



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

October 31, 2012

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  
05000327/2012004, 05000328/2012004**

Dear Mr. Shea:

On September 30, 2012, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Sequoyah Nuclear Plant, Units 1 and 2. The enclosed inspection report documents the inspection results, discussed on October 9, 2012, with Mr. J. Carlin and other members of the Sequoyah 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.

No NRC-identified or self-revealing findings were identified during this inspection. However, a licensee-identified violation which was determined to be of very low safety significance is listed in Section 40A7 of this report. The NRC is treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2 of the Enforcement Policy.

If you contest the violation or significance of the NCV, 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 the 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 05000327/2012004, 05000328/2012004  
w/Attachment: Supplemental Information

cc w/encl: (See page 3)

J. Shea

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J Shea

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cc w/encl:

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J. Shea

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Letter to J. W. Shea from Scott Shaeffer dated October 31, 2012

SUBJECT: SEQUOYAH NUCLEAR PLANT - NRC INTEGRATED INSPECTION REPORT  
05000327/2012004, 05000328/2012004

Distribution w/encl:

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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.: 05000327/2012004, 05000328/2012004

Licensee: Tennessee Valley Authority (TVA)

Facility: Sequoyah Nuclear Plant, Units 1 and 2

Location: Sequoyah Access Road  
Soddy-Daisy, TN 37379

Dates: July 1 – September 30, 2012

Inspectors: R. Lewis, Acting Senior Resident Inspector  
W. Deschaine, Resident Inspector  
J. Hamman, Project Engineer (1R05, 1R18, 1R22)  
M. Speck, Senior Reactor Inspector (1R04, 1R05, 1R12, 1R13,  
1R15, 1R19, 4OA1)  
R. Hickok, Reactor Technology Instructor (1R04, 1R05, 1R11,  
1R18, 1R19, 1R22, 4OA1, 4OA2)  
A. Sengupta, Reactor Inspector (1R07)  
G. Laska, Senior Operations Examiner (1R11)  
M. Riches, Operations Engineer (1R11)  
C. Young, Senior Resident Inspector (4OA2)

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

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## SUMMARY OF FINDINGS

IR 05000327/2012004, 05000328/2012004; 7/1/2012 – 9/30/2012; Sequoyah Nuclear Plant, Units 1 and 2; Routine quarterly integrated report.

The report covered a three-month period of inspection by resident inspectors and announced inspections by regional inspectors. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process." The documents reviewed during the inspection period are listed in either the Report Details or in the Attachment.

A. NRC-Identified and Self-Revealing Findings

No findings were identified.

B. Licensee-Identified Violations

A violation of very low safety significance, which was identified by the licensee, was reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. This violation and its respective corrective actions are listed in Section 4OA7 of this report.

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## REPORT DETAILS

### Summary of Plant Status:

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

Unit 2 operated at or near 100 percent RTP until August 3, when power was reduced to approximately 65 percent RTP for removing the B phase main generator terminal bushing fan from service for repairs. The unit returned to 100 percent RTP on August 4 and remained there until August 16, when the unit experienced an automatic reactor trip on single loop loss of flow, following a reactor coolant pump (RCP) 2-4 trip. Following repairs, the unit returned to 100 percent RTP on August 20, where it operated for the remainder of the inspection period.

### 1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

#### 1R01 Adverse Weather Protection

##### a. Inspection Scope

The inspectors reviewed the licensee's readiness prior to the onset of adverse weather that poses a risk of flooding. Specifically, the inspectors reviewed flood design documents and abnormal operating procedure (AOP)-N.03, Flooding. The inspectors walked down flood protection barriers at the Emergency Diesel Generator Building and verified required temporary spool pieces and required tools used in station procedures were complete and in their specified locations. This review constituted one inspection sample. Documents reviewed are listed in the Attachment.

##### 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

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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 four samples.

- 2A-A Emergency Diesel Generator while B Train auxiliary building gas treatment system (ABGTS) was inoperable for a maintenance outage
- 2B-B Containment Spray System during 2A-A Pump system maintenance
- 1B-B Emergency Diesel Generator while 1A-A Emergency Diesel Generator was inoperable for a maintenance/modification outage
- 2A Containment Spray pump while 2B Containment Spray was inoperable for a maintenance outage

b. Findings

No findings were identified.

1R05 Fire Protection

.1 Fire Protection Tours

a. Inspection Scope

The inspectors conducted a tour of the five 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 five samples.

- Emergency Raw Cooling Water (ERCW) Pumping Station
- Control Building Elevation 669 (Mechanical Equipment Room, 250 VDC Battery and Battery Board Rooms)
- Diesel Generator Building
- Auxiliary Building Elevation 653
- Auxiliary Building Elevation 669

b. Findings

No findings were identified.

1R07 Heat Sink Performance (71111.07T)

.1 Triennial Review of Heat Sink Performance

a. Inspection Scope

The inspectors selected the Component Cooling System (CCS) Heat Exchanger- 1A2, the Containment Spray (CS) Heat Exchanger - 2A, the Emergency Diesel Generator (EDG) Heat Exchanger- 2B2, and the Residual Heat Removal (RHR) Heat Exchanger- 2B, based on their risk significance in the licensee's safety-related mitigating system support functions.

For the CCS Heat Exchanger-1A2, the CS Heat Exchanger- 2A, the DG Heat Exchanger-2B2, the Service Water System, and the Ultimate Heat Sink (UHS), the inspectors reviewed the licensee's inspection, maintenance, and monitoring of biotic fouling and macrofouling programs to ensure they were adequate. This was accomplished by determining whether the test method used and the acceptance criteria were adequate and consistent with accepted industry practices. For the selected heat exchangers, the inspectors also reviewed the licensee's inspection and cleaning activities to determine if they had established acceptance criteria consistent with industry standards and the as-found results were recorded, evaluated, and appropriately dispositioned to maintain structural integrity.

