



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION II
245 PEACHTREE CENTER AVENUE NE, SUITE 1200
ATLANTA, GEORGIA 30303-1257

February 12, 2016

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

**SUBJECT: SEQUOYAH NUCLEAR PLANT - NRC INTEGRATED INSPECTION REPORT
05000327/2015004 AND 05000328/2015004**

Dear Mr. Shea:

On December 31, 2015, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Sequoyah Nuclear Plant, Units 1 and 2. On January 26, 2016, the NRC inspectors discussed the results of this inspection with Mr. Pratt and other members of your staff. Inspectors documented the results of this inspection in the enclosed inspection report.

The NRC inspectors documented one finding of very low safety significance (Green) in this report. This finding involved a violation of NRC requirements. The NRC is treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2.a of the Enforcement Policy.

If you contest this violation or its significance, 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, D.C. 20555-0001; with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at the Sequoyah Nuclear Plant.

In accordance with Title 10 of the *Code of Federal Regulations* 2.390, "Public Inspections, Exemptions, Requests for Withholding," of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC's Public Document Room or from the Publicly Available Records component of NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Website at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Alan Blamey, Chief
Reactor Projects Branch 6
Division of Reactor Projects

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

Enclosure: Inspection Report 050003272015004, 05000328/2015004
w/Attachment: Supplementary Information

cc: via ListServ distribution Via email

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NAME	J. Panfel	R. Baldwin	C. Fontana	A. Nielsen	
DATE	2/9/2016	2/2016	2/11/2016	2/5/2016	
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO
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DATE	2/11/2016	2/12/2016	2/ /2016	2/ /2016	2/ /2016
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO

J.W. Shea

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Letter to J.W. Shea from Alan Blamey dated February 12, 2016

SUBJECT: SEQUOYAH NUCLEAR PLANT - NRC INTEGRATED INSPECTION REPORT
05000327/2015004 AND 05000328/2015004

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.: 50-327, 50-328

License Nos.: DPR-77, DPR-79

Report Nos.: 05000327/2015004, 05000328/2015004

Licensee: Tennessee Valley Authority (TVA)

Facility: Sequoyah Nuclear Plant, Units 1 and 2

Location: Sequoyah Access Road
Soddy-Daisy, TN 37379

Dates: October 1 – December 31, 2015

Inspectors: G .Smith, Senior Resident Inspector
W. Deschaine, Resident Inspector
M. Coursey, Reactor Inspector
R. Baldwin, Senior Operations Engineer
S. Sanchez, Sr. Emergency Preparedness Inspector
C. Fontana, Emergency Preparedness Inspector
J. Hickman, Emergency Preparedness Inspector (In-training)
A. Nielsen, Senior Health Physicist
J. Panfel, Health Physicist
C. Kontz, Senior Project Engineer

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

Enclosure

SUMMARY OF FINDINGS

IR 05000327/2015004; 05000328/2015004; 10/1/2015 – 12/31/2015; Sequoyah Nuclear Plant, Units 1 and 2; Emergency Action Level and Emergency Plan Changes

The report covered a three-month period of inspection by resident inspectors and announced inspections by region-based inspectors. One non-cited violation was identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP) dated April 29, 2015. Cross-cutting aspects are determined using IMC 0310, "Components Within the Cross Cutting Areas" dated December 4, 2014. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy dated February 4, 2015. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 5.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Emergency Preparedness

- Green: The inspectors identified a Severity Level IV Non-cited Violation (NCV) of Title 10 of the Code of Federal Regulations, Part 50.54(q), for changes to the licensee's radiological emergency plan, effective December 18, 2014, that reduced the effectiveness of the plan and therefore, should have received NRC approval prior to making the change. Specifically, the effectiveness of TVA's Radiological Emergency Plan (Generic Part), Revision 104, was reduced by the inadvertent removal of the offsite telephone communications description for the Health Physics Network and Emergency Notification System communication tools, as well as the monthly testing of those devices. The licensee's failure to recognize that Revision 104 reduced the effectiveness of the emergency plan was a performance deficiency. The licensee entered this issue into their corrective action program (CAP) as Condition Report (CR) 1093684.

This finding is more than minor because it brings into question the thoroughness of the licensee's review process when making changes to the emergency plan and adversely affects the procedure quality attribute of the emergency preparedness cornerstone objective. This finding is a violation of NRC requirements and because it has the potential for impacting the NRC's ability to perform its regulatory function, traditional enforcement is applicable in accordance with IMC 0612, Appendix B. This finding is determined to be a Severity Level 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 (Section 1EP4).

B. Licensee-Identified Violations

None

REPORT DETAILS

Summary of Plant Status:

Unit 1 operated at or near 100 percent rated thermal power (RTP) until November 23, 2015, when Unit 1 was manually tripped due to an erratically operating loop 3 main steam isolation valve (MSIV) that was slowly drifting off its full open seat. Following repairs to the loop 3 MSIV hand switch, the unit was restored to 100 percent RTP on November 25. Unit 1 continued to operate at 100 percent RTP until December 18 when Unit 1 was reduced to 47 percent RTP due to an observed reduction in the main generator hydrogen fan differential pressure. On December 26, the main generator was taken off line to perform more extensive troubleshooting of the main generator hydrogen cooling system. The unit remained off line and in Mode 3 for the remainder of the period.

Unit 2 began the period at 95 percent RTP in order to address flow oscillations in the heater drain system. The flow oscillations were subsequently corrected following calibration of the #3 heater drain tank level control system and the unit was returned to 100 percent RTP on October 6. The unit continued to operate at 100 percent RTP until October 17, 2015, when the unit entered a power coast down period. On November 14, with the unit at 80 percent RTP, Unit 2 was shut down for a refueling outage, 2R20. Following the outage, Unit 2 returned to 74 percent RTP on December 16, where it operated temporarily to address a problem with the heater drain system. Following completion of repairs to the #3 heater drain tank 2A auxiliary oil pump on December 21, the unit returned to 100 percent RTP where it operated for the remainder of the period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, and Emergency Preparedness

1R01 Adverse Weather Protection (71111.01)

Evaluation of Readiness for Seasonal Extreme Weather (Cold Weather) Conditions

a. Inspection Scope

The inspectors reviewed design features and licensee preparations for protection of the essential raw cooling water (ERCW) intake structure, main steam valve vault enclosures, both Unit 1 and 2 refueling water storage tanks (RWSTs), as well as other risk significant areas susceptible to extreme cold and freezing conditions. The inspectors reviewed the Updated Final Safety Analysis Report (UFSAR) and Technical Specifications (TS) in order to gain insights regarding freeze protection. The inspectors performed a detailed review of licensee procedures 0-PI-OPS-000-006.0, "Freeze Protection," Revision 59 and 0-PI-MIN-000-706.0, "Freeze Protection Insulation Inspection, Revision 9. The licensee began implementing these procedures on October 1 in order to ensure freeze protection equipment and strategies were implemented and executed prior to the onset of extreme cold weather. The inspectors reviewed all freeze protection-related Condition Reports (CRs) to ensure there were no significant deficiencies within the licensee's freeze protection program.

The inspectors also walked down portions of the affected systems to assess deficiencies and system readiness for extreme cold weather, and discussed prioritization of deficiencies and status of corrective actions with licensee personnel. Documents reviewed are listed in the Attachment. This activity constitutes one inspection sample of adverse weather protection.

b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04)

.1 Partial System Walkdown

a. Inspection Scope

The inspectors performed partial walkdowns of the following two systems to verify the operability of redundant or diverse trains and components when safety equipment was inoperable. The inspectors focused on identification of discrepancies that could impact the function of the system and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, walked down control system components, and determined whether selected breakers, valves, and support equipment were in the correct position to support system operation. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the Corrective Action Program (CAP). Documents reviewed are listed in the Attachment. The inspectors completed two samples, as defined in Inspection Procedure (IP) 71111.04.

- Battery buses I, II, IV while III battery charger was out-of-service (OOS)
- 1A Containment Spray (CS) train while 1B CS pump was OOS

.2 Complete System Walkdown

a. Inspection Scope

The inspectors performed a complete system walkdown of the Component Cooling System (CCS) and support systems to verify proper equipment alignment, to identify any discrepancies that could impact the function of the system and increase risk, and to verify that the licensee properly identified and resolved equipment alignment problems that could cause events or impact the functional capability of the system.

The inspectors reviewed the UFSAR, system procedures, system drawings, and system design documents to determine the correct lineup and then examined CCS components and their configuration to identify any discrepancies between the existing system equipment lineup and the correct lineup. During the walkdown, the inspectors reviewed the following:

- Valves were correctly positioned and did not exhibit leakage that would impact the functions of any given valve.
- Electrical power was available as required.
- Major system components were correctly labeled, lubricated, cooled, ventilated, etc.
- Hangers and supports were correctly installed and functional.
- Essential support systems were operational.
- Ancillary equipment or debris did not interfere with system performance.
- Tagging clearances were appropriate.
- Valves were locked as required by the locked valve program.

