



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

October 29, 2014

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

SUBJECT: WATTS BAR NUCLEAR PLANT - NRC INTEGRATED INSPECTION REPORT
05000390/2014004

Dear Mr. Shea:

On September 30, 2014, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Watts Bar Nuclear Plant, Unit 1. On October 16, 2014, the NRC inspectors discussed the results of this inspection with Mr. Connors and other members of the Watts Bar staff. Inspectors documented the results of this inspection in the enclosed inspection report.

NRC inspectors documented two findings of very low safety significance (Green) in this report. One of these findings involved a violation of NRC requirements. Further, inspectors documented a licensee-identified violation which was determined to be of very low safety significance (Green) in this report. The NRC is treating these violations as non-cited violations (NCV) consistent with Section 2.3.2.a of the NRC Enforcement Policy.

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

If you disagree with a cross-cutting aspect assignment or a finding not associated with a regulatory requirement 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 Watts Bar 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 Public Document Room or from the Publicly Available Records System (PARS) component of 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 No.: 50-390
License No.: NPF-90

Enclosure: NRC Inspection Report 05000390/2014004
w/Attachment: Supplemental Information

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Letter to Joseph Shea from Jonathan H. Bartley dated October 29, 2014

SUBJECT: WATTS BAR NUCLEAR PLANT - NRC INTEGRATED INSPECTION REPORT
05000390/2014004

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.: 50-390

License No.: NPF-90

Report No.: 05000390/2014004

Licensee: Tennessee Valley Authority (TVA)

Facility: Watts Bar Nuclear Plant, Unit 1

Location: Spring City, TN 37381

Dates: July 1 through September 30, 2014

Inspectors: R. Monk, Senior Resident Inspector
J. Nadel, Senior Resident Inspector
K. Miller, Resident Inspector
R. Rodriguez, Resident Inspector
J. Hamman, Resident Inspector
R. Hamilton, Senior Health Physicist

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

Enclosure

SUMMARY

IR 05000390/2014-004; 07/01/2014 – 09/30/2014; Watts Bar, Unit 1; Post Maintenance Testing and Fire Protection.

The report covered a three-month period of inspection by the resident inspectors and one regional inspector. One Green NRC-identified violation, one Green self-revealing finding, and one Green licensee-identified violation were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," (SDP) dated June 2, 2011. Cross-cutting aspects are determined using IMC 0310, "Aspects Within 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.

A. NRC-Identified Findings and Self-Revealing Findings

Cornerstone: Initiating Events

Green: A Green self-revealing finding was documented by the inspectors for the licensee's failure to adequately perform a post maintenance test for Design Change Notice (DCN) 60683, Stage 8, resulting in draining approximately 3300 gallons of radioactive contaminated water from the Unit 1 refueling water storage tank into the auxiliary building. The inspectors determined that the licensee's failure to implement an adequate post maintenance test for DCN 60683, install new connections for Fukushima modifications, as required by NPG-SPP-06.9.3, Revision 5, Plant Modification Testing, was a performance deficiency.

The performance deficiency was determined to be more than minor because it adversely affected the Design Control attribute of the Mitigating Systems cornerstone to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, the failure to implement an adequate post maintenance test resulted in the inoperability of the Unit 1 RWST. Using the screening worksheet of IMC 0609, Appendix A, Exhibit 2 – Mitigating Systems Screening Questions, the inspectors determined that the finding was of very low safety significance (Green) because the resulting loss of Unit 1 RWST inventory was restored within the Technical Specification allowable time. The cause of the finding was directly related to the aspect of work management in the Human Performance cross-cutting area because the licensee failed to implement a process of planning, controlling, and executing work activities such that nuclear safety was the overriding priority. [H.5] (Section R19)

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Cornerstone: Mitigating Systems

Green: The inspectors identified a Green non-cited violation (NCV) of 10 Code of Federal Regulations (CFR) 50, Appendix B, Criterion V, for the licensee's failure to follow procedure MMTP-108, Erection of Scaffolds/Temporary Work Platforms and Ladders, Revision 8. Specifically, on August 18, 2014, a scaffold was erected in the 1B-B charging pump room and Operations personnel failed to adequately evaluate the scaffold for plant equipment access impairments as required by the procedure. The inspectors determined that the licensee's failure to adequately evaluate the completed scaffold for plant equipment access/operability/impairments as required by MMTP-108, Erection of Scaffolds/Temporary Work Platforms and Ladders, Revision 8, was a performance deficiency.

The performance deficiency was determined to be more than minor because it was associated with the protection against external events (fire) attribute of the Mitigating Systems Cornerstone and it adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the finding had the potential to affect the feasibility of performing operator manual actions (OMAs) required for fire safe shutdown in the event of a fire. The finding was evaluated using IMC 0609 Appendix F, Fire Protection Significance Determination Process, dated September 20, 2013, and was determined to require a detailed risk analysis because evaluation was beyond the scope of IMC 0609 Attachment 1, Fire Protection Significance Determination Process Worksheet, Phase 2 Quantitative Screening Approach. A bounding analysis was performed by a regional senior reactor analyst using the guidance of IMC 0609, Appendix F because the finding affected the ability to reach and maintain safe-shutdown conditions in case of fire. The analysis determined that the risk associated with the performance deficiency represented an increase in core damage frequency of less than $1E-6$ /year, a finding of very low safety significance (Green). The cause of the finding was directly related to the aspect of Conservative Bias in the Human Performance cross-cutting area because the licensee failed to use decision making practices that emphasize prudent choices over those that are simply allowable when performing the scaffold evaluation. [H.14] (Section 1R05)