For the RHR Heat Exchanger- 2B, the inspectors reviewed the condition and operation of the heat exchanger to ensure they were consistent with design assumptions in heat transfer calculations as described in the final safety analysis report. This review included determining whether the number of plugged tubes was within pre established limits based on capacity and heat transfer assumptions. The inspectors determined whether the licensee's chemical treatment programs for corrosion control were consistent with industry norms and implemented accordingly.

The inspectors also determined whether the licensee evaluated the potential for water hammer and established adequate controls and operational limits to prevent heat exchanger degradation due to excessive flow induced vibration during operation.

The inspectors determined whether the performance of the UHS and its subcomponents such as piping, intake screens, pumps, valves, etc. was appropriately evaluated by tests or other equivalent methods to ensure availability and accessibility to the in-plant cooling water systems.

The inspectors also reviewed the results of the licensee's inspection of the UHS excavations. The inspectors determined whether identified settlement or movement indicating loss of structural integrity and/or capacity was appropriately evaluated and dispositioned by the licensee. In addition, the inspectors determined whether the licensee ensured sufficient reservoir capacity by trending and removing debris or sediment buildup in the UHS.

The inspectors interviewed the system engineer and performed a system walkdown on the service water system and the service water intake structure to determine whether the licensee's assessment on structural integrity and component functionality was adequate.

In addition, the inspectors reviewed condition reports related to the heat exchangers and heat sink performance issues to determine whether the licensee had an appropriate threshold for identifying issues and to evaluate the effectiveness of the corrective actions. The documents that were reviewed are included in the attachment to this report.

Records were also reviewed to verify that the licensee actions were consistent with Generic Letter (GL) 89-13 licensee commitments, Electric Power Research Institute (EPRI) recommendations, and other industry guidelines. These inspection activities constituted four heat sink inspection samples.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program

.1 Quarterly Review

a. Inspection Scope

The inspectors performed a licensed operator requalification program review. The inspectors observed a simulator session on August 13, 2012. The training scenario involved the controlling pressurizer level transmitter failing low, an ERCW pump trip, a main steam line leak outside containment, both reactor trip breakers failing to open (ATWS), and the motor-driven auxiliary feedwater (MDAFW) level control valve (LCV) to #3 S/G failed full open. 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 down power to exercise control rods

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

### b. Findings

No findings were identified.

## .3 Biennial Review

### a. Inspection Scope

The inspectors reviewed the facility operating history and associated documents in preparation for this inspection. During the week of September 10-13, 2012, the inspectors reviewed documentation, interviewed licensee personnel, and observed the administration of operating tests and biennial written examinations associated with the licensee's operator requalification program. Each of the activities performed by the inspectors was done to assess the effectiveness of the facility licensee in implementing requalification requirements identified in 10 CFR Part 55, "Operators' Licenses." The evaluations were also performed to determine if the licensee effectively implemented operator requalification guidelines established in NUREG-1021, "Operator Licensing

Examination Standards for Power Reactors,” and Inspection Procedure 71111.11, “Licensed Operator Requalification Program.” The inspectors also evaluated the licensee’s simulation facility for adequacy for use in operator licensing examinations using ANSI/ANS-3.5-1985, “American National Standard for Nuclear Power Plant Simulators for use in Operator Training and Examination.” The inspectors observed two shift crews during the performance of the operating tests. Documentation reviewed included written examinations, Job Performance Measures (JPMs), simulator scenarios, licensee procedures, on-shift records, simulator modification request records, simulator performance test records, operator feedback records, licensed operator qualification records, remediation plans, watchstanding records, and medical records. The records were inspected using the criteria listed in Inspection Procedure 71111.11. Documents reviewed during the inspection are documented in the List of Documents Reviewed.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness

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 structures, systems, 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 one sample.

- Problem Evaluation Report (PER) 581319, Lack of Trending and Maintenance of engineered safety feature (ESF)/emergency core cooling system (ECCS) room coolers

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

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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 6, and Instruction 0-TI-DSM-000-007.1, "Risk Assessment Guidelines," Revision 9. Documents reviewed are listed in the Attachment. The inspectors completed five samples.

- Unit 1 Yellow probabilistic safety assessment (PSA) Risk – 1A MDAFW Pump Maintenance & Testing
- Unit 1 and 2 Yellow PSA Risk – Corrective Maintenance on 1A EDG fuel pump and ERCW supply valve to 2A Motor Driven Auxiliary Feedwater Pump
- Unit 1 Yellow PSA Risk – One Train of ECCS and Containment Spray inoperable for clam inspection and preventative maintenance (PM) of room coolers
- Unit 1 Yellow PSA Risk – Component Cooling and Auxiliary Feedwater Area Cooler inoperable for clam inspection and PM of Room Coolers
- Unit 1 Yellow PSA Risk – 1B Safety Injection Pump Room Cooler Clam Inspection

b. Findings

No findings were identified.

1R15 Operability Evaluations

a. Inspection Scope

For the five operability evaluations described in the PERs listed below, the inspectors evaluated the technical adequacy of the evaluations to ensure that technical specification (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 the updated final safety analysis report (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 five samples.

- PER 599247 – Pearlweave in Unit 2 (U2) Containment
- PER 600559 – Emergency Diesel Generator 1A-A Emergency Feeder Breaker 1912 Common Cause Evaluation
- PER 604614 – 6 garbage bags in U2 Containment
- PER 581319 – Degrading ERCW Leak on 2A-A Centrifugal Charging Pump Room Cooler
- PER 46678 – Broken Fan Belt on 1B-B Centrifugal Charging Pump Room Cooler

b. Findings

No findings were identified.

1R18 Plant Modifications

a. Inspection Scope

The inspectors reviewed the following permanent and temporary modifications listed below and the associated 10 CFR 50.59 screenings, and compared them against the UFSAR and TS to verify whether the modifications affected operability or availability of the affected systems. In addition, the inspectors determined whether: (1) the installation of the temporary or permanent modification was in accordance with the work package; (2) adequate configuration control was in place; (3) procedures and drawings were updated; and (4) post-installation tests verified operability of the affected systems. Additional documents reviewed are listed in the attachment. The inspectors completed four samples.

