



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

August 7, 2013

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

**SUBJECT: SEQUOYAH NUCLEAR PLANT - NRC INTEGRATED INSPECTION REPORT
05000327/2013003, 05000328/2013003**

Dear Mr. Shea:

On June 30, 2013, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Sequoyah Nuclear Plant, Units 1 and 2. The enclosed inspection report documents the inspection results discussed on June 27, 2013 with Mr. Carlin and other members of his staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

Based on the results of this inspection, no findings were identified by the NRC. Two licensee-identified violations are listed in Section 4OA7 of this report. However, because of the very low safety significance and because they are entered into your corrective action program, the NRC is treating these findings as non-cited violations (NCVs) consistent with the NRC Enforcement Policy. If you contest any NCV in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at Sequoyah Nuclear Plant.

J. Shea

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In accordance with 10 CFR 2.390 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 Public Document Room or from the Publicly Available Records (PARS) component of NRC's document 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/

Scott M. Shaeffer, Chief
Reactor Projects Branch 6
Division of Reactor Projects

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

Enclosure: Inspection Report 05000327/2013003, 05000328/2013003
w/Attachment: Supplemental Information

cc w/encl: (See page 3)

J. Shea

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J. Shea

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J. Shea

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Letter to J.W. Shea from Scott Shaeffer dated August 7, 2013

SUBJECT: SEQUOYAH NUCLEAR PLANT - NRC INTEGRATED INSPECTION REPORT
05000327/2013003, 05000328/2013003

Distribution w/encl:

C. Evans, RII

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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.: 05000327/2013003, 05000328/2013003

Licensee: Tennessee Valley Authority (TVA)

Facility: Sequoyah Nuclear Plant, Units 1 and 2

Location: Sequoyah Access Road
Soddy-Daisy, TN 37379

Dates: April 1 to June 30, 2013

Inspectors: G. Smith, Senior Resident Inspector
W. Deschaine, Resident Inspector
R. Hamilton, Senior Health Physicist (2RS6, 4OA1, 4OA6)
J. Rivera, Health Physicist (2RS7)

Approved by: Scott M. Shaeffer, Chief
Reactor Projects Branch 6
Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000327/2013-003, 05000328/2013-003; 4/1-6/30/2013; Sequoyah Nuclear Plant, Units 1 and 2; Routine Integrated Report Sequoyah Nuclear Plant, Units 1 and 2;

The report covered a three-month period of inspection by resident inspectors and announced inspections by regional inspectors. Two Green licensee-identified violations are documented. The significance of an issue is indicated by its color (Green, White, Yellow, Red) using the Significance Determination Process in Inspection Manual Chapter 0609, Significance Determination Process (SDP). The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

A. NRC-Identified and Self-Revealing Findings

None

B. Licensee-Identified Violations

Violations of very low safety significance identified by the licensee were reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program (CAP). These violations and corrective action tracking numbers are listed in Section 4OA7 of this report.

Enclosure

REPORT DETAILS

Summary of Plant Status:

Unit 1 and Unit 2 operated at or near 100 percent rated thermal power (RTP) for the entire inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection

Summer Readiness of Offsite and Alternative AC Power Systems

a. Inspection Scope

The inspectors performed the annual review of the licensee's readiness of offsite and alternate AC power systems prior to the onset of the high grid loading season. The inspectors reviewed procedures affecting these areas and the communications protocols between the transmission system operator and the licensee to verify that appropriate information is exchanged when issues arise that could impact the offsite power system. The inspectors walked down offsite power supply systems and emergency diesel generators, reviewed corrective action program (CAP) documents, and interviewed appropriate plant personnel to assess deficiencies and plant readiness for summer high grid loading. Documents reviewed are listed in the Attachment. The inspectors completed one sample.

b. Findings

No findings were identified.

1R04 Equipment Alignment

.1 Partial System Walkdown

a. Inspection Scope

The inspectors performed partial walkdowns of the following four 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 CAP. Documents reviewed are listed in the Attachment. The inspectors completed four samples.

Enclosure

- 2B Emergency Diesel Generator (EDG) while 2A EDG was inoperable for planned maintenance
- 1A Containment Spray (CS) Pump while 1B CS pump was inoperable for oil change
- 1A Auxiliary Feedwater (AFW) train while 1B AFW pump was inoperable for a bridge and megger check
- 2B AFW train while the 2A AFW pump was inoperable for planned maintenance

2. Complete System Walkdown

a. Inspection Scope

The inspectors performed a complete system walkdown of the Control and Auxiliary Air 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 Updated Final Safety Analysis Report (UFSAR), system procedures, system drawings, and system design documents to determine the correct lineup. The inspectors then examined system 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.
- Breakers were correctly positioned.
- Visible cabling appeared to be in good material condition.

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. The inspectors completed one sample.

b. Findings

No findings were identified.

1R05 Fire Protection

.1 Fire Protection Tours

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.

- Auxiliary building elevation 669 (corridor)
- Essential raw cooling water (ERCW) building
- Auxiliary building elevation 653 (corridor)
- 2A and 2B Safety Injection (SI) Pump rooms

b. Findings

No findings were identified.

.2 Annual Drill Observations

a. Inspection Scope

On May 16, the inspectors observed an announced fire drill in the Unit 1 6.9 kV 'A' Unit Board (No.03 Heater Drain Pump 1A) located within the turbine building. The inspectors assessed fire alarm effectiveness; response time for notifying and assembling the fire brigade; the selection, placement, and use of firefighting equipment; use of personnel fire protective clothing and equipment (e.g., turnout gear, self-contained breathing apparatus); communications; incident command and control; teamwork; and fire fighting strategies. The inspectors also attended the post-drill critique to assess the licensee's ability to review fire brigade performance and identify areas for improvement. Following the critique, the inspectors compared their findings with the licensee's observations and to the requirements specified in the licensee's Fire Protection report. This activity constituted one inspection sample.

b. Findings

No findings were identified.

1R06 Flood Protection Measures

.1 Internal Flooding

a. Inspection Scope

The inspectors reviewed the internal flood protection measures associated with the Unit 2 'A' and 'B' Residual Heat Removal (RHR) pump rooms in order 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 these pump rooms. 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 both of the Unit 2 RHR pump rooms 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. The inspectors completed one sample.

b. Findings

Introduction: The inspectors identified the lack of a vent hole on the 2B RHR pump room flood level alarm switch protective housing.