In addition, the inspectors reviewed outstanding maintenance work requests and design issues on the system to determine whether any condition described in those work requests could adversely impact current system operability. Documents reviewed are listed in the Attachment to this report. This inspection activity constituted one sample, as defined in IP 71111.04.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05)

Fire Protection Tours (Quarterly)

a. Inspection Scope

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

- Auxiliary Building Elevation 653
- Auxiliary Building Elevation 669
- Auxiliary Building Elevation 690
- Auxiliary Building Elevation 714

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06)

Internal Flooding

a. Inspection Scope

The inspectors reviewed one internal flood protection measure sample associated with the Auxiliary Building, elevation 653, internal flood design to verify that flood mitigation plans were consistent with the design requirements and risk analysis assumptions and that equipment essential for reactor shutdown was properly protected from a flood caused by pipe breaks in the 653 elevation of the auxiliary building. Specifically, the inspectors reviewed the licensee's moderate energy line break flooding study to fully understand the licensee's flood mitigation strategy, reviewed licensee drawings and then verified that the assumptions and results remained valid. The inspectors walked down the 653 elevation of the auxiliary building and the associated pump rooms (Unit 1 and Unit 2 CS and residual heat removal (RHR) to verify the assumed flooding sources, adequacy of common area drainage, and flood detection instrumentation to ensure that a flooding event would not impact reactor shutdown capabilities. This activity constitutes one sample, as defined in IP 71111.06.

b. Findings

No findings were identified.

1R08 In-service Inspection Activities (71111.08)

a. Inspection Scope

Non-Destructive Examination (NDE) Activities and Welding Activities

From November 23–27, 2015, the inspectors conducted an onsite review of the implementation of the licensee's inservice inspection (ISI) program for monitoring degradation of the reactor coolant system (RCS) boundary, risk-significant piping and component boundaries, and containment boundaries in Unit 2.

The inspectors reviewed the following non-destructive examinations (NDEs) mandated by the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Code of Record: 2001 Edition with 2003 Addenda) to evaluate compliance with the ASME Code, Section XI and Section V requirements, and if any indications or defects were detected, to evaluate if they were dispositioned in accordance with the ASME Code or an NRC-approved alternative requirement. The inspectors also reviewed the qualifications of the NDE technicians performing the examinations to determine whether they were current, and in compliance with the ASME Code requirements.

- Visual (VT-3) Examination of the Reactor Vessel Internals and Core Support Structure
- Ultrasonic (UT) Examination of SIS-240 pipe-to-elbow weld
- UT Examination of CVCF-244C pipe-to-pipe weld

- UT Examination of RCW-18 vessel to nozzle weld
- Phased Array UT Examination of AFWF-099 pipe to reducer weld

The inspectors reviewed the following welding activity, qualification records, and associated documents in order to evaluate compliance with procedures and the ASME Code, Section XI and Section IX requirements. Specifically, the inspectors reviewed the work order (WO), repair and replacement plan, weld data sheets, welding procedures, procedure qualification records, welder performance qualification records, and NDE reports.

- WO 115428320, Replace Reactor Coolant System (RCS) PRZR Pressurized–Water Reactor (PWR) Relief Valve, Class 1

During non-destructive surface and volumetric examinations performed since the previous refueling outage, the licensee did not identify any relevant indications that were analytically evaluated and accepted for continued service; therefore, no NRC review was completed for this Inspection Procedure (IP) attribute.

Pressurized Water Reactor Vessel Upper Head Penetration Inspection Activities

The inspectors verified that for the Unit 2 vessel head, a bare metal visual (BMV) examination was required during this outage, in accordance with the requirements of ASME Code Case N-729-1 and 10 CFR 50.55a(g)(6)(ii)(D). The inspectors reviewed portions of the BMV examination of the reactor vessel upper head penetrations, and the associated NDE reports to determine if the examinations were performed in accordance with the requirements of ASME Code Case N-729-1, and 10 CFR 50.55a(g)(6)(ii)(D). Additionally, the inspectors reviewed the associated NDE documentation to determine if the required examination coverage was achieved, and if limitations were recorded in accordance with the licensee procedures.

The licensee did not identify any relevant indications that were accepted for continued service. Additionally, the licensee did not perform any welding repairs to the vessel head penetrations since the beginning of the last Unit 2 refueling outage; therefore, no NRC review was completed for these IP attributes.

Boric Acid Corrosion Control Inspection Activities

The inspectors reviewed the licensee's boric acid corrosion control (BACC) program activities to determine if the activities were implemented in accordance with the commitments made in response to NRC Generic Letter 88-05, "Boric Acid Corrosion of Carbon Steel Reactor Pressure Boundary Components in PWR Plants," and applicable industry guidance documents. Specifically, the inspectors performed an onsite records review of procedures, and the results of the licensee's containment walkdown inspections performed during the current refueling outage. The inspectors also interviewed the BACC program owner, conducted an independent walkdown of containment to evaluate compliance with the licensee's BACC program requirements, and verified that degraded or non-conforming conditions, such as boric acid leaks, were properly identified and corrected in accordance with the licensee's BACC and CAPs.

The inspectors reviewed the following engineering evaluations completed for evidence of boric acid leakage to determine if the licensee properly applied applicable corrosion rates to the affected components. The inspectors also evaluated whether the licensee properly assessed the effects of corrosion induced wastage on structural or pressure boundary integrity, in accordance with the licensee procedures.

- WO 114039093, Boric acid leakage from SQN-2-FCV-062-0059-B
- WO 112732423, Boric acid leakage from SQN-2-FCV-062-0073-A
- WO 115801465, Boric acid leakage from SQN-2-FCV-068-0303
- WO 114971023, Boric acid leakage from SQN-2-PMP-074-0010
- WO 117105469, Boric acid leakage from SQN-2-PMP-074-0010

The inspectors reviewed CRs and associated CAs related to evidence of boric acid leakage, to evaluate if the corrective actions completed were consistent with the requirements of the ASME Code and 10 CFR Part 50, Appendix B, Criterion XVI.

Steam Generator Tube Inspection Activities

The inspectors verified that for the Unit 2 steam generator tubes, no inspection activities were required this refueling outage, in accordance with the requirements of the ASME Code, the licensee's Technical Specifications, and Nuclear Energy Institute 97-06, "Steam Generator Program Guidelines."

Identification and Resolution of Problems

The inspectors reviewed a sample of ISI-related issues entered into the CAP to determine if the licensee had appropriately described the scope of the problem and had initiated CAs. The review also included the licensee's consideration and assessment of operating experience events applicable to the plant. The inspectors performed this review to ensure compliance with 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requirements. These activities constitutes one samples of In-service Inspection activities as defined in IP 71111.08.

b. Findings

No findings were identified.

1R11 Licensed Operator Regualification Program (71111.11)

.1 Quarterly Review

a. Inspection Scope

The inspectors performed one licensed operator requalification program review. The inspectors observed a simulator session on October 6, 2015. The training scenario involved a letdown temperature control valve failing to control in automatic followed by the 1A component cooling water pump tripping off. Then the crew experienced a

complete loss of all alternating current (AC) with emergency diesel generator breaker recovery. The inspectors observed crew performance in terms of: communications; ability to take timely and proper actions; prioritizing, interpreting and verifying alarms; correct use and implementation of procedures, including the alarm response procedures; timely control board operation and manipulation, including high risk operator actions; oversight and direction provided by shift manager, including the ability to identify and implement appropriate TS action; and, group dynamics involved in crew performance. The inspectors also observed the evaluators' critique and reviewed simulator fidelity to verify that it matched actual plant response. Documents reviewed are listed in the Attachment. This activity constituted one inspection sample, as defined in IP 71111.11.

b. Findings

No findings were identified

.2 Quarterly Review of Licensed Operator Performance

a. Inspection Scope

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

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

Documents reviewed are listed in the Attachment. This activity constituted one inspection sample, as defined in IP 71111.11.

b. Findings

No findings were identified

.3 Annual Review of Licensee Requalification Examination Results

a. Inspection Scope

On October 29, 2015, the licensee completed the comprehensive biennial requalification written examinations and the annual requalification operating examinations required to be administered to all licensed operators in accordance with Title 10 of the CFR 55.59(a)(2), "Requalification Requirements," of the NRC's "Operator's Licenses." The inspectors performed an in-office review of the overall pass/fail results of the individual operating examinations, written examinations, and the crew simulator operating examinations in accordance with IP 71111.11, "Licensed Operator Requalification Program." These results were compared to the thresholds established in Section 3.02, "Requalification Examination Results," of IP 71111.11.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors reviewed the maintenance activities, issues, and/or systems listed below to verify the effectiveness of the licensee's activities in terms of: appropriate work practices; identifying and addressing common cause failures; scoping in accordance with 10 CFR 50.65(b); characterizing reliability issues for performance; trending key parameters for condition monitoring; charging unavailability for performance; classification in accordance with 10 CFR 50.65(a)(1) or (a)(2); appropriateness of performance criteria for structure, system, or components (SSCs) and functions classified as (a)(2); and appropriateness of goals and corrective actions for SSCs and functions classified as (a)(1). Documents reviewed are listed in the Attachment. The inspectors completed two samples, as defined in IP 71111.12.