- TACF – SQN-2-FSV-043-0055-B, Unit 2 Steam Generator No. 1 Blowdown Sample Isolation Valve
- TACF – Temporary screens on the EDG Fuel Oil Tank Atmospheric Vents
- DCN 22841 – Eliminate Interference between 1-FCV-63-11 and CCS Piping
- DCN 22543A, Diesel Generator 2A-A Emergency Stop Transfer Switch Modification

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing

a. 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/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 six samples.

- WO 113466231, Appendix R DCN D22540 – 6.9 KV Shutdown Board 1B-B Alternate Supply Breaker control power modification
- WO 112759739, 2B CSP 2-FCV-72-21 Containment Spray Pump Suction to Refueling Water Storage Tank (RWST) Overload Heater Calibration
- WO 113467794, SQN-0-XS-082-0123-A DCN 22543 Appendix R Post Maintenance Test
- WOs 113138600 & 113138599, 1A RHR Pump Breaker Maintenance with SI-206 valve strokes on 1-FCV-74-3 and 1-FCV-74-12
- WO 113737566, Replace Diesel Generator 1A-A Auto Voltage Control Motor Operated Control Potentiometer (MOP)
- WO 112745503, Calibration of Auxiliary Control Air Compressor B-B

b. Findings

No findings were identified.

1R20 Refueling and Outage Activities

.1 Unit 2 Forced Outage

a. Inspection Scope

Following the automatic reactor trip of Unit 2 on August 16, 2012, the licensee maintained Unit 2 in Mode 3 until conditions to support restart were established on August 19, 2012. The inspectors reviewed the licensee's mode change checklists to verify that appropriate prerequisites were met prior to changing TS modes. The inspectors observed containment entry controls and reviewed Procedure 0-SI-OPS-000-011.0, "Containment Access Control During Modes 1-4," for the associated containment entries to ensure that all items that entered containment were removed so nothing would be left that could affect performance of the containment sump. The inspectors reviewed portions of the plant startup including reactor criticality and power ascension. This inspection satisfied one inspection sample for Outage Activities.

b. Findings

No findings were identified.

1R22 Surveillance Testing

a. Inspection Scope

For the five 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 five samples.

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In-Service Tests:

- 2-SI-SXP-070-201.B, Component Cooling Pump 2B-B Performance Test, Revision 8

Routine Surveillance Tests:

- 1-SI-IFT-092-N41.1, Functional Test of Power Range Nuclear Instrumentation System, Channel N41, Revision 23
- 2-SI-IFT-099-90.8A, Reactor Trip Instrumentation (Solid-State Protection System – SSPS) Monthly Functional Test, Revision 20
- 0-SI-ICC-090-101.B, Calibration of Auxiliary Building Gaseous Radiation Monitor 0-R-90-101B and Exhaust Vent Flow Monitor 0-F-30-174, Revision 21
- 0-SI-OPS-085-011.0, Reactivity Control Systems Moveable Control Assemblies, Revision 33

b. Findings

No findings were identified.

1EP6 Drill Evaluationa. Inspection Scope

Resident inspectors evaluated the conduct of routine licensee emergency drills on July 17, 2012, and August 28, 2012, 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 47. 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.

## 4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verificationa. Inspection Scope

The inspectors sampled licensee submittals for the PIs listed below for the period from October 1, 2011, through June 30, 2012, for both Unit 1 and Unit 2. Definitions and guidance contained in Nuclear Energy Institute (NEI) 99-02, Regulatory Assessment

Indicator Guideline, Revision 6, were used to determine the reporting basis for each data element in order to verify the accuracy of the PI data reported during that period.

Cornerstone: Mitigating Systems

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

The inspectors reviewed portions of the operations logs and raw PI data developed from monthly operating reports and discussed the methods for compiling and reporting the PIs with engineering personnel. The inspectors also independently calculated selected reported values to verify their accuracy and compared graphical representations from the most recent PI report to the raw data to verify that the data was correctly reflected in the report. Specifically for the Mitigating Systems Performance Index (MSPI), the inspectors reviewed the basis document and derivation reports to verify that the licensee was properly entering the raw data as suggested by NEI 99-02. For Safety System Functional Failures, the inspectors also reviewed Licensee Event Reports (LERs) issued during the referenced timeframe. Documents reviewed are listed in the Attachment. The inspectors completed six samples per unit.

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 Annual Sample Review of Operator Work Arouns

### a. Inspection Scope

The inspectors reviewed the operator workaround (OWA) program to verify that OWAs were identified at an appropriate threshold, were entered into the CAP, and that corrective actions were appropriate and timely. Specifically, the inspectors reviewed the licensee's workaround lists and repair schedules, reviewed CAP word searches, conducted tours and interviewed operators and operations department support staff. Additionally, the inspectors checked for undocumented workarounds by observing operators perform rounds, reviewed operator deficiency lists, reviewed appropriate system health documents, attended plant health committee meetings, and verified that identified program deficiencies were corrected. The inspectors evaluated all workarounds for their aggregate impact. Documents reviewed are listed in the Attachment.

### b. Findings and Observations

No findings were identified.

## .3 Annual Sample Review of Licensed Operator Requalification

### a. Inspection Scope

The inspectors selected PERs 298399, 400477, 465180, 475060, 463574 469721, and 542315, for a detailed review. The review focused on operator errors associated with implementing the site's emergency plan. The listed PERs relate to various errors identified during Licensed Operator Continued Training and site drills since the last 71111.11 inspection conducted in December, 2010. The inspectors reviewed the corrective actions associated with each of the PERs and determined the corrective actions appeared appropriate and addressed the specific issue associated with implementing the emergency plan. In support of this assessment, the inspectors reviewed crew performance during this year's annual operating test and noted that none of the crews were downgraded for errors associated with the emergency plan.

### b. Findings

No findings were identified.