Description: During a walkdown of the 2B RHR pump room, the inspectors noted that the protective housing that surrounded the room flood sensor, SQN-2-LS-040-0028, had no predrilled vent hole. A visual inspection of several other level sensors located in various other emergency core cooling pump rooms revealed that all sensors had an installed vent hole. A cursory inspection of the housing did not reveal a vent pathway for air. Thus, a rising water level in the room would not necessarily result in a rising level within the protective sensor housing. This non-vented condition could result in an air pocket within the sensor's vicinity such that a flooding condition would not be detected by the sensor. A review of the design drawing 47W600-155, detail C155, indicated that a vent hole was required to be installed. Although the sensor protruded slightly (approximately 1/4 inch) below the housing, operability was not ensured. This issue was entered into the CAP as Problem Evaluation Report (PER) 739142. The inspectors also noted that this same condition was noted by an NRC inspector on June 30, 2005 and the corrective action from the associated PER 85204 was to drill a vent hole under work order (WO) #05-777741-000. Pending additional information from the licensee which can provide reasonable assurance that the flood sensor can perform its design function in the non-vented condition, this item was identified as unresolved item (URI) 050000328/2013003-01, Lack of a Vent Hole on the 2B RHR Pump Room Flood Sensor.

.2 Annual Review of Cables Located in Underground Bunkers/Manholes

a. Inspection Scope

The inspectors performed a visual inspection of manhole 31B on June 12. This particular manhole was noted to contain a significant amount of standing water during a monthly maintenance check. The licensee utilized a crane and removed the manhole cover to further investigate the condition of the cables. The manhole contained various safety and nonsafety-related cables of varying voltages that supplied the ERCW building. The manhole was noted to contain over 5 feet of water and three of the five rows of cable trays were submerged. The manhole was then pumped dry by the licensee. The inspectors entered the confined space to inspect the condition of the cables. The cables appeared in good condition and no related electrical grounds were noted in the control room. The licensee subsequently confirmed that no safety-related cables in the manhole were submerged. The inspectors noted that the sump pump was not working due to a non-functioning float switch. The licensee subsequently replaced the sump pump and float switch. Documents reviewed are listed in the Attachment. The inspectors completed one sample.

b. Findings

No findings were identified.

1R11 Licensed Operator Regualification Program

.1 Quarterly Review

a. Inspection Scope

The inspectors performed one licensed operator requalification program review. The inspectors observed a simulator session on May 6, 2013. The training scenario involved small break loss of coolant accident (SBLOCA) due to a stuck open Power Operated Relief Valve (PORV) and its associated block valve. 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 Technical Specification (TS) action; and, group dynamics involved in crew performance. The inspectors also observed the evaluators' critique and reviewed simulator fidelity to verify that it matched actual plant response. Documents reviewed are listed in the Attachment. This activity constituted one inspection sample.

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

Specifically, the inspectors observed licensed operator performance during the following activity:

- Unit 1 rod exercise test and reactivity manipulation

Documents reviewed are listed in the Attachment. This activity constituted one inspection sample.

b. Findings

No findings were identified

1R12 Maintenance Effectiveness

a. Inspection Scope

The inspectors reviewed the maintenance activities, issues, and 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 three samples.

- Foxboro Controllers Maintenance rule (a)(1) plan
- Failure of the 1A EDG circuit breaker on February 20
- Failure of the 1A EDG circuit breaker on March 20

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control

a. Inspection Scope

The inspectors reviewed the following activities to determine whether appropriate risk assessments were performed prior to removing equipment from service for maintenance. The inspectors evaluated whether risk assessments were performed as required by 10 CFR 50.65(a)(4), and were accurate and complete. When emergent work was performed, the inspectors reviewed whether plant risk was promptly reassessed and managed. The inspectors also assessed whether the licensee's risk assessment tool use and risk categories were in accordance with Standard Programs and Processes Procedure NPG-SPP-07.1, "On-Line Work Management," Revision 3, and Instruction 0-TI-DSM-000-007.1, "Risk Assessment Guidelines," Revision 9. Documents reviewed are listed in the Attachment. The inspectors completed three samples.

- Yellow Risk associated with the cleaning of the 1A1 Component Cooling System (CCS) heat exchanger
- Elevated risk associated with the 2B EDG maintenance outage during the week of April 22
- Yellow Risk associated with maintenance on the 1A RHR pump circuit breaker

b. Findings

No findings were identified.

1R15 Operability Evaluations

a. Inspection Scope

For the three operability evaluations described in the PERs 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 PERs 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 three samples.

- PER 732852 - 2B Pipe Chase Cooler leak
- PER 679474 - 1A EDG output breaker failure to close on February 10
- PER 693300 - 1A EDG output breaker failure to close on March 10

Regulatory issues associated with PER 679474 and 613300 are discussed in sections 4OA5.3 and 4OA7.1 respectively.

b. Findings

No findings were identified.

1R18 Plant Modifications

.1 Temporary Modifications

a. Inspection Scope

The inspectors reviewed the temporary modification 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.

- SQN-1-2013-011, Install temporary tubing on 1B Main Feedwater Pump Seal Injection Water line

Following installation and testing, the inspectors observed indications affected by the modification, discussed them with operators, and verified that the modification was installed properly and its operation did not adversely affect safety system functions. Documents reviewed are listed in the Attachment. The inspectors completed one sample.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testinga. Inspection Scope

The inspectors reviewed the post-maintenance tests associated with the six 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 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 functions. Documents reviewed are listed in the Attachment. The inspectors completed six samples.

- WO 113856211, Change Oil and collect Oil Samples from CSP 1A inboard and outboard bearings
- WO 113639370, Unit 2 Containment Spray Header "A" Flow Transmitter, F-72-34 Calibration
- WO 113806994, 1B-B Charging Pump Motor EQ lubrication and bridge and megger
- WO 114009146, 2B-B 6.9kV SDB relay cal and functional test
- WO 114009392, EDG 2B-B Day Tank Fuel Oil Pump 1 – Clean Arrowhart Contactors
- WO 113639370, Containment Spray Header A Flow 2-F072-0034 PM

b. Findings

No findings were identified.