- Cause Determination Evaluation (CDE) 2827 - 125 volt Vital Battery Charger IV failure
- CDE 2854 - 125 volt Vital Battery Charger II output fluctuations

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors reviewed the following activity to determine whether appropriate risk

assessments were performed prior to removing equipment from service for maintenance. The inspectors evaluated whether risk assessments were performed as required by 10 CFR 50.65(a)(4), and were accurate and complete. When emergent work was performed, the inspectors reviewed whether plant risk was promptly reassessed and managed. The inspectors also assessed whether the licensee's risk assessment tool and risk categories were in accordance with Standard Programs and Processes Procedure NPG-SPP-07.1, "On-Line Work Management," Revision 16 and Instruction 0-TI-DSM-000-007.1, "Risk Assessment Guidelines," Revision 9. Documents reviewed are listed in the Attachment. The inspectors completed one sample, as defined in IP 71111.13.

- Emergent failure of Unit 2 pressurizer pressure master controller when transferring from automatic control to manual

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15)

a. Inspection Scope

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

- CR 1090750, B annulus vacuum fan will not maintain -5 inches of water differential pressure
- CR1084510, Prompt Operability Evaluation (POE) for water found in Unit 1 terry turbine inboard bearing
- CR 1089604, Emergency Core Cooling System (ECCS) cooler fan belt issue
- CR 1083279, Tape over air valve vent port
- CR 1109937 – Operational Decision Making Instruction (ODMI) Unit 1 fuel leak
- Operator Work Around Sample: CR 1027155 Unit 1 Emergency boration flow indicator reading lower than actual flow

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18).1 Temporary Modificationsa. Inspection Scope

The inspectors reviewed the temporary modifications listed below and the associated 10 CFR 50.59 screening, and compared it against the UFSAR and TS to verify whether the modification affected operability or availability of the affected system.

- Temp Modification SQN-1-2015-068-001, "Removal of Unit 1 Loop 3 Tcold RTD from scan on Eagle 21"
- DCN 23646, "Abandon Instrument Guide Column, penetration #57, core location B3"

Following installation and testing, the inspectors observed indications affected by the modification, discussed them with operators, and verified that the modifications were installed properly and their operation did not adversely affect safety system functions. Documents reviewed are listed in the Attachment. The inspectors completed two samples, as defined in IP 71111.18.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)a. Inspection Scope

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

- WO 117303798, Failure to set injection relays
- WO 117063755, DCN23527 Stage 2 PMT Vital Battery Charger III
- WO 117406963 – 2A Motor-Driven Auxiliary Feedwater Pump (AFW) pump Reassembly
- WO 115901948, Unit 2 Lower Containment D Coolers Supply Isolation Valve replacement
- WO 116398040, Unit 2 Auxiliary Feedwater Pump Turbine Governor valve

- WO 117352715, Unit 2 Penetration X-115 failed as found leakage testing
- WO 117173071, Unit 1 Swap inboard bearing housing on 1-PMP-3-142 with spare

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities (71111.20)

.1 Unit 2 Refueling Outage Cycle 20

a. Inspection Scope

For the Unit 2 refueling outage that began on November 14, 2015, the inspectors evaluated licensee activities to verify that the licensee considered risk in developing outage schedules, followed risk reduction methods developed to control plant configuration, developed mitigation strategies for the loss of key safety functions, and adhered to operating license and TS requirements that ensure defense-in-depth. The inspectors also walked down portions of Unit 2 not normally accessible during at-power operations to verify that safety-related and risk-significant SSCs were maintained in an operable condition. Specifically, between November 14 and December 13, the inspectors performed inspections and reviews of the following outage activities. Documents reviewed are listed in the Attachment. This inspection satisfied one inspection sample for Refueling Activities, as defined in IP 71111.20.

- **Outage Plan.** The inspectors reviewed the outage safety plan and contingency plans to confirm that the licensee had appropriately considered risk, industry experience, and previous site-specific problems in developing and implementing a plan that assured maintenance of defense-in-depth.
- **Reactor Shutdown.** The inspectors observed portions of the shutdown in the control room from the time the reactor was tripped until operators placed it on the RHR system for decay heat removal to verify that TS cooldown restrictions were followed. Subsequent to the reactor shutdown, the inspectors toured the lower containment to observe the general condition of the RCS and emergency core cooling system components and to look for indications of previously unidentified leakage inside the polar crane wall.
- **Licensee Control of Outage Activities.** On a daily basis, the inspectors attended the licensee outage turnover meeting, reviewed CRs, and reviewed the defense-in-depth status sheets to verify that status control was commensurate with the outage safety plan and in compliance with the applicable TS when taking equipment out of service. The inspectors further toured the main control room and areas of the plant daily to ensure that the following key safety functions were maintained in accordance with the outage safety plan and TS: electrical power, decay heat removal, spent fuel cooling, inventory control, reactivity control, and containment closure.

- The inspectors also observed the implementation and control of tag-out, 2-TO-2015-0042, on the Unit 2 'B' CS pump to verify that the equipment was appropriately configured to safely support the work and testing. To ensure that RCS level instrumentation was properly installed and configured to give accurate information, the inspectors reviewed the installation of the Mansell level monitoring system. Specifically, the inspectors discussed the system with engineering, walked it down to verify that it was installed in accordance with procedures and adequately protected from inadvertent damage, verified that Mansell indication properly overlapped with pressurizer level instruments during the draining of the pressurizer, verified that operators properly set level alarms to procedurally required set-points, and verified that the system consistently tracked RCS level while lowering to reduced inventory conditions.
- Refueling Activities. The inspectors observed fuel movement at the spent fuel pool and at the refueling cavity in order to verify compliance with TS and that each assembly was properly tracked from core offload to core reload. In order to verify proper licensee control of foreign material, the inspectors verified that personnel were properly checked before entering any foreign material exclusion (FME) areas, reviewed FME procedures, and verified that the licensee followed the procedures. To ensure that fuel assemblies were loaded in the core locations specified by the design, the inspectors independently reviewed the recording of the licensee's final core verification.
- Reduced Inventory. Prior to the outage, the inspectors reviewed the licensee's commitments to Generic Letter 88-17. Before entering reduced inventory conditions the inspectors verified that these commitments were in place, that plant configuration was in accordance with those commitments, and that distractions from unexpected conditions or emergent work did not affect operator ability to maintain the required reactor vessel level.
- Heatup and Startup Activities. The inspectors toured the containment prior to reactor startup to verify that debris that could affect the performance of the containment sump had not been left in the containment. The inspectors reviewed the licensee's mode-change checklists to verify that appropriate prerequisites were met prior to changing TS modes. To verify RCS integrity and containment integrity, the inspectors further reviewed the licensee's RCS leakage calculations and containment isolation valve lineups. In order to verify that core operating limit parameters were consistent with core design, the inspectors also reviewed portions of the low power physics testing, including reactor criticality.

b. Findings

No findings were identified.

.2 Unit 1 Forced Outagea. Inspection Scope

Following the manual reactor trip of Unit 1 on November 23, 2015 due to the loop 3 MSIV slowly drifting off its fully open seat, the licensee maintained Unit 2 in Mode 3 until conditions to support restart were established on November 24. The inspectors reviewed the licensee's mode change checklists to verify that appropriate prerequisites were met prior to changing TS modes. The inspectors reviewed portions of the plant startup including reactor criticality and power ascension. This inspection satisfied one inspection sample for Outage Activities, as defined in IP 71111.20.

b. Findings

No findings were identified

1R22 Surveillance Testing (71111.22)a. Inspection Scope

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

Routine Surveillance Tests:

- 0-SI-MIN-302-239.0, Unit 2 Testing of the Divider Barrier Seal, Revision 9

Ice Condenser Surveillance Test:

- 0-SI-MIN-061-107.0, Unit 2 Ice Condenser Floor Drains, Revision 3

Containment Isolation Valve (CIV) Surveillance Tests:

- 0-SI-SXV-070-266.0, ASME Code Valve Testing, Appendix O (FCV-70-140) and Appendix P (FCV-70-141), Revision 23

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP2 Alert and Notification System Evaluation

a. Inspection Scope

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

The inspectors reviewed various documents which are listed in the Attachment, interviewed personnel responsible for system performance, and observed aspects of periodic siren maintenance and testing. This inspection activity satisfied one inspection sample for the alert and notification system on a biennial basis.

b. Findings

No findings were identified.

1EP3 Emergency Response Organization Staffing and Augmentation System

a. Inspection Scope

The inspectors reviewed the licensee's Emergency Response Organization (ERO) augmentation staffing requirements and process for notifying the ERO to ensure the readiness of key staff for responding to an event and timely facility activation. The qualification records of key position ERO personnel were reviewed to ensure all ERO qualifications were current. A sample of problems identified from augmentation drills or system tests performed since the last inspection was reviewed to assess the effectiveness of corrective actions.

