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

January 28, 2011

Mr. R. M. Krich
Vice President, Nuclear Licensing
Tennessee Valley Authority
3R Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

SUBJECT: WATTS BAR NUCLEAR PLANT - NRC INTEGRATED INSPECTION REPORT 05000390/2010005

Dear Mr. Krich:

On December 31, 2010, the United States Nuclear Regulatory Commission (NRC) completed an inspection at your Watts Bar Nuclear Plant, Unit 1. The enclosed integrated inspection report documents the inspection results which were discussed on January 10, 2010, with Mr. D. Grissette and other members of your staff.

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

This report documents three NRC-identified findings which were determined to be of very low safety significance (Green). These findings were determined to involve violations of NRC requirements. However, because of their very low safety significance and because they are entered into your corrective action program, the NRC is treating these findings as non-cited violations (NCVs) consistent with the NRC Enforcement Policy. If you contest any NCV in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Watts Bar facility.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Eugene F. Guthrie, Chief
Reactor Projects Branch 6
Division of Reactor Projects

Docket Nos.: 50-390
License No.: NPF-90

Enclosure: NRC Inspection Report 05000390/2010005
w/Attachment: Supplemental Information

cc w/encl: (See page 3)

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Eugene F. Guthrie, Chief
Reactor Projects Branch 6
Division of Reactor Projects

Docket Nos.: 50-390
License No.: NPF-90

Enclosure: NRC Inspection Report 05000390/2010005
w/Attachment: Supplemental Information

cc w/encl: (See page 3)

X PUBLICLY AVAILABLE ☐ NON-PUBLICLY AVAILABLE ☐ SENSITIVE X NON-SENSITIVE

ADAMS: ☐ Yes ACCESSION NUMBER: ML110280456 ☐ SUNSI REVIEW COMPLETE

OFFICE	RII:DRP	RII:DRP	RII:DRS	RII:DRP	RII:DRS	RII:DRS	RII:DRS
SIGNATURE	RLM /RA/	Via email	BBD /RA for/	EFG /RA for/	MKM /RA for/	Via email	BBD /RA for/
NAME	RMonk	WDeschaine	PHiggins	MSchwieg	RBaldwin	MMeeks	RLewis
DATE	01/26/2011	01/26/2011	01/28/2011	01/28/2011	01/28/2011	01/27/2011	01/28/2011
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

OFFICE	RII:DRS	RII:DRP	RII:DRP				
SIGNATURE	BBD /RA for/	CRK /RA/	EFG /RA/				
NAME	RWilliams	CKontz	EGuthrie				
DATE	01/28/2011	01/28/2011	01/28/2011				
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

OFFICIAL RECORD COPY DOCUMENT NAME: G:\DRPII\RPB6\WATTS BAR\REPORTS\2010\WB 10-05\WB IR10-05 FINAL.DOCX

cc w/encl:
D. E. Grissette
Vice President
Watts Bar Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Spring City, TN 37381

G. A. Boerschig
Plant Manager
Watts Bar Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Spring City, TN 37381

M. K. Brandon
Manager
Licensing and Industry Affairs
Watts Bar Nuclear Plant
Electronic Mail Distribution

E. J. Vigluicci
Assistant General Counsel
Tennessee Valley Authority
6A West Tower
400 West Summit Hill Drive
Knoxville, TN 37902

County Mayor
P.O. Box 156
Decatur, TN 37322

Ann Harris
341 Swing Loop
Rockwood, TN 37854

Letter to R. M. Krich from Eugene Guthrie dated January 28, 2011

SUBJECT: WATTS BAR NUCLEAR PLANT - NRC INTEGRATED INSPECTION REPORT 05000390/2010005

Distribution w/encl:
C. Evans, RII
L. Douglas, RII
OE Mail
RIDSNRRDIRS
PUBLIC
RidsNrrPMWattsBar1 Resource
RidsNrrPMWattsBar2 Resource

U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No:	50-390
License No:	NPF-90
Report No:	05000390/2010005
Licensee:	Tennessee Valley Authority (TVA)
Facility:	Watts Bar Nuclear Plant, Unit 1
Location:	Spring City, TN 37381
Dates:	October 1 – December 31, 2010
Inspectors:	R. Monk, Senior Resident Inspector W. Deschaine, Regional Inspector, Region II (RII) P. Higgins, Regional Inspector, RII M. Schwieg, Resident Inspector R. Baldwin, Senior Operations Engineer (1R11.2, 3) M. Meeks, Operations Engineer (1R11.3) R. Lewis, Resident Inspector (4OA5.2, 3) R. Williams, Reactor Inspector (4OA5.1)
Approved by:	Eugene F. Guthrie, Chief Reactor Projects Branch 6 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000390/2010-005; 10/01/2010 – 12/31/2010; Watts Bar, Unit 1; Maintenance Effectiveness and Other Activities

The report covered a three-month period of routine inspection by resident inspectors. Three NRC identified findings, each of which are non-cited violations (NCVs), were identified. The significance of an issue is indicated by its color (Green, White, Yellow, Red) using the Significance Determination Process in Inspection Manual Chapter 0609, Significance Determination Process (SDP). The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, Reactor Oversight Process, Revision 4, dated December 2006.

A. NRC-Identified Findings and Self-Revealing Findings

Cornerstone: Mitigating Systems

- Green. The inspectors identified a non-cited violation of 10 CFR 50.65(a)(2), was identified by the inspectors for the licensee's failure to set goals and monitor the performance and condition of the B Main Control Room (MCR) Air Conditioning system as required by 10CFR50.65(a)(1), and had no justification for not doing so, after it had failed to demonstrate effective control of the performance or condition of the system through appropriate preventive maintenance. The inspectors identified three Component Deficiency Reports that documented failures which had been evaluated by the licensee as non-functional failures. The licensee has subsequently implemented goal setting and monitoring requirements specified in 10 CFR 50.65(a)(1) and entered this issue into the corrective action program as PER 205438.

