Plants," to Part 50; in Criterion III, "Design Control," Criterion XI, "Test Control," and Criterion XVII, "Quality Assurance Records," of Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to Part 50; § 50.54(jj), "Structures, systems, and components subject to the codes and standards in 10 CFR 50.55a must be designed, fabricated, erected, constructed, tested, and inspected to quality standards commensurate with the importance of the safety function to be performed," and in § 50.55a, "Codes and Standards" which incorporates by reference IEEE Std. 279-1971, "Criteria for Protection Systems for Nuclear Power Generating Stations" in paragraph (h)(2). All of these requirements are applicable to SQN.

IEEE Std. 279-1971, Section 4 "Requirements," Subsection 4.4 "Equipment Qualification" states, in part, "the protection system equipment shall meet, on a continuing basis, the performance requirements determined to be necessary for achieving the system requirements" and includes a note stating that attention is directed particularly to the requirements of Sections 3(7) and 3(9) of the standard. Neither section includes a specific reference to the installed life or design life for qualification of equipment in mild environments.

Equipment manufacturers and users of Class 1E equipment are required by the requirements identified above to provide assurance that such equipment will perform satisfactorily in service. This is typically accomplished through a defined program of quality assurance that includes but is not limited to design, qualification, production quality control, installation, maintenance, and periodic testing.

Although not specifically referenced in the regulations that govern qualification of Class 1E equipment in mild environments at SQN, the guidance and specifications noted in IEEE Std. 323-1971, "IEEE Standard for Qualifying Class 1E Equipment for Nuclear Power Generating Stations" can be used to satisfy the requirements of IEEE Std. 279-1971. Both IEEE 279-1971 and IEEE 323-1971 standards are listed in SQN UFSAR, Sections 3.11 and 8.1. However, neither IEEE 279-1971 nor IEEE 323-1971 explicitly require licensees to define a specific design life for Class 1E equipment in mild environments.

While conducting its review, the staff also noted that SQN is subject to a license condition (Environmental Qualification), imposed by Order CLI-80-21, "Order for Modification of License Concerning Environmental Qualification of Safety-Related Electrical Equipment, dated November 6, 1980). However, the staff acknowledges that CLI-80-21 was in essence superseded by 10 CFR 50.49, "Environmental Qualification of Electric Equipment Important to Safety for Nuclear Power Plants." 10 CFR 50.49 sets forth requirements for Class 1E equipment located in harsh environments that must perform a necessary safety function and be capable of maintaining functional operability under all service conditions postulated to occur during the installed life or for the time it is required to operate. The requirements of 10 CFR 50.49 are not applicable to the MCCBs discussed in the SQN NCV.

D. NRC Conclusion

The staff carefully reviewed the various regulatory requirements applicable to SQN to evaluate the accuracy and validity of information identified in NCV 05000327, 328/2015007-005. Although there are certain requirements in the SQN licensing basis, as stated above, for the qualification of Class 1E equipment in mild environments, the staff determined that SQN was not required to establish design life as a particular performance characteristic for the qualification of Class 1E equipment in mild environments. Therefore, the violation described in NCV 05000327, 328/2015007-005 that states that the licensee is required to establish static and dynamic performance characteristics (i.e., shelf life and design life) used in the design and qualification of Class 1E electrical equipment located in mild environments at SQN was not confirmed. As a result, the staff has determined that the violation, as described and documented in NCV 05000327, 328/2015007-005 did not occur.



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II**

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

August 7, 2018

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 – NUCLEAR REGULATORY COMMISSION
INTEGRATED INSPECTION REPORT 05000327/2018002 AND
05000328/2018002**

Dear Mr. Shea:

On June 30, 2018, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Sequoyah Nuclear Plant, Units 1 and 2. On July 24 and 31, 2018, 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 NRC 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/

Anthony D. Masters, Chief
Reactor Projects Branch 2
Division of Reactor Projects

Docket Nos.: 05000327, 05000328

License Nos.: DPR-77, DPR-79

Enclosure:

IIR 05000327/2018002 and
05000328/2018002

cc w/encl: Distribution via ListServ

SUBJECT: SEQUOYAH NUCLEAR PLANT – NUCLEAR REGULATORY COMMISSION
INTEGRATED INSPECTION REPORT 05000327/2018002 AND
05000328/2018002 August 7, 2018

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U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report

