



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

October 30, 2014

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

**SUBJECT: BROWNS FERRY NUCLEAR PLANT - NRC INTEGRATED INSPECTION
REPORT 05000259/2014004, 05000260/2014004, AND 05000296/2014004**

Dear Mr. Shea:

On September 30, 2014, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Browns Ferry Nuclear Plant, Units 1, 2, and 3. On October 8, 2014, the NRC inspectors discussed the results of this inspection with Mr. K. Polson and other members of your staff. Inspectors documented the results of this inspection in the enclosed inspection report.

NRC inspectors documented three findings of very low safety significance (Green) in this report. All of these findings involved a violation of NRC requirements. Additionally, one of the findings was associated with an additional violation of NRC requirements determined to be Severity Level IV under the traditional enforcement process. Further, inspectors documented a licensee-identified violation which was determined to be of very low safety significance in this report. The NRC is treating these violations as a non-cited violations (NCV) consistent with Section 2.3.2.a of the Enforcement Policy.

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

In addition, if you disagree with a cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region II, and the NRC resident inspector at the Browns Ferry Nuclear Plant.

J. Shea

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

Sincerely,

/RA/

Jonathan H. Bartley, Chief
Reactor Projects Branch 6
Division of Reactor Projects

Docket Nos.: 50-259, 50-260, 50-296
License Nos.: DPR-33, DPR-52, DPR-68

Enclosure: NRC Integrated Inspection Report 05000259/2014004,
05000260/2014004 and 05000296/2014004

cc distribution via ListServ

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J. Shea

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Letter to Joseph W. Shea from Jonathan H. Bartley dated October 30, 2014

SUBJECT: BROWNS FERRY NUCLEAR PLANT - NRC INTEGRATED INSPECTION
REPORT 05000259/2014004, 05000260/2014004, AND 05000296/2014004

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.: 50-259, 50-260, 50-296

License Nos.: DPR-33, DPR-52, DPR-68

Report No.: 05000259/2014004, 05000260/2014004, 05000296/2014004

Licensee: Tennessee Valley Authority (TVA)

Facility: Browns Ferry Nuclear Plant, Units 1, 2, and 3

Location: Corner of Shaw and Nuclear Plant Road
Athens, AL 35611

Dates: July 1, 2014, through September 30, 2014

Inspectors: D. Dumbacher, Senior Resident Inspector
C. Scott, Acting Senior Resident Inspector
L. Pressley, Resident Inspector
T. Stephen, Resident Inspector
A. Ruh, Resident Inspector
G. Smith, Senior Resident Inspector, Sequoyah Nuclear Plant
M. Peck, Senior Instructor, Technical Training Center
R. Baldwin, Senior Operator Licensing Examiner
A. Goldau, Operator Licensing Examiner

Approved by: Jonathan H. Bartley, Chief
Reactor Projects Branch 6
Division of Reactor Projects

Enclosure

SUMMARY

IR 05000259/2014004, 05000260/2014004, 05000296/2014004; 07/01/2014–09/30/2014; Browns Ferry Nuclear Plant, Units 1, 2 and 3; Fire Protection, Operability Determinations and Functionality Assessment, and Follow-up of Events and Notices of Enforcement Discretion.

The report covered a three month period of inspection by resident and regional inspectors. Three NRC identified findings were identified. The significance of inspection findings are indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) and determined using IMC 0609, "Significance Determination Process" dated June 2, 2011. Cross-cutting aspects are determined using IMC 0310, "Components Within the Cross Cutting Areas" dated December 19, 2013. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy dated July 9, 2013. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process" Revision 5.

NRC Identified and Self-Revealing Findings

Cornerstone: Mitigating Systems

- Green. The NRC identified a Green non-cited violation (NCV) of Browns Ferry Operating License Conditions 2.C for the licensee's failure to maintain fire doors in their rated configuration required by the Fire Protection Report. Specifically, the licensee failed to ensure that fire doors 497, 501, and 506, for Units 1, 2, and 3 respectively, were latched closed as required for the doors to meet their designed fire rating. The licensee entered this issue in the CAP as PER 921571 and initiated corrective actions to replace the degraded fire doors.

The inspectors determined that the licensee's failure to maintain fire doors 501, 506 and 497 in their rated configuration as required by the Browns Ferry Nuclear Plant Fire Protection Report was a performance deficiency. The finding was more than minor because it was associated with the protection against external factors (fires) attribute of the mitigating systems cornerstone and affected the objective to maintain the reliability and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, failure to ensure fire doors were closed and latched could have resulted in the door opening during a fire, thereby allowing a fire to affect additional equipment important to safety in the exposed fire zone. The finding was screened in accordance with IMC 0609, Appendix F, "Fire Protection Significance Determination Process (SDP)," issued September 20, 2013. The inspectors conducted a Phase I SDP screening utilizing Figure F.1 in Appendix F. Per the Phase I screening criteria, the finding was assigned the category of "Fire Confinement." The inspectors assigned a "Moderate Degradation Rating" to the fire barrier door in accordance with Attachment 2 of Appendix F, because the latching mechanism for the door was non-functional. In accordance with Appendix F, "Supplemental Screening for Fire Confinement Findings," task 1.4.2, this finding screened as very low safety significance (Green) because there was a fully functional automatic suppression system on either side of the fire barrier. The cause of this finding was directly related to the aspect of trending in the

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problem identification and resolution cross-cutting area. Specifically, over the past several years the licensee documented multiple examples of fire doors failing to consistently latch, in the CAP. The licensee failed to analyze this information in the aggregate to identify and correct the issue (P.4). (Section 1R05)

- Green. The NRC identified a Severity Level IV (SL-IV) NCV of 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," and an associated Green NCV of Technical Specification (TS) 3.8.7 "Distribution System – Operating" for the licensee's failure to obtain a license amendment prior to implementing changes to the Technical Requirements Manual (TRM) that affected TS 3.8.7 for Units 1, 2, and 3. Specifically, the addition of TRM 3.7.6, Electric Board Room (EBR) Air Conditioning (AC) system resulted in a violation of T.S. 3.8.7 Distribution- Operating for the C and D 4kV shutdown boards (supported by the Unit 2 EBR AC system) being inoperable in mode 1 for longer than the allowed outage time and the action statement not complied with. The licensee's immediate corrective action was to issue administrative guidance to operators for the determination of operability of the 4kV shutdown boards with the Electric Board Room air conditioning system inoperable and initiate actions to submit a TS amendment request as documented in PER 846040.

The performance deficiency was more than minor because it adversely affected the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the performance deficiency resulted in the licensee not declaring Unit 1 and 2 4kV shutdown boards inoperable and taking actions required by TS 3.8.7 action statement 'E' on multiple occasions. The finding was screened using IMC 0609 Appendix A Exhibit 2, dated June 19, 2012, and was determined to be of very low safety significance (Green) because the finding did not represent an actual loss of function of one or more non-Tech Spec Trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for >24 hrs. The violation was determined to be a Severity Level IV violation using the Enforcement Policy example 6.1.d.2, because it resulted in a condition having a very low safety significance. No cross cutting aspect was assigned in association with the ROP finding because the change to the TRM was performed greater than three years ago and did not reflect current licensee performance. (Section 1R15.1)

- Green. The NRC identified a Green non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to maintain adequate control measures for verifying or checking the adequacy of design of the Standby Liquid Control (SLC) system. Specifically, the licensee's calculations and system testing were both inadequate to demonstrate that the SLC system could meet design requirements under all required operating conditions. The licensee entered this in their CAP as PER 920418 and initiated corrective actions to perform a modification to the SLC system and update design calculations.

The inspectors determined that the licensee's failure to maintain adequate control measures for verifying or checking the adequacy of design of the SLC system as required by 10 CFR 50, Appendix B, Criterion III, "Design Control," was a performance deficiency (PD). Specifically, the licensee's calculations and system testing were both inadequate to demonstrate that the SLC system could meet design requirements under all required operating conditions. The PD was more than minor because it affected the Mitigating Systems Cornerstone attribute of Design Control, and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, there was not an adequate method for ensuring the capability of the design of the SLC system following a design basis accident. The inspectors screened this finding in accordance with IMC 0609, Appendix A, "Significance Determination Process", "Exhibit 2-Mitigating Systems Screening Questions," dated June 19, 2012, and determined the finding was of very low safety significance (Green) because the design deficiency did not result in a loss of operability or functionality. The inspectors determined that no cross cutting aspect was applicable because this finding was not indicative of current licensee performance and occurred more than three years ago. (Section 1R15.2)

Licensee Identified Violations

- One violation of very low safety significance that was identified by the licensee has been reviewed by the NRC. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program (CAP). This violation and its corrective action tracking number are listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

Unit 1 operated at 100 percent of rated thermal power (RTP) except for 1 unplanned reactor scram, 1 unplanned downpower and 5 planned downpowers. The unplanned scram occurred on August 26, 2014, due to a Generator Neutral Overvoltage condition that resulted in a turbine trip and thus caused a reactor trip (EN 50404). The unit restarted following replacement of a transformer on the 'A' phase of the main generator breaker on August 30, 2014, and returned to full power operation on September 2, 2014. The unplanned downpower to 95 percent on August 7, 2014, was caused by a faulty feedwater heater level control valve. The unit returned to full power operation on August 9, 2014, following replacement of air conditioning system for the controller cabinet. The planned downpowers, each of short duration and for various planned maintenance activities, occurred on July 4, 2014, July 18, 2014, July 24, 2014, August 1, 2014, and September 12, 2014. Power remained at 100 percent until the unit entered power coastdown on August 15, 2014, in preparation for the October 3, 2014, refueling outage.