  The inspectors determined that this finding was more than minor since the B MCR Air Conditioning Train was not placed in (a)(1) monitoring status in a timely manner which if left uncorrected, could become a more significant safety concern. NRC staff review has determined this MR violation to have a very low safety significance (Green) because it was not among the contributing causes of the degraded performance and condition of the B Main Control Room (MCR) Air Conditioning system and not processed through the significance determination process. The cause of the finding was directly related to the cross-cutting area of Problem Identification and Resolution, evaluation aspect of the corrective action program component, in that, the licensee failed to thoroughly evaluate failures and determine those failures to be functional failures of the B MCR Air Conditioning System such that the system was placed in category a(1) in a timely manner. P.1(c) (Section 1R12)

- Green. The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion III, Design Control, for the failure to assure that appropriate quality standards were specified and included in design documents and that deviations from such standards were controlled. Specifically, the licensee failed to demonstrate the necessary conditions for commercial grade dedication and seismic qualification of

molded case circuit breakers to safety-related application within the station 120VAC vital instrumentation boards. Corrective actions for this issue are still being evaluated and has been entered into the licensee's corrective action program as PER 171695.

Failure to specify appropriate qualification standards in performing commercial grade dedication of a component-level commodity is a performance deficiency. This performance deficiency is more than minor and a finding because it affected the design control attribute of the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, adequate measures were not implemented to ensure the station 120VAC vital instrumentation boards were properly seismically qualified for their application. The inspector assessed the finding using the SDP and determined that the finding was of very low safety significance (Green) because the breaker panels had originally been qualified by testing a complete prototype panel, while the licensee's processes replaced a component-level item within that panel utilizing the original make and model component through commercial grade dedication. The inspectors concluded that overall operability was not brought into question.

This finding was reviewed for cross-cutting aspects and none were identified, as it was determined not to reflect current licensee performance. (Section 4OA5.2)

- Green. The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion III, Design Control, for the failure to assure that applicable regulatory requirements and the design basis for structures, systems, and components are correctly translated into specifications, drawings, procedures, and instructions. Specifically, the licensee failed to assure that applicable regulatory requirements for undervoltage (degraded) voltage protection, including those prescribed in TS 3.3.5-1, item 2, were correctly translated into design calculation, WBN-EEB-MS-TI-06-0029, "Degraded Voltage Analysis," Revision. 31, which evaluated motor starting voltages at the beginning of a design basis loss of coolant accident (LOCA) concurrent with a degraded grid condition. Corrective actions for this issue are still being evaluated and has been entered into the licensee's corrective action program as PER 296306.

  The failure to use the degraded voltage relay setpoint values as specified in TS and configured in the 6900 VAC bus based on the electrical design calculation was a performance deficiency. This finding is more than minor because it affects the Design Control attribute of the Mitigating Systems Cornerstone. It impacts the cornerstone objective of ensuring the availability, reliability, and operability of the 6900 VAC safety buses to perform the intended safety function during a design basis event. The potential availability, reliability, and operability of the 6900 VAC safety buses during a potential degraded voltage condition was impacted as the licensee design calculation used a non-conservative degraded voltage input, with respect to the values specified in TS, into their safety-related motor starting and running calculations. The inspectors assessed the finding using the SDP and determined that the finding was of very low safety significance (Green) because the finding represented a design deficiency confirmed not to result in the loss of functionality of

safety-related loads due to the availability of related transformer load tap changers (LTCs) that were installed to improve a degraded voltage condition.

The inspectors reviewed the performance deficiency for cross-cutting aspects and determined that none were applicable since this performance deficiency was not indicative of current licensee performance as the design calculation discussed above was not recently performed. (Section 4OA5.3)

B. Licensee-Identified Violations

None

REPORT DETAILS

Summary of Plant Status

Unit 1 operated at or near 100 percent rated thermal power (RTP) until November 14, 2010, when the 'A' Main Bank Transformer alarmed due to a loss of control power to the cooling fans and pumps resulting in uncontrolled increase in winding temperatures necessitating a manual Rx Trip. The unit was returned to full power operation on November 19, 2010. The unit operated at or near 100 percent RTP for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection

Readiness for Seasonal Extreme Weather Readiness

a. Inspection Scope

The inspectors reviewed licensee actions taken in preparation for low temperature weather conditions to limit the risk of freeze-related initiating events and to adequately protect mitigating systems from its effects. The inspectors reviewed licensee procedure 1-PI-OPS-1-FP, Freeze Protection, and walked down selected components associated with the five areas listed below to evaluate implementation of plant freeze protection, including the material condition of insulation, heat trace elements, and temporary heated enclosures. Corrective actions for items identified in relevant problem evaluation reports (PERs) and work orders (WOs) were assessed for effectiveness and timeliness. This inspection satisfied one inspection sample for extreme weather readiness. Documents reviewed are listed in the attachment to this report.

- Refueling water storage tank (RWST) freeze protection preparations
- A-train and B-train essential raw cooling water (ERCW) system freeze protection preparations
- A-train and B-train high pressure fire protection system freeze protection preparations
- Main feedwater sensing lines freeze protection preparations
- Diesel generator building freeze protection preparations

b. Findings

No findings were identified.

1R04 Equipment Alignment

Partial System Walkdowns

a. Inspection Scope

The inspectors conducted three 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. The inspectors reviewed the functional system 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. Documents reviewed are listed in the Attachment.