B. Licensee-Identified Violations

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

REPORT DETAILS

Summary of Plant Status

The unit started the reporting period at 100 percent rated thermal power (RTP) and remained at RTP until July 13, 2014, when it was manually tripped due to a loss of both #7 heater drain pumps and the subsequent isolation of low pressure heater strings. The unit was returned to RTP on July 15, 2014, and remained there through the end of the reporting period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection

External Flood Protection Inspection

a. Inspection Scope

The inspectors reviewed the licensee's readiness to cope with external flooding. External flooding from a probable maximum precipitation (PMP) or design basis flood (DBF) had the potential for internal flooding of a portion of a number of the plant structures. The inspectors reviewed the feasibility of the licensee's flooding mitigation plans and design features and verified that they were consistent with the licensee's design requirements and the risk analysis assumptions for coping with this type of event. The inspectors performed walkdowns of selected areas to observe grading and a newly installed water storage tank. The inspector also verified that this tank was accounted for in the latest PMP analyses. Additionally, the inspectors reviewed the licensee's related corrective action documents (problem evaluation reports) to ensure any nonconforming conditions related to potential flooding were properly addressed. Documents reviewed are listed in the attachment. This activity constituted one Adverse Weather Protection inspection sample.

b. Findings

No findings were identified.

1R04 Equipment Alignment

Partial System Walkdowns

a. Inspection Scope

The inspectors conducted the equipment alignment partial walkdowns, listed below, to evaluate the operability of selected redundant trains or backup systems with the other train or system inoperable or out of service (OOS). This also included that redundant trains were returned to service properly. The inspectors reviewed the functional system descriptions, the Updated Final Safety Analysis Report (UFSAR), system operating

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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. Documents reviewed are listed in the attachment. This activity constituted three Equipment Alignment Partial Walkdown inspection samples.

- Partial walkdown of 1B-B containment spray (CS) pump while 1A-A OOS for maintenance
- Partial walkdown of 1A-A CS pump while 1B-B OOS for maintenance
- Partial walkdown of 1A-A and 1B-B motor-driven auxiliary feedwater pumps while the turbine-driven auxiliary feedwater pump was OOS for maintenance

b. Findings

No findings were identified.

1R05 Fire Protection

.1 Fire Protection Tours

a. Inspection Scope

The inspectors conducted tours of the areas important to reactor safety, listed below, to verify the licensee's implementation of fire protection requirements as described in: the Fire Protection Program, Nuclear Power Group Standard Programs and Processes (NPG-SPP)-18.4.6, Control of Fire Protection Impairments; NPG-SPP-18.4.7, Control of Transient Combustibles; and NPG-SPP-18.4.8, Control of Ignition Sources (Hot Work). The inspectors evaluated, as appropriate, conditions related to: 1) licensee control of transient combustibles and ignition sources; 2) the material condition, operational status, and operational lineup of fire protection systems, equipment, and features; and 3) the fire barriers used to prevent fire damage or fire propagation. Documents reviewed are listed in the Attachment. This activity constituted six Fire Protection Walkdown inspection samples.

- Auxiliary instrument room
- 1A-A emergency diesel generator (EDG)
- 2A-A EDG
- 1B-B EDG
- 2B-B EDG
- Intake pumping station

b. Findings

No findings were identified.

.2 Inspector Followup of WBN-NOER-14-009. Allowed time to perform operator manual actions is less than originally calculated for Appendix R

a. Inspection Scope

The licensee learned, through an updated calculation performed by Westinghouse and associated internal operating experience report WBN-NOER-14-009, that some operator manual action (OMA) time requirements for 10 CFR Appendix R fire scenarios may be less than originally calculated. As a result, inspectors requested a demonstration of an affected OMA procedure to validate that it could be completed in the time required. Procedure 1-AOI-32.2 C.59, Fire Safe Shutdown Rooms 676-A1, 676-A16, 692-A8, 713-A28, was chosen. Documents reviewed are listed in the Attachment. This activity did not constitute any additional inspection samples.

b. Findings

Introduction: The inspectors identified a Green non-cited violation (NCV) of 10 *Code of Federal Regulations* (CFR) 50, Appendix B, Criterion V, for the licensee's failure to follow procedure MMTP-108, Erection of Scaffolds/Temporary Work Platforms and Ladders, Revision 8. Specifically, on August 18, 2014, a scaffold was erected in the 1B-B charging pump room and Operations personnel failed to adequately evaluate the scaffold for plant equipment access impairments as required by the procedure.

Description: Procedure 1-AOI-32.2 C.59, Fire Safe Shutdown Rooms 676-A1, 676-A16, 692-A8, 713-A28, contains instructions for the operators to safely shut down the reactor in case of a severe fire in one of the fire areas mentioned in its title. Attachment 2 of 1-AOI-32.2 C.59 contains time critical local operator manual actions (OMAs) to isolate the normal charging and safety injection boron injection tank flow paths and to establish reactor coolant pump seal injection flow paths. These actions are performed by an auxiliary operator in either the 1A-A charging pump room or in the 1B-B charging pump room, depending upon which pump is running at the time of the event. On August 20, 2014, the inspectors were witnessing a demonstration of these OMAs. During the demonstration, it was discovered that scaffolding had been installed in the 1B-B charging pump room to support ongoing work in the room. The scaffold did not have platforms for the operator to reach the required valves, nor did it leave space for use of the 8-foot A-frame emergency operating procedure ladder designated for such actions. The first timed attempt to perform the actions in the procedure took in excess of the maximum allowed time due to the scaffold interference. The licensee entered this issue in their corrective action program as problem evaluation report (PER) 924551 and removed the scaffold immediately.