## 40A3 Event Followup

### .1 Unit 2 Automatic Reactor Trip

#### a. Inspection Scope

On August 16, 2012, the inspectors responded to an automatic reactor trip of Unit 2 due to a single loop loss of flow, following a reactor coolant pump (RCP) 2-4 trip. The inspectors evaluated plant status, mitigating actions, and the licensee's classification of

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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 also reviewed the initial licensee notifications to verify whether they met the requirements specified in NUREG-1022, "Event Reporting Guidelines." The event was reported to the NRC as event notification (EN) 48198 and documented in the licensee's corrective action program as PER 596978.

b. Findings

No findings were identified.

4OA5 Other Activities

.1 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. 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 (Discussed) NRC Temporary Instruction (TI) 2515/187, Inspection of Near-Term Task Force Recommendation 2.3 Flooding Walkdowns, and NRC TI 2515/188, Inspection of Near-Term Task Force Recommendation 2.3 Seismic Walkdowns

a. Inspection Scope

Inspectors accompanied the licensee on a sampling basis, during their flooding and seismic walkdowns, to verify that the licensee's walkdown activities were conducted using the methodology endorsed by the NRC. These walkdowns are being performed at all sites in response to a letter from the NRC to licensees, entitled "Request for Information Pursuant to Title 10 of the *Code of Federal Regulations* 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident," dated March 12, 2012 (ADAMS Accession No. ML12053A340).

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Enclosure 3 of the March 12, 2012, letter requested licensees to perform seismic walkdowns using an NRC-endorsed walkdown methodology. EPRI document 1025286 titled, "Seismic Walkdown Guidance," (ADAMS Accession No. ML12188A031) provided the NRC-endorsed methodology for performing seismic walkdowns to verify that plant features, credited in the current licensing basis (CLB) for seismic events, are available, functional, and properly maintained.

Enclosure 4 of the letter requested licensees to perform external flooding walkdowns using an NRC-endorsed walkdown methodology (ADAMS Accession No. ML12056A050). NEI 12-07 titled, "Guidelines for Performing Verification Walkdowns of Plant Protection Features," (ADAMS Accession No. ML12173A215) provided the NRC-endorsed methodology for assessing external flood protection and mitigation capabilities to verify that plant features, credited in the CLB for protection and mitigation from external flood events, are available, functional, and properly maintained.

b. Findings

Findings or violations associated with the flooding and seismic walkdowns, if any, will be documented in future reports.

4OA6 Meetings

.1 Exit Meeting Summary

On 7/20/2012, Regional inspectors presented the inspection results associated with section 1R07 to plant management and staff. The inspectors confirmed that none of the potential report input discussed was considered proprietary.

On 9/13/2012, Regional inspectors presented their inspection results associated with section 1R11.3 to Mr. J. T. Carlin, Site Vice President and members of the plant staff. The inspectors confirmed that none of the potential report input discussed was considered proprietary.

On October 9, 2012, the resident inspectors presented the inspection results to Mr. J. 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.

4OA7 Licensee-identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which meet the criteria of the NRC Enforcement Policy, for being dispositioned as a Non-Cited Violation.

10 CFR 50 Appendix B, Criterion V, required, in part, that activities affecting quality shall be prescribed by documented procedures of a type appropriate to the circumstances and shall be accomplished in accordance with these procedures. Contrary to this, on August 25, 2011, and again on September 6, 2012, the licensee failed to accomplish

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NPG-SPP-09.17, "Temporary Equipment Control," an activity affecting quality, in accordance with the documented instructions. Specifically, Appendix A, Step C states, "Specific Case Mechanical Engineering Evaluation is required if Temporary Equipment is placed inside primary containment during unit Operating Modes 1 through 4 at SQN." However, this step was not performed and material was brought into primary containment without a proper evaluation. This problem was entered into the licensee's corrective action program as PERs 599247 and 604614. The finding was screened using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," and determined the finding to be of very low safety significance (Green) because the finding did not contribute to both the likelihood of 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**

A. Bergeron, Corporate Operation Training Manger  
J. Carlin, Site Vice President  
S. Connors, Operations Manager  
J. Cross, Chemistry Manager  
C. Dahlman, LOR Supervisor  
A. Day, Radiation Protection Manager  
C. Dieckmann, Manager, Maintenance  
N. Good, Simulator Manager  
C. Hawes, Operations Training Manager  
J. Johnson, Licensing Engineer  
A. Little, Site Security Manager  
A. MacDonald, Operations Instructor  
T. Marshall, Director, Safety and Licensing  
S. McCamy, Quality Assurance Manager  
P. Noe, Site Engineering Director  
P. Pratt, Work Control Manager  
R. Proffitt, Site Licensing Manager  
P. Simmons, Plant Manager  
S. Smith, Operations Training Supervisor  
C. Ware, Training Director  
J. Wilkes, Operations Training Liaison

#### **NRC personnel**

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

### **LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED**

#### **Discussed**

05000327,328/2515/187	TI	Inspection of Near-Term Task Force Recommendation 2.3 Flooding Walkdowns (4OA5.2)
05000327,328/2515/188	TI	Inspection of Near-Term Task Force Recommendation 2.3 Seismic Walkdowns (4OA5.2)

## LIST OF DOCUMENTS REVIEWED

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

#### Procedures

AOP-N.03, Flooding, Revision 42

0-PI-OPS-510-001.0, Flood Preparation Equipment Inventory, Revision 9

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

#### Partial System Walkdowns

#### Procedures

0-SO-82-1, Diesel Generator 1A-A, Revision 0037

0-SO-82-5, Diesel Generator 1A-A Support Systems, Revision 0020

0-GO-14-7, AUO Operator Rounds – Outside, Revision 38

0-SO-74-1, Residual Heat Removal System, Revision 84

2-SO-3-2, Auxiliary Feedwater System, Revision 38

### **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 32

NPG-SPP-18.4.7, Control of Transient Combustibles, Rev. 1

EITP-100, Environmental Compliance, Rev. 6

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 28

#### Other documents

DGB-0-722-00, Diesel Generator Building – El. 722, Revision 5

DGB-0-740.5-00, Diesel Generator Building – El. 740.5, Revision 3

ERCW-0-720-00, Essential Raw Cooling Water Pump Station – El. 720, Revision 3

ERCW-0-704-00, Essential Raw Cooling Water Pump Station – El. 704, Revision 2

ERCW-0-688-00, Essential Raw Cooling Water Pump Station – El. 688, Revision 2

AUX-0-653-00, Auxiliary Building – El. 653, Revision 7

AUX-0-669-00, Overall Map of Auxiliary Building – El. 669, Revision 3

AUX-0-669-01, Auxiliary Building – El. 669 Unit 1 Side, Revision 6

AUX-0-669-02, Auxiliary Building – El. 669 Unit 2 Side, Revision 6

AUX-0-669-03, Auxiliary Building – El. 669 Common from Elevator to X line, Revision 4