- Partial walkdown of 1B containment spray (CS) pump following maintenance activities on 1B CS pump
- Partial walkdown of C-S component cooling system (CCS) pump following maintenance activities
- 1A motor-driven auxiliary feedwater (MDAFW) pump while B MDAFW pump out of service (OOS) for maintenance

b. Findings

No findings were identified.

1R05 Fire Protection

Fire Protection Tours

a. Inspection Scope

The inspectors conducted tours of the 10 areas important to reactor safety, listed below, to verify the licensee's implementation of fire protection requirements as described in the Fire Protection Program, Standard Programs and Processes (SPP)-10.0, Control of Fire Protection Impairments, NPG-SPP-18.4.7, Control of Transient Combustibles, 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. This activity constituted ten inspection samples.

- Cable Spreading Room
- 480 V RX MOV Board Room 1A
- 480 V RX MOV Board Room 1B
- 480 V RX MOV Board Room 2A

- 480 V RX MOV Board Room 2B
- Vital Battery Rooms I, II, III, IV and V

b. Findings

No findings were identified.

.2 Annual Drill Observations

a. Inspection Scope

On November 9, 2010, the inspectors observed an announced fire drill for a simulated fire of the 6.9 kV Unit Board 1D. The drill was observed to evaluate the readiness of the plant fire brigade to fight fires. The inspectors verified that the licensee staff identified deficiencies; openly discussed them in a self-critical manner at the drill debrief, and took appropriate corrective actions. Specific attributes evaluated were: (1) specified number of individuals responding; (2) proper wearing of turnout gear; (3) self-contained breathing apparatus available and properly worn and used; (4) control room personnel followed procedures for verification and initiation of response; (5) fire brigade leader exhibited command and had a copy of the pre-fire plan; (6) fire brigade leader maintained control starting at the dress-out area; (7) fire brigade response timely and followed the appropriate access route; (8) control/command set up near the location and communications were established; (9) proper use and layout of fire hoses; (10) fire area entered in a controlled manner; (11) sufficient firefighting equipment brought to the scene; (12) search for victims and propagation of the fire into other plant areas; (13) utilization of pre-planned strategies; (14) adherence to the pre-planned drill scenario and drill objectives acceptance criteria were met; and (15) firefighting equipment returned to a condition of readiness to respond to an actual fire. This activity constituted one inspection sample.

b. Findings

No findings were identified.

1R06 Flood Protection Measures

a. Inspection Scope

The inspectors reviewed internal flood protection measures for the intake pumping station flood protection features. The features were examined to verify that they were installed and maintained consistent with the plant design basis. The inspectors also reviewed the licensee's flooding study calculation for determining maximum flood level in all building rooms for piping failures in both the essential raw cooling water (ERCW) system and the fire protection system. The inspectors confirmed that flood mitigation features such as drains and curbs were not degraded in such a manner as to adversely impact the conclusions of the study. Documents reviewed are listed in the attachment to this report. This inspection satisfied one inspection sample.

b. Findings

No findings were identified.

1R07 Heat Sink Performance

a. Inspection Scope

The inspectors performed two heat sink performance reviews. The inspectors reviewed the licensee's program for maintenance and testing of the 1A-A emergency diesel generator (EDG) heat exchangers. Specifically, the review included the performance testing and analysis of the 1A1 (1-HTX-082-720B1) and 1A2 (1-HTX-082-720B2) EDG jacket water heat exchangers. The inspectors reviewed the ERCW system description, the heat exchanger performance, and the eddy current testing program document as well as completed WOs documenting the testing and visual inspection and associated corrective actions to verify that corrosion or fouling did not impact the heat exchanger from achieving its design basis heat removal capacity. The inspectors reviewed periodic test data of ERCW flow rates as well as inlet and outlet temperatures to determine whether potential degradations were being monitored and/or prevented. The inspectors also reviewed eddy current inspection results to determine whether wall loss indications and tube plugging requirements were being identified. The inspectors reviewed the fouling factor calculation. Documents reviewed are listed in the attachment to this report. This inspection satisfied two annual inspection samples.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification

.1 Quarterly Review

a. Inspection Scope

On November 24, 2010, the inspectors observed the annual simulator examination of Operations Crew 2 conducted per 3-OT-SRE0004A, Feed Water Isolation Followed by a Steam Generator Tube Rupture, Revision 5. The plant conditions led to an Alert level classification. Also observed was 3-OT-SRE0032, Loss of Coolant Accident from 75% Power, Revision 4. The plant conditions led to an Alert level 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 (AOIs), and emergency operating instructions (EOIs)
- Timely and appropriate Emergency Action Level declarations per Emergency Plan Implementing Procedures (EPIP)
- Control board operation and manipulation, including high-risk operator actions
- Command and Control provided by the unit supervisor and shift manager

The inspectors attended the post exam critique to assess the effectiveness of the licensee evaluators and to verify that performance issues identified by the evaluators were comparable to issues identified by the inspector.

b. Findings

No findings were identified.

.2 Annual Written Test Review

a. Inspection Scope

December 17, 2010, the licensee completed the comprehensive biennial requalification written examinations and annual requalification operating tests required to be administered to all licensed operators in accordance with 10 CFR 55.59(a)(2). The inspectors performed an in-office review of the overall pass/fail results of the written examinations, individual operating tests and the crew simulator operating tests. These results were compared to the thresholds established in Manual Chapter 609 Appendix I, Operator Requalification Human Performance Significance Determination Process.

b. Findings

No findings were identified.