1R22 Surveillance Testinga. Inspection Scope

For the six surveillance tests identified below, the inspectors assessed whether the structure, system and components (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 active testing in the field and reviewing the completed test data. Documents reviewed are listed in the Attachment. The inspectors completed six samples.

In-Service Tests:

- 2-SI-SXP-072-201.A, Containment Spray Pump 2A-A Performance Test
- 1-SI-SXP-003-201.2, Turbine Driven AFW Pump 1A-S Performance Test

Routine Surveillance Tests:

- 0-SI-OPS-082-007.W, AC Electrical Power Source Operability Verification
- 1-SI-SFT-030-001.A, Containment Air Return Fan 1A-A Quarterly Operability Test
- 0-SI-NUC-000-126.0, U1 Hot Channel Factor Determination
- 0-SI-NUC-092-079.0, Power Range Monitor Channel Calibration by Incore/Excore Axial Imbalance Comparison

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluationa. Inspection Scope

Resident inspectors evaluated the conduct of routine licensee emergency drills on April 2 and May 21, to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation (PAR) development activities. The inspectors observed emergency response operations in the simulated control room to verify that event classification and notifications were done in accordance with EPIP-1, Emergency Plan Classification Matrix, Revision 49. The inspectors also attended the licensee critique of the drill to compare any inspector observed weakness with those identified by the licensee in order to verify whether the licensee was properly identifying deficiencies. The inspectors completed two samples.

b. Findings

No findings were identified.

2. RADIATION SAFETY (RS)

Cornerstones: Public Radiation Safety (PS)

2RS6 Radioactive Gaseous and Liquid Effluent Treatmenta. Inspection Scope

Event and Effluent Program Reviews. The inspectors reviewed the 2011 and 2012 Annual Radiological Effluent Release Report (ARERR) documents for consistency with the requirements in the Offsite Dose Calculation Manual (ODCM) and TS details. Routine and abnormal effluent release results and reports, as applicable, were reviewed and discussed with responsible licensee representatives. Status of the radioactive

gaseous and liquid effluent processing and monitoring equipment and activities, and changes thereto, as applicable, described in the UFSAR and current ODCM were discussed with responsible staff.

Walk-Downs and Observations. The inspectors walked-down selected components of the gaseous and liquid discharge systems to ascertain material condition, configuration and alignment. Walkdowns included visual inspections of Auxiliary Building Vent Monitor (0-RE-90-101B), Shield Building Vent Monitor (0-RE-90-400), Waste Disposal System Liquid Discharge Monitor (0-RE-90-122), Steam Generator Blowdown Effluent Monitors (1,2 RM-90-120A,121A), Turbine Building Sump Effluent Monitor (0-RM-90-212A), Containment Building Lower Compartment (1-RE-90-106), Containment Building Upper Compartment (1-RE-90-112), Essential Raw Cooling Water Discharge Monitors (0-RE-90-133,140 and 0-RE-90-134, 141), and Closed Cooling Water Effluent (1-RM-90-123). The inspectors observed the material condition of abandoned in place liquid waste processing equipment for indications of degradation or leakage that could constitute a possible release pathway to the environment.

Sampling and Analyses. The results of the chemistry count room's intralaboratory comparison program from all 4 quarters of 2011 and 2012 were reviewed and discussed with licensee personnel. The first quarter 2013 results were not back from the cross check vendor laboratory.

Dose Calculations. The inspectors noted the recent steam generator replacement outage and reviewed the magnitudes of the relative doses in the 2011 ARERR when compared to those in the 2012 ARERR. This included submersion, organ and thyroid dose projections. The evaluations included review and discussion of set point determinations and dose calculation summaries for the past 18 months. Updated results for the most recent land use census data were evaluated against assumptions used to calculate offsite dose results. In addition, the inspectors reviewed selected abnormal release data and resultant dose calculations for calendar years (CYs) 2011 and 2012.

Effluent process and monitoring activities were evaluated against details and requirements documented in the UFSAR Sections 11 and 12; TS Sections 6.8 Procedures and Programs and 6.9 Reporting Requirements; ODCM Rev. 56; 10 CFR Part 20; 10 CFR, Appendix I to Part 50; and approved licensee procedures. In addition, ODCM and UFSAR changes since the last onsite inspection were reviewed against the guidance in NUREG-1301 and Regulatory Guide (RG) 1.109, RG 1.21, and RG 4.1.

Ground Water Protection Implementation. The licensee's implementation of the Industry Ground Water Protection Initiative was reviewed for changes since the last inspection. Groundwater sampling results obtained since the last inspection were reviewed. Licensee response, evaluation, and follow-up to spills and leaks since the last inspection were reviewed in detail.

Problem Identification and Resolution. The inspectors reviewed selected PER documents in the areas of effluent processing and groundwater protection. The inspectors evaluated the licensee's ability to identify, characterize, prioritize, and resolve the identified issues in accordance with NPG-SPP-03.1, Corrective Action Program, Revision. 6

Documents reviewed are listed in the Attachment. The inspectors completed 1 sample as required by IP 71124.06.

b. Findings

No findings were identified.

2RS7 Radiological Environmental Monitoring Program (REMP)

a. Inspection Scope

REMP Status and Results. The inspectors reviewed and discussed recent changes applicable to Radiological Environmental and Meteorological Monitoring program activities detailed in the UFSAR, and ODCM. Environmental monitoring sample results and land use census results presented in the Annual Radiological Environmental Operating Report (AREOR) documents issued for CYs 2011 and 2012 were reviewed and discussed. REMP vendor laboratory Western Area Radiological Laboratory (WARL) cross-check program results, and select current procedural guidance for the collection and processing of air, water, milk, and vegetation samples were reviewed. Detection level sensitivities as documented within the AREOR for selected environmental media analyzed by the offsite environmental laboratory were reviewed. The AREOR environmental measurement results were reviewed for consistency with licensee ARERR data. Licensee actions for missed airborne monitoring and dosimeter samples were also reviewed and discussed.

Site Inspection. The inspectors observed and discussed implementation of selected REMP monitoring and sample collection activities as specified in the current ODCM and applicable procedures, including atmospheric particulates and iodine, direct radiation measurements, milk, and public water sampling. The inspectors verified the consistency of sampling locations and placement of dosimeters with the ODCM. The inspectors observed air sampling equipment and dosimeter material condition, and evaluated operability, including a review of flow rates and total sample volume results for the weekly airborne particulate filter and iodine cartridge change-outs at six atmospheric sampling stations. Additionally, sample pump calibration and maintenance records for selected environmental air samplers were reviewed.