AUX-0-669-04, Auxiliary Building – El. 669 ERCW Tunnels, Revision 5

### **Section R07: Heat Sink Performance (71111.07T)**

#### Procedures

1-PI-SFT-070-001.0, Performance Testing of Component Cooling Water Heat Exchanger 1A1, 1A2, Rev. 17

0-PI-DXX-000-704.1, Mic and Cavitation Degradation Monitoring program, Rev. 4

0-PI-SFT-070-001.0, performance testing of Component Cooling Heat Exchanger 1A1, 1A2, Rev. 18

NPG-SPP-09.15, Underground Piping and Tanks Integrity Program (UPTI), Rev. 2

0-TI-SXX-000-146.0, Program for Implementing NRC Generic Letter 89-13, Rev 3



0-TI-CEM-260-011.52, Chemical Analytical Methods Quarterly Amine Analysis, Rev. 8  
 0-TI-DXX-000-915.0, Buried and Underground Piping and Component Implementation program,  
 Rev. 3  
 0-PI-CEM-000-460.6, Raw Cooling Water Quarterly Amine Treatment Monitoring, Rev. 2  
 0-PI-CEM-000-460.5, Raw Cooling Water Corrosion Inhibitor Treatment Monitoring, Rev. 14  
 0-PI-CEM-000-460.3, NPDES Monitoring, Rev. 20  
 0-SI-OPS-082-007.A, Electrical Power Systems Diesel generator 1A-A, Rev. 51  
 1-50.70-1, Component Cooling Water System A Train, Rev. 44  
 DS-M18.2.22, MOV Design Basis and JOG Review Methodologies, Rev. 3  
 EPIP-6, Activation and Operation of the TSC, Rev. 37  
 NPG-SPP-02.8, Integrated Trend Review, Rev. 2  
 NPG-SPP-02.7, PER Trending, Rev. 3  
 NPG-SPP-03.1.4, Corrective Action Program Screening and Oversight, Rev. 6  
 NPG-SPP-03.1, Corrective Action program, Rev. 4  
 NPG-SPP-03.1.7, PER Analysis, Actions, Closures and Approval, Rev. 4

#### Work Orders

111738920, Flood Preparation Spool Piece Inspection  
 112625998, ERCW Pump Test  
 02-011506-000, CS Heat Exchanger 2A Clam Inspection  
 02-011506-001, CS Heat Exchanger 2A Clam Inspection  
 09-782086-000, CS Heat Exchanger 2A Clam Inspection  
 111279330, CCS Heat Exchanger 1A2 Clam and Mic Inspection  
 07-774852-000, GL 89-13 Heat Exchanger Visual Inspection and Evaluation  
 08-771068-000, CCS Heat Exchanger 1A2 Clam and Mic Inspection  
 111233581, Inspect DG Heat Exchanger 2B2 for clams, mic and other degradation  
 08-773555-000, Inspect DG Heat Exchanger 2B2 for clams, mic and other degradation  
 05-783118-000, Inspect DG Heat Exchanger 2B2 for clams, mic and other degradation  
 04-775332-000, Inspect DG Heat Exchanger 2B2 for clams, mic and other degradation  
 112007681, RHR 2B Room Cooler Clam Inspection  
 111096080, section XI Replacement of Backwash Valve  
 111721709, CS Heat Exchanger 2B, Thermal Performance Using Single Tube Tester of Heat  
 Exchanger  
 09-780676-002, Buried Piping/Component Visual Inspection  
 07-780452-000, Travel Screen Level Indication  
 1108006113, ERCW Travel Screen Level Differential Indicator Alarm  
 07-775468-000, ERCW Pump Well 1-A-A Inspection  
 06-775541-000, ERCW Pump Well 2-A-A Inspection  
 04-781477-001, ERCW Pump Well 1-B-B Inspection  
 06-775541-001, ERCW Pump Well 2-B-B Inspection  
 10-771104-000, ERCW Pump Well BB Inspection  
 111881194, ERCW Pump Well CC Inspection  
 112158672, ERCW Travelling Water Screen BB  
 112456637, ERCW Travelling Water Screen AA  
 111006658, ERCW Travelling Water Screen DA  
 09-774-328-00, ERCW Travelling Water Screen CB  
 112071857, Performance Testing for CCS Heat Exchanger 1A1, 1A2

PERs

582994	582733	582737	418809	420087	223123
557074	439930	278629	238152	579462	

Drawings

17W300-1, Yard Piping, Rev 19  
 17W300-2, Yard Piping, Rev 15  
 17W300-5, Yard Piping, Rev 4  
 17W300-8, Yard Piping, Rev 3  
 17W300-11, Yard Piping, Rev 6  
 17W300-12, Yard Piping, Rev 5  
 17W300-13, Yard Piping, Rev 5  
 17W300-19, Yard Piping, Rev 4  
 17W300-20, Yard Piping, Rev 1  
 17W300-21, Yard Piping, Rev 5  
 17W300-23, Yard Piping, Rev 1  
 17W300-28, Yard Piping, Rev 5  
 17W300-30, Yard Piping, Rev 3  
 17W300-31, Yard Piping, Rev 3  
 17W300-32, Yard Piping, Rev 3  
 17W304-1, Yard Piping, Rev 13  
 17W304-2, Yard Piping, Rev 9  
 17W304-3, Yard Piping, Rev 5  
 17W304-4, Yard Piping, Rev 5  
 17W304-5, Yard Piping, Rev 5  
 37W300-1, Yard Piping, Rev 7  
 37W300-3, Yard Piping, Rev 0  
 47W845-1, 2, 3,4,5,6, Mechanical Flow Diagram-ERCW