The inspection was conducted in accordance with NRC IP 71114, Attachment 03, Emergency Response Organization Staffing and Augmentation System. The applicable planning standard, 10 CFR 50.47(b)(2), and its related 10 CFR 50, Appendix E requirements were used as reference criteria.

The inspectors reviewed various documents which are listed in the Attachment. This inspection activity satisfied one inspection sample for the ERO staffing and augmentation system on a biennial basis.

b. Findings

No findings were identified.

1EP4 Emergency Action Level and Emergency Plan Changes

a. Inspection Scope

Since the last NRC inspection of this program area, several changes were made to the Radiological Emergency Plan, along with changes to several implementing procedures. The licensee determined that, in accordance with 10 CFR 50.54(q), the Plan continued to meet the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50. The inspectors reviewed these changes to evaluate for potential reductions in the effectiveness of the Plan. However, this review was not documented in a Safety Evaluation Report and does not constitute formal NRC approval of the changes. Therefore, these changes remain subject to future NRC inspection in their entirety.

The inspection was conducted in accordance with NRC IP 71114, Attachment 04, Emergency Action Level and Emergency Plan Changes. The applicable planning standards of 10 CFR 50.47(b), and its related requirements in 10 CFR 50, Appendix E, were used as reference criteria.

The inspectors reviewed various documents that are listed in the Attachment to this report. This inspection activity satisfied one inspection sample for the emergency action level and emergency plan changes on an annual basis.

b. Findings

Introduction. The inspectors identified a Severity Level IV NCV for the licensee having reduced the effectiveness of their emergency plan without having obtained prior approval from the NRC, as required by Title 10 of the Code of Federal Regulations, Part 50.54(q). Specifically, the effectiveness of Tennessee Valley Authority's Radiological Emergency Plan (Generic Part), Revision 104, was reduced by the inadvertent removal of a paragraph in the Offsite Telephone Communications section of the Plan. This revision has been in effect since December 18, 2014.

Description. While performing a detailed review of a change to the generic (corporate) radiological emergency plan (E-Plan), the inspectors identified a reduction in effectiveness when a paragraph appeared to be missing from the Offsite Emergency Communications section of the E-Plan. The paragraph that was missing included information on the Health Physics Network and Emergency Notification System telephones, where they are located, and the monthly testing of those telephones. The inspectors verified that the telephones remained in place in each of the emergency response facilities and that they were being tested satisfactorily within the specified frequency. The change to the E-Plan included re-formatting of the document and migration to a template format for ease when performing future changes.

Upon further questioning by the inspectors, the licensee determined that there was no 50.54(q) review paperwork and that the missing paragraph was an inadvertent omission that was not caught during their review process. As part of an extent of condition review, additional items were identified as missing from Revision 104 of the E-Plan. These items included additional text that was inadvertently omitted and a reference to

the wrong section of the E-Plan. The inspectors determined that the licensee had multiple prior opportunities to identify these omissions, for example the 50.54(q) change review process, the annual Quality Assurance emergency preparedness (EP) audit, and the EP self-assessment completed just prior to the inspection week. To restore compliance the licensee will process another revision to the E-Plan that will replace the items that were omitted. This revision was completed on October 30, 2015.

Analysis. A licensee making changes to its emergency plan that reduces the effectiveness of the plan without prior NRC approval as required by 10 CFR 50.54, is considered a performance deficiency within the licensee's ability to foresee and correct. This finding is more than minor because it brings into question the thoroughness of the licensee's review process when making changes to the emergency plan and adversely affects the procedure quality attribute of the emergency preparedness cornerstone objective. This finding is a violation of NRC requirements and because it has the potential for impacting the NRC's ability to perform its regulatory function, traditional enforcement is applicable in accordance with IMC 0612, Appendix B. This finding is determined to be a Severity Level 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

Enforcement. Title 10 of the CFR, Part 50.54(q) states, in part, that a licensee may make changes to emergency plans without NRC approval only if the changes do not reduce the effectiveness of the plans and the plans, as changed, continue to meet the standards of 50.47(b) and the requirements of Appendix E. Proposed changes that reduce the effectiveness of the approved emergency plans may not be implemented without application to and approval by the NRC. Contrary to the above, on December 18, 2014, the licensee implemented a change to their Radiological Emergency Plan (Generic Part) which reduced the effectiveness of the plan. Specifically, the licensee inadvertently and unknowingly omitted sections of the plan, and their extensive review process failed to identify the omissions, all of which resulted in a change that reduced the effectiveness of the approved emergency plan and was implemented without application to and approval by the NRC. Because the violation was entered into the licensee's CAP as CR 1093684, it is being treated as a non-cited Severity Level IV violation consistent with Section 2.3.2 of the Enforcement Policy: NCV 05000327, 05000328/2015004-01, "Failure to Recognize and Submit for Approval a Reduction in Effectiveness of the Emergency Plan."

1EP5 Maintenance of Emergency Preparedness

a. Inspection Scope

The inspectors reviewed the Corrective Actions (CAs) identified through the EP program to determine the significance of the issues, the completeness and effectiveness of CAs, and to determine if issues were recurring. The licensee's post-event after action reports, self-assessments, and audits were reviewed to assess the licensee's ability to be self-critical, thus avoiding complacency and degradation of their EP program.

Inspectors reviewed the licensee's 10 CFR 50.54(q) change process, personnel training, and selected screenings and evaluations to assess adequacy. The inspectors toured facilities and reviewed equipment and facility maintenance records to assess licensee's adequacy in maintaining them. The inspectors evaluated the capabilities of selected radiation monitoring instrumentation to adequately support Emergency Action Level (EAL) declarations.

The inspection was conducted in accordance with NRC IP 71114, Attachment 05, "Maintenance of Emergency Preparedness." The applicable planning standards, related 10 CFR 50, Appendix E requirements, and 10 CFR 50.54(q) and (t) were used as reference criteria.

The inspectors reviewed various documents which are listed in the Attachment. This inspection activity satisfied one inspection sample for the maintenance of emergency preparedness on a biennial basis.

b. Findings

No findings were identified.

2. RADIATION SAFETY (RS)

Cornerstones: Occupational Radiation Safety (OS) and Public Radiation Safety (PS)

2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01)

a. Inspection Scope

Hazard Assessment and Instructions to Workers: During facility tours, the inspectors observed labeling of radioactive material and postings for radiation areas, high radiation areas (HRA), locked HRAs (LHRA), very HRAs (VHRA), radioactive material storage areas, and contaminated areas established within the radiologically controlled area (RCA) of the Unit 1 (U1) and Unit 2 (U2) Auxiliary Buildings, U2 upper and lower containment, and radioactive waste processing and storage locations. The inspectors independently measured radiation dose rates or directly observed conduct of licensee radiation surveys for selected RCA areas in the auxiliary buildings and U2 containment. The inspectors reviewed survey records for several plant areas including surveys for alpha emitters, airborne radioactivity, and pre-job surveys for selected U2 refueling outage (U2R20) tasks. The inspectors also discussed changes to plant operations that could contribute to changing radiological conditions since the last inspection. For selected U2R20 outage jobs, the inspectors attended pre-job briefings and reviewed radiation work permit (RWP) details to assess communication of radiological control requirements and current radiological conditions to workers.

Hazard Control and Work Practices: The inspectors observed and evaluated access barrier effectiveness for selected LHRA and VHRA locations to include the U1 and U2 Auxiliary Buildings and U2 containment. Changes to procedural guidance for LHRA and VHRA controls were discussed with radiation protection (RP) supervisors. Controls and

their implementation for storage of irradiated material within the spent fuel pool were reviewed and discussed in detail. Established radiological controls (including airborne controls) were evaluated for selected tasks, including reactor disassembly, seal table work, and reactor coolant pump motor replacement. In addition, licensee controls for areas where dose rates could change significantly as a result of refueling operations were reviewed, observed, and discussed during crud burst cleanup.

Occupational workers' adherence to selected RWPs and RP technician proficiency in providing job coverage were evaluated through direct observations and interviews with cognizant licensee staff. Electronic dosimeter (ED) alarm set points and worker stay times were evaluated against area radiation survey results. Worker response to select ED dose rate alarms were evaluated. For selected U2R20 HRA and LHRA tasks involving significant dose rate gradients, the use and placement of whole body and extremity dosimetry to monitor worker exposure was discussed with cognizant licensee staff.

Control of Radioactive Material: The inspectors observed surveys of material and personnel being released from the RCA and U2 containment using portable radiation survey instruments, hand and foot monitors, small article monitors, personnel contamination monitors, and portal monitor instruments. The inspectors reviewed the procedural requirements used to perform the radiation surveys for release. During plant walkdowns, the inspectors evaluated radioactive material storage areas and containers for material condition, proper posting/labeling, and proper control. In addition, the inspectors also reviewed records of leak tests on selected sealed sources and discussed nationally tracked source transactions with cognizant RP staff.