.3 Biennial Inspection

a. Inspection Scope

The inspectors reviewed the facility operating history and associated documents in preparation for this inspection. During the week of November 15, 2010, 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

1988, “American National Standard for Nuclear Power Plant Simulators for use in Operator Training and Examination.” The inspectors also reviewed Unit 2 Job Familiarization Guides associated with system familiarization for Unit 2 construction. The inspectors observed two crews during the performance of the operating tests. Documentation reviewed included written examinations, Job Performance Measures (JPMs), simulator scenarios, licensee procedures, on-shift records, simulator modification request records, simulator performance test records, operator feedback records, licensed operator qualification records, remediation plans, watchstanding records, and medical records. The records were inspected using the criteria listed in Inspection Procedure 71111.11. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope

The inspectors reviewed the two performance-based problems 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 SPP-6.6, 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) characterization of reliability issues; (5) charging unavailability time; (6) trending key parameters; (7) 10 CFR 50.65 (a)(1) or (a)(2) classification and reclassification; and (8) the appropriateness of performance criteria for SSCs classified as (a)(2) or goals and corrective actions for SSCs classified as (a)(1).

- Review of the Eighth Periodic Summary Assessment Report (A3)
- Review of 10 CFR 50.65 (a)(1) plan for the ice condenser following icing issues

b. Findings

Introduction. A Green, non-cited violation of 10 CFR 50.65(a)(2), was identified by the inspectors for the licensee’s failure to set goals and monitor the performance and condition of the B Main Control Room (MCR) Air Conditioning system as required by 10 CFR 50.65(a)(1), and had no justification for not doing so, after it had failed to demonstrate effective control of the performance or condition of the system through appropriate preventive maintenance. Per 10 CFR 50.65(a)(2), effective control of SSC performance and condition through appropriate preventive maintenance must be demonstrated in order for the monitoring under Paragraph (a)(1) not to be required. Therefore, a non-cited violation of 10 CFR 50.65(a)(2) was identified.

Description. The inspectors reviewed CDE's related to the B MCR Air Conditioning Train and questioned whether three system failures were actually functional failures as defined by the licensee's procedures. Two of these failures were related to a cooling water temperature control valve sticking open, causing an interruption of cooling water flow, rendering the chiller inoperable. The third was related to the chiller tripping during a fast bus transfer, also rendering the chiller inoperable. The licensee had initially concluded that these were not functional failures.

Inspectors interviewed the system engineer, engineering supervision, and the maintenance rule coordinator, questioning the analysis of the three CDE's that had been classified as non-functional failures. Following the inspector's questions, the licensee performed a re-evaluation of the CDE's in question, which included benchmarking with other utilities, and determined the three CDE's should have been classified as functional failures. The performance criterion established in licensee procedure TI-119, was no more than three functional failures, per train, within a 24 month interval. The inspectors determined that the addition of these three functional failures to the one existing functional failure caused the performance criterion of TI-119 to be exceeded. The maintenance rule expert panel re-evaluated the performance of the B MCR Air Conditioning Train for movement from maintenance rule category a(2) to category a(1) and determined that category a(1) was the appropriate classification.

The inspectors determined that the improper classification of the system functional failures that ultimately led to the system being move into an a(1) monitoring status constituted a failure by the licensee to demonstrate that the performance or condition of the B Main Control Room (MCR) Air Conditioning system had been effectively controlled through the performance of appropriate scheduled maintenance.

Analysis. The licensee's failure to demonstrate that the performance or condition of the B Main Control Room (MCR) Air Conditioning system had been effectively controlled through the performance of appropriate scheduled maintenance (10 CFR 50.65(a)(2)) without implementing goal setting and monitoring requirements of 50.65(a)(1), was determined to be a performance deficiency. The inspectors determined that this performance deficiency was more than minor since the B MCR Air Conditioning Train was not placed in 50.65(a)(1) monitoring status in a timely manner which if left uncorrected, could become a more significant safety concern.

The inspectors determined this finding to have very low safety significance (Green) because it was not among the contributing causes of the degraded performance and the condition of the B Main Control Room (MCR) Air Conditioning system. The cause of the finding was directly related to the cross-cutting area of Problem Identification and Resolution, evaluation aspect of the corrective action program component, in that, the licensee failed to thoroughly evaluate failures and determine those failures to be functional failures of the B MCR Air Conditioning System such that the system was placed in category a(1) in a timely manner. P.1(c)

Enforcement. 10 CFR 50.65(a)(1) requires, in part, that licensees shall monitor the performance or condition of system, structures and components within the scope of the rule against licensee-established goals in a manner sufficient to provide reasonable

assurance the system, structures and components are capable of fulfilling their intended safety functions. 10 CFR 50.65(a)(2) requires, in part, that the monitoring specified in paragraph (a)(1) is not required where it has been demonstrated the performance or condition of a system, structures and components is being effectively controlled through the performance of appropriate preventive maintenance such that the system, structures and components remains capable of performing its intended function.

Contrary to the above, the licensee failed to satisfy the requirements of 10 CFR 50.65(a)(2), to demonstrate that the performance or condition of the B MCR Air Conditioning Train system had been effectively controlled through the performance of appropriate scheduled maintenance and subsequently failed to implement monitoring of the system against licensee-established goals as required by 10 CFR 50.65(a)(1). Specifically, the licensee failed to identify and properly account for three functional failures which demonstrated that the performance of the system was not being effectively controlled and, as a result, goal setting and monitoring, as required by 10 CFR 50.65(a)(1), was required since October 9, 2009, but not initiated or performed. The licensee implemented goal setting and monitoring as described in 50.65 (a)(1) for the B MCR Air Conditioning Train on October 21, 2010. Because this inspection finding was characterized as having very low risk significance (Green) and has been entered in the licensee's corrective action program as PER205438, this violation is being treated as a non-cited violation, consistent with the NRC Enforcement Policy: NCV 05000390/2010005-01, Failure to Monitor Performance of the B MCR Air Conditioning Train.