Inspectors reviewed the scaffold work order (WO) and procedure MMTP-108, Erection of Scaffolds/Temporary Work Platforms and Ladders, Revision 8. Inspectors also reviewed Appendix F to MMTP-108, Scaffold Erection/Inspection Checklist, and determined the shift manager or designee was required by a procedural step to perform an evaluation of the completed scaffold for, "plant equipment access/operability/impairments (including fire protection or emergency

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equipment interference).” In the case of the 1B-B charging pump scaffold, this step had been signed off as complete, but the evaluation failed to identify the interference between the scaffold and the valves required to be accessible for OMAs during an Appendix R fire event. The individual’s decision-making process concluded that the A-frame ladder could be used to successfully accomplish the OMAs with the scaffold present. However, this conclusion was not verified by anything more than a visual evaluation. Such an evaluation, while allowable, was not as prudent as other actions that could have been taken, such as physically checking for interferences with the ladder.

Analysis: The inspectors determined that the licensee’s failure to adequately evaluate the completed scaffold for plant equipment access/operability/impairments as required by MMTP-108, Erection of Scaffolds/Temporary Work Platforms and Ladders, Revision 8, was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the protection against external events (fire) attribute of the Mitigating Systems Cornerstone and it adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the finding had the potential to affect the feasibility of performing OMAs required for fire safe shutdown in the event of a fire. The finding was evaluated using Inspection Manual Chapter (IMC) 0609 Appendix F, Fire Protection Significance Determination Process, dated September 20, 2013, and was determined to require a detailed risk analysis because evaluation was beyond the scope of IMC 0609 Attachment 1, Fire Protection Significance Determination Process Worksheet, Phase 2 Quantitative Screening Approach. A bounding analysis was performed by a regional senior reactor analyst using the guidance of IMC 0609, Appendix F, because the finding affected the ability to reach and maintain safe shutdown conditions in case of fire. The dominant sequence included an unmitigated fire in the auxiliary building and the untimely completion of the OMA leading to a reactor coolant system (RCS) overfill condition which challenged the pressurizer power-operated relief valves and/or code safety valves creating a small break loss of coolant accident (LOCA). The risk was mitigated because the fire areas of concern are equipped with ionization detectors and a pre-action sprinkler system. Additionally, the scaffold was present for less than three days. The analysis determined that the risk associated with the performance deficiency represented an increase in core damage frequency of less than $1E-6$ /year, a finding of very low safety significance (Green). The cause of the finding was directly related to the aspect of Conservative Bias in the Human Performance cross-cutting area because the licensee failed to use decision-making practices that emphasize prudent choices over those that are simply allowable when performing the scaffold evaluation. [H.14]

Enforcement: 10 CFR 50, Appendix B, Criterion V, Instructions, Procedures, and Drawings, requires, in part, that “activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings.” These requirements were implemented, in part, by procedure MMTP-108, Erection of Scaffolds/Temporary Work Platforms and Ladders, Revision 8. Contrary to the above, on August 18, 2014, the licensee failed to implement procedure MMTP-108, Erection of Scaffolds/Temporary Work Platforms and Ladders, Revision 8.

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Specifically, Operations personnel failed to properly evaluate a scaffold erected in the 1B-B charging pump room for interferences with OMAs required during an Appendix R fire event. The licensee took immediate corrective action on August 20, 2014, and removed the scaffold. Because this finding was of low safety significance (Green) and was entered into the licensee's corrective action program as PER 924551, this violation is being treated as an NCV consistent with the NRC Enforcement Policy and is identified as NCV 05000390/2014004-01, Failure to follow scaffold procedure impacts Appendix R operator manual actions.

1R11 Licensed Operator Requalification

.1 Routine Operator Requalification Review

a. Inspection Scope

On August 5, 2014, the inspectors observed the simulator evaluation for an Operations Crew 5 per 3-OT-SRE0003, Loss of Coolant Accident, Rev. 17. The plant conditions led to a Notification of Unusual Event and Alert classification. Performance indicator credit was taken.

The inspectors specifically evaluated the following attributes related to the operating crews' 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 abnormal operating instructions and emergency operating instructions
- Timely and appropriate Emergency Action Level declarations per emergency plan implementing procedures
- Control board operation and manipulation, including high-risk operator actions
- Command and Control provided by the unit supervisor and shift manager

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 Quarterly Review of Licensed Operator Performance

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 such as procedures OPDP-1, Conduct of Operations; NPG-SPP-10.0, Plant Operations; and GO-4, Normal Power Operation.

Inspectors utilized activities such as post maintenance testing, surveillance testing 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

This activity constituted one Control Room Observation inspection sample.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope

The inspectors reviewed the performance-based problem listed below. A review was performed to assess the effectiveness of maintenance efforts that apply to scoped structures, systems, or components (SSCs) and to verify that the licensee was following the requirements of TI-119, Maintenance Rule Performance Indicator Monitoring, Trending, and Reporting 10 CFR 50.65, and NPG-SPP-03.4, Maintenance Rule Performance Indicator Monitoring, Trending, and Reporting 10 CFR 50.65. Reviews focused, as appropriate, on: 1) appropriate work practices; 2) identification and resolution of common cause failures; 3) scoping in accordance with 10 CFR 50.65; 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. This activity constituted one Maintenance Effectiveness inspection sample.

- Review of revision to A train Auxiliary Control Air System a(1) corrective action plan

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control

a. Inspection Scope

The inspectors evaluated, as appropriate, for the work activities listed below:

1) the effectiveness of the risk assessments performed before maintenance activities were conducted; 2) the management of risk; 3) that, upon identification of an unforeseen situation, necessary steps were taken to plan and control the resulting emergent work activities; and 4) that maintenance risk assessments and emergent work problems were adequately identified and resolved. The inspectors verified that the licensee was complying with the requirements of 10 CFR 50.65 (a)(4); NPG-SPP-07.0, Work Control and Outage Management; NPG-SPP-07.1, On Line Work Management; and TI-124, Equipment to Plant Risk Matrix. This activity constituted four Maintenance Risk Assessment inspection samples.