The inspectors toured the primary meteorological tower and reviewed local and control room data readout capabilities. The inspectors observed the physical condition of the tower and associated instruments and discussed equipment operability and maintenance with responsible licensee staff. For the meteorological measurements of

wind speed, wind direction, and temperature, the inspectors reviewed applicable meteorological tower instrumentation semi-annual calibration records, and evaluated meteorological measurement data recovery for CYs 2011 and 2012.

Procedural guidance, program implementation, quantitative analysis sensitivities, and environmental monitoring results were reviewed against 10 CFR Part 20; Appendix I to 10 CFR Part 50; TS Sections 6.8, 6.9, and 6.14; ODCM, Revision 58; RG 4.15, Quality Assurance for Radiological Monitoring Programs (Normal Operation) - Effluent Streams and the Environment; and the Branch Technical Position, An Acceptable Radiological Environmental Monitoring Program - 1979. Licensee procedures and activities related to meteorological monitoring were evaluated against: ODCM; UFSAR Section 2; RG 1.23, Meteorological Monitoring Programs for Nuclear Power Plants, and ANSI/ANS-2.5-1984, Standard for Determining Meteorological Information at Nuclear Power Sites. Documents reviewed are listed in the Attachment.

Problem Identification and Resolution. The inspectors reviewed selected CAP documents in the areas of environmental and meteorological monitoring. The inspectors evaluated the licensee's ability to identify, characterize, prioritize, and resolve the identified issues in accordance with NPG-SPP-03.1, Corrective Action Program, Revision 6 and NPG-SPP-03.1.4, Corrective Action Program Screening and Oversight, Revision 12.

Documents reviewed are listed in the Attachment. The inspectors completed 1 sample as required by IP 71124.07.

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

Public Radiation Safety Cornerstone. The inspectors reviewed the Radiological Control Effluent Release Occurrences PI results for the Public Radiation Safety Cornerstone from January 1, 2011, through April 30, 2013. For the assessment period, the inspectors reviewed cumulative and projected doses to the public and PIP documents related to Radiological Effluent Technical Specifications/ODCM issues including abnormal effluent releases. Documents reviewed are listed in the Attachment. The inspectors completed one sample.

b. Findings

No findings were identified.

4OA2 Identification and Resolution of Problems

.1 Daily Review

a. Inspection Scope

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

b. Findings and Observations

No findings were identified.

.2 Semi-Annual Trend Review

a. Inspection Scope

As required by Inspection Procedure 71152, the inspectors performed a review of the licensee's corrective action program (CAP) and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors review was focused on repetitive equipment issues, but also included licensee trending efforts and licensee human performance results. The inspectors review nominally considered the twelve-month period of June 2012 through June 2013, although some examples expanded beyond those dates when the scope of the trend warranted. Specifically, the inspectors considered the results of daily inspector screening discussed in Section 4OA2.1 and reviewed licensee trend reports for the period in order to determine the existence of any adverse trends that the licensee may not have previously identified. This inspection satisfied one inspection sample for Semi-annual Trend Review.

b. Findings and Observations

No findings were identified. 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 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 did note a slight increase in human performance events related to clearance

and tagging issues. This observation was brought to the attention of licensee management for further review. No previously unidentified trends of significance were identified.

4OA3 Event Follow-up

.1 (Closed) Licensee Event Report (LER) 05000328/2013-001-00, Manual Reactor Trip Due to Loss of Main Condenser Hotwell Level

a. Inspection Scope

On February 24, 2013, Unit 2 was manually tripped from approximately 19 percent RTP as a result of a rapidly lowering hotwell level. Operations personnel entered the Emergency Procedure E-0. "Reactor Trip or Safety Injection" and subsequently transitioned to sub-procedure ES-0.1, "Reactor Trip Response." The operators stabilized the plant in mode 3. Prior to the trip, Unit 2 had down-powered to approximately 19 percent in order to take the turbine off-line for maintenance activities. With the turbine offline and the reactor critical at 19 percent, a failed condenser vacuum switch caused all the condenser steam dumps to fail closed. This in turn caused a transient that led to the rapid opening of the atmospheric steam dumps and a subsequent reduction in hotwell level. As an anticipatory action, the operators prudently inserted a manual reactor trip as the secondary transient had a high potential to cause an automatic reactor trip. The safety systems performed as designed for the reactor trip with the exception of the No.1 Steam generator narrow range level transmitter which was noted to have failed post-trip as a result of a clogged sensing line. The event was documented in the licensee CAP as PER 686710.

The inspectors reviewed the LER, PER and Root Cause Evaluation Report to verify that the cause of the trip was identified and that the corrective actions were appropriate. The cause of the failed condenser vacuum switch was discovered to be a broken sensing line that exhibited a fatigue failure. The inspectors concluded that the licensee's corrective actions were appropriate including replacing the tubing and performing walkdowns of the remaining condenser pressure transmitters.

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 verified that timely notifications were made in accordance with 10 CFR 50.72, that licensee staff properly implemented the appropriate plant procedures, and that plant equipment performed as required. This LER is closed.

b. Findings

No findings were identified.

4OA5 Other Activities.1 Quarterly Resident Inspector Observations of Security Personnel and Activitiesa. Inspection Scope

During the inspection period, the inspectors conducted observations of security force personnel and activities to ensure that the activities were consistent with licensee security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal plant working hours.

These quarterly resident inspector observations of security force personnel and activities did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspectors' normal plant status review and inspection activities.

b. Findings

No findings were identified.

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

The inspectors reviewed the 2013 dry-cask-loading campaign of the ISFSI to verify that operations were conducted in a safe manner in accordance with approved procedures and without undue risk to the health and safety of the public. The inspectors observed fuel loading operations and other processes on several multi-purpose canisters (MPCs) to verify that the specified fuel assemblies were placed in the correct locations and that other MPC processes were implemented in accordance with approved procedures. The inspectors reviewed problem reports discovered during the campaign to ensure that issues were placed in the 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.

b. Findings

The inspectors determined that on May 9 a licensee-identified violation had occurred and is further discussed in Section 4OA7.