Unit 2 operated at 100 percent of rated thermal power (RTP) except for 2 unplanned and 4 planned downpowers. The unplanned downpower to 98 percent on July 10, 2014 for 5 hours was caused by entry into the action statement for TS LCO 3.0.3 due to concurrent inoperability of the Loop I of the Core Spray system for maintenance and a leak that was discovered on the 'C' Emergency Diesel Generator (EDG) Emergency Equipment Cooling Water (EECW) piping (EN 50265). The unplanned downpower to 14 percent reactor power on August 2, 2014 and subsequent reactor shutdown on August 3, 2014, was due to an increase in unidentified leakage that required identification and prompt repair. There were two leaks identified during the drywell entry on August 2, 2014: one on the Reactor Building Closed Loop Cooling Water (RBCCW) return line from the 'A' Recirculation pump and one on the Residual Heat Removal (RHR) shutdown cooling chemical injection line. Both leaks were repaired and the unit returned to 100 percent power on August 11, 2014. The planned downpowers, each of short duration and for various planned maintenance activities, occurred on July 6, 2014; July 25, 2014; September 5, 2014; and September 21, 2014. Power remained at 100 percent for the remainder of the quarter.

Unit 3 operated at 100 percent of rated thermal power (RTP) except for 1 planned downpower to 75 percent for 10 hours on September 6, 2014, for rod sequence exchange. Power remained at 100 percent for the remainder of the quarter.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R04 Equipment Alignment.1 Partial Walkdowna. Inspection Scope

The inspectors conducted partial equipment alignment walkdowns to evaluate the operability of selected redundant trains or backup systems, listed below, while the other train or subsystem was inoperable or out of service. The inspectors reviewed the functional systems descriptions, Updated Final Safety Analysis Report (UFSAR), system operating procedures, and Technical Specifications (TS) to determine correct system lineups for the current plant conditions. The inspectors performed walkdowns of the systems to verify that critical components were properly aligned and to identify any discrepancies which could affect operability of the redundant train or backup system. This activity constituted three Equipment Alignment Partial Walkdown inspection samples.

- Unit 1 Standby Liquid Control (SLC)
- Unit 3 Core Spray System Loop II with Loop I out of service for maintenance
- Unit 1 B train of Control Bay Chillers with the A train out of service for maintenance

b. Findings

No findings were identified.

.2 Complete Walkdowna. Inspection Scope

The inspectors completed a detailed alignment verification of the Unit 1, Unit 2, and Unit 3 Electric Board Room Air Handling Units, using the applicable diagrams listed below:

3-47E3865-4 R10 V&AC Air Flow
 3-47E866-7 R34 AC Chilled Water Flow
 3-47E865-4 R14 V&AC Air Flow
 2-47E2865-4 R20 V&AC Air Flow
 1-47E1865-4 R8 V&AC Air Flow
 0-47E866-9 R10 Chilled Water Circulating Pumps Flow
 0-47E866-3 R35 H&AC Hot & Chilled Water Flow
 0-47E865-4 R67 V&AC Air Flow

Also, the relevant operating instruction, 0-OI-31, and several other licensee analyses were used to verify equipment availability and operability. The inspectors reviewed relevant portions of the Updated Final Safety Analysis Report (UFSAR) and TS. This detailed walkdown also verified electrical power alignment, the condition of applicable system instrumentation and controls, component labeling, pipe hangers and support installation, and associated support systems status. The inspectors examined applicable System Health Reports, open Work Orders (WOs), and any previous Problem Evaluation Reports (PERs) that could affect system alignment and operability. This activity constituted one Equipment Alignment Complete Walkdown inspection sample.

b. Findings

No findings were identified.

1R05 Fire Protection

.1 Fire Protection Tours

a. Inspection Scope

The inspectors reviewed licensee procedures for transient combustibles and fire protection impairments, and conducted a walkdown of the fire areas (FA) and fire zones (FZ) listed below. Selected FAs/FZs were examined in order to verify licensee control of transient combustibles and ignition sources; the material condition of fire protection equipment and fire barriers; and operational lineup and operational condition of fire protection features or measures. The inspectors verified that selected fire protection impairments were identified and controlled in accordance with procedures. The inspectors reviewed applicable portions of the Fire Protection Report, Volumes 1 and 2, including the applicable Fire Hazards Analysis, and Pre-Fire Plan drawings, to verify that the necessary firefighting equipment, such as fire extinguishers, hose stations, ladders, and communications equipment, was in place. This activity constituted five Fire Protection Walkdown inspection samples.

- Unit 2, Reactor Building, EL 519' to EL 565', column line R8 to 10' East of column line R11 (Fire Zone 2-1)
- Unit 3, Reactor Building, EL 593', Residual Heat Removal (RHR) Heat exchanger (HX) rooms, and EL 565' near column line R15 to R21 (Fire Zone 3-3)
- Unit 1, Control Building, EL 593' (Fire Area 16)
- Unit 1 and 2, Emergency Diesel Generator (EDG) Building, all levels (Fire Area 20)
- Unit 3, EDG Building, all levels (Fire Area 21)

b. Findings

Introduction: The NRC identified a Green non-cited violation (NCV) of Browns Ferry Operating License Conditions 2.C for the licensee's failure to maintain fire doors in their rated configuration required by the Fire Protection Report. Specifically, the licensee failed to ensure that fire doors 497, 501, and 506, for Units 1, 2, and 3 respectively, were latched closed as required for the doors to meet with their designed fire rating.

Description: On August 5, 2014, during a plant walkdown, the inspector traversed through fire door 501 which was a double door separating the Unit 2 and Unit 3 Reactor Buildings. When verifying that the fire door was latched closed, the inspector identified that both doors opened with negligible resistance. On August 12, 2014, the inspectors identified that reactor building fire door 497 was not latched. The inspectors also identified that reactor building fire door 506 was unlatched on August 13, 2014.

These fire doors are double doors which have retaining pins at the top and bottom of the inactive door leaf (the stationary door without a handle). When the door is closed, the spring loaded pins are designed to engage the door frame, to hold the inactive door leaf in place. Inspectors found that the pins in the inactive door leaf of the set of double doors were not extended into the door frame. The inspectors identified that the automatic latching mechanism on fire doors 497 and 501 was degraded. As a result, the spring loaded pins did not always engage the door frame when the door was closed. The inspectors also identified that the self-closure mechanism on fire door 506 was worn and prevented the latching mechanism from consistently engaging. The licensee entered this issue in the CAP as PER 921571 and repaired the doors with lubrication and adjustments. The licensee performed an extent of condition review on fire doors of similar construction and determined that five additional fire doors required replacement due to their age and material condition. Further, a review of the corrective action program revealed that the licensee had previously identified multiple fire doors that failed to consistently latch. In addition to the poor material condition of the self-closure and latching mechanisms, the inspector observed that plant personnel failed to meet station expectations to verify that the doors were closed and latched after use.

Browns Ferry Nuclear Plant Fire Protection Report (FPR), credits fire doors 501 and 497 as 3-hour rated fire barriers. Fire door 506 is credited as a 1-hour fire barrier. Browns Ferry FPR required that all fire doors must be rated by approving laboratories in hours of resistance to the fire assumed in the fire hazard analysis. Procurement specifications required that fire doors purchased for Browns Ferry be approved by United Technologies (UL) or Factual Mutual (FM). UL or FM listed doors are tested in the closed and latched position. The inspectors concluded that the fire doors must be latched closed to maintain their fire containment capability assumed in the fire hazards analysis.

Analysis: The inspectors determined that the licensee's failure to maintain fire doors 501, 506, and 497 in their rated configuration required by the Browns Ferry Nuclear Plant Fire Protection Report was a performance deficiency. The finding was more than minor because it was associated with the protection against external factors (fires) attribute of the mitigating systems cornerstone and adversely affected the cornerstone objective to maintain the reliability and capability of systems that respond to initiating

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events to prevent undesirable consequences. Specifically, failure to ensure fire doors were closed and latched could have resulted in the door opening during a fire, thereby allowing a fire to affect additional equipment important to safety in the exposed fire zone. The finding was screened in accordance with IMC 0609, Appendix F, "Fire Protection Significance Determination Process (SDP)," issued September 20, 2013. The inspectors conducted a Phase I SDP screening utilizing Figure F.1 in Appendix F. Per the Phase I screening criteria, the finding was assigned the category of "Fire Confinement." The inspectors assigned a "Moderate Degradation Rating" to the fire barrier door in accordance with Attachment 2 of Appendix F, because the latching mechanism for the door was non-functional. In accordance with Appendix F, "Supplemental Screening for Fire Confinement Findings," task 1.4.2, this finding screened as very low safety significance (Green) because there was a fully functional automatic suppression system on either side of the fire barrier. This finding affected the cross-cutting area of problem identification and resolution and the cross-cutting aspect of trending. Specifically, over the past several years the licensee documented multiple examples of fire doors failing to consistently latch, in the CAP. The licensee failed to analyze this information in the aggregate to identify and correct the issue (P.4).

Enforcement: Browns Ferry Units 1, 2, and 3 Operating License Conditions 2.C(13), 2.C(14), and 2.C(7), respectively, required that the licensee implement and maintain in effect all provisions of the approved Fire Protection Program as described in the Final Safety Analysis Report (FSAR) for Browns Ferry as approved in the safety evaluations dated December 8, 1988; March 31, 1993; April 1, 1993; November 2, 1995; April 25, 2007; and Supplement dated November 3, 1989. The approved Fire Protection Program, as implemented by Browns Ferry Fire Protection Plan, Revision 19, required fire doors 497 and 501 to be capable of providing a three hour fire barrier rating. The approved FPR also required that fire door 506 be capable of providing a 1 hour fire barrier rating. Contrary to the above, on August 5, 12, and 13, the licensee failed to implement and maintain, in effect, all provisions of the approved FP program as described in the licensee's Fire Plan. Specifically, the licensee failed to maintain fire doors 501, 506, and 497 in their rated configuration which reduced the fire containment capability assumed in the Fire Protection Report. The licensee implemented corrective actions to replace the degraded fire doors and reinforce station expectations that personnel are required to verify that fire doors are properly closed after passage. Because this violation was of very low safety significance and it was entered into the licensee's CAP as PER 921571, this violation is being treated as an NCV, consistent with the NRC Enforcement Policy Section 2.3.2 and designated as NCV 05000259, 260, 296/2014004-01 "Failure to maintain Fire Doors in their Rated Configuration."