- Risk assessment for work week 728 with 1A CS pump and 2A EDG OOS for planned maintenance
- Risk assessment for work week 804 with 1B CS pump and B CS heat exchanger OOS for planned maintenance
- Risk assessment for work week 818 with C-S component cooling system pump OOS for preventive maintenance and emergent failure of 1A main control room chiller AHU
- Risk assessment for work week 922 with 2A EDG 18 month service and battery charger testing

b. Findings

No findings were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the operability evaluations affecting risk-significant mitigating systems listed below, to assess, as appropriate: 1) the technical adequacy of the evaluations; 2) whether continued system operability was warranted; 3) whether the compensatory measures, if involved, were in place, would work as intended, and were appropriately controlled; and 4) where continued operability was considered unjustified,

the impact on TS Limiting Conditions for Operation (LCO) and the risk significance in accordance with the SDP. The inspectors verified that the operability evaluations were performed in accordance with NPG-SPP-22.300, Corrective Action Program and OPDP-8, Operability Dermination Process and Limiting Conditions for Operation Tracking. This activity constituted two Operability Evaluation inspection samples.

- Prompt determination of operability (PDO) for PER 904179, Impact of change of failure mode of west saddle dike on site PMF level
- PDO for PER 920178, Effects of <4 gpm ERCW leakage of 1B CCP room cooler

b. Findings

No findings were identified.

1R19 Post Maintenance Testing

a. Inspection Scope

The inspectors reviewed the post-maintenance test procedures and/or test activities, (listed below) as appropriate, for selected risk-significant mitigating systems to assess whether: 1) the effect of testing on the plant had been adequately addressed by control room and/or engineering personnel; 2) testing was adequate for the maintenance performed; 3) acceptance criteria were clear and adequately demonstrated operational readiness consistent with design and licensing basis documents; 4) test instrumentation had current calibrations, range, and accuracy consistent with the application; 5) tests were performed as written with applicable prerequisites satisfied; 6) jumpers installed or leads lifted were properly controlled; 7) test equipment was removed following testing; and 8) equipment was returned to the status required to perform its safety function. The inspectors verified that these activities were performed in accordance with NPG-SPP-06.9, Testing Programs; NPG-SPP-06.3, Pre-/Post-Maintenance Testing; and NPG-SPP-07.1, On Line Work Management. This activity constituted five Post Maintenance Testing inspection samples.

- WO 115948503, 1-SI-3-908, Valve full stroke exercising during plant operation – TDAFW for replacement of short solenoid valve on 1-FCV-3-173
- WO 115976555, Replacement of shorted conax connector for #1 SG main feed regulating bypass valve 1-FSV-3-236B
- WO 114481702, Implementation of design change 60683, install new connections for Fukushima modifications
- WO 115590437, Routine pump and valve planned maintenance on the 1A-A MDAFW pump
- WO 115401309, Replacement of Eagle 21 partial trip card TF09

b. Findings

Introduction: A Green self-revealing finding was documented by the inspectors for the licensee's failure to adequately perform a post maintenance test for Design Change Notice (DCN) 60683, Stage 8, resulting in draining approximately 3300 gallons of radioactive contaminated water from the Unit 1 refueling water storage tank (RWST) into the auxiliary building.

Description: On July 7, 2014, licensee personnel were investigating reported leakage past a capped connection for valve 1-ISV-078-1000, a FLEX connection to the Unit 1 RWST that had been recently installed per DCN 60683, Stage 8. When the cap was removed from this 4-inch valve, approximately 3300 gallons of radioactive contaminated water drained to the floor prior to Operations personnel isolating the leak, resulting in the loss of RWST level below the TS limits of 371,400 gallons. TS LCO 3.5.4 condition B and technical requirement manual (TRM) 3.1.6 condition D were entered with actions to restore the RWST to an operable status within one hour from time 1255. RWST level was restored to meet TS 3.5.4 and TRM 3.1.6 requirements at 1320. The minimum level obtained in the U1 RWST was 370,700 gallons. Subsequent investigation revealed that the implementing WO 114481702 for the DCN was inadequate in that the only post maintenance test performed was an external leakage test with the system in its normal configuration, that is, with the valve cap installed. Modifications personnel had released the isolation clearance for valve 1-ISV-078-1000 which allowed Operations personnel to place the piping to which the valve was attached into service. Leakage past the cap was noted and was believed to be valve seat leakage. After the incident the valve stem stop was found to be misadjusted leaving the valve approximately two inches open.

Analysis: The inspectors determined that the licensee's failure to implement an adequate post maintenance test for DCN 60683, install new connections for Fukushima modifications, as required by NPG-SPP-06.9.3, Rev 5, Plant Modification Testing, was a performance deficiency. The performance deficiency was determined to be more than minor because it adversely affected the Design Control attribute of the Mitigating Systems cornerstone to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, the failure to implement an adequate post maintenance test resulted in the inoperability of the Unit 1 RWST. Using the screening worksheet of IMC 0609, Appendix A, Exhibit 2 – Mitigating Systems Screening Questions, the inspectors determined that the finding was of very low safety significance (Green) because the resulting loss of Unit 1 RWST inventory was restored within the TS allowable time. The cause of the finding was directly related to the aspect of work management in the Human Performance cross-cutting area because the licensee failed to implement a process of planning, controlling, and executing work activities such that nuclear safety was the overriding priority. [H.5]

Enforcement: This finding does not involve enforcement action because no violation of a regulatory requirement was identified. Because this finding does not involve a violation and is of very low safety significance it is identified as FIN 050000390/2014004-02, Failure to Perform an Adequate Post Maintenance Test Results in Draining of the Unit 1 RWST to a Level Below Technical Specification Limit.