Problem Identification and Resolution: CR documents associated with radiological hazard assessment and control were reviewed and assessed. The inspectors evaluated the licensee's ability to identify and resolve the issues. The inspectors also evaluated the scope of the licensee's internal audit program and reviewed recent assessment results.

RP activities were evaluated against the requirements of Updated Final Safety Analysis Report (UFSAR) Section 12; TS Section 6.12; 10 Code of Federal Regulations (CFR) Parts 19 and 20; and approved licensee procedures. Licensee programs for monitoring materials and personnel released from the RCA were evaluated against 10 CFR Part 20 and IE Circular 81-07, Control of Radioactively Contaminated Material. Documents reviewed are listed in the Attachment. This inspection satisfied one inspection sample for Radiological Hazard Assessment and Exposure Controls, as defined in IP 71124.01.

b. Findings

No findings were identified.

2RS8 Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation (71124.08)

a. Inspection Scope

Waste Processing and Characterization: During inspector walk-downs, accessible sections of the liquid and solid radioactive waste processing systems were assessed for material condition and conformance with system design diagrams. Inspected equipment included storage tanks, transfer piping, resin dewatering and packaging components, and abandoned radioactive waste processing equipment. The inspectors discussed component function, processing system changes, and radioactive waste program implementation with licensee staff.

The inspectors reviewed the 2014 Annual Radioactive Effluent Report and radionuclide characterizations from 2013 - 2014 for selected waste streams. For primary resin and Dry Active Waste, the inspectors evaluated analyses for hard-to-detect nuclides, reviewed the use of scaling factors, and examined quality assurance comparison results between licensee waste stream characterizations and outside laboratory data. Waste stream mixing and concentration averaging methodology were evaluated and discussed with radioactive waste staff. The inspectors also reviewed the licensee's procedural guidance for monitoring changes in waste stream isotopic mixtures.

Radioactive Material Storage: During walk-downs of indoor and outdoor radioactive material storage areas, the inspectors observed the physical condition and labeling of storage containers and the posting of Radioactive Material Areas. The inspectors also reviewed licensee procedural guidance for storage and monitoring of radioactive material.

Transportation: The inspectors evaluated shipping records for consistency with licensee procedures and compliance with NRC and Department of Transportation (DOT) regulations. The inspectors reviewed emergency response information, DOT shipping package classification, waste classification, radiation survey results, and container handling methodology. The inspectors also observed shipment preparations for a Surface Contaminated Object package and evaluated technician performance and knowledge of DOT requirements.

Problem Identification and Resolution: The inspectors reviewed condition reports in the areas of shipping and radioactive waste processing. The inspectors evaluated the licensee's ability to identify and resolve the issues. The inspectors also reviewed recent self-assessment results.

Radioactive waste processing, radioactive material handling, and transportation activities were reviewed against the guidance and requirements contained in the licensee's Process Control Program, UFSAR Chapter 11, 10 CFR Part 20, 10 CFR Part 61, 10 CFR Part 71, the Branch Technical Position on Waste Classification (1983), and NUREG-1608 "Categorizing and Transporting Low Specific Activity Materials and Surface Contaminated Objects". Documents reviewed during the inspection are listed in the report Attachment. This inspection satisfied one inspection sample for Radioactive

Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation as defined in IP 71124.08.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES (OA)

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness, Public Radiation Safety, Occupational Radiation Safety, and Security

4OA1 Performance Indicator (PI) Verification

a. Inspection Scope

The inspectors sampled licensee submittals relative to the PIs listed below for the period October 1, 2014, through June 30, 2015. To verify the accuracy of the PI data reported during that period, PI definitions and guidance contained in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, was used to confirm the reporting basis for each data element.

Emergency Preparedness Cornerstone

- Drill/Exercise Performance
- ERO Readiness
- Alert and Notification System Reliability

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

b. Findings

No findings were identified.

40A2 Problem Identification and Resolution (71152).1 Daily Reviewa. Inspection Scope

As required by IP 71152, Identification and Resolution of Problems, and in order to help identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's CAP. This was accomplished by reviewing the description of each new CR and attending daily management review committee meetings.

b. Findings and Observations

No findings were identified.

.2 Selected Issue Follow-up: CR 1086525, "Unit 1 Post Trip Performance Review" and CR 1087140 "Operator Performance Deficiencies Following Sept 14 2015 Reactor Trip"a. Inspection Scope

The inspectors reviewed a sample of operator Performance issues entered into the CAP to determine if the licensee had appropriately described the scope of the problem, and had initiated CAs. Specifically, the inspectors reviewed the licensee's actions following a reactor trip due to a loss of an electrical bus. The review also included the licensee's consideration and assessment of operating experience events applicable to the plant. The inspectors performed this review to ensure compliance with 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requirements. Documents reviewed are listed in the attachment. The inspectors completed one sample, as defined in IP 71152.

b. Findings and Observations

No findings were identified. The inspector made the following observations associated with weaknesses in the implementation of the corrective action program requirements:

The inspector identified a weakness in the disposition of issues as described in SPP-22.303, section 3.2.12(F) CR Closure Review which required the condition identified in the CR be corrected prior to closing the subject CR. CR 1087140 identified that a potential RED path was indicated for heat sink during the event that was erroneous but the inspector could not locate disposition of the issue as part of this CR or any of the referenced closure CRs associated with CR 1087140.

The inspector identified a weakness in the closing of action as described in SPP-22.303, section 3.2.6, Closing an Action to No Actions Taken. CR 1087140 Referenced CR 1084819, Post-trip S/G level control weakness, as one of the CRs addressing performance deficiencies. Operations Critique also references this CR to address the

SG level control issues. CR 1084819 was closed with no actions taken and only referenced a procedure change implemented for integrated technical specification (ITS) conversion. This did not appear to adequately address the condition in the report details or any crew performance issues with controlling SG levels and compliance with emergency procedures.

The inspector identified a weakness in the closure of CRs as described in SPP-22.303, section 3.2.13 (A), Closing one CR to another CR which identifies that a CR with a higher significance level cannot be closed to a CR with lower significance level. CR 1084819 was coded as an "E" level CR. This represented a closure of an issue from a C level per (1087140) associated with failure to comply with emergency operating procedure to an E level CR.

2. Semi-Annual Trend Review

a. Inspection Scope

The inspectors reviewed issues entered in the licensee's corrective action program and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors focused their review on root cause evaluations that were completed by the licensee during 2015, but also considered the results of inspector daily condition report screenings, licensee trending efforts, and licensee human performance results. The review nominally considered the 12-month period of January 1 through December 31, 2015. The inspectors compared their results with the licensee's analysis of trends. Additionally, the inspectors reviewed the adequacy of corrective actions associated with a sample of the issues identified in the licensee's trend reports. The inspectors also reviewed corrective action documents that were processed by the licensee to identify potential adverse trends in the condition of structures, systems, and/or components as evidenced by acceptance of long-standing non-conforming or degraded conditions. Documents reviewed are listed in the attachment.

b. Findings and Observations

No findings were identified. The inspector made the following observations associated with implementation of the corrective action program:

In general, the licensee had identified trends and appropriately addressed them in their CAP. The inspectors evaluated the licensee trending methodology and observed that the licensee had performed a detailed trend review. The licensee routinely reviewed cause codes, involved organizations, key words, and system links to identify potential trends in their data. The inspectors compared the licensee process results with the results of the inspectors' daily screening.

The inspectors reviewed the licensee root cause evaluations (RCE) that were completed during 2015. The inspectors observed that the licensee made revisions to each RCE, but the revisions were mostly editorial.

4OA3 Event Follow-up

Unit 1 Manual Reactor Trip

a. Inspection Scope

On November 23, 2015, the inspectors responded to Unit 1 due to a manual reactor trip as a result of a slowly closing loop # 3 main steam isolation valve. The inspectors evaluated plant status, mitigating actions, and the licensee's classification of the event, to enable the NRC to determine an appropriate NRC response. The inspectors discussed the trip with operations, engineering, and licensee management personnel to gain an understanding of the event and assess follow-up actions. The inspectors reviewed operator actions taken to determine whether they were in accordance with licensee procedures and TS, and reviewed unit and system indications to verify whether actions and system responses were as expected and designed. The inspectors found that operators responded to the situation appropriately and in accordance with plant procedures, and that plant systems responded to the trip as designed. The inspectors also reviewed the initial licensee notifications to verify that they met the requirements specified in NUREG-1022, "Event Reporting Guidelines." The event was reported to the NRC as event notification (EN) 51559, and documented in the licensee's CAP as CR 1107656.

b. Findings

No findings were identified.