.3 (Closed) URI 05000327/2013002-01, Failure of the 1A EDG Breaker

The inspectors performed a detailed review of two operability determinations (See Section 1R15) associated with two separate failures of the 1A EDG output circuit breaker that occurred on February 10 (PER 679474) and March 10 (PER 693300) respectively. The failure from February 10 was analyzed by the vendor, Asea Brown Boveri (ABB), at their Florence, SC facility. ABB attributed the failure of the circuit

Enclosure

breaker to stay closed to aged lubrication on the trip and closed latches. The existing lubricant was Anderol 757 grease and was last replaced in 2004. The licensee noted that the lubricant had a 10 year life span and was scheduled to be changed out in 2014. The licensee decided to immediately change out the Anderol 757 grease with a Mobil 28 lubricant which appeared to exhibit better performance characteristics based on industry operating experience. The inspectors noted no performance deficiencies with respect to this failure. Regarding the March 10 failure, the licensee's causal analysis attributed this failure to a failed light socket that ultimately allowed the socket to cause a short across the internal resistor and energize the trip coil which then tripped the circuit breaker. The licensee noted the socket was not adequately configured to prevent the short circuit configuration. Causal analyses of both failures concluded that the root causes were unrelated. The inspectors determined that the March 10 failure was a licensee-identified violation and is further discussed in Section 4OA7. This URI is considered closed.

4OA6 Meetings

.1 Exit Meeting Summary

On June 27, 2013, the resident inspectors presented the inspection results to Mr. Carlin 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.

.2 Annual Assessment Meeting Summary

During this inspection period, on April 30, the NRC's Chief of Reactor Project's Branch 6, the Senior Resident Inspector, and the Resident Inspector assigned to the Sequoyah Nuclear Plant met with the Tennessee Valley Authority (TVA) to discuss the NRC's Reactor Oversight Process (ROP) and the Sequoyah annual assessment of safety performance for the period of January through December 2012. The major topics addressed were: the NRC's assessment program, the results of the Sequoyah assessment, and NRC security activities. Attendees included Sequoyah site management, members of site staff, TVA corporate management, as well as members of the public.

This meeting was open to the public. The presentation material used for the discussion is available from the NRC's document system (ADAMS) as accession number ML031130023. ADAMS is accessible from the NRC Web site at <http://www/nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

4OA7 Licensee-identified Violations

The following violations of very low significance (Green) were identified by the licensee and are violations of NRC requirements which meet the criteria of the NRC Enforcement Policy for being dispositioned as NCVs.

.1 Failure to ensure proper configuration of 1A EDG light socket

On March 10, 2013, during a monthly surveillance of the 1A EDG, the output breaker failed to close while attempting to parallel the 1A EDG to the grid. Two more breaker closures were attempted and again, the breaker failed to close (total of 3 times). The electrician reported the breaker cycled, current on the ammeter increased, but the breaker did not latch and immediately tripped. The control room operators noted that during the three closure attempts, the red light never energized. No trip flags were noted at the breaker cubicle. Bench testing of the breaker outside of its cubicle was performed and the breaker was able to be closed seven times without incident. Subsequent troubleshooting revealed the circuit breaker was exposed to a standing trip signal. The cause of the trip signal was an electrical short across the red-indicating light that resulted in the energization of the trip coil. This short effectively bypassed the internal resistor which allowed enough current in the circuit to energize the trip coil. The short was attributed to a failure of the red-indicating-light-socket assembly. The specific cause of the broken light socket was deemed to be age-related distortion of the plastic socket where under a high temperature environment (behind operating panel) successive retightening of the retaining nut can induce enough stress to exceed the yield stress of the socket material. In addition, the licensee noted that the vendor tech manual for the light-socket assembly recommended bending of the rear terminal tab up to 90 degrees (if necessary) to best suit the wiring configuration. Given a failure of the light-socket assembly, pre-bending of the tab could have decreased (or eliminated) the likelihood of a short circuit. 10CFR50 Appendix B, criterion III, requires in part, established measures shall ensure the design bases for safety-related components are translated into procedures and instructions. Contrary to the above, the licensee failed to incorporate vendor guidance into plant maintenance procedures to ensure the EDG could have performed its design function. The light-socket assembly was replaced and the 1A EDG was successfully tested and declared back in service on March 10, 2013. The licensee entered the issue into the CAP and developed several corrective actions including the initiation of a preventative maintenance program to periodically inspect the light sockets to ensure their continued operability. A risk analysis for this event was performed by the licensee. An exposure time of 15 days (one-half the time from the last successful EDG run, or 30 days) was utilized for this analysis. The results were reviewed by the inspectors and the conclusion was that the failure was of very low safety significance (Green).

.2 Failure to Properly Rig MPC during DCS Campaign

10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Contrary to the above, on May 9, 2013, Dry Cask procedure SQN-DCS-200.1, "SQN-Dry Cask Preparations," Revision 20, was not appropriate to the circumstances because it did not contain an appropriate verification step to ensure that the slings and shackles were properly aligned for the lift or connected to the proper lifting lugs or lift points. Specifically, during Dry Cask Campaign 8, an empty MPC was lifted with one of four shackles connected to an unapproved lift eye on the internal canister basket instead of

the approved shell lifting lug as the other three were. This resulted in the MPC being out of level although within its six degree tolerance limit. No damage to permanent or temporary plant equipment occurred and personnel safety was not at risk. The Dry Cask Campaign work was stopped and a return to work plan was generated and completed. The licensee entered the issue into the corrective action program as PER 741390. In accordance with IMC 0609, Attachment 4, Phase 1, "Initial Screening and Characterization of Findings," the finding was determined to be of very low safety significance (Green) by answering 'no' to the questions in the Initiating Events column of Table 4a, since the finding does not contribute to both a reactor trip and the likelihood that mitigation equipment or functions will not be available.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel

J. Carlin, Site Vice President
S. Connors, Operations Manager
J. Cross, Chemistry Manager
A. Day, Radiation Protection Manager
C. Dieckmann, Manager, Maintenance
J. Johnson, Program Manager Licensing
A. Little, Site Security Manager
T. Marshall, Director Safety and Licensing
S. McCamy, Quality Assurance Manager
P. Noe, Site Engineering Director
P. Pratt, Work Control Manager
R. M. McBrearty, Licensing Manager
P. Simmons, Plant Manager
K. Smith, Director of Training