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1R22 Surveillance Testinga. Inspection Scope

The inspectors witnessed the surveillance tests and/or reviewed test data of selected risk-significant SSCs listed below, to assess, as appropriate, whether the SSCs met the requirements of the TS; the UFSAR; NPG-SPP-06.9, Testing Programs; NPG-SPP-06.9.2, Surveillance Test Program; and NPG-SPP-09.1, ASME Section XI. The inspectors also determined whether the testing effectively demonstrated that the SSCs were operationally ready and capable of performing their intended safety functions. This activity constituted four Surveillance Testing inspection samples: one in-service and three routine tests.

In-Service Test:

- WO 115568755, 1-SI-74-901-A, Residual heat removal pump 1A-A quarterly performance test

Other Surveillances:

- WO 115568920, 0-SI-82-12-B, 2B-B EDG monthly surveillance
- WO 115147240, TI-50-002, Diesel generator 1A fuel oil day tank transfer pump quarterly test
- WO 115539306, 0-SI-82-9, Diesel generator start history

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluationa. Inspection Scope

The inspectors observed an emergency preparedness training drill that contributed to the licensee's drill/exercise performance and emergency response organization performance indicator (PI) measures on September 10, 2014. This drill was intended to identify any licensee weaknesses and deficiencies in classification, notification, dose assessment and protective action recommendation development activities. The inspectors observed emergency response operations in the simulated control room, Technical Support Center, and Operations Support Center, as applicable, to verify that event classification and notifications were done in accordance with EPIP-1, Emergency Plan Classification Flowchart, and licensee conformance with EPIP-2, Notification of Unusual Event; EPIP-3, Alert; EPIP-4, Site Area Emergency; EPIP-5, General Emergency; the Radiological Emergency Plan; and other applicable Emergency Plan Implementing Procedures. The inspectors attended the post-drill critiques to compare any inspector-observed

Enclosure

weaknesses with those identified by the licensee in order to verify whether the licensee was properly identifying EP related issues and entering them in to the CAP, as appropriate. This activity constituted one EP training drill inspection sample.

b. Findings

No findings were identified.

2. RADIATION SAFETY

2RS6 Radioactive Gaseous and Liquid Effluent Treatment

a. Inspection Scope

Program Reviews: The inspectors reviewed the 2012 and 2013 Annual Radiological Effluent Release Report (ARERR) documents for consistency with the requirements in the Offsite Dose Calculation Manual (ODCM) and TS details. Routine and abnormal radioactive effluent release results and reports, as applicable, were reviewed and discussed with responsible licensee representatives. Status of radioactive gaseous and liquid effluent processing and monitoring equipment and activities, and changes thereto, as applicable, as described in the UFSAR were reviewed. In addition, quality assurance (QA) program activities, including inter-laboratory comparison analysis results, were reviewed and discussed with responsible licensee representatives.

Equipment Walkdowns: The inspectors walked down selected components of the gaseous and liquid waste processing and discharge systems to ascertain material condition, configuration, and alignment. To the extent practical, the inspector observed the material condition in-place liquid waste processing equipment for indications of degradation or leakage that could constitute a possible release pathway to the environment. The walkdowns conducted with operations and systems engineering personnel included observation of the material condition and identification of leaks in the system, discussion of WO status, and configuration control with selected tanks, piping, and valves including the interface with Unit 2 systems still under construction. The inspectors toured selected accessible liquid and gaseous waste processing areas and valve galleries. In addition, the inspectors walked down portions of the containment purge, auxiliary building, and auxiliary building gas treatment ventilation systems, to ascertain material condition, configuration, and alignment.

Instruments and Equipment: The inspectors discussed and verified flow rates for the auxiliary building plant vent system and sampling system. For the subject system, sampling and processing of the weekly effluent release permit was observed and discussed with responsible chemistry staff. In addition, the inspectors reviewed recent ventilation surveillance test results for the auxiliary building gas treatment system filter trains A and B, emergency gas treatment system filter trains A and B, and containment purge air cleanup system trains A and B and discussed with accountable engineer.

Effluents: The inspectors reviewed selected liquid and gaseous release permits and verified monthly gaseous and liquid effluent dose calculation summaries. The site's 10 CFR 61 analyses were reviewed for expected nuclide distribution from the aspects of quantifying effluents, the treatment of hard-to-detect nuclides, determining appropriate calibration nuclides for instruments and whole body counting libraries. The inspectors reviewed the licensee's follow-up on one abnormal release that was documented in the annual effluent reports. The inspectors reviewed and discussed estimated radionuclide types, quantities, and potential dose impacts for these releases with licensee staff.

Ground Water Protection: The licensee's implementation of the industry ground water protection initiative was reviewed for changes since the last inspection. This review included review of documentation of onsite monitoring in wells, electrical vaults, manholes, and surface water bodies.

Problem Identification and Resolution: Selected CAP documents associated with radiation monitoring instruments, including PER documents, licensee audits, and required reports were reviewed, assessed, and resolved in accordance with procedure NPG-SPP-22.300, Corrective Action Program, Rev. 1.