4OA5 Other Activities

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

a. Inspection Scope

On December 30, the inspectors performed a walk-down of the ISFSI storage pad in order to verify that operations were conducted in a safe manner in accordance with approved procedures and without undue risk to the health and safety of the public. The inspectors noted that there were 44 multi-purpose canisters (MPC) positioned on the ISFSI pad. The inspectors verified the MPC vents were in good condition and free of obstruction. The inspectors also verified that appropriate radiation surveys were being performed in the vicinity of the MPCs. The inspectors verified that any ISFSI problems were placed in the CAP. The inspectors also reviewed ISFSI document control practices to verify that changes to the required ISFSI procedures and equipment were performed in accordance with guidelines established in local procedures and 10CFR72.48. Documents reviewed are listed in the Attachment.

a. Findings

No findings were identified.

4OA6 Meetings, Including Exit

.1 Exit Meeting Summary

On January 26, 2016, the resident inspectors presented the inspection results to Mr. Pratt and other members of his staff, who acknowledged the findings. The inspectors asked the licensee whether any of the material examined during the inspection should be considered proprietary. No proprietary information was identified.

ATTACHMENT: SUPPLEMENTARY INFORMATION

SUPPLEMENTARY INFORMATION

KEY POINTS OF CONTACT

Licensee personnel

J. Alfultis, Senior Manager Site Projects
G. Garner, Director Work Management
M. Giacini, Director Plant Support
M. Halter, Senior Manager Radiation Protection
M. Henderson, Manager Engineering Programs
A. Little, Senior Manager Nuclear Site Security
T. Marshall, Director Operations
W. Pierce, Director Engineering
P. Pratt, Plant Manager
M. Rasmussen, Director Maintenance
K. Smith, Director Training
H. Hill, Rad Waste Superintendent
J. Johnson, Program Manager Licensing
K. Loomis, Boric Acid Program Engineer
M. Lovitt, Chemistry Manager
M. McBrearty, Licensing Manager
S. Mohorn, Rad Waste Superintendent
C. Owens, Rad Waste HP
J. Rolph, Radiation Protection Technical Support Superintendent
C Schwarz, Site Vice President
J. Stamey, Rad Waste Health Physicist
J. Stewart, Chemist

NRC personnel

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

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000327, 328/2015004-01	NCV	Failure to Recognize and Submit for Approval a Reduction in Effectiveness of the Emergency Plan. (Section 1EP4)
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LIST OF DOCUMENTS REVIEWED

Section R01: Adverse Weather Protection

Procedures

AOP-N.03, Flooding, Revision 55
NPG-SPP-09.22, External Flood Protection Program, Revision 1
0-PI-OPS-000-006.0, Freeze Protection, Revision 59
0-PI-MIN-000-706.0, Freeze Protection Insulation Inspection, Revision 9

Section R04: Equipment Alignment

Procedures

AOP-M.03, Loss of Component Cooling Water, Revision 17

FSAR (Amendment 24) Sections

9.2.1, Component Cooling System
6.2.2, Containment Heat Removal Systems
8.3.2, Direct Current (DC) Power System

Section R05: Fire Protection

Procedures

FPDP-1, Conduct of Fire Protection, Revision 4
0-PI-FPU-317-299.W, Att. 8, Shift Check List, Revision 40
NPG-SPP-18.4.7, Control of Transient Combustibles, Rev. 7
0-SI-FPU-410-703.0, Inspection of FPR Required Fire Doors, Rev. 6
SQN-FPR-Part-II, SQN Fire Protection Report Part II – Fire Protection Plan, Revision 33

Other documents

AUX-0-653-00, Fire Protection Pre-Fire Plans Auxiliary Building - El. 653, Revision 8
AUX-0-669-00, Fire Protection Pre-Fire Plans Auxiliary Building - El. 669, Revision 4
AUX-0-690-00, Fire Protection Pre-Fire Plans Auxiliary Building - El. 690, Revision 4
AUX-0-714-00, Fire Protection Pre-Fire Plans Auxiliary Building - El. 614, Revision 4

Section R06: Flood Protection Measures

Other documents

TVA letter to NRC dated May 4, 2007. TVA response to GL 2007-01
SQN Probabilistic Risk Assessment – Internal Flooding Analysis, Revision 3

Section R08: Inservice Inspection Activities

Procedures:

N-UT-64, Generic Procedure for the Ultrasonic Examination of Austenitic Pipe Welds, Rev. 16
N-UT-84, Procedure for the Phased Array Ultrasonic Examination of Austenitic and Ferritic Pipe Welds, Rev. 4
N-UT-85, Manual Ultrasonic Examination for the Detection of Thermal Fatigue in Piping and Components within the Material Reliability Programs, Rev.1

N-VT-1, Visual Examination Procedure for ASME Section XI Preservice and Inservice, Rev. 46

Calculations:

MDQ-002-068-2006-0169, Calculation for the Determination of Total Effective Degradation Years (EDY) for the Sequoyah Unit 2 Reactor Pressure Vessel (RPV) Head, Rev. 2

Drawings:

CISI-1000-C-59, Steel Containment Penetration Details, Rev. 4
 ISI-0298-C-04, Reactor Vessel Support Locations, Rev. 2

Work Orders/Work Requests:

WO 114039093, clean boron, replace gaskets, and bolting Section XI replacement
 WO 115428320, RCS PRZR PWR Relief Valve
 WO 115796111, Leaking valve 2-VLV-062-0661

Condition Reports:

Condition Report (CR) 627446, Dry white boron coming the two horizontal flanges of 2-FCV-62-59-B
 CR 890230, SR to evaluate shortcomings in identification of leak conditions in containment
 Problem Evaluation Report (PER) 1016839, U1C20 – Loose Parts Surveillance Specimen
 Capsule Root Cause Analysis PER Report
 PER 1099288, Leaking valve 2-VLV-72-510

Miscellaneous Documents:

0-MI-MIN-000-070.0 Cleanliness of Fluid Systems for Maintenance Activities, Rev. 11
 0-MI-MVV-000-029.0 (ATT I.4), Maintenance of Target Rock Power Operated Relief Valve (PORV's) [C.1], Rev. 7
 0-SI-DXI-000-114.3, ASME Section XI ISI/NDE Program Unit 1 and Unit 2, Rev. 28
 Certificate of Conformity: Visual Illumination Certificate No. I11030001
 Certificate of Method Qualification Record for: D93LJVL1J, 3MNO6QGPV, RGVIVT3PI, and D93LJVL1J
 Design Change Request Form D23646
 IHI Southwest Technologies, Inc. Certificate of Qualification for Examiner: DJM9431 and WK7861
 NETP-124, PWR Reactor Pressure Vessel Integrity, Rev. 0
 Notice of Indication Report No. R-0018
 Phased Array Ultrasonic Calibration Data Sheet Report No. R-0060
 UT Calibration/Examination Report No. R-0022
 Visual Acuity Examination Record for NDE/QC Personnel: D93LJVL1J, 3MNO6QGPV

Section R12: Maintenance Effectiveness

Procedures

TI-4, Maintenance Rule Performance Indicator Monitoring, Trending, and Reporting – 10CFR50.65, Revision 27

Section R13: Maintenance Risk Assessments and Emergent Work Evaluation

Procedures

NPG-SPP-07.3, Work Activity Risk Management Process, Revision 16
 NPG-SPP-07.2.4, Forced Outage or Short Duration Planned Outage Management, Revision 5
 NPG-SPP-07.2, Outage Management, Revision 5
 GOI-6, Apparatus Operations, Revision 172
 0-GO-16, System Operability Checklists, Revision 21
 NPG-SPP-07.3.4, Protected Equipment, Revision 3

Section R15: Operability Evaluations

Procedures

NEDP-22, Operability Determinations and Functional Evaluations, Rev. 16
 OPDP-8, Operability Determination Process/Limiting Conditions for Operation Tracking, Rev. 18
 NPG-SPP-03.5, Regulatory Reporting Requirements, Revision 11

Section R18: Plant Modifications

Procedures

NPG-SPP-09.3, Plant Modifications and Engineering Change Control, Revision 20
 NPG-SPP-09.4, 10 CFR 50.59 Evaluations of Changes, Tests, and Experiments, Revision 9
 NPG-SPP-09.5, Modifications Temporary Configuration Changes, Revision 9

Section R19: Post Maintenance Testing

Procedures

MMDP-1, Maintenance Management System, Revision 30
 NPG-SPP-06.5, Foreign Material Control, Revision 8
 NPG-SPP-06.1, Work Order Process Initiation, Revision 5
 NPG-SPP-06.3, Pre-/Post-Maintenance Testing, Revision 1
 NPG-SPP-06.9, Testing Programs, Revision 1
 NPG-SPP-06.9.1, Conduct of Testing, Revision 9
 NPG-SPP-06.9.3, Post-Modification Testing, Revision 6

Section R20: Refueling and Outage Activities

Procedures

FHI-3, Movement of Fuel, Revision 77
 0-GO-15, Containment Closure Control, Revision 39
 0-GO-13, Reactor Coolant System Drain and Fill Operations, Revision 86
 NPG-SPP-08.1, Nuclear Fuel Management, Revision 10
 0-PI-OPS-000-011.0, "Containment Access Control During Modes 1-4, Revision 15