NRC personnel

S. Lingam, Project Manager, Office of Nuclear Reactor Regulation

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000328/2013003-01	URI	Lack of a Vent Hole on the 2B RHR Pump Room Flood Sensor (Section 1R6)
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Closed

05000327/2013002-01	URI	Failure of the 1A EDG Breaker (Section 4OA5.3)
05000328/2013-001-00	LER	Manual Reactor Trip Due to Loss of Main Condenser Hotwell Level (Section 4OA3.1)

LIST OF DOCUMENTS REVIEWED

Section R01: Adverse Weather Protection

Procedures

0-PI-OPS-000-006.1, "Summer Operation," Rev. 7
NPG-SPP-07.1.6, "On Line Work Control System Alerts/ Offsite Power," Rev.1
NPG-SPP-07.1.7, "Station Seasonal Readiness," Rev.1

Work Orders

113522652, MMG/ Chill Water Circ Pump B
114104125, MMG/ Glycol Chiller I TCV

PERs

740662
727185

Other documents

Plan of the Day Summer Readiness Workoff

Section R04: Equipment Alignment

Procedures

AOP-M-02, Loss of Control Air
0-SO-32-1, Control Air System

Other documents

UFSAR Sec 9.3, Compressed Air System

Section R05: Fire Protection

Procedures

FPDP-1, Conduct of Fire Protection, Revision 2
0-PI-FPU-317-299.W, Att. 8, Shift Check List, Revision 38
NPG-SPP-18.4.7, Control of Transient Combustibles, Rev. 3
NPG-SPP-05.5, Environmental Control, Rev. 1
0-SI-FPU-410-703.0, Inspection of FPR Required Fire Doors, Rev. 5
SQN-FPR-Part-II, SQN Fire Protection Report Part II – Fire Protection Plan, Revision 32

Other documents

AUX-0-690-00, Fire Protection Pre-Fire Plans Auxiliary Building - El. 690, Revision 2

Section R06: Flood Protection Measures

Procedures

AOP-N.03, Flooding, Revision 32
NPG-SPP-09.21, "Cable Aging Management Program," Rev. 1

Work Orders

11108121224, Check Standing Water Level in Manholes/Handholes

PERs
739142
85204

Other documents

TVA letter to NRC dated May 4, 2007. TVA response to GL 2007-01

Section R12: Maintenance Effectiveness

Procedures

TI-4, Maintenance Rule Performance Indicator Monitoring, Trending, and Reporting – 10CFR50.65, Revision 24

Section R13: Maintenance Risk Assessments and Emergent Work Evaluation

Procedures

0-TI-DSM-000-007.1, Risk Assessment Guidelines, Revision 9
NPG-SPP-07.3, Work Activity Risk Management Process, Revision 13
NPG-SPP-07.2.4, Forced Outage or Short Duration Planned Outage Management, Revision 3
NPG-SPP-07.2, Outage Management, Revision 0
GOI-6, Apparatus Operations, Revision 142

Section R15: Operability Evaluations

Procedures

NEDP-22, Functional Evaluations, Rev. 14
OPDP-8, Limiting Conditions for Operation Tracking, Rev. 15
NPG-SPP-03.5, Regulatory Reporting Requirements, Revision 8

Section R18: Plant Modifications

Procedures

NPG-SPP-09.3, Plant Modifications and Engineering Change Control, Revision 13
NPG-SPP-09.4, 10 CFR 50.59 Evaluations of Changes, Tests, and Experiments, Revision 6
NPG-SPP-09.5, Temporary Modifications, Revision 5

Section R19: Post Maintenance Testing

Procedures

MMDP-1, Maintenance Management System, Revision 27
MMDP-3, Guidelines for Planning and Execution of Troubleshooting Activities, Revision 8
NPG-SPP-6.5, Foreign Material Control, Revision 1
NPG-SPP-6.1, Work Order Process, Revision 0
NPG-SPP-06.3, Pre-/Post-Maintenance Testing, Revision 1
NPG-SPP-06.9, Testing Programs, Revision 0
NPG-SPP-06.9.1, Conduct of Testing, Revision 7
NPG-SPP-06.9.1, Surveillance Test Program, Revision 2
NPG-SPP-06.9.3, Post-Modification Testing, Revision 4

Work Orders

113856211, Change Oil and collect Oil Samples from CSP 1A inboard and outboard bearings
113639370, Unit 2 Containment Spray Header "A" Flow Transmitter, F-72-34 Calibration
113806994, 1B-B Charging Pump Motor EQ lubrication and bridge and megger

114009146, 2B-B 6.9kV SDB relay cal and functional test
 114009392, EDG 2B-B Day Tank Fuel Oil Pump 1 – Clean Arrowhart Contactors
 113639370, Containment Spray Header A Flow 2-F072-0034 PM

Section R22: Surveillance Testing

Procedures

NPG-SPP-06.9.1, Conduct of Testing, Revision 7
 0-SI-SXV-072-266.0, ASME Code Valve Testing, Revision 12
 2-SI-SXP-072-201.A, Containment Spray Pump 2A-A Performance Test, Revision 11