Docket Numbers: 50-327, 50-328

License Numbers: DPR-77, DPR-79

Report Numbers: 05000327/2018002 and 05000328/2018002

Enterprise Identifier: I-2018-002-0030

Licensee: Tennessee Valley Authority (TVA)

Facility: Sequoyah Nuclear Plant

Location: Soddy-Daisy, TN 37379

Inspection Dates: April 1, 2018 to June 30, 2018

Inspectors: D. Hardage, Senior Resident Inspector
W. Deschaine, Resident Inspector
M. Donithan, Operations Engineer
J. Viera, Operations Engineer
N. Lacy, Operations Engineer
B. Collins, Reactor Inspector (In-service Inspection Activities)
S. Downey, Senior Reactor Inspector (Other Activities)

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. No findings or violations were identified. One additional item tracking is summarized in the table below.

List of Findings and Violations

None

Additional Tracking Items

Type	Issue number	Title	Report Section	Status
URI	05000327,328/ 2017004-01	Corrective Actions associated with a NRC NCV documented in inspection report 2015007-05	Section 4AO2	Closed

PLANT STATUS

Unit 1 began the inspection period at rated thermal power. On April 6, 2018, the unit was down powered and removed from service for a refueling outage. The unit was returned to rated thermal power on May 10, 2018, and remained at or near rated thermal power for the remainder of the inspection period.

Unit 2 operated at or near rated thermal power for the entire 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

Summer Readiness (1 Sample)

The inspectors evaluated summer readiness of offsite and alternating current power systems prior to onset of high grid loading season on May 22, 2018.

71111.04 - Equipment Alignment

Partial Walkdown (3 Samples)

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

- (1) Spent fuel pit coolant system on May 10
- (2) Main control room heating, ventilation, and air conditioning 'B' train on May 9
- (3) Unit 2 motor driven auxiliary feedwater (AFW) 'A' and 'B' trains while the turbine driven AFW pump was out of service for maintenance on June 19

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, auxiliary building – elevation 749 (vital battery rooms 1-4) on May 25
- (2) Unit 1 and Unit 2, auxiliary building – elevation 734 (vital battery board rooms 1-4) on May 25
- (3) Essential raw cooling water (ERCW) building - elevation 688 on May 21
- (4) ERCW building – elevation 704 on June 21
- (5) ERCW building – elevation 720 on June 21

Annual Inspection (1 Sample)

The inspectors evaluated an announced fire drill in the Turbine Building Elevator Equipment Room on May 17.

71111.08 - Inservice Inspection Activities (1 Sample)

The inspectors evaluated pressurized water reactor non-destructive testing by reviewing the following examinations from April 16 to April 20, 2018:

- (1) Ultrasonic Examination
 - a) 30" steam generator nozzle inner radius (RSG-3-H-IR), American Society of Mechanical Engineers (ASME) Class 1 (observed)
 - b) 1.5" safety injection system pipe-to-elbow weld (SI-1606), ASME Class 1 (observed)
 - c) 1.5" safety injection system elbow-to-pipe weld (SI-1608), ASME Class 1 (observed)
- (2) Liquid Penetrant Examination
 - a) WO119526319, 6" ERCW pipe-to-pipe welds (0-ER-2797A & -2797C), ASME Class 3 (reviewed; associated with welding package for piping replacement, which was also reviewed)

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 an Operations crew performing earthquake with anticipated transient without scram large-break loss-of-coolant accident w/failure of residual heat removal auto sump swap over in the simulator on May 31.

Operator Performance (1 Sample)

The inspectors observed and evaluated Unit 1 reactor shutdown for refueling outage on April 6-7, 2018.

71111.12 - Maintenance Effectiveness

Routine Maintenance Effectiveness (2 Samples)

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

- (1) Review of Function 068-D, Limit RCS Pressure on May 24
- (2) Review of Function 061-C, Absorb Thermal Energy on June 29

71111.13 - Maintenance Risk Assessments and Emergent Work Control (5 Samples)