Calculations

B87 070720 003, CCS Heat Exchanger Evaluation for Train A and B  
 B87 120301 017, ERCW Flow balance Hydraulic Model  
 B87 980618 023, CS Heat exchanger UA value and Tube Plugging Limits  
 B88 011102 801, Long Term Containment Pressure Analysis  
 B87 060714 013, CCS Plate Heat Exchanger/ ERCW Flow Requirements  
 B85 080829 005, ERCW Design Criterion  
 B44 870527 007, Heat Removal Heat Exchanger "UA" values

Other documents

Health Report, Heat Exchanger, 10/1/2009-3/31/2010  
 Health Report, Heat Exchanger, 7/1-12/31/2011  
 Health Report, Heat Exchanger, 10/1-12/31/2011  
 Health Report, Heat Exchanger, 4/1-9/30/2010  
 Health Report, Containment Spray Heat Exchanger, 10/1/2010-1/31/2011  
 Health Report, Containment Spray Heat Exchanger, 6/1-9/30/2011  
 Health Report, Containment Spray Heat Exchanger, 2/1/-5/31/2012  
 Health Report, Containment Spray Heat Exchanger, 2/11-5/31/2011

Health Report, Containment Spray Heat Exchanger, 10/1/2011-1/31/2012  
 Health Report, Emergency Raw Cooling Water, 10/1/2011-1/31/2012  
 Health Report, Emergency Raw Cooling Water, 10/1/2010-1/31/2011  
 Health Report, Emergency Raw Cooling Water, 2/1-5/31/2011  
 Health Report, Component Cooling Heat Exchanger, 6/1-9/30/2011  
 Health Report, Component Cooling Heat Exchanger, 10/1/2010-1/31/2011  
 Health Report, Component Cooling Heat Exchanger, 2/1-5/31/2011  
 Health Report, Component Cooling Heat Exchanger, 10/1/2011-1/31/2012  
 Health Report, Component Cooling Heat Exchanger, 2/1-5/31/2012  
 UT grid data for Mic and Cavitation monitoring, 4/2012  
 UT above ground piping on 1A2 CCS discharge, 2006  
 UT above ground piping on 2A CS discharge, 2006  
 Molluscicide Raw water Treatment results, 5/2012, 10/2009, 9/2010,10/2011,4/2012  
 Chemistry/Environment Report on Plant Demineralization, 7/2012  
 Raw Water Corrosion Inhibitor Biodispersant (BD1500), 8/2010, 10/2011, 8/2009  
 Raw Water Flogard Phosphate Injection results, 10/2011, 10/2010,8/2010,10/2009,9/2009  
 Raw Water Treatment Program report, 5/2012, 6/2012  
 B38 971114 8-01, Single Failure Criteria for Fluid and Electrical Safety Related System  
 S 64 950922 800, GL89-13 response, 9/1995  
 L44 901024803, GL89-13 Response, 10/1990  
 Functional Evaluation for PER 204399, ERCW C-B screen wash Pump Strainer high dP(OpE)  
 Service Water Strainer Trip Results response (OE36079)  
 Eddy Current Inspection, Containment Spray 1A, 3/2012  
 Eddy Current Inspection, Containment Spray 2A, 10/2009  
 Eddy Current Inspection, Diesel Generator 2B2, 10/2011  
 SQN-12-0015, Replace 1A Containment Spray heat Exchanger  
 L4980831 800, Response to GL96-06, Water Hammer to NRC  
 Functional Evaluation for PER 216867, ERCW Pump Shaft Part 21(OpE)  
 Sequoyah Internal Trend Report, January 1-March 31, 2012  
 Functional Evaluation for PER 204399, ERCW C-B Wash Pump Strainer high dP(OpE)  
 Performance Testing of CCS Heat Exchanger 1A1, 1A2, 2/2009  
 SQN S64950922800, GL89-13 response, 7/2012  
 EDG Performance Test, 2010  
 Eddy Current Certification, Albert Yingst, MIS, ID#Y6271  
 Eddy Current Certification, Ardell Stoll, ISO, ID#02HMEEJ1U  
 Eddy Current Certification, Daniel Folsom, ISO, ID#3VDoXH7QC  
 Visual Certification, Ardell Stoll, ISO, ID#02HMEEJ1U  
 Visual Certification, Daniel Folsom, ISO, ID#3VDoXH7QC  
 Corrosion Certification, Marion Rankin, TVA, ID#AH7ULAC RI  
 Corrosion Certification, Wayne Brewer, TVA, ID#W26CER7EM  
 Corrosion Certification, Ed Craig, TVA, ID#S29702421

### **Section R11: Licensed Operator Requalification**

#### **Records:**

License Reactivation Packages (2 Records Reviewed)  
 LORP Training Attendance records  
 Medical Files (10 Records Reviewed)  
 Remedial Training Records (Various)

Remedial Training Examinations (2 Records Reviewed)

Various condition reports over the last two years related to licensed operator on shift performance

Various closed condition reports that were simulator related

Written Examinations:

Biennial written exam A-1 RO

Biennial written exam A-1 SRO

Biennial written exam B-1 RO

Biennial written exam B-1 SRO

Annual Examination Scenarios:

S-2A, LOOP / MSLB Outside Containment, Rev. 0

S-43A, Loss of All AC / Reset EDG Recovery, Rev.0

S-11A, LOCA with Loss of RHR Recirculation, Rev. 0

S-14A, LOCA Outside Containment, Rev. 0

S-30A, Loss of 120V AC Vital Board/SBLOCA, Rev.0

S-85A, Main Generator Trip/Loss of Heat Sink/Bleed and Feed, Rev.0

JPMs:

SRO ADMIN 416, Evaluate Conditions for Emergency Classification, Rev. 0

SRO ADMIN JPM 422, Perform a Risk Assessment Using EOOS, Rev. 0

SIM JPM 059, Establish Excess Letdown, Rev. 15

SIM JPM 404, Shutdown of A EGTS Train 30 Min after SI Actuation, Rev. 2

SIM 062-1 AP, Transfer 1A-A 6.9 KV SD Bd from Alternate to Normal Supply, Rev. 1

SIM 097-2, Refill the #3 CLA to Within Normal Operating Range, Rev. 1

INPLANT (RO/SRO) JPM 148, Operation of ERCW Valves in DG Building, Rev. 2

INPLANT (RO/SRO) 421 AP, Reset the TD AFW Pump Locally, Rev. 1

SIM JPM 137, Unload 1A-A Diesel Generator after a Blackout Start, Rev. 6

INPLANT (RO/SRO) 420 AP, OPERATE PCV-1-12 Locally, Rev. 0

SIM 199 AP, Respond to a Leak in the Component Cooling Water System, Rev. 1

Procedures:

TRN-12 Simulator Regulatory Requirements, Rev. 0011, (11-02-2011)

TRN-11.8 Operator License Training Examinations and Renewals, Rev. 9, (02/25/2011)

NPG-SPP-17.8.1 Licensed Operator Requalification Examination Development and Implementation, Rev. 0006, (05-31-2012)

NPG-SPP-17.4.1 Exam Security and Exam Database Management, Rev. 0005 (07-31-2012)

NPG-SPP-17.8.2 Job Performance Measures Development, Administration, and Evaluation, Rev. 0002, (04-04-2012)

NPG-SPP-17.8.4 Conduct of Simulator Operations, Rev. 0000, (12-27-2011)

OPDP-10 License Status Maintenance, Reactivation and Proficiency for Non-Licensed Positions, Rev. 0005, (06-14-2012)

0-PI-NXX-085-001.0, Resetting Control Rod Fully Withdrawn Position, Revision 25

Simulator Static and Normal Tests:

Simulator ASI/ANS-1985 Drift Test, (8/16/2011)

Simulator Static Test 41%, (8/16/2011)

Simulator Static Test 64%, (8/16/2011)  
 Simulator Static Test 100%, (8/16/2011)  
 Sequoyah 2009 ANSI/ANS Annual Procedure Tests (05/16/2010)  
 Sequoyah 2010 ANSI/ANS Annual Procedure Tests (11/30/2010)

Simulator Transient Tests:

Transient Test #6, Main Turbine Trip Below P-9 (No Reactor Trip), 9/26/2011  
 Transient Test # 7, Rapid Load Changes, (5/10/2011)  
 Transient Test # 8, Loop 2 Cold-Leg Large-Break LOCA with Loss of Offsite Power, (5/10/2011)  
 Transient Test # 9, Main Steam Line Break Inside Containment (Loop 1), (5/10/2011)  
 Transient Test # 10, Slow RCS Depressurization to Saturation-CCPs Failed, (5/12/2011)

Simulator Malfunction Tests:

FW-20 Main Feedwater Line Break Outside Containment, (9/5/2011)  
 RC-05 PORV Failure, (08/31/2011)  
 ED06 Loss of a 6.9KV Shutdown Board (11/15/2008)  
 ED08 Loss of a 480V Shutdown Board (11/15/2008)  
 IA02 Loss of Non-Essential Control Air (11/15/2008)  
 IA02 Loss of Essential control Air (11/15/2008)

PERs:

293347 – SQN Licensed Operator Requalification (LOR) Exam Compromise  
 298399 – Shift Manager and Unit Supervisor Missed Time to Classify an Event during the Annual Operating Exam.  
 400477 – REP PI Failure on Week 2 LOR As Found Exam.  
 465180 – Two Crews Misclassified REP Due to Poor Crew Communications During Annual Operating Test.  
 475060 - Shift Manager Made an Error during REP Assessment and Notification Cycle 6  
 463574 – Two Shift Managers Did Not Make a REP Classification in the Required Time  
 469721 – One Shift Manager Did Not Correctly Fill Out Notification Paper Work on LOR Week of the LOR Annual Exam.  
 542315 – Improperly Filled Out EAL Paperwork during Simulator Scenario

Standards:

ANSI/ANS-3.5-1985, American National Standard Nuclear Power Plant Simulators for Use In Operator Training and Examination  
 ANSI/ANS-3.4-1983, Medical Certification and Monitoring of Personnel Requiring Operator Licenses for Nuclear Power Plants

Other Documents:

PER Word Search, RPT-CAP011  
 2012 71111.11 Human Error Report Cause Org Plant Ops 11-1-10  
 SQN-OPS-F-11-03, Operations Human Performance Self-Assessment, 8/31/2011  
 Root Cause Evaluation Report SQN LOR Exam Compromise, PER 293347, 01-22-2011  
 SQN-TRN-F-12-02 LOR Training 71111.11 Readiness, Rev.1, (06/21/2012)  
 Root Cause Evaluation Report SQN LOR Exam Compromise (PER 293347) (01/22/2011)  
 S-79, Simulator Exercise Guide - PZR level transmitter fails low, Steam Line Break w/ ATWS, Revision 1

**Section R12: Maintenance Effectiveness**Procedures

TI-4, Maintenance Rule Performance Indicator Monitoring, Trending, and Reporting – 10CFR50.65, Revision 23

PERs

581319, Lack of Trending and Maintenance of ESF/ECCS Room Coolers

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

0-TI-DSM-000-007.1, Risk Assessment Guidelines, Revision 9  
NPG-SPP-07.1, On-Line Work Management, Revision 6

Other documents

SQN-0-12-122, PRA Evaluation Response, Date 8/10/2012

**Section R15: Operability Evaluations**PERs

600559 – Emergency Diesel Generator 1A-A Emergency Feeder Breaker 1912 Common Cause Evaluation  
599247 – Pearlweave in U2 Containment  
604614 – 6 garbage bags in U2 Containment  
581319 – Degrading ERCW Leak on 2A-A Centrifugal Charging Pump Room Cooler  
46678 – Broken Fan Belt on 1B-B Centrifugal Charging Pump Room Cooler