1R11 Licensed Operator Requalification and Performance

.1 Licensed Operator Requalification

a. Inspection Scope

On August 4, 2014, the inspectors observed a licensed operator training session for an operating crew according to the Unit 3 Simulator Exercise Guide (SEG) OPL178.109, EHC Pump Alternation, Stator Cooling Pump Trip, Anticipated Transient without Scram (ATWS), and Emergence Depressurization, Revision 0.

The inspectors specifically evaluated the following attributes related to the operating crew's performance:

- Clarity and formality of communication
- Ability to take timely action to safely control the unit
- Prioritization, interpretation, and verification of alarms
- Correct use and implementation of procedures including Abnormal Operating Instructions (AOIs), Emergency Operating Instructions (EOIs) and Safe Shutdown Instructions (SSI)
- Timely control board operation and manipulation, including high-risk operator actions
- Timely oversight and direction provided by the shift supervisor, including ability to identify and implement appropriate technical specifications actions such as reporting and emergency plan actions and notifications
- Group dynamics involved in crew performance

The inspectors assessed the licensee's ability to administer testing and assess the performance of their licensed operators. The inspectors attended the post-examination critique performed by the licensee evaluators, and verified that licensee-identified issues were comparable to issues identified by the inspector. The inspectors reviewed simulator physical fidelity (i.e., the degree of similarity between the simulator and the reference plant control room, such as physical location of panels, equipment, instruments, controls, labels, and related form and function). This activity constituted one Observation of Requalification Activity inspection sample.

b. Findings

No findings were identified.

.2 Control Room Observations

a. Inspection Scope

Inspectors observed and assessed licensed operator performance in the plant and main control room, particularly during periods of heightened activity or risk and where the activities could affect plant safety. Inspectors reviewed various licensee policies and procedures covering Conduct of Operations, Plant Operations and Power Maneuvering.

Inspectors utilized activities such as post maintenance testing, surveillance testing and other 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.

This activity constituted one Control Room Observation inspection sample.

b. Findings

No findings were identified.

.3 Biennial Licensed Operator Requalification Inspection

a. Inspection Scope

The inspectors reviewed the facility operating history and associated documents in preparation for this inspection. During the week of September, 15 – 19, 2014, the inspectors reviewed documentation, interviewed licensee personnel, and observed the administration of operating tests 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 three 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 71111.11B. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness

.1 Routine

a. Inspection Scope

The inspectors reviewed the specific structures, systems and components (SSC) within the scope of the Maintenance Rule (MR) (10CFR50.65) with regard to some or all of the following attributes, as applicable: 1) Appropriate work practices; 2) Identifying and addressing common cause failures; 3) Scoping in accordance with 10 CFR 50.65(b) of the MR; 4) Characterizing reliability issues for performance monitoring; 5) Tracking unavailability for performance monitoring; 6) Balancing reliability and unavailability; 7) Trending key parameters for condition monitoring; 8) System classification and reclassification in accordance with 10 CFR 50.65(a)(1) or (a)(2); (9) Appropriateness of performance criteria in accordance with 10 CFR 50.65(a)(2); and (10) Appropriateness and adequacy of 10 CFR 50.65 (a)(1) goals, monitoring and corrective actions. The inspectors compared the licensee's performance against site procedures. The inspectors reviewed, as applicable, work orders, surveillance records, PERs, system health reports, engineering evaluations, and MR expert panel minutes; and attended MR expert panel meetings to verify that regulatory and procedural requirements were met. This activity constituted two Maintenance Effectiveness inspection samples.

- Unit 1 SLC
- Unit 3 Electric Hydraulic Control (EHC) System

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

a. Inspection Scope

For planned online work and/or emergent work that affected the combinations of risk significant systems listed below, the inspectors examined on-line maintenance risk assessments, and actions taken to plan and/or control work activities to effectively manage and minimize risk. The inspectors verified that risk assessments and applicable

risk management actions (RMA) were conducted as required by 10 CFR 50.65(a)(4) applicable plant procedures. As applicable, the inspectors verified the actual in-plant configurations to ensure accuracy of the licensee's risk assessments and adequacy of RMA implementations. This activity constituted four Maintenance Risk Assessment inspection samples.

- July 30, 2014, Verification of all units in Green risk with 'A' Emergency Diesel Generator (EDG), 'A' Shutdown Board Battery, A1 Residual Heat Removal Service Water (RHRSW) pump, and A2 RHRSW pump out of service for scheduled maintenance.
- August 11-14, 2014, Verification of unit 1 in Yellow Risk with 'C' RHRSW sump pump 'A', B1 RHR pump and D1 RHR pump out of service for maintenance.
- August 27, 2014, Verification of all units in Green risk with 'A' Standby Gas Treatment (SBGT), A1 RHRSW pump, C1 RHRSW pump, and the Unit 3 EDG CO2 fire suppression system out of service.
- September 17, 2014, Verification of all units in Green risk with 'D' 4kV Shutdown Board, 'D' Emergency Diesel Generator (EDG), and offsite power to '3D' 4kV Shutdown Board out of service for scheduled maintenance.

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessment

a. Inspection Scope

The inspectors reviewed the operability/functional evaluations listed below to verify technical adequacy and ensure that the licensee had adequately assessed TS operability. The inspectors reviewed applicable sections of the UFSAR to verify that the system or component remained available to perform its intended function. In addition, where appropriate, the inspectors reviewed licensee procedures to ensure that the licensee's evaluation met procedure requirements. Where applicable, inspectors examined the implementation of compensatory measures to verify that they achieved the intended purpose and that the measures were adequately controlled. The inspectors reviewed PERs on a daily basis to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. This activity constituted six Operability Evaluation inspection samples.

- Common Cause Failure Evaluation for C Diesel Generator Heat Exchanger Leak (PER 908203)
- SLC Flow Calculation Inconsistencies (PER 920418)
- Potential non-conservative SLC flow rate Technical Specification (SR 3.1.7.7) for meeting ATWS rule requirements (PER 922478)
- Preventative Maintenance Scheduled beyond Regulatory Due Date (PER 929901)

- Evaluation of Preferred Metal Technologies 10 CFR Part 21 report per EN 50253 (PER 907160)
- 3D Diesel Generator total flow low (PER 933005)

The inspectors also completed inspection of URI 05000259, 260, 296/2014-003-02, TRM Allowances Conflicting with Technical Specifications. The licensee's extent of condition review identified five additional cases where the associated TRM required actions provided a time period for continued operation with inoperable support subsystems that result in the inoperability of supported systems included in the Technical Specifications. These were:

1. TRM 3.3.2.2, Reactor Zone Isolation Timers, Condition 'A' allowed a timer to be inoperable for 12 hours prior to placing the timer in trip. This affected Technical Specification 3.3.6.2, Secondary Containment Isolation Instrumentation.
2. TRM 3.3.2.3, Refuel Zone Isolation Timers, Condition 'A' allowed a timer to be inoperable for 12 hours prior to placing the timer in trip. This affected Technical Specification 3.3.6.2, Secondary Containment Isolation Instrumentation.
3. TRM 3.3.3.2, Low Pressure ECCS Area Cooler Instrumentation, Condition 'A' allowed one or more required channels to be inoperable for 24 hours before restoring the required channel(s) to operable. This affected Technical Specification 3.5.1, ECCS-Operating and 3.5.2, ECCS-Shutdown.
4. TRM 3.3.3.7, RHRSW (EECW) Pump Timers, Condition 'A' allowed one or more functions with one required timer to be inoperable for 24 hours before restoring the timers to operable. This affected TS 3.7.2, EECW and UHS.
5. TRM 3.6.3, Drywell Control Air System, Condition 'A' allowed Plant control air to be used to supply the pneumatic control system inside primary containment for up to 24 hours without an analysis on the potential effects on containment oxygen concentrations. This affected TS 3.6.3.2 Primary Containment Oxygen Concentration.

The inspectors determined that none of the additional extents of condition issues resulted in inoperability for the TRM supported Technical Specification equipment. Thus these were classified as minor violations whose corrective actions were documented in the licensee's CAP as PER 877729.

b. Findings

.1 (Closed) URI 05000259, 260, 296/2014-003-02. TRM Allowances Conflicting with Technical Specifications

Introduction: The NRC identified a Severity Level IV (SL-IV) NCV of 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," and an associated Green NCV of Technical Specification (TS) 3.8.7 "Distribution System – Operating" for the licensee's failure to obtain a license amendment prior to implementing changes to the Technical Requirements Manual (TRM) that affected TS 3.8.7 for Units 1, Enclosure

2, and 3. Specifically, the addition of TRM 3.7.6, Electric Board Room (EBR) Air Conditioning (AC) system allowed both EBR AC subsystem's to be inoperable for up to 7 days before declaring the TS supported equipment governed by TS 3.8.7 inoperable.

Description: On August 15, 2002, the Browns Ferry staff approved a change to add, as revision 32, Technical Requirements Manual (TRM) section 3.7.6, Electric Board AC System, to provide guidance associated with EBR chiller operation. Specifically, the licensee controlled document added administrative controls placed on the operability of the EBR AC systems. This change to procedures described in the updated FSAR was required to comply with the administrative controls of TRM section TR 5.1, TRM Control Program. Technical Requirement (TR) 5.1.2 stated that licensees may make changes to the TRM without prior NRC approval provided the changes do not require either of the following:

1. A change in the Technical Specification incorporated into the license; or
2. A change to the updated FSAR or TRM Bases that requires NRC approval pursuant to 10 CFR 50.59

The Browns Ferry Technical Specifications, Section 1.0, "Definitions," stated, in part, A system, subsystem, division, component, or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power, cooling and seal water, lubrication, and other auxiliary equipment that are required for the system, subsystem, division, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s).