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

- (1) Unit 1 and Unit 2, week of April 7 – April 14, 2018, including protected equipment status reviews for scheduled maintenance and defense in depth reviews during the Unit 1 refueling outage
- (2) Unit 1 and Unit 2, week of April 14 – April 21, 2018, including protected equipment status reviews for scheduled maintenance on ERCW headers and shutdown board cleaning during the Unit 1 refueling outage
- (3) Unit 1 and Unit 2, week of April 21 – April 28, 2018, including protected equipment status reviews for scheduled maintenance and defense in depth reviews during the Unit 1 refueling outage
- (4) Unit 1 and Unit 2, week of April 28 – May 5, 2018, including protected equipment status reviews for scheduled maintenance and defense in depth reviews during the Unit 1 refueling outage
- (5) Unit 1 and Unit 2, week of June 3 – June 9, 2018, including protected equipment status reviews for scheduled maintenance on 2A emergency diesel generator (EDG) and emergent maintenance on 1-IV vital inverter

71111.15 - Operability Determinations and Functionality Assessments (5 Samples)

The inspectors evaluated the following operability determinations and functionality assessments:

- (1) Unit 1, Pressurizer Safety failed lift setpoint low, CR 1404358 on April 17
- (2) Units 1 and 2, Non 1E loads terminated to breakers on vital battery boards, CR 1407255 on April 19
- (3) Units 1 and 2 690' Auxiliary Building B train ERCW piping leak, CR 1404119 on May 10
- (4) Unit 2 690' Penetration room A train ERCW piping leak, CR 1404171 on May 11
- (5) Breaker for the 1A EDG Fuel Transfer Pump 1 would not close, CR 1417887 on May 31

71111.18 - Plant Modifications (1 Sample)

The inspectors evaluated the following temporary modification:

- (1) SQN-1-2018-085-002, Alternate monitoring for unintended rod motion for Unit 1 Shutdown Bank A Rod Position E5, Revision 1 RPI Temp Mod on June 1

71111.19 - Post Maintenance Testing (7 Samples)

The inspectors evaluated the following post maintenance tests:

- (1) WO 119526319, Replace ERCW pipe due to through wall leak on April 19
- (2) WO 117806775, Rebuild Centrifugal Charging Pump 1A-A on April 24
- (3) WO 118597589, Calibrate SG #2 Main Steam Header Pressure Relief and Replace Positioner on May 1

- (4) WO 03-007782, Unit 1 Electrical Penetration X-146E replacement on May 11
- (5) WO 03-007788, Unit 1 Electrical Penetration X-126E replacement on May 11
- (6) WO 119111321, Unit 1, Replace PORV PCV-68-334 on May 22
- (7) WO 117619682, Replacement of fuel oil system hoses on the 1A-A EDG on May 29

71111.20 - Refueling and Other Outage Activities (1 Sample)

The inspectors evaluated refueling outage 1R22 activities from April 6 to May 8, 2018.

71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

Routine (5 Samples)

- (1) 1-SI-SXP-003-202.S, Turbine Driven Auxiliary Feed Water Pump 1A-S Comprehensive Performance Test on April 7
- (2) 1-SI-OPS-082-026.B, Loss of Offsite Power With Safety Injection – D/G 1B-B Test on April 25
- (3) 2-SI-OPS-063-129.A, SI Pump 2A Discharge Piping Vent on April 30
- (4) Unit 1, 0-SI-MIN-061-107.0, Ice Condenser – Floor Drains, on May 2
- (5) 2-SI-OPS-082-024.B, 2B-B D/G 24 Hour Run and Load Rejection Testing, Revision 37 on May 15

Containment Isolation Valve (1 Sample)

- (1) Unit 1 - 0-SI-SLT-067-258.2, Containment Isolation Valve Local Leak Rate Test Lower Compartment Essential Raw Cooling Water, on April 13

OTHER ACTIVITIES – BASELINE

71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below for the period from April 2017 through March 2018. (6 Samples)

- (1) Unplanned scrams per 7000 critical hours (Unit 1 and Unit 2) on June 18
- (2) Unplanned scrams with complications (Unit 1 and Unit 2) on June 18
- (3) Unplanned power changes per 7000 critical hours (Unit 1 and Unit 2) on June 18

71152 - Problem Identification and Resolution

Semiannual Trend Review (1 Sample)

The inspectors reviewed the licensee's corrective action program (CAP) for trends that might be indicative of a more significant safety issue.

Annual Follow-up of Selected Issues (1 Sample)

The inspectors reviewed the licensee's implementation of its CAP related to the following issues:

- (1) Sequoyah response to Oak Ridge Associated Universities (ORAU) nuclear safety culture assessment report for Sequoyah, CR 1400411

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 independent spent fuel storage installation on June 27, 2018.