2RS6: Radioactive Gases and Liquid Effluent Treatment

Procedures, Guidance Documents, and Manuals

SNQ Offsite Dose Calculation Manual, Revision 58
 2011 Annual Radioactive Effluent Release Report Sequoyah Nuclear Plant 2011
 2012 Annual Radioactive Effluent Release Report Sequoyah Nuclear Plant 2012
 0-SI-CEM-000-409.2, Quarterly Radiochemical Analyses - Gaseous and Liquid Effluents Data Reporting, Rev. 4
 0-TI-CEM-260-012.9, Manual Gaseous Pre-Release Permit Generation, Rev. 0
 0-TI-CEM-260-012.8, Manual Liquid Pre-Release Permit Generation, Rev. 1
 0-TI-CEM-090-016.4, Sampling Methods-Service Building Exhaust Radiation Monitor, Rev. 7
 0-TI-CEM-090-016.1, Sampling Methods-Operable Containment Radiation Monitors, Rev. 19
 0-TI-CEM-030-030.0
 Manual Calculation of Plant Gas, Iodine, and Particulate Release Rates for Offsite Dose Calculation Manual (ODCM) Compliance, Rev. 13
 0-TI-CEM-000-016.2, Liquid Effluent Sampling – Radioactive, Rev. 12
 0-TI-CEM-000-001.21, Abnormal Releases Assessment, Rev. 1
 0-SI-CEM-077-400.1, Liquid Waste Effluent Batch Release, Rev. 54
 0-SI-CEM-000-403.0, Monthly Tritium and Noble Gas Analysis - Liquid Effluents Rev. 8
 0-SI-CEM-077-410.4, Waste Gas Decay Tank Release, Rev. 18
 0-PI-CEM-000-010.3, Ground Water Monitoring, Rev. 10
 CHEM-005, Strategic Plan for Ground Water Protection, Rev. 2
 NPG-SPP-05.14, Guide for Communicating Inadvertent Radiological Spills/Leaks to Outside Agencies, Rev. 2
 NPG-SPP-05.15, Fleet Ground Water Protection Program, Rev. 0003
 TI-18, Radiation Monitoring, Rev. 49

Records and Data Reviewed

Spreadsheet: 2011 GW (Ground Water) tritium results
 Spreadsheet: gwpp 2012 (Ground Water Protection Program 2012)
 Ventilation Surveillances:

Work Order 111931185
 Work Order 111595181
 Work Order 111595445
 Work Order 112083323
 Work Order 112093888
 Work Order 112090285
 Work Order 110785305

Work Order 111595220
 Work Order 111184206
 Work Order 111595220
 Work Order 111484057
 Work Order 112090329
 Work Order 112083362
 Work Order 112072556
 Work Order 112093947

Sequoyah Nuclear Plant Risk Analysis of Systems, Structure and Components and Work Practices That Involve a Credible Mechanism for Licensed Material to Impact Groundwater, June 2011

Historical listing of spills and leaks as documented in 10 CFR 50.75(g) records 7/11/2006
 Monthly 10CFR50 Appendix I Dose Calculations for Liquid and Gaseous Effluent Reports (Jan – Dec 2011)

Monthly 10CFR50 Appendix I Dose Calculations for Liquid and Gaseous Effluent Reports (Jan – Dec 2012)

Monthly 10CFR50 Appendix I Dose Calculations for Liquid and Gaseous Effluent Reports (Jan – Apr 2013)

Liquid Radioactive Waste Release Permit 2013063.007.026.L, 4/28/2013

Liquid Radioactive Waste Release Permit 2012222.007.091.L, 11/29/2012

CAP Documents

PER 576944
 PER 491504
 PER 472518
 PER 479541

2RS7: Radiological Environmental Monitoring Program (REMP)

Procedures and Guidance Documents

0-PI-CEM-000.010-1, Collection of Radiological Environmental Monitoring Samples, Rev. 11

0-PI-CEM-000-010.2, Land Use Surveys, Rev. 1

0-PI-CEM-000-010.4, Quarterly Direct Radiation Dosimeter Collection, Rev. 0

2-SI-OPS-000-003.D, Daily Shift Log, Rev. 39

Central Laboratories Services Specifications for NPG Meteorological Monitoring, Rev. 8

EMSTD-01, Environmental Radiological Monitoring Program, Rev. 25

EPFS-3, Servicing of Meteorological Equipment at Environmental Data Stations, Rev. 15

EPFS-4, Environmental Data Station Meteorological Sensor Exchange, Rev. 19

EPFS-6, Calibration of Environmental Data Station Data Logger and Sonic Channels, Rev. 16

EPFS-8, Servicing of Radiological Water Samplers, Rev. 2

EPFS-12, Repair and Preventive Maintenance Procedure for Radiological Environmental Monitoring Air Sampling System, Rev. 1

ESR-SOP-9.2, Validation of Meteorological Data, Rev. 3

SI-89, Meteorological Monitoring Instrumentation Channel Calibrations (Semiannual), Rev. 21

Instruction No. 450.01-005, Calibration of Air Temperature Sensors – Nuclear, 11/15/12

Instruction No. 450.01-019, Calibration of Visalia Ultrasonic Wind Sensor – Nuclear, 11/15/12

Module II-b, Meteorological Monitoring, Rev. 11

Records and Data Reviewed

2012 Annual Summary QC Results

Air Temperature System Calibration Sheets, 3/21/13 and 9/20/12

Annual Radioactive Effluent Release Reports, Sequoyah Nuclear Plant 2012 and 2011, April 2013 and April 2012

Annual Radiological Environmental Operating Reports, Sequoyah Nuclear Plant 2012 and 2011, April 2013 and 2012

Calibration Data Sheet, Radiological Environmental Monitoring Air Sampler Gas Meter, LM-2, Serial # 16313135, 4/15/13 and 4/4/12

Calibration Data Sheet, Radiological Environmental Monitoring Air Sampler Gas Meter, PM-3A, Serial # 1030577, 4/16/13 and 4/4/12

Calibration Data Sheet, Radiological Environmental Monitoring Air Sampler Gas Meter, PM-3B, Serial # 1030588, 4/16/13 and 4/4/12

Calibration Data Sheet, Radiological Environmental Monitoring Air Sampler Gas Meter, RM-4, Serial # 14436697, 4/15/13 and 4/4/12

Meteorological Data Recoverability Reports, Sequoyah Nuclear Plant, 2012 and 2011

Meteorological Monitoring Instrumentation Report of Calibration, 100 ohm Platinum RTD, S/Ns 154186, 154187, and 154206, 9/25/12

Meteorological Monitoring Instrumentation Report of Calibration, 100 ohm Platinum RTD, S/Ns 132176, 154193, and 154202, 2/12/13

Meteorological Monitoring Instrumentation Report of Calibration, Data Acquisition System, S/N MY44023368, 2/1/13

Meteorological Monitoring Instrumentation Report of Calibration, Data Acquisition System, S/N SG41007486, 2/20/13

Meteorological Monitoring Instrumentation Report of Calibration, Ultrasonic Wind Sensor, S/N E2630002, 2/14/13

Meteorological Monitoring Instrumentation Report of Calibration, Ultrasonic Wind Sensor, S/N Z3610001, 2/14/13

Meteorological Monitoring Instrumentation Report of Calibration, Ultrasonic Wind Sensor, S/N 00325, 3/14/13