The August 2002 TRM change allowed the 4kV shutdown boards to have their necessary EBR chillers to each be incapable of performing the necessary cooling function during modes 1, 2, and 3. The TRM addition allowed an additional 8 days to attempt to restore one of the chiller cooling trains. It did not require immediate entry into TS 3.8.7 action statement 'A' and 'F' as required when the support safety function is lost. This constituted a change to the Technical Specification incorporated into the license. TS 3.8.7 action statement 'A' required that if one Unit 1 or Unit 2 4kV shutdown board is inoperable that it be restored in 5 days. TS 3.8.7 action statement 'F' required that if both the Unit 1 and Unit 2 'C' and 'D' 4kV shutdown boards are inoperable that one be restored to operability within 8 hours.

A review of the previous three years revealed that on multiple occasions, both Unit 2 EBR AC units were declared inoperable for maintenance. The Unit 2 EBR AC units provide cooling for the Unit 1 and 2 4kV shutdown boards 'C' and 'D'. Eight hours is the maximum allowed outage time for the Unit 1 and Unit 2 4kV shutdown boards 'C' and 'D'. There were two occasions where these AC units were inoperable for longer than eight hours and thus the Unit 1 and 2 4kV shutdown boards 'C' and 'D' exceeded their allowed outage time. From October 26, 2011, through October 28, 2011; the 'C' and 'D' 4kV shutdown boards were inoperable for 39 hours. From February 2, 2013, until February 3, 2013; the 'C' and 'D' 4kV shutdown boards were inoperable for 33 hours. The TS 3.8.7 action statements 'A' and 'F' were not entered during these time periods.

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Analysis: The licensee's failure to apply for a license amendment in accordance with 10 CFR 50.90 prior to implementing a TRM change that affected Technical Specifications was a performance deficiency and a violation of 10 CFR 50.90. Because violations of 10 CFR 50.90 are considered to be violations that potentially impede or impact the regulatory process; they are dispositioned using the traditional enforcement process. This violation is associated with a finding that has been evaluated by the SDP and communicated with an SDP color reflective of the safety impact of the deficient licensee performance. The SDP, however, does not specifically consider the regulatory process impact. Thus, although related to a common regulatory concern, it is necessary to address the violation and finding using different processes to correctly reflect both the regulatory importance of the violation and the safety significance of the associated finding.

The performance deficiency was more than minor because it adversely affected the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the performance deficiency resulted in the licensee not declaring Unit 1 and 2 4kV shutdown boards inoperable and taking actions required by TS 3.8.7 action statement 'E' on multiple occasions. The finding was screened using IMC 0609 Appendix A Exhibit 2, dated June 19, 2012, and was determined to be of very low safety significance (Green) because the finding did not represent an actual loss of function of one or more non-Tech Spec Trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for >24 hrs. The violation was determined to be a Severity Level IV violation using the Enforcement Policy example 6.1.d.2, because it resulted in a condition having a very low safety significance. No cross cutting aspect was assigned in association with the ROP finding because the change to the TRM was performed greater than three years ago and did not reflect current licensee performance.

Enforcement: Title 10 CFR 50.90 stated, in part, that whenever a holder of an operating license under this part, desires to amend the license, application for an amendment must be filed with the commission as specified in section 50.4 of this chapter, as applicable, fully describing the changes desired, and following as far as applicable, the form prescribed for original applications."

Contrary to the above, from August 15, 2002, to March 14, 2014, the licensee in effect, amended their operating license without filing an application for an amendment as specified in 10 CFR 50.90. Specifically the change/addition of TRM section 3.7.6, Electric Board Room AC System, allowed, in part, necessary attendant instrumentation, controls, and cooling that were required for the 4kv electrical shutdown boards to perform their specified safety functions to not be capable of performing their related support function without taking actions required by TS LCO 3.8.7. The licensee's immediate corrective action was to institute administrative guidance to operators for the determination of operability of the 4kV shutdown boards with the EBR AC system inoperable and is planning to submit a TS amendment request. Because this violation was determined to be a SL-IV and entered into the licensee's corrective action program

as PER 846040, it is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy. This NCV is identified as 05000259, 260, 296/2014004-02, Inappropriate Amendment of License Conditions

Units 1 and 2 Technical Specification LCO 3.8.7, Distribution Systems – Operating, required, in part, when in MODES 1, 2, and 3, that Unit 1 and 2 4.16 kV Shutdown Boards shall be operable or with two shutdown boards inoperable, perform action statement E to restore one 4.16 kV Shutdown Board to OPERABLE status within 8 hours.

Contrary to the above, on October 26, 2011, through October 28, 2011, and on February 2, 2013, through February 3, 2013, both the 'C' and 'D' 4kV shutdown boards were inoperable longer than TS 3.8.7 allowed outage times without taking actions required by action statement E. The licensee's immediate corrective actions were to institute administrative guidance to operators for the determination of operability of the 4kV shutdown boards with the EBR AC system inoperable. Because this violation was determined to be of low safety significance (Green) and entered into the licensee's corrective action program as PER 846040, it is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy. This NCV is identified as 05000259, 260, 296/2014004-03, TRM Allowances for Electric Board Room Air Conditioning Units conflicting with Technical Specifications.

This NCV closes URI 05000259, 260, 296/2014003-02, TRM Allowances Conflicting with Technical Specifications.

.2 SLC Flow Calculation Inconsistencies

Introduction: The NRC identified a Green non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to maintain adequate control measures for verifying or checking the adequacy of design of the SLC system. Specifically, the licensee's calculations and system testing were both inadequate to demonstrate that the SLC system could meet design requirements under all required operating conditions.

Description: The licensee performed Calculation MD-Q0063-900083, "SLC System Flow Analysis for Anticipated Transient Without Scram (ATWS) Requirements," on September 23, 1985, to demonstrate that the SLC system design was capable of meeting its design requirements. On August 5, 2014, the inspectors reviewed Calculation MD-Q0063-900083, "SLC System Flow Analysis for ATWS Requirements," Revision 4, and identified that the calculation did not demonstrate that the SLC system had sufficient NPSH to meet design requirements under all required operating conditions. The licensee's calculation failed to demonstrate that the SLC system could inject the required 4000 gallons of sodium pentaborate needed to maintain torus pH levels.

Although the licensee was unable to verify adequacy of the system design through analysis or provide a comprehensive test which demonstrated that the SLC system could meet its design safety function under the most adverse conditions, based on a collective review of startup testing and current surveillance tests, there was sufficient

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analysis of the available testing data to provide a reasonable assurance of operability of the SLC system. The licensee has a planned corrective action to modify the SLC system and re-perform the design basis calculation to restore compliance with 10 CFR 50 Appendix B Criterion III.

Analysis: The inspectors determined that the licensee's failure to maintain adequate control measures for verifying or checking the adequacy of design of the SLC system as required by 10 CFR 50, Appendix B, Criterion III, "Design Control," was a performance deficiency (PD). Specifically, the licensee's calculations and system testing were both inadequate to demonstrate that the SLC system could meet design requirements under all required operating conditions. The PD was more than minor because it affected the Mitigating Systems Cornerstone attribute of Design Control, and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, there was not an adequate method for ensuring the capability of the design of the SLC system following a design basis accident. The inspectors screened this finding in accordance with IMC 0609, Appendix A, "Significance Determination Process", "Exhibit 2-Mitigating Systems Screening Questions," dated June 19, 2012, and determined the finding was of very low safety significance (Green) because the design deficiency did not result in a loss of operability or functionality. The inspectors determined that no cross cutting aspect was applicable because this finding was not indicative of current licensee performance and occurred more than three years ago.

Enforcement: 10 CFR 50, Appendix B, Criterion III, Design Control, required, in part, that design control measures provide for verifying or checking the adequacy of design, such as by the performance of design reviews, by the use of alternate or simplified calculational methods, or by the performance of a suitable testing program. Contrary to the above, as of September 30, 2014, the licensee's design control measures failed to adequately verify the design of the SLC system for all three units. Specifically, the licensee's calculations and testing were inadequate to demonstrate the adequacy of design of the SLC system. The licensee has planned corrective actions to perform a modification to the SLC system and update design calculations. Because this violation was of very low safety significance and because the issue was entered into the licensee's CAP as PER 920418, this violation is being treated as a NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy and designated as NCV 05000259, 260, 296/2014004-04, Inadequate NPSH Calculations for Standby Liquid Control Pumps.

1R18 Plant Modifications

.1 Permanent Plant Modifications

a. Inspection Scope

The inspectors reviewed the Design Change Notice (DCN) for DCN 69532 Stage 4. DCN 69532 was a modification to the governor control system of the Emergency Diesel Generators (EDG). The inspectors reviewed licensee procedures NPG-SPP-09.3, Plant Modifications and Engineering Change Control, and NPG-SPP-06.9.3, Post-Modification Testing, post-maintenance testing package (PMTI-69532-004) for the implementation of

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this modification to the 'D' EDG. The inspectors reviewed the associated 10 CFR 50.59 screening against the EDG design bases documentation to verify that the modifications had not affected system operability/availability. The inspectors reviewed selected ongoing and completed work activities to verify that installation was consistent with the design control documents. This activity constitutes one Permanent Plant Modification sample.

b. Findings

No findings were identified.

1R19 Post Maintenance Testing

a. Inspection Scope

The inspectors witnessed and reviewed post-maintenance tests (PMT) listed below to verify that procedures and test activities confirmed Structure, System, or Component (SSC) operability and functional capability following the described maintenance. The inspectors reviewed the licensee's completed test procedures to ensure any of the SSC safety function(s) that may have been affected were adequately tested, that the acceptance criteria were consistent with information in the applicable licensing basis and/or design basis documents. The inspectors witnessed and/or reviewed the test data, to verify that test results adequately demonstrated restoration of the affected safety function(s). The inspectors verified that problems associated with PMTs were identified and entered into the CAP. This activity constituted four Post Maintenance Test inspection samples.