71003 – License Renewal Activities (Phase 1)

The inspectors observed and reviewed the implementation of the following license renewal activities (listed by aging management program) from April 9, 2018 to April 13, 2018:

- (1) Aboveground Metallic Tanks Program
 - a) Visual examination of the external surfaces of SQN-1-TNK-002-0229
- (2) Fire Water System Program
 - a) Ultrasonic examination of SQN-1-HDR-026-0008
 - b) Ultrasonic examination of SQN-1-HDR-026-0031
 - c) Ultrasonic examination of SQN-1-HDR-026-0050
 - d) Ultrasonic examination of SQN-1-HDR-026-0073
 - e) Visual examination of SQN-1-HDR-026-0050
 - f) Visual examination of SQN-1-HDR-026-0073
- (3) Metal Enclosed Bus Inspection Program
 - a) Visual inspection and cleaning of SQN-1-BUS-058-0001
- (4) One-Time Inspection Program
 - a) Ultrasonic examination of Reactor Vessel Flange Leak off Lines upstream of 1-FCV-068-0022
 - b) Visual examination of SQN-1-VLV-006-1234
 - c) Visual examination of SQN-1-VLV-006-1244
- (5) Non-EQ Instrumentation Circuits Test Review Program
 - a) Testing of Power Range Nuclear Instrumentation System, Channel N41
- (6) Reactor Vessel Surveillance Program
 - a) Relocation of SQN-1-RPV-068-CAPSULE-V

The inspector also conducted a general containment walk-down with focus on aging management of structures, systems, and components within the scope of license renewal.

INSPECTION RESULTS

Observation	71152
<p><u>Annual Follow-up of Selected Issues: Sequoyah response to Oak Ridge Associated Universities (ORAU) nuclear safety culture assessment report for Sequoyah</u></p> <p>The inspectors conducted a detailed review of CR 1400411, “Sequoyah response to ORAU Report.” The inspectors chose this sample to review licensee actions concerning Safety Conscious Work Environment issues. ORAU performed an independent nuclear safety culture (NSC) assessment at Sequoyah from December 4, 2017, to February 23, 2018. The ORAU evaluation concluded that the Sequoyah safety culture is grounded in a high degree of personal accountability and questioning attitude as reported by employees across differing work locations and job assignments. Opportunities for the licensee to improve the Sequoyah NSC included working towards more transparency and timely feedback on resolution of safety concerns, aligning decision-making between management and the workforce, and working toward a more respectful work environment. CR 1400411 documents the licensee’s actions to implement the opportunities for improvement noted in the ORAU report. The inspectors determined that the licensee’s plan was reasonable to address the areas identified in the ORAU report.</p>	

Observation	71152
<p><u>Semiannual Trend Review</u></p> <p>The inspectors reviewed issues entered in the licensee’s CAP and associated documents to identify trends that could indicate the existence of a more significant safety issue. The review nominally considered the 6-month period of January through June 2018. The inspectors noted there were three condition reports documenting through wall leakage in ERCW piping during this period; 1B ERCW supply header piping upstream of 0-FCV-67-208, ERCW supply to Unit 2 upper containment coolers upstream of 2-VLV-067-546A, and the ERCW supply to the 2B EDG between 2-FCV-67-65B and 2-CKV-67-513B. Each of these leaks were attributed to microbiological influenced corrosion on ASME Code Class 3 carbon steel pipe. The flaws were each evaluated and monitored per the requirements of ASME Code Case N-513-3. Licensee extent of condition required by code did not identify additional degraded piping. In addition to replacing the leaking piping, the inspectors noted the licensee has an ongoing program to replace ERCW piping prioritize by risk significance. The residents will continue to monitor ERCW system health.</p>	