1R13 Maintenance Risk Assessments and Emergent Work Control

a. Inspection Scope

The inspectors evaluated, as appropriate, for the four 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); SPP-7.0, Work Control and Outage Management; NPG-SPP-07.1, One Line Work Management; and TI-124, Equipment to Plant Risk Matrix. This inspection satisfied four inspection samples for Maintenance Risk Assessment and Emergent Work Control.

- Risk assessment for emergent failure of 1B main control room (MCR) chiller during A-train work week
- Risk assessment for work week 605
- Risk assessment for replacement of C-S CCS motor while D ERCW pump OOS
- Risk assessment of 1A motor-driven auxiliary feedwater (MDAFW) pump component outage while F-B ERCW OOS

b. Findings

No findings were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed two 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; (4) where continued operability was considered unjustified, the impact on TS Limiting Conditions for Operation (LCOs) and the risk significance in accordance with the significant determination process (SDP). The inspectors verified that the operability evaluations were performed in accordance with NPG-SPP-03.1, Corrective Action Program. Documents reviewed are listed in the Attachment.

- Daily ice removal from ice condenser intermediate deck doors
- FCV-061-193A ice condenser isolation valve AO contact stuck

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing

a. Inspection Scope

The inspectors reviewed five 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 SPP-8.0, Testing Programs; NPG-SPP-06.3, Pre-/Post-Maintenance Testing; and NPG-SPP-07.1, On Line Work Management.

- WO 08-819114-000, 1-FCV-67-144, CCS Hx C ERCW bypass valve-MOVATS test
- WO 10-813997-000, 1-FCV-77-19, RCDT to vent HDR flow control valve stroke time
- WO 09-821944, 1-MVOP-077-0010, RCDT pump discharge valve replacement

- WO 111516647, 1B MDAFW 1-FCV-3-132 maintenance
- WO 111238674, Replacement of ERCW pump D-A

b. Findings

No findings were identified

1R22 Surveillance Testing

a. Inspection Scope

The inspectors witnessed seven 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; SPP-8.0, Testing Programs; NPG-SPP-06.9.2, Surveillance Test Program; and SPP-9.1, 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.

In-Service Test:

- WO 10-814595-000, 1-SI-63-901-B, Safety Injection Pump 1B-B Quarterly Performance Test
- WO 10-814970-000, 1-SI-72-901-B, Containment spray pump 1B-B quarterly performance test
- WO 10-814988-000, 1-SI-31-901-B, Quarterly valve full stroke exercising during plant operation chilled water – B-train

Containment Isolation Valve Leak Rate:

- WO 10-814987-000, 1-SI-30-701, Containment isolation valve local leakrate test – purge air

Other Surveillances

- WO 10-815229-000, Monthly Diesel Generator Start and Load Test (1B)
- WO 111539446, 1-SI-0-24, Measurement of At Power Moderator Temperature Coefficient
- WO 10-815487-0, 0-SI-82-19-A, Fast Start and Load Test DG 2A

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation

a. Inspection Scope

On October 7, 2010, the inspectors observed a licensee-evaluated emergency preparedness drill, listed below, to verify that the emergency response organization was properly classifying the event in accordance with EPIP-1, Emergency Plan Classification Flowchart, and making accurate and timely notifications and protective action recommendations in accordance with EPIP-2, Notification of Unusual Event; EPIP-3, Alert; EIPIP-4, Site Area Emergency; EPIP-5, General Emergency; and the Radiological Emergency Plan. In addition, the inspectors verified that licensee evaluators were identifying deficiencies and properly dispositioning performance against the performance indicator criteria in Nuclear Energy Institute (NEI) 99-02, Regulatory Assessment Performance Indicator Guideline.

- A steam generator tube rupture leads to an Alert classification
- A PORV on the ruptured steam generator fails open, requiring Site Area Emergency classification

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA2 Identification & Resolution of Problems

.1 Review of Items Entered into the Corrective Action Program (CAP)

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 summary reports and attending daily PER review meetings.

.2 Semi-Annual Review to Identify Trends

a. Inspection Scope

As required by IP 71152, Identification and Resolution of Problems, the inspectors performed a review of the licensee's CAP and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors' review was focused on human performance trends, licensee trending efforts, and repetitive equipment and corrective maintenance issues. The inspectors also considered the results of the daily inspector CAP item screening discussed in Section 4OA2.1. The inspectors' review nominally considered the six-month period of July 2010

through December 2010**,** although some examples expanded beyond those dates when the scope of the trend warranted.

b. Observations

No findings were identified. However, the inspectors identified a number of instances where the PER screening committee's (PSC) review of incoming PERs failed to recognize conditions adverse to quality which required potential operability reviews, potential reportablity reviews, or the need to upgrade some PER classifications. Also, examples of degraded or non-conforming conditions of plant equipment related to the current licensing basis were not addressed by the PSC. Inspectors noted a trend in the number of instances where questioning from the inspectors was necessary for the licensee to address these types of issues. The inspectors discussed these issues with the licensee during the exit meeting and the licensee entered them into the corrective action program as PERs 252780, 252215 and 241755.

.3 Annual Sample: Corrective actions associated with NCV 05000390/2008005-01, Failure to Translate ERCW Pump Coupling Material Change into Procedures

a. Inspection Scope

The inspectors reviewed the plan and implementation of corrective actions for non-cited violation (NCV) 05000390/2008005-01, which were documented in PER 148716.

b. Findings and Observations

The corrective action plan for PER 148716 implemented DCN 52920 to replace all ERCW pumps w/ pumps capable of 2 unit operation. This combined with changes to MI-67.1, Removal, Inspection, And Repair Of Essential Raw Cooling Water Pumps, changed all existing 410 Stainless Steel ERCW pump shaft couplings with XM-19 alloy shaft couplings. The inspectors reviewed replacement work orders and the licensee's extent of cause and condition. The licensee determined during an the extent of condition review that the Screen Wash and High Pressure Fire Pumps could have the same susceptibility and pursuing potential design changes for these components. The licensee also determined that a weakness existed in follow-up of NRC Information Notices.