- Post maintenance testing of 'D' Emergency Diesel Generator (EDG) following scheduled maintenance, (WO 114797296)
- Post maintenance testing of the A1 RHRSW pump following installation of DCN 70834 for National Fire Protection Association (NFPA) 805 transition, (WO 114129177)
- Post maintenance testing of the 3D EDG heat exchanger following cleaning, (WO 116166189)
- Post maintenance testing of the 'D' EDG and 3D EDG paralleling function (WO 114928794)

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities

.1 Unit 2 Forced Outage

a. Inspection Scope

From August 2, 2014, through August 6, 2014, the inspectors examined the Unit 2 forced outage activities to verify that they were conducted in accordance with Technical Specifications (TS), applicable plant procedures, and the licensee's outage risk assessment and management plans. The inspectors monitored critical plant parameters and observed operator control of plant conditions through Cold Shutdown (Mode 4). Some of the significant outage activities specifically reviewed and/or witnessed by the inspectors were as follows:

Drywell Entry

The inspectors observed the reduction in power to less than 15 percent and the de-inerting of drywell in preparations for entry for leak identification.

Shutdown and Cooldown Process

The inspectors witnessed the shutdown and cooldown of Unit 2 in accordance with licensee procedures OPDP-1, Conduct of Operations; 2-GOI-100-12A, Unit Shutdown from Power Operations to Cold Shutdown and Reduction in Power During Power Operations; and 2-SR-3.4.9.1(1), Reactor Heatup or Cooldown Rate Monitoring.

Drywell Closeout

On August 5, 2014, the inspectors reviewed the licensee's conduct of 2-GOI-200-2, Drywell Closeout, and performed an independent detailed closeout inspection of the Unit 2 drywell.

Restart Activities

The inspectors specifically observed the following:

- Unit 2 approach to criticality and power ascension per 2-GOI-100-1A, Unit Startup, and 2-GOI-100-12, Power Maneuvering
- Reactor Coolant Heatup/Pressurization to Rated Temperature and Pressure per 2-SR-3.4.9.1(1), Reactor Heatup and Cooldown Rate Monitoring

Corrective Action Program

The inspectors reviewed PERs generated during the Unit 2 forced outage and attended management review meetings to verify that initiation thresholds, priorities, mode holds, operability concerns and significance levels were adequately addressed. Resolution and implementation of corrective actions of several PERs were reviewed for completeness.

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b. Findings

No findings were identified.

.2 Unit 1 Forced Outage

a. Inspection Scope

From August 26, 2014, through August 30, 2014, the inspectors examined the Unit 1 forced outage activities to verify that they were conducted in accordance with Technical Specifications (TS), applicable plant procedures, and the licensee's outage risk assessment and management plans. The inspectors monitored critical plant parameters and observed operator control of plant conditions through Hot Shutdown (Mode 3) and back up to full power operations (Mode 1). Some of the significant outage activities specifically reviewed and/or witnessed by the inspectors were as follows:

Shutdown Process

The inspectors witnessed the shutdown of Unit 1 in accordance with licensee procedures OPDP-1, Conduct of Operations and 1-SR-3.4.9.1(1), Reactor Heatup or Cooldown Rate Monitoring.

Restart Activities

The inspectors specifically observed the following:

- Unit 1 Restart Plant Operations Review Committee meeting on August 27, 2014
- Unit 1 approach to criticality and power ascension per 1-GOI-100-1A, Unit Startup, and 1-GOI-100-12, Power Maneuvering
- Reactor Coolant Heatup/Pressurization to Rated Temperature and Pressure per 1-SR-3.4.9.1(1), Reactor Heatup and Cooldown Rate Monitoring

Corrective Action Program

The inspectors reviewed PERs generated during the Unit 1 forced outage and attended management review meetings to verify that initiation thresholds, priorities, mode holds, operability concerns and significance levels were adequately addressed. Resolution and implementation of corrective actions of several PERs were reviewed for completeness.

b. Findings

No findings were identified.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors witnessed portions of, and/or reviewed completed test data for the following surveillance tests of risk-significant and/or safety-related systems to verify that the tests met technical specification surveillance requirements, UFSAR commitments, and in-service testing and licensee procedure requirements. The inspectors' review confirmed whether the testing effectively demonstrated that the SSCs were operationally capable of performing their intended safety functions and fulfilled the intent of the associated surveillance requirement. This activity constituted three Surveillance Testing inspection samples of routine tests.

Routine Surveillance Tests:

- EPI-0-082-DGZ006 Diesel Generator D Redundant Start Test, (WO 115392324)
- 3-SR-3.8.1.1(3B) Diesel Generator 3B Monthly Operability Test, (WO 114846684)
- 1-SR-3.1.7.3, Standby Liquid Control System Enriched Sodium Pentaborate Solution Concentration, Quantity Calculation, and ATWS Equivalency Calculation, (WO 114860579)

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification

.1 Cornerstone: Mitigating Systems

a. Inspection Scope

The inspectors reviewed the licensee's procedures and methods for compiling and reporting the following Performance Indicators (PIs). The inspectors examined the licensee's PI data for the specific PIs listed below for the third quarter 2013 through second quarter of 2014. The inspectors reviewed the licensee's data and graphical representations as reported to the NRC to verify that the data was correctly reported. The inspectors validated this data against relevant licensee records (e.g., PERs, Daily Operator Logs, Plan of the Day, Licensee Event Reports, etc.), and assessed any reported problems regarding implementation of the PI program. The inspectors verified that the PI data was appropriately captured, calculated correctly, and discrepancies resolved. The inspectors used the Nuclear Energy Institute (NEI) 99-02, Regulatory Assessment Performance Indicator Guideline, to ensure that industry reporting guidelines were appropriately applied. This activity constituted nine performance indicator inspection samples.

- Unit 1 Mitigating Systems Performance Index – Cooling Water System
- Unit 2 Mitigating Systems Performance Index – Cooling Water System
- Unit 3 Mitigating Systems Performance Index – Cooling Water System
- Unit 1 Mitigating Systems Performance Index – Emergency Alternating Current
- Unit 2 Mitigating Systems Performance Index – Emergency Alternating Current
- Unit 3 Mitigating Systems Performance Index – Emergency Alternating Current
- Unit 1 Mitigating Systems Performance Index – Residual Heat Removal
- Unit 2 Mitigating Systems Performance Index – Residual Heat Removal
- Unit 3 Mitigating Systems Performance Index – Residual Heat Removal

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution of Problems

.1 Review of items entered into the Corrective Action Program:

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 review was accomplished by reviewing daily PER and Service Request (SR) reports, and periodically attending Corrective Action Review Board (CARB) and PER Screening Committee (PSC) meetings.

b. Findings

No findings were identified.

.2 Focused Annual Sample Review – Unidentified Leakage on Unit 2:

a. Inspection Scope

The inspectors reviewed the Licensee's actions to identify the cause for an increasing trend in Drywell Unidentified Leakage on Unit 2 over the period of time from June 3, 2014 until the licensee performed a shutdown on August 3, 2014. The unidentified leakage increased from approximately 0.09 gpm average over 24 hours to 3.33 gpm averaged over 4 hours. The licensee entered a forced outage to identify the source of leakage and perform the necessary repairs prior to challenging the Technical Specification 3.4.4 limit of less than a 2 gpm rise in unidentified leakage in 24 hours. The inspectors reviewed the licensee's plan to monitor unidentified leakage and their efforts to identify the source. This activity constituted one Focused Annual Corrective Action sample.

b. Findings

No findings were identified.

4OA3 Follow-up of Events and Notices of Enforcement Discretion

.1 (Closed) Licensee Event Report (LER) 05000259, 260, 296/2014-002-00 Diesel Generator Inoperable due to Fuel Oil Leak

a. Inspection Scope

The inspectors reviewed LER 05000259, 260, 296/2014-002-00 dated May 30, 2014. On November 23, 2013, during a scheduled 24 hour surveillance run, the 'A' EDG experienced a 100 drop per minute fuel oil leak on the discharge line from the engine driven fuel oil pump. The leak occurred 1 hour and 20 minutes after the EDG was fully loaded. Additional analysis of the fuel oil line that leaked revealed that cyclic stress caused a crack in a fitting that was improperly tightened during the fuel oil pump replacement in March 2013. The fitting was required to be tightened by WO 09-722300-000 which directed the conduct of the 12 year preventative maintenance of the 'A' EDG.

b. Findings

The enforcement aspects of this finding are discussed in Section 4OA7.

.2 (Closed) Licensee Event Report (LER) 05000260/2014-001-00 Electric Board Room Air Conditioning System inoperable longer than allowed by Technical Specifications

a. Inspection Scope

The inspectors reviewed LER 05000260/2014-001-00 dated May 27, 2014. The licensee placed clearances on both electric board room air conditioning units on Unit 2 multiple times in the previous three years. These clearances rendered both electric board room air conditioning systems inoperable. Since the electric board room air conditioning systems support the operability of the C and D 4kV shutdown boards, both shutdown boards should have been considered inoperable. Also, with both the C and D 4kV shutdown boards inoperable, the A and B trains of SBGT are considered inoperable. The inspectors performed a complete system walkdown as documented in section 1R04 and finished their review of the operability of the Unit 2 C and D 4kV shutdown boards as documented in section 1R15.

b. Findings

The finding associated with this LER appears in section 1R15 of this report.

.3 (Closed) Licensee Event Report (LER) 05000260/2014-003-00, Both Trains of Standby Liquid Control Inoperable

a. Inspection Scope

On May 21, 2014, at 1721 Central Daylight Time (CDT), the licensee declared both trains of Standby Liquid Control (SLC) system inoperable due to manual isolation of the Unit 2 SLC tank. The decision to manually isolate the tank was based on a slowly rising level indication as noted remotely by an alarm and by a technician locally at the tank. The SLC is designed to inject borated water into the reactor coolant system in the event of a loss of reactor criticality control. The licensee appropriately entered TS LCO 3.1.7 for both trains of SLC being inoperable. This LCO required restoration of one train within 8 hours and if that could not be accomplished, a plant shutdown would have been required. Subsequent trouble-shooting of the system revealed that there was no in-leakage, but rather the level sensing lines were clogged which led to the erroneous level indication. Following this revelation, the licensee blew down and restored the sensing lines and restored the SLC tank to operable status at 1808 CDT. The total time the system was out of service was 47 minutes, thus a plant shutdown was not required and TS compliance was met at all times during the event.