<p>Unresolved Item 05000327,328/ 2017004-01 (Closed)</p>	<p>Corrective Actions associated with a NRC NCV documented in inspection report 2015007-05</p>	<p>Section 4OA2</p>
<p><u>Description</u>: The inspectors conducted a detailed review of CR 1093813 which was written to address a NRC-identified NCV documented in inspection report 2015007-05. The inspectors determined that the corrective actions developed did not correct the condition adverse to quality and TVA submitted a denial letter for this NCV on December 21, 2017. Due to this denial letter being under review by the NRC, the inspectors determined that more inspection of this issue was required in order to identify if performance deficiencies existed, thus opening an unresolved item (URI) was warranted.</p> <p>Corrective Action Reference(s): Condition Report 1093813</p> <p>Closure Basis: On June 1, 2018, the NRC completed its evaluation of the TVA's denial of NCV 05000327, 328/2015007-05 in accordance with guidance described in Section 2.2 of the NRC Enforcement Manual and determined that violation of regulatory requirements, as documented in the NRC inspection report 2015007-05, did not occur (ML18152A748). Therefore, this URI is closed.</p> <p>NRC Tracking Number: URI 05000327, 328/2017004-01</p>		

EXIT MEETINGS AND DEBRIEFS

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

- On July 24 and 31, 2018, the inspector presented the quarterly resident inspector inspection results to Mr. Tony Williams and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure 71111.01

Procedures

AOP-P.07, "Degraded Grid or Abnormal Voltage Conditions," Revision 15

AOP-P.01, "Loss of Offsite Power," Revision 37

NPG-SPP-07.1.6, "On Line Work Control Power Systems Alerts/Offsite Power," Revision 04

Inspection Procedure 71111.04

Procedures

0-SO-30-1, "Control Building Heating, Air Conditioning and Ventilation," Revision 46

0-SO-78-1, "Spent Fuel Pit Coolant System," Revision 76

2-SO-3-2, "Auxiliary Feedwater System," Revision 50

Inspection Procedure 71111.05

Procedures

Sequoyah Fire Protection Report, Part II – Fire Protection Plan, Revision 36

PPF NO: ERCW-0-720-00, Fire Protection Pre-Fire Plans ERCW Building – El. 720, Revision 3

PPF NO: ERCW-0-704-00, Fire Protection Pre-Fire Plans ERCW Building – El. 704, Revision 2

PPF NO: ERCW-0-688-00, Fire Protection Pre-Fire Plans ERCW Building – El. 688, Revision 2

PPF NO: AUX-0-734-00, Fire Protection Pre-Fire Plans Auxiliary Building – El. 734, Revision 4

PPF NO: AUX-0-734-01, Fire Protection Pre-Fire Plans Auxiliary Building – El. 734, Revision 10

PPF NO: AUX-0-734-02, Fire Protection Pre-Fire Plans Auxiliary Building – El. 734, Revision 9

PPF NO: AUX-0-749-00, Fire Protection Pre-Fire Plans Auxiliary Building – El. 749, Revision 4

PPF NO: AUX-0-749-01, Fire Protection Pre-Fire Plans Auxiliary Building – El. 749, Revision 10

PPF NO: AUX-0-749-02, Fire Protection Pre-Fire Plans Auxiliary Building – El. 749, Revision 11

Inspection Procedure 71111.08

Degradation Assessment and Operational Assessment Technical Review and Justification for
Not Performing Primary or Secondary Inspection of the Steam Generators SQN U1R22

Outage, Revision 0

GT11-0-1A, Procedure Qualification Record, dated January 26, 1981

GT11-O-1-N, Weld Procedure Specification, Revision 2

GT11-SPEC-1, Procedure Qualification Record, dated December 29, 1987

IHI Southwest Technologies, Inc. Certificate of Qualification: UT (Kleinjan), dated 22JAN2018

IHI Southwest Technologies, Inc. Certificate of Qualification: UT (Hoover), dated 04JAN2018

IHI Southwest Technologies, Inc. Certificate of Qualification: UT (Wilkey), dated 02/22/2018

IHI Southwest Technologies, Inc. Visual Acuity Examination Record (Kleinjan), dated 1/22/2018

IHI Southwest Technologies, Inc. Visual Acuity Examination Record (Wilkey), dated 10/9/2017

IHI Southwest Technologies, Inc. Visual Acuity Examination Record (Hoover), dated 1/4/2018

MMDP-10, "Controlling Welding, Brazing, and Soldering Processes," Revision 0015

MMDP-8, "Controlling Welding, Brazing and Soldering (WBS) Materials," Revision 0005

NIC Inspection Services Certification Record: PT (Nafe), dated 10-20-17

NIC Inspection Services Visual Acuity Certification Record (Nafe), dated 2/18/2018

N-PT-9, "Liquid Penetrant Examination of ASME and ANSI Code Components and Welds,"
Revision 0039