Effluent process and monitoring activities were evaluated against details and requirements documented in the UFSAR Sections 11 and 12; TS Sections 5.7.1 Procedures, 5.7.2.3, ODCM, 5.7.2.7, Radioactive Effluents Control Program, 5.7.2.14, Ventilation Filter Testing Program, and 5.9.3, Reporting Requirements; ODCM; 10 CFR Part 20; 10 CFR, Appendix I to Part 50; and approved licensee procedures. In addition, ODCM and UFSAR changes since the last onsite inspection were reviewed against the guidance in NUREG-1301 and RG 1.109, RG 1.21, and RG 4.1.

Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

2RS7 Radiological Environmental Monitoring Program (REMP)

a. Inspection Scope

REMP Implementation: The inspectors observed routine sample collection and surveillance activities as required by the licensee's REMP. The inspectors noted the material condition and operability of airborne particulate filter sample stations at selected monitoring locations. Selected environmental thermoluminescent dosimeters were checked for material condition and appropriate identification. In addition, automatic water samplers were inspected for material condition at an onsite groundwater location. Land use census results, changes to the ODCM, and sample collection/processing activities were discussed with environmental technicians. The samples observed were representative of release pathways as specified in the ODCM.

The inspectors reviewed calibration records for selected environmental air samplers. The inspectors also reviewed the 2012 and 2013 Radiological Environmental Operating Reports, results of the 2013 and first quarter 2014 interlaboratory cross-check program, and a procedure for environmental sample collection and processing. Selected environmental measurements were reviewed for consistency with licensee effluent data, evaluated for radionuclide concentration trends, and compared with detection level sensitivity requirements.

The inspectors reviewed records created, as required by 10 CFR 50.75(g), of leaks, spills, and remediation and verified the records were retained in a retrievable manner.

Procedural guidance, program implementation, and environmental monitoring results were reviewed against: 10 CFR Part 20; Appendix I to 10 CFR Part 50; TS Section 5.7.2.3; ODCM; Regulatory Guide (RG) 4.15, QA for Radiological Monitoring Programs (Normal Operation) - Effluent Streams and the Environment; and the Branch Technical Position, An Acceptable Radiological Environmental Monitoring Program - 1979.

Meteorological Monitoring Program: The inspectors observed the physical condition of the meteorological tower and discussed equipment operability and maintenance history with licensee representatives. The inspectors discussed the reliability and data fidelity of the fiber optic data transmission. For selected meteorological measurements of wind speed, wind direction, and temperature, the inspectors reviewed calibration records for applicable tower instrumentation and evaluated measurement data recovery for 2012 and 2013.

Inspectors verified that missed environmental samples were identified and reported in the 2012 and 2013 annual environmental monitoring report. The licensee identified the missed samples in their corrective action program

Licensee procedures and activities related to meteorological monitoring were evaluated against: ODCM; UFSAR Section 2.3; ANSI/ANS-2.5-1984, Standard for Determining Meteorological Information at Nuclear Power Sites; and Safety Guide 23, Onsite Meteorological Programs. Documents reviewed are listed in Section 2RS7 of the Attachment.

Problem Identification and Resolution: The inspectors reviewed selected PERs and audits in the areas of environmental monitoring, meteorological monitoring, and release of materials. The inspectors evaluated the licensee's ability to identify, characterize, prioritize, and resolve the identified issues in accordance with procedure NPG-SPP-22.300, Corrective Action Program, Rev. 1. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) VerificationReactor Safety Cornerstonesa. Inspection Scope

The inspectors sampled licensee submittals for the two PIs listed below. To verify the accuracy of the PI data reported from July 1, 2013, through June 30, 2014, PI definitions and guidance contained in NEI 99-02, Regulatory Assessment Indicator Guideline, Rev. 7, were used to verify the basis in reporting for each data element. This inspection satisfied five inspection samples for PI verification on an annual basis.

- MSPI – High Pressure Injection Systems
- MSPI – Emergency AC Power Systems
- MSPI – Residual Heat Removal Systems
- MSPI – Heat Removal Systems
- MSPI – Cooling Water Systems

b. Findings

No findings were identified.

4OA2 Problem Identification and ResolutionReview 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 corrective action program. This review was accomplished by reviewing daily PER and service request reports, and periodically attending Corrective Action Review Board and PER Screening Committee meetings.

b. Findings

No findings were identified.

4OA3 Event Follow-up(Closed) LER 05000390/2013-005-00: Fire Induced Failure of Chemical and Volume Control System Centrifugal Charging Pumpsa. Inspection Scope

On January 13, 2014, the licensee issued licensee event report (LER) 05000390/2013-005-00. On November 14, 2013, the licensee discovered an unanalyzed condition where a potential fire induced failure of both Unit 1 chemical and volume control system centrifugal charging pumps (CCPs) could occur due to a fire in the auxiliary building. A postulated fire in either of two fire areas in the auxiliary building could cause a spurious closure of CCP suction valves from the volume control tank and could disable the control circuit which opens the flow from RWST suction valves resulting in failure of the available CCP and a loss of RCP seal injection. RCP seal cooling would also be impacted by the loss of both thermal barrier booster pumps (TBBPs) since their control cables are located in the affected fire areas. The inability to establish the RWST suction path for the CCPs and loss of TBBPs could lead to RCP seal failure and a small break LOCA

b. Findings

One finding was documented in Section 4OA7, Licensee Identified Violations. No additional findings were identified.

4OA6 Meetings, including Exit

On October 16, 2014, the resident inspectors presented the quarterly inspection results to members of the licensee staff. The inspectors confirmed that none of the potential report inputs discussed were considered proprietary.

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 met the criteria of the NRC Enforcement Policy for being dispositioned as an NCV.