No findings were identified.

4OA3 Event Follow-up

a. Inspection Scope

On November 14, 2010, Unit 1 reactor was manually tripped as a result of the A Main Bank Transformer alarming due to a loss of control power to the cooling fans and pumps resulting in a loss of oil cooling which resulted in an uncontrolled increase in the transformer's winding temperatures. All systems/components behaved as expected

except the #1 main feedwater bypass valve isolation which indicated mid-position. This was later determined to be a limit switch issue and the valve was actually shut.

Inspectors responded to the event, reviewed plant logs, procedures, and corrective action documents. The inspectors interviewed personnel associated with the reactor trip and abnormal transformer indications.

b. Findings

No findings were identified.

4OA5 Other Activities

.1 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

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

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

b. Findings

No findings were identified.

(Closed) Reactor Coolant System Dissimilar Metal Butt Welds (TI 2515/172, Revision 1)

a. Inspection Scope

The inspectors conducted a review of the licensee's activities regarding licensee dissimilar metal butt weld (DMBW) mitigation and inspection implemented in accordance with the industry self-imposed mandatory requirements of Materials Reliability Program (MRP) 139, "Primary System Piping Butt Weld Inspection and Evaluation Guidelines." Temporary Instruction (TI) 2515/172, "Reactor Coolant System Dissimilar Metal Butt Welds," Revision 1, was issued May 27, 2010, to support the evaluation of the licensees' implementation of MRP-139.

On December 8, 2010, the inspectors performed a review in accordance with TI 2515/172, Revision 1, as described in the Observations section below:

b. Observations

The licensee has met the MRP-139 deadlines for baseline examinations of all welds scoped into the MRP-139 program. TI 2515/172, Revision 1, is considered closed. In accordance with requirements of TI 2515/172, Revision 1, the inspectors evaluated the following areas:

(1) Implementation of the MRP-139 Baseline Inspections

This portion of the TI was not inspected during the period of this inspection report but was previously covered in NRC Inspection Report 05000390/2008003.

(2) Volumetric Examinations

This portion of the TI was not inspected during the period of this inspection report, but was previously covered in NRC Inspection Report 05000390/2010002.

(3) Weld Overlays

There were no weld overlay activities performed or planned by this licensee to comply with their MRP-139 commitments.

(4) Mechanical Stress Improvement (SI)

This portion of the TI was not inspected during the period of this inspection report, but was previously covered in NRC Inspection Report 05000390/2008003.

(5) Application of Weld Cladding and Inlays

There were no weld cladding nor inlay activities performed or planned by this licensee to comply with their MRP-139 commitments.

(6) Inservice Inspection Program

This portion of the TI was not inspected during the period of this inspection report, but was previously covered in NRC Inspection Report 05000390/2008003.

c. Findings
No findings were identified.

.2 (Closed) URI 05000390/2009002-003: Acceptability of Seismic Qualification of 120VAC Vital Instrumentation Board Circuit Breakers

a. Inspection Scope

During the 2009 Evaluations of Changes, Tests, or Experiments and Permanent Plant Modifications inspection, an unresolved item was indentified related to the adequacy of seismic qualification of station 120VAC vital instrumentation boards. The inspectors

were concerned that the breaker mounting did not adequately represent the plant-specific mounting and that the breakers were not tested at adequate accelerations to fully bound the required response spectrum (RRS) across the ground frequency range.

The item was unresolved pending further review of the adequacy of the licensee's seismic qualification of the installed equipment.

b. Findings

Introduction: A green NCV of 10 CFR 50, Appendix B, Criterion III, Design Control, was identified for the failure to assure that appropriate quality standards were specified and included in design documents and that deviations from such standards were controlled. Specifically, the licensee failed to ensure that the substitute Heinemann Circuit Breakers utilized in the station 120VAC vital instrumentation boards were properly seismically qualified for their application.

Description: The licensee originally procured the 120VAC vital instrumentation boards as a complete functional unit, dedicated and seismically qualified by the vendor. In the early 1990's, the licensee implemented a complete replacement of the Heinemann circuit breakers in the instrumentation boards with commercial grade breakers from the same manufacturer. A different third party vendor was contracted to perform seismic qualifications for the replacement breakers.

Both, the licensee and the contract vendor, committed to IEEE Standard 344 (1975), which requires, in part, that the test mounting dynamically simulate the plant-specific mounting and that the test accelerations adequately bound the required response spectrum (RRS) for the application.

Given limited accelerometer mounting locations on the original 1974 qualification testing, the licensee translated maximum accelerations seen on the panel itself as bounding the subcomponent accelerations without adequately demonstrating the rigidity of mounting necessary to support that assumption. As the mounting configuration of the devices to the test platform did not mimic the actual installed mounting, the licensee had responsibility to ensure, by analysis, that the test accelerations adequately bounded the RRS. The licensee failed to ensure such analysis was conducted. Specifically, calculation WCG-ACQ-1004 failed to fully establish that the method of support of the breakers within the board was a rigid mounting system, that the 1992 test mounting represents a suitable mounting method, or that the test accelerations to which the device was subjected were, in fact, bounding.