N-UT-55, "Ultrasonic Examination of Nozzle Inner Radius Sections from the Blend Radius,"
Revision 0017
N-UT-85, "Manual Ultrasonic Examination for the Detection of Thermal Fatigue in Piping and
Components within the Material Reliability Programs," Revision 0003
N-VT-17, "Visual Examination for Leakage of PWR Reactor Head Penetrations," Revision 0010
R-0221, TVA UT Calibration/Examination Record (RSG-3-H-IR), dated 4/19/18
R-0224, TVA UT Calibration/Examination Record (SI-1608), dated 4/19/2018
R-0225, TVA UT Calibration/Examination Record (SI-1606), dated 4/19/2018
Sequoyah Unit 1, Cycle 22 RPV Closure Head, Remote Visual (VT-E) Penetration Examination
Results (Scan Sequence), Revision 0
TVA Category I/II Weld Data Sheet (Weld 0-ER-2797A), dated 4/11/18
TVA Category I/II Weld Data Sheet (Weld 0-ER-2797C), dated 4/11/18
TVA Certificate of Method Qualification: PT (Hulsey), dated 8-14-2015
TVA Certificate of Method Qualification: VT (McDonald), dated 11/17/17
TVA Visual Acuity Examination Record for NDE Personnel (McDonald), dated 5-4-17
TVA Visual Acuity Examination Record for NDE/QC Personnel (Hulsey), dated 9/20/2017
TVA Welder/Welding Operator Performance Qualification Record: GT11-O-1-N (McCosh),
dated 10-29-15
TVA Welder/Welding Operator Performance Qualification Record: GT11-O-1-N (Dees), dated
02/06/2018
Weldstar Certificate of Compliance (Shipping # N1004897), revised September 5, 2013
Weldstar Certificate of Compliance (Shipping # N1074077), dated March 11, 2015
WO119526319, ERCW Through-Wall Leak, Repair/Replace Pipe, Revision 0

Inspection Procedure 71111.12

Procedures

TI-4, "Maintenance Rule Performance Indicator Monitoring, Trending, and Reporting –
10CFR50.65," Revision 30
0-TI-SXI-000-200.0, "Inservice Testing Program," Revision 1
NPG-SPP-09.1.24, "Inservice Testing of Pressure Relief Devices," Revision 0
NPG-SPP-03.4, "Maintenance Rule Performance Indicator Monitoring, Trending, and Reporting
- 10CFR50.65," Revision 3

Condition Reports

1399302, Glycol Isolation Valve found closed, causing associated circulating pumps and chillers
to trip
1404358 "Safety Removed During Forced Outage Failed Setpoint Test Low"
1408279 "NRC ID: review PSV lift test for operability and reportability"
1273862 "Unit 1 receives annunciator 1-M-5A D2 – Pressurizer Safety Valve Line Temp Hi"

Inspection Procedure 71111.13

Procedures

NPG-SPP-07.3, "Work Activity Risk Management Process," Revision 22
NPG-SPP-07.2, "Outage Management," Revision 8

Inspection Procedure 71111.15

Procedures

NEDP-22, "Operability Determinations and Functional Evaluations," Revision 18
OPDP-8, "Operability Determination Processes and Limiting Conditions for Operation Tracking,"
Revision 24

Inspection Procedure 71111.18

Procedures

NPG-SPP-09.3, "Plant Modifications and Engineering Change Control," Revision 27
NPG-SPP-09.4, "10 CFR 50.59 Evaluations of Changes, Tests, and Experiments," Revision 12
NPG-SPP-09.5, "Temporary Modifications Temporary Configuration Changes," Revision 12

Inspection Procedure 71111.19

Procedures

1-SI-SXI-068-201.0, "Leakage Test of the Reactor Coolant Pressure Boundary," Revision 14
0-SI-SXV-068-266.0, "ASME Code Valve Testing," Revision 14
0-SI-SXV-001-266.0, "ASME Code Valve Testing," Revision 46
0-SI-SXV-068-201.0, "Pressurizer PORV Operability Test," Revision 2
1-SI-SXP-062-203.0, "Centrifugal Charging Pumps 1A-A and 1B-B Comprehensive Pump Test
and Check Valve Test," Revision 16
1-SI-SFT-062-001.0, "Charging Pump Injection Flow Test," Revision 16
0-SI-SXV-000-206.0, "Testing of Category A and B Valves after Work Activities, Upon Release
from a Hold Order, or when Transferred from Other Documents," Revision 7
0-SI-SXI-000-201.0, "ASME Section XI Inservice Pressure Test," Revision 25