Meteorological Monitoring Instrumentation Report of Calibration, Ultrasonic Wind Sensor, S/N B3720001, 3/25/13

Meteorological Monitoring Instrumentation Report of Calibration, Ultrasonic Wind Sensor, S/N B3720002, 3/25/13

Meteorological Monitoring Instrumentation Report of Calibration, Ultrasonic Wind Sensor, S/N Y4130001, 3/25/13

REMP Air Sampling System Preventive Maintenance Records, Station ID LM-2, 3/29/13, 12/7/12, 9/25/12, 8/13/12, 3/19/12, 1/24/12, 10/11/11

REMP Air Sampling System Preventive Maintenance Records, Station ID PM-2, 3/29/13, 12/7/12, 9/25/12, 8/13/12, 3/19/12, 1/24/12, 10/11/11

REMP Air Sampling System Preventive Maintenance Records, Station ID PM-3, 3/29/13, 12/7/12, 9/25/12, 8/13/12, 3/19/12, 10/11/11

REMP Air Sampling System Preventive Maintenance Records, Station ID PM-9, 12/7/12, 9/25/12, 8/13/12, 3/19/12, 1/24/12, 10/11/11

REMP Air Sampling System Preventive Maintenance Records, Station ID RM-1, 3/29/13, 12/7/12, 9/25/12, 8/13/12, 3/19/12, 1/24/12, 10/11/11

REMP Air Sampling System Preventive Maintenance Records, Station ID RM-4, 3/29/13, 12/8/12, 9/25/12, 8/13/12, 3/19/12, 1/24/12

Results for 2012 and 2011 External Cross Checks
 Sonic Wind Speed Calibration Sheets, 3/21/13 and 9/20/12
 Sonic Wind Direction Calibration Sheets, 3/21/13 and 9/20/12
 Trouble Report, PM-2, 1/3/13
 Trouble Report, PM-3, 3/19/12
 Trouble Reports, PM-9, 5/8/13, 4/9/13, and 10/9/12
 Trouble Reports, Station 8, 3/29/13 and 2/7/13
 Trouble Report, Water Sample Pump, CFI Chattanooga, 9/25/12

CAP Documents

PER 322624
 PER 368693
 PER 409214
 PER 456308
 PER 491413
 PER 566160
 PER 625591
 PER 656838
 PER 695758
 PER 717324

40A1: Performance Indicator Verification

Procedures, Guidance Documents and Manuals

SI-422.1, Monthly 10CFR50 Appendix I Dose Calculations for Liquid and Gaseous Effluents, Rev. 13
 NPG-SPP-02.2, Performance Indicator Program, Revision 2
 NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Revision 6

Records and Data Reviewed

Monthly 10CFR50 Appendix I Dose Calculations for Liquid and Gaseous Effluent Reports
 (Jan – Dec 2011)
 Monthly 10CFR50 Appendix I Dose Calculations for Liquid and Gaseous Effluent Reports
 (Jan – Dec 2012)
 Monthly 10CFR50 Appendix I Dose Calculations for Liquid and Gaseous Effluent Reports
 (Jan – Apr 2013)

Section 40A2: Identification and Resolution of Problems

Procedures

NPG-SPP-03.1, Corrective Action Program, Revision 6

Section 40A5: Other Activities

Procedures

0-GO-17, Spent Fuel/Dry Cask Operations, Revision 5
 NPG-SPP-01.2, Administration of Site Technical Procedures, Revision 8
 NFTP-100, Fuel Selection for Dry MPC Storage, Revision 8
 SQN-DCS-300.11, Supplemental Cooling System Operation, Revision 9
 CTP-DCS-100.0, Dry Cask Storage Campaign Guidelines, Revision 14
 SQN-DCS-200.0, Dry Cask Campaign Review Program, Revision 3

SQN-DCS-200.2, SQN-MPC-Loading and Transport Operations, Revision 34
 SQN-DCS-200.1, "SQN-Dry Cask Preparations," Revision 20

PERs

731512 - Tracking SR for SQN QA Dry Cask Assessment Follow up.
 741390 - Further investigation of PER 725317
 725317 - MPC Rigging Issue when performing lift to install in Hi-Trac

LIST OF ACRONYMS

ABB	Asea Brown Boveri
ADAMS	Agencywide Documents Access and Management System
AFW	auxiliary feedwater
ANSI	American National Standards Institute
AOP	abnormal operating procedures
AREOR	Annual Radiological Environmental Operating Report
ARERR	Annual Radiological Effluent Release Report
ARMs	Area Radiation Monitors
ASME	American Society of Mechanical Engineers
ATWS	anticipated transient without scram
CAP	Corrective Action Program
CCP	cooling charging pump
CCPIT	cooling charging pump injection tank
CCS	component cooling system
CFR	Code of Federal Regulations
DAW	Dry Active Waste
ECCS	emergency core cooling system
EDG	emergency diesel generator
ERCW	essential raw cooling water
FCV	flow control valve
FE	functional evaluation
GWD	Gaseous Waste Disposal
HPGe	High Purity Germanium [detector]
IP	Inspection Procedure
ISFSI	independent spent fuel storage installation
LHRA	locked high radiation area
MC	Manual Chapter
MSPI	mitigating systems performance index
NCV	non-cited violation
NRC	U.S. Nuclear Regulatory Commission
ODCM	Offsite Dose Calculation Manual
OPDP	operations department procedure
PER	problem evaluation report
PI	Performance Indicator
PORV	power-operated relief valve
Radwaste	Radioactive waste

REMP	Radiological Environmental Monitoring Program
Rev.	Revision
RG	Regulatory Guide
RCA	Radiologically Controlled Area
RHR	residual heat removal
RP	radiation protection
RTP	rated thermal power
RWP	radiation work permit
SDP	significance determination process
SER	safety evaluation report
SBLOCA	small break loss of coolant accident
SSC	structure, system, or component
TDAFP	turbine driven auxiliary feedwater pump
TI	temporary instruction
TLD	Thermoluminescent Dosimeter
TS	Technical Specification
TVA	Tennessee Valley Authority
U1	Unit 1
U2	Unit 2
UFSAR	updated final safety analysis report
URI	unresolved item
WARL	Western Area Radiological Laboratory
WGDT	Waste Gas Decay Tank
WMT	Waste Monitor Tank
WOs	work orders