In October 2010, the licensee issued calculation WCG-ACQ-1301, Frequency Evaluation of the Heinemann Breaker Support Structure, Rev. 000 to demonstrate the rigidity of the breaker mounting system by performing a finite element analysis of the panel front plate and rear angle supports used for impinging the breakers to satisfy the expectation of rigidity. Calculation WCG-ACQ-1004 was revised (Revision 2) to credit calculation WCG-ACQ-1301 with that demonstration to justify the ability to perform seismic testing on an individual component basis, to investigate the potential for local structural support

flexibility and associated amplifications, and to demonstrate the appropriateness of the 3G test level used in the 1992 qualification testing.

Additionally, at the time of inspection in March 2009, the licensee initiated PER 165130 to enhance existing work instructions to specify the tightness requirement of press-fit devices on various boards.

The licensee presented all of these details in a public meeting held on December 16, 2010, intended to address NOV 05000391/2010603-08 associated with the Unit 2 Completion Project's acceptance and application of the new breakers (identified in URI 05000390/2009002-03) based on the 1992 testing in question. The inspectors determined that the licensee response was inadequate in that it did not demonstrate that the 1992 test adequately represented the installed configuration and in that the "snug fit" configuration cannot be adequately assured through the maintenance and testing procedures as presented.

Analysis: Failure to adequately qualify commercial-grade molded-case circuit breakers to their safety-related application is a performance deficiency. This performance deficiency is more than minor because it affected the design control attribute of the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, adequate measures were not implemented to ensure the station 120VAC vital instrumentation boards had proper seismic qualification for their application. The inspector assessed this finding for significance in accordance with NRC Manual Chapter 0609, Appendix A, Attachment 1, Significance Determination Process (SDP) for Reactor Inspection Findings for At-Power Situations, and determined that it was of very low safety significance (Green) as the devices in question had been intrinsically qualified for this application as part of a complete panel test by the original vendor. This finding was reviewed for cross-cutting aspects and none were identified as it was determined to not reflect current licensee performance.

Enforcement: 10 CFR 50, Appendix B, Criterion III, Design Control states, in part, that design control measures shall assure that appropriate quality standards are specified and included in design documents and that deviations from such standards are controlled. Contrary to the above, the licensee failed to demonstrate the necessary conditions for the commercial grade dedication and seismic qualification of molded case circuit breakers to safety-related application within the station 120VAC vital instrumentation boards. This condition existed since commercial operations began in 1995. This finding was entered into the licensee's corrective action program as PER 171695 related to the URI. Because the finding was of very low safety significance and has been entered into the licensee's corrective action program, this violation is being treated as a non-cited violation (NCV), consistent with the NRC Enforcement Policy: NCV 05000390/2010005-XX, Failure to Adequately Qualify Molded-Case Circuit Breakers to Safety-Related Application Through Commercial Grade Dedication.

.3 (Closed) URI 05000390/2010008-02, "Worst Case 6900 VAC Bus Voltage in Design Calculations"

Introduction: The NRC identified a Green non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion III, Design Control, for the failure to correctly translate the 6900 VAC emergency bus undervoltage trip value specified in Technical Specifications (TS) into design calculations for motor starting and loading. The values used by the licensee in the design calculations were non-conservative with respect to the specified TS values. This issue was initially discussed as URI 05000390/2010008-02: "Worst Case 6900 VAC Bus Voltage in Design Calculations."

Description: Offsite power at Watts Bar is normally provided to the Class 1E 6900 VAC buses from the 161 kV offsite power system through the Common Station Service Transformers (CSSTs). Watts Bar TS Section 3.3.5-1, item 2, "Loss of Power Diesel Generator Start Instrumentation," requires and specifies the undervoltage and degraded voltage relay trip setpoints, including allowable values and time delays associated with the safety-related 6900 VAC buses. These degraded voltage setpoints provide the bases for the minimum voltage available to all safety-related equipment such as motors, contactors, and solenoid valves during a postulated degraded voltage scenario.

At Watts Bar, the degraded voltage relays initiate the nominal 10 second time delay at the TS specified relay voltage setting. When the 10 second time delay has elapsed, the plant loads are removed from the offsite power supply and transferred to the onsite emergency diesel generators. The degraded voltage relays drop-out (de-energize) when sufficient voltage is not available and normally pick-up (energize) if voltage is recovered within the 10 second delay on the 6900 VAC bus. The degraded voltage relay settings at Watts Bar are in accordance with TS Table 3.3.5-1 which states the values to be as follows: Allowable Value ≥6570 VAC, Trip Setpoint between ≤6606 VAC and ≥6593 VAC.

The inspector reviewed licensee calculation of record WBN-EEB-MS-TI-06-0029, "Degraded Voltage Analysis," Rev. 31, which evaluated motor starting voltages at the beginning of a design basis loss of coolant accident (LOCA) concurrent with a degraded grid condition. This calculation used the degraded voltage setpoint of 6672 V to analyze post LOCA load motor starting. This voltage of 6672 VAC used in the calculation was non-conservative with respect to the voltage specified in TS which specified a maximum value of 6606 VAC.

Analysis: The failure to use the degraded voltage relay setpoint values as specified in TS and installed in the plant for the 6900 VAC bus electrical design calculation was a performance deficiency. This finding is more than minor because it affects the Design Control attribute of the Mitigating Systems Cornerstone. It impacts the cornerstone objective of ensuring the availability, reliability, and operability of the 6900 VAC safety buses to perform the intended safety function during a design basis event. The potential availability, reliability, and operability of the 6900 VAC safety buses during a potential degraded voltage condition was impacted as the licensee calculation used a non conservative degraded voltage input, with respect to the values specified in TS, into their safety-related motor starting and running calculations. The inspectors assessed the

finding using the SDP and determined that the finding was of very low safety significance (Green) because the finding represented a design deficiency confirmed not to result in the loss of functionality of safety-related loads due to the availability of load tap changers (LTCs) that are installed to improve a degraded voltage condition.