**Section R18: Plant Modifications**Procedures

NPG-SSP-09.4, 10CFR 50.59 Evaluations of changes, Tests, and Experiments, Revision 5  
NPG-SSP-09.5, Temporary Alterations, Revision 2

Work Orders

113569569, DG 2A-A Emergency Stop Transfer Switch  
113569540, DG 2A-A Emergency Stop Transfer Switch  
113569557, DG 2A-A Emergency Stop Transfer Switch  
113601615, DG 2A-A Emergency Stop Transfer Switch

PERs

588316, Mods Planning Milestone Missed

Other documents

Unit 2 TACF 2-12-008-043 Unit 2 Steam Generator No. 1 Blowdown Sample Isolation Valve  
Unit 1 DCN D22841, Eliminate interference between 1 FCV-63-11 and CS piping  
Unit 2 DCN 22543A, Diesel Generator 2A-A Emergency Stop Transfer Switch Modification  
Review of 50.59 for DCN 22543A

**Section R19: Post Maintenance Testing****Procedures**

MMDP-1, Maintenance Management System, Revision 20  
 MMDP-3, Guidelines for Planning and Execution of Troubleshooting Activities, Revision 6  
 NPG-SPP-6.5, Foreign Material Control, Revision 0  
 NPG-SPP-6.1, Work Order Process Initiation, Revision 0  
 NPG-SPP-06.3, Pre-/Post-Maintenance Testing, Revision 0  
 NPG-SPP-06.9, Testing Programs, Revision 0  
 NPG-SPP-06.9.1, Conduct of Testing, Revision 1  
 NPG-SPP-06.9.3, Post-Modification Testing, Revision 0  
 SI-251.2 Channel Calibration of Class 1E Motor Operated Valve Overload Relay Heaters  
 0-SI-SXV-000-206.0, Testing of Category A and B Valves after work activities, upon release from a hold order, or when transferred from other documents, Revision 6

**Work Orders**

113466231, Appendix R DCN D22540 – 6.9 KV Shutdown Board 1B-B Alternate Supply Breaker control power modification  
 112759739, 2B CSP 2-FCV-72-21 Containment Spray Pump Suction (RWST) Overload Heater Calibration  
 113467794, SQN-0-XS-082-0123-A DCN 22543 Appendix R Post Maintenance Test  
 113138021, RHR Pump 1A-A Relay Functional Test  
 113138018, RHR Pump 1A-A Relay, Ammeter, Transducer Calibration  
 113138600, Clean Square D Contactors for RHR Pump 1A-A Mini Flow Valve FCV-74-12  
 113138599, Clean Square D Contactors for RHR Pump 1A-A Inlet Flow Valve FCV-74-3  
 112745503, Calibration of Auxiliary Control Air Compressor B-B  
 113737566, Replace Diesel Generator 1A-A Auto Voltage Control Motor Operated Control Potentiometer (MOP)

**Other documents**

CCD No 1,2 45N779-8 R28, WIRING DIAGRAMS 480V SHUTDOWN AUX POWER SCHEMATIC DIAGRAMS SHEET 8  
 CCD No 1,2 45N751-5 R63, WIRING DIAGRAMS 480V REACTOR MOV BD 1B1-B SINGLE LINE SH-1  
 CCD No 2-45N370 R16, AUXILIARY BUILDING ELECTRICAL EQUIPMENT 480V REACTOR MOV BOARDS 2B1-B & 2B2-B BOARD ARRANGEMENT  
 0-SO-82-3 Diesel Generator 2A-A

**Section R20: Refueling and Outage Activities****Procedures**

0-GO-15, Containment Closure Control, Revision 34  
 0-PI-OPS-000-011.0, "Containment Access Control During Modes 1-4, Revision 1

**Section R22: Surveillance Testing****Procedures**

NPG-SPP-06.9.1, Conduct of Testing, Revision 5  
 1-SI-IFT-092-N41.1, Functional Test of Power Range Nuclear Instrumentation System, Channel N41, Revision 23  
 2-SI-SXP-070-201.B Component Cooling Pump 2B-B Performance Test Revision 8

2-SI-IFT-099-90.8A, Reactor Trip Instrumentation (SSPS) Monthly Functional Test, Revision 20  
0-SI-ICC-090-101.B, Calibration of Auxiliary Building Gaseous Radiation Monitor 0-R-90-101B  
and Exhaust Vent Flow Monitor 0-F-30-174, Revision 21  
0-SI-OPS-085-011.0, Reactivity Control Systems Moveable Control Assemblies, Revision 33

Work Orders

113100565, 1-SI-IFT-092-N41.1 FT Power Range Nuclear Inst Ch N41

**Section 1EP6: Drill Evaluation**

Procedures

EPIP-1, Emergency Plan Classification Matrix, Revision 47

**Section 4OA1: Performance Indicator Verification**

Procedures

NPG-SPP-02.2, Performance Indicator Program, Revision 3  
NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Revision 6  
NPG-SPP-02.10, Equipment Reliability Performance Indicators, Revision 1  
Mitigating System Performance Index Basis Document, Revision 6  
OPDP-1, Conduct of Operations, Revision 24

Other documents

SR 611522, MSPI Basic Document incorrectly list surveillances that do not meet 15min unavailability  
SR 611657, Dedicated Operator Actions are contained in Procedure Caution versus Procedure Steps

**Section 4OA2: Identification and Resolution of Problems**

Procedures

NPG-SPP-03.1, Corrective Action Program, Revision 4  
NPG-SPP-07.1.4, Work Control Prioritization – Online, Revision 0

Other documents

Operations Directive Manual Appendix O, Operations Guide to Daily Work Control and Schedule Review, Revision 7

**Section 4OA7: Licensee-Identified Violations**

Procedures

NPG-SPP-09.17, Temporary Equipment Control, Revision 1

PERs

604614, Cable bags in upper containment Unit 2  
599247, Notified of unauthorized material inside Unit 2 Containment