10 CFR Appendix R, Section III, G, Fire Protection and Safe Shutdown Capability, paragraph 3, states in part that Postulated Alternative or dedicated shutdown capability and its associated circuits, independent of cables, systems or components in the area, room, zone under consideration should be provided. Contrary to this requirement, since original construction until refueling outage RF12, in the spring of 2014, the licensee failed to meet the separation requirements of paragraph 2 of this part. Specifically, a postulated fire occurring in either of two fire areas could have resulted in the complete loss of reactor coolant pump seal cooling, resulting in a loss of coolant accident.

Inspectors determined that this performance condition was more than minor because it adversely impacted the Initiating Events Cornerstone to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations and performed a significance determination in accordance with IMC 609 Appendix F, phase I and II risk evaluation. The condition was determined to be of very low safety significance (Green) consistent with Task 2.7.5: Screening Check, because the Δ CDF was less than or equal to $1E-6$. This condition was captured in the licensee's corrective action program as PER 809167.

SUPPLEMENTARY INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

G. Arent, Licensing Manager
R. Bankes, Chemistry/Environmental Manager
L. Belvin, QA Manager
M. Bottorff, Operations Superintendent
M. Casner, Site Engineering Director
S. Connors, Plant Manager
K. Dietrich, Manager Engineering Programs
T. Detchemendy, Emergency Preparedness Manager
S. Fisher, Security Manager
W. Hooks, Radiation Protection Manager
J. James, Maintenance Manager
T. Morgan, Licensing Engineer
J. O'Dell, Site Licensing Supervisor
A. Pirkle, Engineering Programs
J. Reidy, Operations Manager
D. Shutt, Licensing
R. Stroud, Site Licensing
M. Thaggart, Work Control Manager
K. Walsh, Site Vice President

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000390/2014004-01	NCV	Failure to follow scaffold procedure impacts Appendix R operator manual actions (Section 1R05)
05000390/2014004-02	FIN	Failure to Perform an Adequate Post Maintenance Test Results in Draining of the Unit 1 RWST to a Level Below Technical Specification Limit (Section 1R19)

Closed

05000390/2013-005-00	LER	Fire Induced Failure of Chemical and Volume Control System Centrifugal Charging Pumps (Section 4OA3.1)
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LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

FSAR Section 2.4.3.1, Probable Maximum Precipitation
NUREG/CR7046, Design-Basis Flood Estimation for Site Characterization at Nuclear Power Plants in the United States of America.
WCG-1-550, Site Drainage for Probable Maximum Precipitation, Rev. 4
CDQ-2013-163, Fukushima NTTF Recommendation 2.1: Watts Bar Local Intense Precipitation Analysis, Rev. 0
CDQ-2013-163, Fukushima NTTF Recommendation 2.1: Watts Bar Local Intense Precipitation Analysis, Rev. 1
PER 750668
SR 907478

Section 1R04: Equipment Alignment

Drawing 1-47-803-2, Flow Diagram Auxiliary Feedwater
1-SOI-3.02, Auxiliary Feedwater System, Rev. 6
1-SOI-3.02, Auxiliary Feedwater System Power Checklist, Att 1P
1-SOI-3.02, Auxiliary Feedwater System Handswitch Checklist, Att 1H
1-SOI-3.02, Auxiliary Feedwater System Valve Checklist, Att 1V

Section 1R05: Fire Protection

WBN Prefire Plan IPS-0-711-01, Rev. 2
Fire Protection Report: Part VI, Fire Hazards Analysis, Rev. 10
PER 924551
Procedure MMTP-102, Erection of Scaffolds/Temporary Work Platforms and Ladders, Rev. 08
WBN FPR, Fire Hazards Analysis, Section VI
1-AOI-30.2 C.59, Fire Safe Shutdown, Rev. 0000
WOs 116057618, 116057572
SR 924168
1-AOI-30.2 APP B

Section 2RS6: Radioactive Gases and Liquid Effluent Treatment

Procedures, Guidance Documents, and Manuals
Chemistry Manual Chapter 6.73, Well, Soil, and Storm Drain Catch Basin Sampling, Rev. 3
NPG-SPP-05.14, Guide for Communicating Inadvertent Radiological Spills/Leaks to Outside Agencies, Rev. 3
NPG-SPP-05.15, Fleet Ground Water Protection Program, Rev. 4
Offsite Dose Calculation Manual (ODCM), Rev. 24
RCDP-11, Protocol for Remediation of Inadvertent Spills or Leaks of Contaminated Liquids, Rev. 0
0-CM-1.07, Strategic Plan for Groundwater Protection, Rev. 3
0-ODI-90-1, Liquid Radwaste Tank Release, Rev. 41
0-ODI-90-3, Conditional Turbine Building Station Sump Release, Rev. 13
0-ODI-90-4, Inoperable ERCW Radiation Monitors, Rev. 18
0-ODI-90-5, Waste Gas Decay Tank Release, Rev. 33
0-ODI-90-8, Monthly Service Building Exhaust Release, Rev. 14
0-ODI-90-10, Quarterly Analyses On Gaseous and Liquid Effluents, Rev. 19
0-ODI-90-11, Monthly Dose Reports, Rev. 9

0-ODI-90-22, Weekly Auxiliary Building Exhaust Release, Rev. 33
 0-ODI-90-28, Conditional Sampling Requirements Following Reactor Power Change, Rev. 12
 0-ODI-90-50, 276 Day Channel Operational Test of the Waste Gas Disposal Sys Rad Monitor Loop 0-LPR-90-118, Rev. 22
 0-PI-CEM-11.0, Monitoring Wells and Storm Drain Catch Basins, Rev. 13
 1-CM-13.18, Post - Accident Sampling In The Unit 1 Hot Sample Room, Rev. 0
 1-CM-13.19, Post - Accident Gaseous Lower Containment Sampling, Rev. 0
 1-CM-13.20, Post - Accident Gaseous Upper Containment Sampling, Rev. 0