The inspectors reviewed the LER and PER 890649 to verify that the cause of the system inoperability was identified and whether corrective actions were appropriate. The licensee's apparent cause evaluation identified that the inadequate use of human performance tools led to the incorrect reporting of SLC tank level when an unexpected condition was encountered. This was based on the excessive bubbling in the tank which would affect the level reading. The inspectors concluded that the licensee's corrective actions to this event were appropriate, including isolation of the SLC tank as well as a procedural change addressing the potential for anomalous level readings.

b. Findings

No findings were identified.

.4 (Closed) Licensee Event Report (LER) 05000296/2014-002-00, Unit 3 Automatic Reactor Scram due to an Anticipated Transient Without Scram/Alternate Rod Injection Signal Generated during Functional Testing

a. Inspection Scope

The inspectors reviewed LER 05000296/2014-002-00 dated July 7, 2014. On May 6, 2014, the Unit 3 reactor automatically scrammed as a result of an Anticipated Transient Without Scram (ATWS)/Alternate Rod Injection (ARI) Signal generated during functional testing of the reactor water level instrumentation. Due to an equipment fault, the ATWS low reactor water level Automatic Trip Unit (ATU) channel under test initiated a voltage transient that actuated both channels of the ATWS high reactor pressure causing actuation of the ATWS and ARI circuitry. The inspectors determined that the licensee could not have foreseen a fault of this nature and that their corrective actions to prevent reoccurrence should be effective.

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b. Findings

No findings were identified.

4OA5 Other Activities

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

a. Inspection Scope

The inspectors performed a walk-down of the ISFSI storage pad with a field operator on September 10, 2014, 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 verified the MPC vents were in good condition and free of obstruction. The inspectors also verified natural circulation within the MPCs. The inspectors verified that any ISFSI problems were placed in the CAP. The inspectors also reviewed ISFSI document control practices to verify that changes to the required ISFSI procedures and equipment were performed in accordance with guidelines established in local procedures and 10CFR72.48. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

4OA6 Meetings, Including Exit

On October 8, 2014, the resident inspectors presented the quarterly inspection results to Mr. Keith Polson, Site Vice President, and other members of the licensee's staff, who acknowledged the findings. The inspectors verified that all proprietary information was returned to the licensee.

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.

- Technical Specification 3.8.1 required in part, that if one Emergency Diesel Generator becomes inoperable that it be restored to service within seven days. Contrary to Technical Specification 3.8.1, the EDG A was determined to be inoperable from March 5, 2013, until November 23, 2013. The inoperability was due to a 100 drop per minute fuel oil leak on the engine driven fuel oil pump that was discovered during a scheduled 24 hour surveillance run. The fuel oil leak was subsequently repaired and retested with the issue being documented in the licensee's CAP as PER 822199. This finding was determined to be of very low

safety significance using IMC 0609 Appendix 'A' Exhibit 2 because the EDG remained capable of meeting its design function due to a redundant motor driven fuel oil pump being available.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

J. Addison, Manager of Drills and Exercises
T. Adkins, EP Systems Manager
T. Albright, Station Manager
W. Ball, Unit Supervisor
E. Bates, Licensing Engineer
R. Beck, System Engineer
R. Beck, Manager of the Engineering Rapid Response Team
A. Bergeron, Training Director
D. Binkley, Initial Licensing Training Supervisor
S. Bono, General Plant Manager
D. Campbell, Superintendent of Operations
R. Cox, System Engineer
R. Guthrie, System Engineer
K. Harvey, Raw Water Systems Engineer
R. Hoffman, License Requalification Supervisor
L. Hughes, Manager Operations
R. Joplin, Corp Training Program Director
J. Kulisek, EP Manager
M. Marshall, Chemistry Supervisor
D. McConnell, Examination Group
S. Norris, Engineering Manager
M. Oliver, Licensing Engineer
J. Paul, Nuclear Site Licensing Manager
E. Perkins, Modifications Manager, Day and Zimmermann
R. Perry, Fire Operations Foreman
T. Plemons, Fire Operations Shift Supervisor
K. Polson, Site Vice President
O. Preston, System Engineer
M. Rasmussen, Work Control Manager
M. Roy, Maintenance Rule Coordinator
L. Slizewski, Ops Shift Manager
J. Stone, Licensing
S. Spears, Electrical Maintenance Supervisor
C. Vaughn, Operations Training Manager
A. Yarborough, Assistant Director for Site Engineering

NRC personnel

C. Scott, (Acting) BFN Senior Resident Inspector
T. Stephen, BFN Resident Inspector

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened

None

Opened and Closed

05000259, 260, 296/2014004-01	NCV	Failure to maintain Fire Doors in their Rated Configuration (Section 1R05)
05000259, 260, 296/2014004-02	SL-IV	Inappropriate Amendment of License Conditions (Section 1R15.1)
05000259, 260, 296/2014004-03	NCV	TRM Allowances for Electric Board Room Air Conditioning Units conflicting with Technical Specifications (Section 1R15.1)
05000259, 260, 296/2014004-04	NCV	Inadequate NPSH Calculations for Standby Liquid Control Pumps (Section 1R15.2)

Closed

05000259, 260, 296/2014003-02	URI	TRM Allowances Conflicting with Technical Specifications (Section 1R15.2)
05000259, 260, 296/2014-002-00	LER	Diesel Generator Inoperable due to a Fuel Oil Leak (Section 4OA3.1)
05000259, 260/2014-001-00	LER	Electric Board Room Air Conditioning System Inoperable longer than allowed by Technical Specifications (Section 4OA3.2)
05000260/2014-003-00	LER	Both Trains of Standby Liquid Control Inoperable (Section 4OA3.3)
05000296/2014-002-00	LER	Unit 3 Automatic Reactor Scram due to an Anticipated Transient Without Scram/Alternate Rod Injection Signal Generated during Functional Testing (Section 4OA3.4)

Discussed

None

LIST OF DOCUMENTS REVIEWED

Section 1R04: Equipment Alignment

Aging Assessment of BWR Standby Liquid Control Systems, NUREG/CR-6001, PNL-8020
Calculation MD-Q0063-900083, SLC System Flow Analysis for ATWS Requirements,
March 2004

PER 768912

PER 460421

SR 921362

SR 921377

WO 112914629

WO 09-7105140-000

WO 115005689

TRM Basis change section 3.7.6

SA Rev 10 for DCN W40283B - in DCN W40283B FINAL Package
40283 DCN FINAL 003897355

White Paper PER 877729 item 5 EECW R1

PER 846040 Summary Report 07-08-14

RCA 846040 R1 05-14-14

POE 846040 R1 06-12-14

50.59 Original TRM dated June 2002

Calculation MDQ0031000007 R0008 (Control Bay and Electric Board Room TMG Analysis)

Gothic Analysis of Fire Scenarios for the U123 Shut Down Board Rooms

U3 EBR components

U1 EBR components

U2 Vendor Manual - E&W AC BFN-VTD-E322-0020

U1&3 Vendor Manual - E&W AC BFN-VTD-E322-0220

Design Criteria - CB&EBR Env Contr Sys BFN-50-7030A

1 or 2 Train Outage Times for the Electric Board Room Air Handling Units

Drawings:

3-47E3865-4 R10 V&AC Air Flow

3-47E866-7 R34 AC Chilled Water Flow

3-47E865-4 R14 V&AC Air Flow

2-47E2865-4 R20 V&AC Air Flow

1-47E1865-4 R8 V&AC Air Flow

0-47E866-9 R10 Chilled Water Circ Pumps Flow

0-47E866-3 R35 H&AC Hot & Chilled Water Flow

0-47E865-4 R67 V&AC Air Flow

3-47E814-1, Unit 3 Flow Diagram Core Spray, Rev 34.

3-47E814-1-APPJ, Unit 3 Appendix J Testing Boundary for Core Spray, Rev 7.

3-47E814-1-ISI, Unit 3 ASME Section XI Core Spray System Code Class Boundaries, Rev. 15

SD-75, System Description Core Spray, Rev. 0

Section 1R05: Fire Protection

Fire Protection Report Volume 1, Rev 18

Fire Protection Report Volume 2, Rev 52

Fire Watch schedule dated August 4, 2014

Active Fire Protection Impairment Permits listing dated August 4, 2014

Fire Watch Coverage Requirements list dated August 4, 2014

EDG 1A Fire Watch requirements list dated August 4, 2014

0-SI-4.11.G.2.b, Fire Door Inspection, Revision 0019
 Browns Ferry Nuclear Plant, Appendix R, Fire Protection Report, Revision 19
 Drawing 0-47W2116, Sheets 52 through 62, Fire Protection – 10 CFR 50, Appendix R Fire Area
 Compartment and Zone Drawings
 SR 922196, Replace Fire Door 501
 SR 922199, Replace Fire Door 242
 SR 922200, Replace Fire Door 240
 SR 922203, Replace Fire Door 249
 SR 922205, Replace Fire Door 224
 SR 922206, Replace Fire Door 221
 SR 932523, BFN-2- Door -260-0240 needs a new headbolt and footbolt
 SR 930004, Door 479 latch is sticking
 SR 921209, U3 RX BLDG Door not functioning properly
 SR 921571, NRC identified problem with Door 501 latching
 SR 708092, Fire Door 240 not closing properly
 WO 112863378, Fire Door 640 will not close and latch consistently
 SR 447997, App R fire door 600 broken automatic closure arm
 O-GOI-300-5, Environmentally Qualified Doors, Rev.12
 MPI-0-260-DRS001, Inspection and Maintenance of Doors, Rev. 47