Section R22: Surveillance Testing

Procedures

NPG-SPP-06.9.1, Conduct of Testing, Revision 9

0-SI-SXV-072-266.0, ASME Code Valve Testing, Revision 14
 0-SI-OPS-068-137.0, Reactor Coolant System Water Inventory, Revision 34

Section 1EP2: Alert and Notification System Evaluation

Procedures and Reports

NP-REP, Appendix B, Sequoyah Nuclear Plant Radiological Emergency Plan, Rev. 103
 Sequoyah FEMA REP-10 Report, Volumes 1 and 2, September 2014
 EPFS-1, Administration Control and Distribution of EP Field Support Procedures, Rev. 9
 EPFS-2, Control Room Notification, Rev. 6
 EPFS-3, Servicing the Meteorological equipment at Environmental Data Stations, Rev. 15
 EPFS-7, Radio and Meteorological Tower Station, Rev. 4
 EPFS-9, Inspection, Service, and Maintenance of the Prompt Notification System (PNS) at Browns Ferry, Sequoyah, and Watts Bar Nuclear Plants, Rev. 8
 EPFS-12, Repair and Preventative Maintenance Procedures for Radiological Environmental Monitoring Air Sampling System, Rev. 2
 EPIP-14, Radiological Control Response, Rev.23

Records and Data

Weekly Silent Tests, October 2014 - June 2015
 Monthly Siren Tests, October 2014 – June 2015

Corrective Action Documents

CR 0798124, Failure of SQN siren 103 during 10/23/13 silent test
 CR 0833362, Outage of TEMA SQN siren activation circuits
 CR 0837856, Report of SQN ANS siren sounding by member of public
 CR 0940668, "SQN siren testing" should have been entitled "Site Assembly and Accountability"
 CR 0944560, ANS Siren 58 failed to report during silent test
 CR 1081534, ANS siren SQN-0-PNS-901-043 timer failure
 CR 1087782, ANS siren SQN-0-PNS-901-049 failed communication poll

Section 1EP3: Emergency Response Organization Staffing and Augmentation System

Procedures

TRN-30, Radiological Emergency Preparedness Training, Rev. 31
 EPDP-2, Emergency Duty Officer, EP Staff and Operations Duty Specialist Notification Procedures, Rev. 6
 EPDP-3, Emergency Plan Exercises and Preparedness Drills, Rev. 13
 EPDP-5, Emergency Public Information, Rev.1
 EPDP-7, Review of Agreement letters and Contracts, Rev. 4
 EPDP-8, Emergency Preparedness Quality Assurance, Rev. 3
 EPIP-1, Emergency Plan Classification Matrix, Rev. 51
 EPIP-7, Activation and Operation of the Operations Support Center, Rev. 31
 EPIP-11, Emergency Preparedness Performance Indicators, Rev. 7
 EPIP-13, Dose Assessment, Rev. 17
 EPDP-17, Emergency Plan Effectiveness Review [10 CFR50.54 (q)], Rev. 5

Records and Data

EPDP-10, Facilitation of ANS and Notification Tests, Rev. 6 and Attachment 1 for 9/8/15 and 10/9/15

SSD 1-R-90-255, Set-point and Scaling document, 3/22/10

TEENS pager tests, 5/6/14 and 7/1/14

QA-SQ-15-015, Sequoyah Nuclear Plant (SQN) – Quality Assurance (QA) – Emergency Preparedness NRC Baseline Inspection Readiness Assessment

SQN-EP-SSA-15-003, Snapshot Self-Assessment Report, 2015

Evacuation Time Estimates for SQN Plume Exposure Pathway EPZ, November 2012

ARCADIS letter to Walt Lee, Annual Population Update for Sequoyah Nuclear Plant, 10-mile Emergency Planning Zone, December 2014

Select ERO Augmentation test results for 2014 and 2015

Results of periodic ERO notification tests

Corrective Action Documents

CR 0789203, QA recommendation for REP muster roll call

CR 0961364, Four individuals were not present at the REP muster

CR 0961365, REP muster on November 25, 2014 responders not present

CR 0966602, Loss of TVA paging system

CR 0967365, 12/8/14 TEENS test electronics issue with phone

CR 0970562, 12/15/14 TEENS test issue

CR 0976169, REP pagers not receiving page in secondary chemistry laboratory

CR 0979694, EP REP duty team assignment changed without proper notification to Engineer

CR 1004967, Three members of the C REP Team late to muster

Section 1EP4: Emergency Action Level and Emergency Plan ChangesProcedures

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

EPIP-1, Emergency Plan Classification Matrix, Rev. 50 and 51

EPIP-4, Site Area Emergency, Rev. 37 and 38

EPIP-6, Activation and Operation of the Technical Support Center, Rev. 49 and 50

EPIP-8, Personnel Accountability and Evacuation, Rev. 20 and 21

EPIP-14, Radiation Control Response, Rev. 22 and 23

NP-REP Radiological Emergency Plan, Rev. 103 and 104

NP-REP Radiological Emergency Plan, Appendix B, Sequoyah Nuclear Plant, Rev. 103

Change Packages

CECC 2014-030, Screening Evaluation Form for REP, App. A, Rev. 104, dated 7/11/14

CECC 2014-030, Effectiveness Evaluation Form for REP, App. A, Rev. 104, dated 7/11/14

CECC 2014-031, Screening Evaluation Form for REP, App. A, Rev. 104, dated 7/11/14

CECC 2014-031, Effectiveness Evaluation Form for REP, App. A, Rev. 104, dated 7/11/14

CECC 2014-032, Screening Evaluation Form for REP, App. A, Rev. 104, dated 7/11/14

CECC 2014-032, Effectiveness Evaluation Form for REP, App. A, Rev. 104, dated 7/11/14

CECC 2014-036, Screening Evaluation Form, dated 8/15/14

CECC 2014-036, Effectiveness Evaluation Form, dated 8/15/14

SQN 2014-007, Screening Evaluation Form for EPIP-1 Rev. 51, dated 4/23/14

SQN 2014-007, Effectiveness Evaluation Form for EPIP-1 Rev. 51, dated 4/23/14

SQN 2014-008, Screening Evaluation Form for EPIP-14 Rev. 23, dated 5/19/14
 SQN 2014-008, Effectiveness Evaluation Form for EPIP-14 Rev. 23, dated 5/19/14
 SQN 2014-022, Screening Evaluation Form for EPIP-4 Rev. 38, dated 11/13/14
 SQN 2014-022, Effectiveness Evaluation Form for EPIP-4 Rev. 38, dated 5/8/15
 SQN 2015-003, Screening Evaluation Form for EPIP-8 Rev. 21, dated 1/30/15

Section 1EP5: Maintenance of Emergency Preparedness

Procedures

CECC EPIP-1, Central Emergency Control Center, Rev. 60
 CECC EPIP-9, Emergency Environmental Radiological Monitoring Procedures, Rev. 53
 CECC EPIP-23, Radioactive Material Transportation Incidents, Rev. 24
 EPDP-17, NPG Emergency Plan Effectiveness Review [10 CFR 50.54(q)], Rev. 5
 EPIP-5, General Emergency, Rev. 47
 EPIP-7, Activation and Operation of the Operations Support Center, Rev. 31
 EPIP-8, Personnel Accountability and Evacuation, Rev. 21
 EPIP-10, Medical Emergency Response, Rev. 29
 EPIP-11, Security and Access Control, Rev. 9
 EPIP-13, Dose Assessment, Rev. 17
 NPG-SPP-7.1, On-Line Work Management, Rev. 10
 NPG-SPP-18.3.5, Designated Emergency Response Equipment (DERE), Rev. 0
 NPG-SPP-22.300, Corrective Action Program, Rev. 1

Records and Data

Drill and exercise reports 2014-2015
 TVA Quality Assurance Audit Report SSA 1402, dated 3/3/14
 TVA Quality Assurance Audit Report SSA 1501, dated 3/24/15
 Self-Assessment QA-SQ-15-015, NRC Inspection Readiness, dated 10/2/15
 Sequoyah Drill Report, Dated 3/25/15
 Sequoyah Drill Report, Dated 7/8/15
 Sequoyah Drill Report, Dated 7/29/15

Corrective Action Documents

CR 0959227, NRC identified that a DEP opportunity was not counted in 8/13 DEP PI data
 CR 0964927, REP EAL 1.3.2.P Clarification for Containment Spray Operation
 CR 1013399, Not Declaring 50.54 X and Y in SAMG REP Drill
 CR 1051208, In the SQN Red Team REP Drill Objective 1.2 not met
 CR 1093289, REP van #2 has loose door seal
 CR 1093297, Response check due dates for survey meters in REP van #3 were out of date
 CR 1093684, NP-REP omitted information – NRC identified
 CR 1093694, NP-REP revision log does not match NP-REP Generic – NRC identified