Inspection Procedure 71111.20

Procedures

FHI-3, "Movement of Fuel," Revision 80
0-GO-7, "Unit Shutdown From Hot Standby to Cold Shutdown," Revision 84
0-GO-15, "Containment Closure Control," Revision 42
0-GO-13, "Reactor Coolant System Drain and Fill Operations," Revision 93
0-PI-OPS-000-011.0, "Containment Access Control During Modes 1-4," Revision 16
0-PI-IFT-085-122.0, "Functional Check of Rod Control Logic Cabinet," Revision 19
0-SO-74.1, "Residual Heat Removal System," Revision 103

Inspection Procedure 71111.22

Procedures

0-SI-MIN-061-105.0, "Ice Condenser – Ice Weighing (As-Left)," Revision 13
0-SI-MIN-061-106.0, "Ice Condenser – Flow Passage Inspection," Revision 8
0-SI-MIN-061-107.0, "Ice Condenser – Floor Drains," Revision 3
0-SI-MIN-061-109.0, "Ice Condenser – Intermediate and Lower Inlet Doors and Vent Curtains,"
Revision 6
0-SI-SLT-067-258.2, "Containment Isolation Valve Local Leak Rate Test Lower Compartment
Essential Raw Cooling Water," Revision 20

2-SI-OPS-082-024.B, "2B-B D/G 24 Hour Run and Load Rejection Testing," Revision 37
0-SO-82-4, "Diesel Generator 2B-B," Revision 62

Condition Reports

1410730, Ice Bay Door Lights

Inspection Procedure 71151

Procedures

NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7
NPG-SPP-02.2, "Performance Indicator Program," Revision 10

Inspection Procedure 71152

Procedures

NPG-SPP-22.300, "Corrective Action Program," Revision 10

Inspection Procedure 71003 – License Renewal Activities (Phase 1)

Procedures

N-GP-18, "Ultrasonic Testing Supplements," Revision 22
N-UT-93, "Ultrasonic Examination of Small Bore Socket Welds for Vibration and Thermal Fatigue," Revision 0
N-VT-22, "Visual Examination Procedure for License Renewal Programs," Revision 1
0-PI-DXX-000-100.09.1, "Ultrasonic Examination of High Pressure Fire Protection (HPFP) Sprinkler Piping," Revision 0
0-PI-FPU-026-101.0, "Visual Internal Inspection of the HPFP Dry Pipe Sprinkler System," Revision 0
0-PI-FPU-026-100.0, "High Pressure Fire Protection Automatic Pre-Action Sprinkler System Draining," Revision 2

NDE Examiner Qualifications:

IHI Southwest Technologies, Inc., Certification of Qualification (Alejandro), UT & VT, Level II, dated 02/01/2018
IHI Southwest Technologies, Inc., Certification of Qualification (Compton), VT Level II, dated 08/10/2016
IHI Southwest Technologies, Inc., Certification of Qualification (Kleinjan), UT Level III, dated 01/22/2018
IHI Southwest Technologies, Inc., Certification of Qualification (Sawatzky), VT Level IIL, dated 02/15/2018
TVA Inspection Services Organization, Certificate of Method Qualification (Priestley), UT, Level III, dated 02/14/2017
TVA Inspection Services Organization, Certificate of Method Qualification (Smith), VT-1 and VT-3, Level II, dated 07/09/2015
TVA Inspection Services Organization, Certificate of Method Qualification (Welch), UT Level III, dated 09/21/2017
TVA Inspection Services Organization, Certificate of Method Qualification (Zipperer), UT Level III, dated 06/28/2017

Condition Reports

CR 1404684

Miscellaneous Documents

Work Orders: 117251216, 117660456, 118343388, 118343383, 118447594, 118613946,
118654607, 118731335, 118806643

TVA Record of Visual Examination – License Renewal, Report No. 0210, 4/9/2018

TVA Record of Visual Examination – License Renewal, Report No. 0277, 4/11/2018

TVA Record of Visual Examination – License Renewal, Report No. 0278, 4/11/2018

TVA Examination Summary Sheet – Report No. LR0283, 04/13/2018