Records and Data Reviewed

2012 Watts Bar Nuclear Plant Effluent and Waste Disposal Annual Report
 2013 Watts Bar Nuclear Plant Effluent and Waste Disposal Annual Report
 Ground Water sampling data for wells A through V
 Ground Water Station Sump results added to 10 CFR 50.75(g) file
 Chemistry Quarterly Interlaboratory Cross Check Data for 1st Quarter 2013 through 1st Quarter 2014

Inoperative Effluent Monitor Data for 2012-June 2014

0-ODI-90-22 Weekly Auxiliary Building Exhaust Release, 6/10/14
 1-ODI-90-26 Weekly Sampling of Unit 1 Shield Building Exhaust, 6/12/14
 0-ODI-90-1 Liquid Radwaste Tank Release, 6/4/14
 0-ODI-90-1 Liquid Radwaste Tank Release, 6/1/14
 Surveillance ABGTS Train A, 0-SI-30-9-A, 8/2012 and 1/2014
 Surveillance ABGTS Train B, 0-SI-30-9-B, 3/2012 and 12/2013
 Surveillance CREVS Train A, 0-SI-30-7-A, 6/2013 and 4/2014
 Surveillance CREVS Train B, 0-SI-30-7-B, 6/2013 and 4/2014
 Surveillance EGTS Train A, 0-SI-65-8-A, 1/2012 and 1/2014
 Surveillance EGTS Train B, 0-SI-65-8-B, 3/2012 and 2/2014
 Surveillance Purge Train A, 1-SI-30-11-A, 4/2014
 Surveillance Purge Train B, 1-SI-30-11-B, 4/2014

CAP Documents

WBN-CEM-S-14-001, Self-Assessment Public Radiation Safety Baseline for Effluents, Radiological Environmental Monitoring Program (REMP) and Performance Indicators, 5/27-30/14

PER 830025
 PER 832413
 PER 844746
 PER 873871
 PER 881722

Section 2RS7: Radioactive Environmental Monitoring Program and Radioactive Material Control

Procedures, Instructions, Guidance Documents, and Operating Manuals

EPFS-4, Environmental Data Station Meteorological Sensor Exchange, Rev. 17
 EPFS-6, Calibration of Environmental Data Station Data Logger and Sonic Channels, Rev. 16
 0-ODI-999-01, Shoreline Sediment Sampling, Rev. 2
 0-ODI-999-02, Quarterly Direct Radiation TLD Collection, Rev. 1
 0-ODI-999-03, Food Products, Rev. 1

0-ODI-999-04, Fish Sample Collection, Rev. 0
0-ODI-999-05, Collection of Radiological Environmental Monitoring Samples, Rev. 4
0-ODI-999-06, Collection of Soil Samples, Rev. 0
0-ODI-999-07, Land Use Survey, Rev. 1

Records and Data Reviewed

Annual Radiological Environmental Operating Report 2013
Meteorological Monitoring Instrument Report of Calibration RTDs SN 154188, 154198, 154200, 4/11/2012
Meteorological Monitoring Instrument Report of Calibration RTDs SN 132176, 154193, 154202, 2/12/2013
Meteorological Monitoring Instrument Report of Calibration RTDs SN 132176, 154188, 154193, 4/25/2014
Meteorological Monitoring Instrument Report of Calibration Ultrasonic Wind Sensor SN 00819, 6/18/2013
Meteorological Monitoring Instrument Report of Calibration Ultrasonic Wind Sensor SN B2310005, 6/19/2013
Meteorological Monitoring Instrument Report of Calibration Ultrasonic Wind Sensor SN B3720001, 6/19/2013
Meteorological Monitoring Instrument Report of Calibration Ultrasonic Wind Sensor SN B2310005, 2/4/2014
Meteorological Monitoring Instrument Report of Calibration Ultrasonic Wind Sensor SN B3720001, 2/4/2014
EPFS-6 Data Sheet 1, Air Temperature System Calibration Sheet, 12/18/2013
EPFS-6 Data Sheet 1, Air Temperature System Calibration Sheet, 6/18/2014
EPFS-4 Data Sheet 4, Meteorological Sensor Exchange Form, 2/19/2014
EPFS-4 Data Sheet 4, Meteorological Sensor Exchange Form, 7/10/2014
WBN Exchange-Calibration History Spreadsheet 2/7/2006 - 7/10/2014

Corrective Action Program (CAP) Documents

PER 592925
PER 665663
PER 832420
PER 832979
PER 884734

LIST OF ACRONYMS

CCS	Component Cooling System
CFR	<i>Code of Federal Regulations</i>
CS	Containment Spray
DBF	Design Basis Flood
EDG	Emergency Diesel Generator
FE	Functional Evaluation
IMC	Inspection Manual Chapter
LCO	Limiting Condition for Operation
LER	Licensee Event Report
LOCA	Loss of Coolant Accident
NCV	Non-cited Violation
NPG-SPP	Nuclear Power Group Standard Programs and Processes
NRC	Nuclear Regulatory Commission
OMA	Operator Manual Action
OOS	Out of Service
PER	Problem Evaluation Report
PDO	Prompt Determination of Operability
PI	Performance Indicator
PMP	Probable Maximum Precipitation
POE	Past Operability Determination
RCS	Reactor Coolant System
RWST	Refueling Water Storage Tank
SDP	Significance Determination Process
SSC	Structures, Systems, or Components
TRM	Technical Requirement Manual
TS	Technical Specifications
TVA	Tennessee Valley Authority
UFSAR	Updated Final Safety Analysis Report
WBN	Watts Bar Nuclear Plant
WO	Work Order