Section 2RS1: Radiological Hazard Assessment and Exposure Controls

Procedures, Guidance Documents, and Manuals

NPG-SPP-05.1, Radiological Controls, Revision (Rev.) 005
 NPG-SPP-05.1.1, Alpha Radiation Monitoring Program, Rev. 005
 NPG-SPP-05.6, Controlling Byproduct and Source Material, Rev. 003

NPG-SPP-22.300, Corrective Action Program, Rev. 003
 NPG-SPP-22.302, Corrective Action Program Screening, Rev. 007
 O-SI-RCI-000-056.0, Byproduct Material Inventory and Sealed Source Leak Test Rev. 017
 RCI-14, Radiation Work Permit (RWP) Program, Rev. 059
 RCI-15, Radiological Postings Rev. 030
 RCI-17, Control of Byproduct and Source Material, Rev. 021
 RCI-21, Control of Radioactive Materials, Rev. 021
 RCI-22, Contamination Control Rev. 025
 RCI-24, Control of Very High Radiation Areas Rev. 014
 RCI-28, Control of Locked High Radiation Areas Rev. 015
 RCI-29, Control of Radiation Protection Keys, Rev. 016
 RCI-200, Documenting Radiological Surveys, Rev. 003
 RCI-201, Radiation and Contamination Surveys, Rev. 019
 RCI-202, Airborne Radioactivity Surveys, Rev. 009
 RCI-204, Radiological Surveys of Equipment and Materials Leaving the RCA, Rev. 010
 RCI-208, Hot Particle Controls, Rev. 004
 RCI-209, Radiological Surveys of Personnel Leaving the RCA or Protected Area, Rev. 004
 RCI-300, Hot Spot Program, Rev. 001
 RCI-404, Radiation Protection Requirements for Remote Job Coverage, Rev. 001
 RCI-412, Radiation Protection Surveys during Initial Spent Fuel Assembly Movement, Rev. 002
 RCI-417, Radiological Monitoring of the Hydrogen Peroxide Injection Crud Burst, Rev. 001

Records and Data

0-SE-RCI-000-056.0 Byproduct Material Inventory and Sealed Source Leak Test, 06/18/2015
 0-TI-NUC-000-002.0, Storing Material in Spent Fuel Pool or New Fuel Vault, Rev. 0026,
 Attachment-1, Inventory of Materials in Spent Fuel Pool, Cask Loading Area, and New Fuel
 Vault, dated 07/09/2015
 Airborne Radiation Survey (ARS) Number (No.) 111915004, U2 Lower Containment IPCW,
 11/19/2015
 ARS No. 111915003, U2 Lower Containment Raceway, 11/19/2015
 ARS No. 111715007, U2 Lower Containment – Seal Table, 11/17/2015
 Annual Inventory Reconciliation Confirmation for License #DRP-77, dated 01/20/2015
 RWP No. 15241601, U2 Equipment Zone/Upper Containment: Engineering Inservice
 Inspections (ISI)
 RWP No. 15223703, U2 Lower Containment & Seal Table Locked High Rad Areas
 RWP No. 15241301, U2 Upper/734 Equipment Zone/SFP – Ops Inspections
 RWP No. 15243702, U2 Upper Containment/SFP Area/734' Equipment Zone: Thimble Tube
 Replacement
 RWP No. 15241123, U2 Reactor Cavity – LHRA –Rx Head Set
 RWP No. 15241603, U2 Upper Containment – Engineering ISI
 Site Audit Report No. SSA1506, Radiation Protection, 07/28/15
 Survey No. SQN-M-20151118-6, R202 U2 Seal Table, 11/18/2015
 Survey No. SQN-M-20151117-5, R202 U2 Seal Table, 11/17/2015
 Survey No. SQN-M-20151114-17, R203 U2 Raceway, 11/14/2015
 Survey No. SQN-M-20151118-5, U-2 Raceway, 11/18/2015
 Survey No. SQN-M-20151114-12, R241 U2 Inside Polar Crane Wall, 11/14/2015
 Survey No. SQN-M-20140512-16, R241 U2 Inside Polar Crane Wall, 05/12/2014
 Survey No. SQN-M-20121029-12, R241 U2 Inside Polar Crane Wall, 10/29/2012

Survey No. SQN-M-20151115-16, R261 U2 Reactor Cavity, 11/15/2015
 Survey No. SQN-M-20140513-3, R261 U2 Reactor Cavity, 05/13/2014
 Survey No. SQN-M-20121016-12, R261 U2 Reactor Cavity, 10/16/2014
 TVA NPG Snapshot Self-Assessment Report No. SQN-RP-SSA-15-003, Radiological Hazard
 Assessment and Exposure Controls, 02/13/15
 U2R20 Daily Report, dated 11/17/2015

Corrective Action Program (CAP) Documents

CR #928351
 CR #945217
 CR #965363
 CR #965360
 CR #993906
 CR #1003154
 CR #1018507
 CR #1015742
 CR #1055689
 CR #1055891
 CR #1058919
 CR #1066240
 CR #1094755
 CR #1094254
 CR #1094253

2RS8: Radioactive Material Processing and Transportation

Procedures, Manuals, and Guides

RHSI-6, Bead Resin/Activated Carbon Dewatering Procedure for Energy Solutions 14-215 or
 Smaller Liners, Rev. 8
 RCI-21, Control of Radioactive Materials, Rev. 21
 RWTP-101, 10 CFR 61 Waste Characterization, Rev. 2
 PCP, Process Control Program, Rev. 5
 NPG-SPP-05.9.1, Radioactive Material/Waste Shipments, Rev. 1
 NPG-SPP-22.302, Corrective Action Program Screening, Rev. 7

Shipping Records and Radioactive waste Data

2014 Annual Radioactive Effluent Release Report
 Shipping Logs, 1/1/14 - 9/29/15
 Shipment 15-0201, LSA, Resin
 Shipment 15-0102, LSA, DAW
 Shipment 15-0501, SCO, Contaminated Equipment
 Shipment 15-0802, LSA, Filters
 Shipment 14-0802, Type B, Resin
 Qualification Matrix Report, Rad Material Shipping Receipt
 2013 Spent Resin Storage Tank Transfers, 10 CFR 61 Analysis
 2013 DAW, 10 CFR 61 Analysis
 Package USA/9168/B(U)-96, Certificate of Compliance, Rev. 20

CAP Documents

SQN-RP-SSA-15-001, Radiological Hazard and Transportation Self-Assessment
CR 949521
CR 924971
PER 1001710

Section 40A1: Performance Indicator Verification

Procedures

EPDP-11, Emergency Preparedness Performance Indicators, Rev. 7
NPG-SPP-22.300, Corrective Action Program, Rev. 1
TRN-30, Radiological Emergency Plan Training, Rev. 29

Records and Data

DEP opportunities documentation for 4th quarter 2014; 1st and 2nd quarters 2015
Siren test data for 4th quarter 2014; 1st and 2nd quarters 2015
Drill and exercise participation records of ERO personnel for 4th quarter 2014; 1st and 2nd quarters 2015

Corrective Action Documents

CR 0959214, EPDP-11 participation concern
CR 0960182, HAB graded exercise visitation conflict
CR 0969414, Licensed Operator Requalification Drill and Exercise Failure
CR 0991809, Evaluate EPDP-11 wording on participation credit

ACRONYMS

AC	alternating current
ADAMS	Agencywide Documents Access and Management System
AFW	Auxiliary feedwater
ASME	American Society of Mechanical Engineers
BACC	boric acid corrosion control
BMV	bare metal visual
CA	corrective actions
CAP	corrective action report
CCS	component cooling system
CDE	cause determination evaluation
CFR	Code of Federal Regulations
CR	condition report
CS	containment spray
DCN	design change notice
DOT	Department of Transportation
ECCS	emergency core cooling system
ED	electronic dosimeter
EN	event notification
EP	emergency preparedness
E-Plan	emergency plan
ERCW	essential raw cooling water
ERO	Emergency Response Organization
FME	foreign material exclusion
FSAR	final safety analysis report
HRA	high radiation areas
IMC	inspection manual chapter
IMC	inspection manual chapter
IP	inspection procedure
ISFSI	Independent spent fuel storage installation
ISI	in-service inspection
LHRA	locked high radiation areas
MPC	multi-purpose canisters
MSIV	main stream isolation valve
NCV	non-cited violation
NDE	non-destructive examinations
NRC	U.S. Nuclear Regulatory Commission
ODMI	operating decision making instruction
OOS	out-of-service
POE	prompt operability evaluation
PWR	pressurized-water reactor
RCE	Root cause evaluation
RCA	radiologically controlled area
RCS	reactor coolant system
RCW	raw cooling water
RHR	residual heat removal
RP	radiation protection
RTP	rated thermal power

RWP	radiation work permit
RWST	refueling water storage tanks
SCC	structure, system, or components
TS	technical specifications
TVA	Tennessee Valley Authority
U1	Unit 1
U2	Unit 2
UFSAR	Updated Final Safety Analysis Report
UT	ultrasonic
VHRA	very high radiation areas
WO	work order