Section 1R11: Licensed Operator Regualification

OPDP-1 Conduct of Operations, Rev 33
 Radiological Emergency Plan, Rev 103
 Reactivity Control Plan, Reactivity Maneuver Plant, U2 RCP 140806-000.
 Reactor Engineers Evolution Institution
 Estimated Range of Criticality, Unit 2, Cycle 18 – MOC

Records:

License Reactivation Packages (4 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
 BFNP 3 Simulator First Annual Certification

Written Examinations:

2013 RO Exam A1
 2013 SRO Exam C1
 2013 RO Exam B3

Annual Examination Scenarios:

LOR-EXAM- 21, REV 2
 LOR-EXAM- 37, REV 4
 LOR-EXAM- 63A, REV 00
 LOR-EXAM- 65, REV 00
 LOR-EXAM- 64, REV 00
 LOR-EXAM- 64A, REV 00

JPMs:

JPM-173TC - Classify the Event, Control Room Abandonment – 6.2-S
 JPM-282ap – Emergency Shutdown at Diesel Engine
 JPM-338 – 3-EOI Appendix 7C – Alternate RPV Injection System Lineup – RHR Crossties
 JPM-239 – Operator 7 Manual Actions 0-SSI-1-1
 JPM-335 U 1 – Start RCIC from Outside Control Room
 JPM-335 U 2 – Start RCIC from Outside Control Room
 JPM-70ap – Secure Drywell Sprays
 JPM-191ap(b) Unit 2 – Crosstie DAC to Drywell Control Air
 JPM-55ap Unit 3 – 3-EOI-Appendix-13 Emergency Venting Primary Containment
 JPM-136 U3 – Respond to stuck open SRV

Procedures:

NPG-SPP-17.1.2, Training Performance Indicators, Rev. 009, (04-15-20140)
 NPG-SPP-17.4.1 Exam Security and Exam Database Management Rev. 06, (06-17-2013)
 NPG-SPP-17.8.1 Licensed Operator Requalification Examination Development and Implementation, Rev. 11, (08-15-2014)
 NPG-SPP-17.8.2 Job Performance Measures Development, Administration, and Evaluation, Rev. 02, (04-04-2012)
 NPG-SPP-17.8.3 Simulator Exercise Guide Development and Revision, Rev. 04, (09-06-2013)
 NPG-SPP-17.8.4 Conduct of Simulator Operations, Rev. 1, (08-15-2014)
 TRN-12 Simulator Regulatory Requirements, Rev. 11, (11-02-2011)
 OPDP-10 Rev. 0006, License Status Maintenance, Reactivation and Proficiency for Non-Licensed Positions
 0-AOI-100-8 Attachment 6 (Security Doors, Hatches, and Turnstiles)

Simulator Normal and Abnormal Procedures Tests- EOIs, AOIs:

Removal and replacement of RPS Scram Solenoid Fuses, 3EOI appendix 1A
 Venting and repressurizing the scram pilot air header, 3EOI appendix 1B
 Individually Scram control rods, 3EOI appendix 1C
 Unplanned Turbine trip below 30 percent without scram, #AOI-47-1
 Rod drop accident 3AOI-85-1

Appendix B: Transient Plots:

Manual Scram plots
 Simultaneous trip of all FW pumps
 Main Turbine trip with no scram

Appendix C: Malfunction Data:

Malfunction number EG01 with associated graphs and trends
 Malfunction number FW30 with associated graphs and trends
 Malfunction number RD04 with associated graphs and trends
 Malfunction number RD05 with associated graphs and trends

Simulator Static and Normal Tests:

100 percent Steady State Test (FRN-12-3.5.1.A) critical parameters and non-critical parameters
 63 percent Steady State Test critical parameters and non-critical parameters
 21 percent Steady State Test critical parameters and non-critical parameters
 Real Time Test critical parameters and non-critical parameters
 Stability Test critical parameters and non-critical parameters

PER:

PER 790109, Inadequate Shift Staffing to support implementation of Safe Shutdown, Rev. 2
 PER 7455126, Untimely one Hour report to NRC, Rev. 0
 PER 660862, U2 SCRAM while restoring 2B RPS Bus using 2B RPS MG set, Rev. 0

LER:

05-259/2013-004-00, High Pressure Coolant Injection System declared Inoperable, Unit 1
 05-259/2013-005-00, Inadequate Shift Staffing, Unit 1
 05-260/2014-003-00, Both Trains of Standby Liquid Control inoperability, Unit 2
 05-260/2012-006-00, Unplanned Reactor Scram due to Loss of Power, Unit 2
 05-260/2014-001-00, Electric Board Room Air Conditions System Inoperable for Longer than Allowed by the Technical Specifications, Unit 2

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:

BFN-TRN-S-14-032, Annual LOR Examination Self-Assessment, (June 3, 2014-June 5, 2014)
 BFN-TRN-S-13-031, TVA Nuclear Group Snapshot Self-Assessment Report, (February 20, 2013 to March 7, 2013)
 BFN-TRN-F14-005, 71111.11, NRC Inspection Readiness, (July 21, 2014 – July 24, 2014)

Section 1R12: Maintenance Effectiveness

0-TI-346 Maintenance Rule Performance Indicator Monitoring, Trending, and Reporting – 10CFR50.65, Rev 47
 NPG-SPP-03.4, Maintenance Rule Performance Indicator Monitoring, Trending and Reporting – 10CFR50.65, Rev. 2
 NUMARC 93-01, Revs 2 and 4A
 SLC Evaluation of SSFF and a(1) Evaluation, dated February 27, 2014
 System Health Report for SLC dated September 22, 2014
 Unit 3 System 047, EHC (a)(1) Evaluation
 R40 140822604, MR Expert Panel Meeting Minutes, August 21, 2014
 Maintenance Rule Cause Determination Evaluations, 09/30/2011-09/30/2014

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Browns Ferry Unit 1, 2, and 3 Equipment Out Of Service Report dated July 30, 2014 and August 27, 2014

Daily Plant Status Report dated July 30, 2014, August 27, 2014 and September 17, 2014
eSOMS Action Tracking Status for Units 1, 2 and 3 on July 30, 2014 and August 27, 2014
eSOMS Narrative Logs dated July 29, 2014 to July 30, 2014, August 27, 2014 and September 17, 2014

Operator's EOOS Input for Units 1, 2 and 3 on July 30, 2014 and August 27, 2014

BFN Operation's Shift Orders, August 13, 2014

PRA Evaluation Response, RHR/RHRSW work window, BFN-1-14-066

Section 1R15: Operability Evaluations

NEDP-27 Past Operability Evaluations, Rev 2

OPDP-8, Operability Determination Process and Limiting Conditions for Operation Tracking, Rev. 16

NEDP-22, Operability Determinations and Functional Evaluations, Rev. 15

NPG-SPP-06.3, Pre-/Post-Maintenance Testing, Rev. 1

NPG-SPP-06.9, Testing Programs, Rev. 0

NPG-SPP-06.9.3, Post-Modification Testing, Rev. 5

PER 908203, Pinhole Leak on EECW Outlet from the C DG Engine Cooler HX

Common Cause Failure Evaluation for PER 908203

Aging Assessment of BWR Standby Liquid Control Systems, NUREG/CR-6001, PNL-8020

Calculation MD-Q0063-900083, SLC System Flow Analysis for ATWS Requirements, March 2004

Calculation NDQ0-999-2001-0018 Post LOCA Suppression Pool pH, Rev 2

Calculation MDQ0063920470 SLC System Boron – 10 Requirements, Rev 2

Unit 1 Alarm Response Procedure 1-ARP-9-7C, Rev 26

Unit 1 TS 3.1.7

Unit 1 TS Basis 3.1.7

FSAR Section 3.19 SLC, Amendment 25

Special Test 8522 for SLC, Rev 0

Preoperational Test Results for Unit 1 SLC dated June 20, 1973

BWR Owner's Group Summary of Utility Information on SLC dated April 18, 1991

PER 768912, PER 460421

SR 921362, SR 921377

WO 112914629, WO 09-7105140-000, WO 115005689

TRM Basis change section 3.7.6

TRM 3.6.3 Revisions

TRM 3.3.2.2 and 3.3.2.3 Revisions

TRM 3.0.6 Revisions

SA Rev 10 for DCN W40283B - in DCN W40283B FINAL Package

40283 DCN FINAL 003897355

White Paper PER 877729 item 5 EECW R1

POE 877729-6 Drywell Control Air

POE 877729-5 EECW Pump Timer

POE 877729-4 ECCS Room Cooler

POE 877729-2 -3 Reactor Building and Refuel Zone Isolation Timers

PER 877729 Summary Report 07-08-14

PER 846040 Summary Report 07-08-14
 RCA 846040 R1 05-14-14
 POE 846040 R1 06-12-14
 POE RX Refuel timer
 POE DWCA 877729-6
 50.59 Original TRM
 Calculation MDQ0031000007 R0008 (Control Bay and Electric Board Room TMG Analysis)
 Gothic Analysis of Fire Scenarios for the U123 Shut Down Board Rooms
 U3 EBR components
 U1 EBR components
 U2 Vendor Manual - E&W AC BFN-VTD-E322-0020
 U1&3 Vendor Manual - E&W AC BFN-VTD-E322-0220
 Design Criteria - CB&EBR Env Contr Sys BFN-50-7030A
 1 or 2 Train Outage Times for the Electric Board Room Air Handling Units
 Drawings:
 3-47E3865-4 R10 V&AC Air Flow
 3-47E866-7 R34 AC Chilled Water Flow
 3-47E865-4 R14 V&AC Air Flow
 2-47E2865-4 R20 V&AC Air Flow
 1-47E1865-4 R8 V&AC Air Flow
 0-47E866-9 R10 Chilled Water Circ Pumps Flow
 0-47E866-3 R35 H&AC Hot & Chilled Water Flow
 0-47E865-4 R67 V&AC Air Flow
 Preferred Metal Technologies 10 CFR Part 21 report per EN 50253
 PDO for PER 907160 Equipment identified in EN 50253 installed in the SBGT system
 Calculation NDQ066890091 SBGT system integrated dose, Rev 1
 Operator Logs dated September 15, 2014
 PER 933005 3D Diesel Generator total flow low
 FSAR chapter 10.10 EECW
 3-SI-3.2.4(DG D) EECW Check Valve Test on Diesel Generator D, Rev 11
 0-OI-67 Emergency Equipment Cooling Water System, Rev 103

Section 1R18: Plant Modifications

DCN 69532 for Electronic Governor Upgrade for the EDGs
 PMTI-69532-STG004 for the D EDG

Section 1R19: Post Maintenance Testing

DCN 70834 Stage 1 Testing Package, A1 RHRSW pump mod for NFPA 805 transition Rev 0
 PMTI-69532-STG004 for the D EDG, Rev 1 (WO 114129177)
 WO 116166189 for 3-SI-3.2.4(DG D) – EECW Check valve test on Diesel Generator D, Rev 11
 Pictures from the cleaning that was conducted on the 3D EDG heat exchanger on September 19, 2014

Section 1R20: Refueling and Other Outage Activities

OPDP-1, Conduct of Operations, Rev 33
 2-GOI-100-12, Power Maneuvering, Rev 42
 2-GOI-100-12A, Unit Shutdown from Power Operations to Cold Shutdown and Reduction in Power during Power Operations, Rev 107

2-SR-3.4.9.1(1), Reactor Heatup or Cooldown Rate Monitoring, Rev 26
 2-GOI-200-2, Drywell Closeout, Rev 45
 1-AOI-100-1 Reactor Scram, Rev 15 (dated August 26, 2014)
 PER 926429 Unit 1 scram on August 26, 2014
 PER 916831 RBCCW leak identified in the Unit 2 Drywell
 PER 916833 Unit 2 RHR system leak identified downstream of 2-FCV-074-0048
 Plant Operations Review Committee (PORC) meeting minutes from August 27, 2014 and August 29, 2014
 1-GOI-100-1A, Unit Startup, Rev 42
 1-GOI-100-12, Power Maneuvering, Rev 11
 1-SR-3.4.9.1(1), Reactor Heatup and Cooldown Rate Monitoring, Rev 12
 Reactivity Control Plan, Reactivity Maneuver Plant, U2 RCP 140806-000
 Estimated Range of Criticality, Unit 2, Cycle 18 - MOC

Section 1R22: Routine Surveillance

WO 115392324 EPI-0-082-DGZ006 Diesel Generator D Redundant Start Test, Rev 30
 FSAR Section 8.5, dated May 8, 2014
 WO 114797296, D EDG Monthly Operability Test
 0-SR-3.8.1.1(D), Diesel Generator D Monthly Operability Test, Rev. 46
 WO 114846684, 3B EDG Monthly Operability Test
 3-SR-3.8.1.1(3B) Diesel Generator 3B Monthly Operability Test, Rev 48
 1-SR-3.1.7.3, Standby Liquid Control System Enriched Sodium Pentaborate Solution Concentration, Quantity Calculation, and ATWS Equivalency Calculation, Revision 0033

Section 4OA1: Performance Indicator (PI) Verification

Performance Indicator Program, NPG-SPP-02.2, Revision 0005
 Performance Indicator Program, NPG-SPP-02.2, Revision 0006

Consolidated Data Entry 4.0, MSPI Derivation Report Generation Date Unit Browns Ferry Units 1, 2, and 3, for the period September 2013 through Apr 2014, MSPI System MSPI Cooling Water System MSPI Element Unavailability Index (UAI)

Consolidated Data Entry 4.0, MSPI Derivation Report Generation Date Unit Browns Ferry Units 1, 2, and 3, for the period September 2013 through Apr 2014, MSPI System MSPI Emergency AC Power System MSPI Element Unavailability Index (UAI)

Consolidated Data Entry 4.0, MSPI Derivation Report Generation Date Unit Browns Ferry Units 1, 2, and 3, for the period September 2013 through Apr 2014, MSPI System MSPI Emergency AC Power System MSPI Element Unreliability Index (URI)

Consolidated Data Entry 4.0, MSPI Derivation Report Generation Date Unit Browns Ferry Units 1, 2, and 3, for the period September 2013 through Apr 2014, MSPI System MSPI Residual Heat Removal System MSPI Element Unreliability Index (URI)

Consolidated Data Entry 4.0, MSPI Derivation Report Generation Date Unit Browns Ferry Units 1, 2, and 3, for the period September 2013 through Apr 2014, MSPI System MSPI Residual Heat Removal System MSPI Element Unavailability Index (UAI)

Section 4OA2: Identification and Resolution of Problems

PER 916831 RBCCW leak identified in the Unit 2 Drywell

PER 916833 Unit 2 RHR system leak identified downstream of 2-FCV-074-0048

Operator logs dated June 3 through August 6, 2014

Plan of the Day for Unit 2 dated June 3 through August 6, 2014

Section 4OA3: Event Follow-up

890649, SLC Tank Level Increasing

LER 05000260/2014-003-00, Both Trains of Standby Liquid Control Inoperable, Rev 0

LER 05000260/2014-001-00 Electric Board Room Air Conditioning System inoperable longer than allowed by Technical Specifications, Rev 0

LER 05000259, 05000260, 05000296/2014-002-00 Diesel Generator Inoperable due to Fuel Oil Leak, Rev 0

LER 05000296/2014-002-00 Automatic Reactor Scram due to an Anticipated Transient Without Scram/Alternate Rod Insertion Signal Generated during Functional Test, Rev 0

3-SR-3.3.5.1.2(ATU A) Core and Containment Cooling Systems Analog Trip Unit Functional Test, Rev 15

Drawing 3-45E670-25 Wiring Diagram ECCS Division I Analog Trip Units Schematic Diagrams SH-1, Rev 10

Drawing 3-45E670-26 Wiring Diagram ECCS Division I Analog Trip Units Schematic Diagrams SH-2, Rev 1

Drawing 3-45E670-27 Wiring Diagram ECCS Division I Analog Trip Units Schematic Diagrams SH-3, Rev 1

Drawing 3-45E670-28 Wiring Diagram ECCS Division I Analog Trip Units Schematic Diagrams SH-4, Rev 1

Drawing 3-45E670-29 Wiring Diagram ECCS Division I Analog Trip Units Schematic Diagrams SH-5, Rev 6

Drawing 3-45E670-30 Wiring Diagram ECCS Division I Analog Trip Units Schematic Diagrams SH-6, Rev 3

Drawing 3-45E670-31 Wiring Diagram ECCS Division II Analog Trip Units Schematic Diagram, Rev 5

Drawing 3-45E670-32 Wiring Diagram ECCS Division II Analog Trip Units Schematic Diagram, Rev 1

Drawing 3-45E670-33 Wiring Diagram ECCS Division II Analog Trip Units Schematic Diagram SH-3, Rev 1

Drawing 3-45E670-34 Wiring Diagram ECCS Division II Analog Trip Units Schematic Diagram SH-4, Rev 2

Drawing 3-45E670-35 Wiring Diagram ECCS Division II Analog Trip Units Schematic Diagram SH-5, Rev 6

3-AOI-100-1 Scram Report dated May 6, 2014

PER 881051 Unit 3 ATWS-RPT Actuation with Dual Reactor Recirculation Pump Trip and Automatic Insertion of All Control Rods

Root Cause Analysis for PER 881051, Rev 0

Section 40A5: Other Activities

0-SR-DCS3.1.2.1, Spent Fuel Storage Inspection, Rev. 14

0-GO-17, Spent Fuel/Dry Cask Operations

NPG-SPP-01.2, Administration of Site Technical Procedures

NFTP-100, Fuel Selection for Dry MPC Storage, Revision 5 completed for campaign #6

10 CFR 72.48 Screening/Evaluation: 72.212 Evaluation Report

10 CFR 72.48 Screening/Evaluation: EDC E22443C

LIST OF ACRONYMS

ADAMS	-	Agencywide Document Access and Management System
ADS	-	Automatic Depressurization System
ARM	-	area radiation monitor
CAD	-	containment air dilution
CAP	-	corrective action program
CCW	-	condenser circulating water
CFR	-	Code of Federal Regulations
CoC	-	certificate of compliance
CRD	-	control rod drive
CS	-	core spray
DCN	-	design change notice
EECW	-	emergency equipment cooling water
EDG	-	emergency diesel generator
FE	-	functional evaluation
FPR	-	Fire Protection Report
FSAR	-	Final Safety Analysis Report
HPCI	-	high pressure coolant injection
IMC	-	Inspection Manual Chapter
LER	-	licensee event report
NCV	-	non-cited violation
NRC	-	U.S. Nuclear Regulatory Commission
ODCM	-	Off-Site Dose Calculation Manual
PER	-	problem evaluation report
PCIV	-	primary containment isolation valve
PI	-	performance indicator
RCE	-	Root Cause Evaluation
RCIC	-	reactor core isolation cooling
RCW	-	Raw Cooling Water
REMP	-	Radiological Environmental Monitoring Program
RG	-	Regulatory Guide
RHR	-	residual heat removal
RHRSW	-	residual heat removal service water
RTP	-	rated thermal power
RPS	-	reactor protection system
RWP	-	radiation work permit
SDP	-	significance determination process
SBGT	-	standby gas treatment
SLC	-	standby liquid control
SNM	-	special nuclear material
SRV	-	safety relief valve
SSC	-	structure, system, or component
TI	-	Temporary Instruction
TIP	-	transverse in-core probe
TRM	-	Technical Requirements Manual
TS	-	Technical Specification(s)
UFSAR	-	Updated Final Safety Analysis Report
URI	-	unresolved item
WO	-	work order