The inspectors reviewed the performance deficiency for cross-cutting aspects and determined that none were applicable since this performance deficiency was not indicative of current licensee performance as the design calculation discussed above was not recently performed.

Enforcement: 10 CFR 50, Appendix B, Criterion III, Design Control, states, in part, that measures shall be established to assure that applicable regulatory requirements and the design basis for structures, systems, and components are correctly translated into specifications, drawings, procedures, and instructions. This appendix also states in part that measures shall be established for the selection and review for suitability of application of processes that are essential to the safety-related functions of the structures, systems, and components. Watts Bar TS Section 3.3.5-1, "Loss of Power Diesel Generator Start instrumentation," table 3.3.5-1, item 2 specifies the 6900 VC emergency bus undervoltage (degraded) relay trip setpoints to be as follows: "Allowable Value, ≥6570 VAC, Trip Setpoint, ≤6606 VAC and ≥6593 VAC."

Contrary to the above, since at least December 2001, the licensee failed to assure that applicable regulatory requirements for undervoltage (degraded) voltage protection, including those prescribed in TS 3.3.5-1, item 2, were correctly translated into design calculation, WBN-EEB-MS-TI-06-0029, "Degraded Voltage Analysis," Revision 31, which evaluated motor starting voltages at the beginning of a design basis loss of coolant accident (LOCA) concurrent with a degraded grid condition. Further, the process used by the licensee for the selection of input voltage value in the design calculation was non-conservative with respect to the TS. Specifically, the licensee used the input value of 6672 VAC which was higher than the maximum value of 6606 VAC specified in TS. This did not result in a loss of function of safety-related loads.

Because this finding is of very low safety significance and was entered into the licensee's corrective action program as PER 296306 this violation is being treated as a NCV, consistent with the NRC Enforcement Policy. This finding is identified as NCV 05000390, 2010005-:"Failure to Use Worst Case 6900 VAC Bus Voltage in Design Calculations." URI 05000390/2010008-02,"Worst Case 6900 VAC Bus Voltage in Design Calculations" is closed.

4OA6 Meetings, including Exit

.1 Exit Meeting Summary

An exit meeting was conducted on November 19, 2010, to discuss the findings of the biennial requalification inspection. The inspectors confirmed that no proprietary information was reviewed during this inspection.

An interim exit was conducted on December 16, 2010, to discuss the findings associated with the URI follow-up inspection. Although proprietary information was reviewed during the inspection, no proprietary information is included in this report.

On January 10, 2011, the inspectors presented the inspection results to Mr. Don Grissette, Site Vice President, and other members of the licensee staff. The inspectors confirmed that none of the potential report input discussed was considered proprietary.

4OA7 Licensee Indentified Violations

None

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel

G. Boerschig, Plant Manager
M. Brandon, Director, Safety & Licensing (Interim)
J. Bushnell, Licensing Engineer
R. Crews, Operations Training Manager
J. Dalton, Initial Licensing Operator Training Supervisor
T. Detchemende, Emergency Preparedness Manager
B. Ennis, Electrical Engineering
N. Good, Simulator Manager
D. Grissette, Site Vice President
W. Hooks, Radiation Protection Manager
D. Hughes, Training Supervisor
B. Hunt, Operations Superintendent
D. Hutchinson, Chemistry Manager
G. Mauldin, Director, Engineering
M. McFadden, Operations Manager
J. Milner, Technical Support Superintendent, Radiation Protection
D. Murphy, Maintenance Manager (Interim)
M. Pope, Licensing Engineer
C. Riedl, Licensing Manager (Interim)
A. Scales, Work Control Manager
M. Schmader, Training Supervisor
J. Smith, Health Physics Supervisor
W. Thompson, Site Training Director
D. Voeller, Director, Project Management
J. Wilcox, Security Manager

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Opened and Closed

05000390/2010005-01	NCV	Failure to Adequately Monitor the Performance of the B MCR Air Conditioning Train Under 10 CFR 50.65.
05000390/2010005-02	NCV	Failure to Adequately Qualify Molded-Case Circuit Breakers to Safety-Related Application Through Commercial Grade Dedication. (Section 4OA5.2)

05000390/2010005-03	NCV	Failure to Use Worst Case 6900 VAC Bus Voltage in Design Calculations. (Section 4OA5.3)

Closed

05000390/2515/172	TI	Reactor Coolant System Dissimilar Metal Butt Welds (Section 4OA5.1)
05000390/2009002-03	URI	Acceptability of Seismic Qualification of 120VAC Vital Instrumentation Board Circuit Breakers
05000390/2010008-02	URI	Worst Case 6900 VAC Bus Voltage in Design Calculations

Discussed

None

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection
1-PI-OPS-1-FP, Freeze Protection
PER 272583

Section 1R04: Equipment Alignment
SOI-3.02 Checklist 1, Auxiliary Feedwater System Handswitch Alignment Verification
SOI-3.02 Checklist 2, Auxiliary Feedwater System Electrical Power Alignment Verification
SOI-3.02 Checklist 3, Auxiliary Feedwater System Valve Alignment Verification
SOI-70.01-Attachment 1P, Unit 1 and Common Power Checklist
SOI-7001-Attachment 1V, Unit 1 CCS Normal Power Checklist
SOI-72.01-Attachment 1P, Containment Spray Power Checklist
SOI-72.01-Attachment 1V, Containment Spray Valve Checklist

Section 1R06: Flood Protection Measures
WB-DC-20-28, Intake Pumping Station Watertight Doors at Elevation 722.0
Technical Instruction (TI)-50.023, Intake Pumping Station Strainer Room B Sump Pump A Performance Test
Technical Instruction (TI)-50.024, Intake Pumping Station Strainer Room B Sump Pump B Performance Test
TVA Calculation WBN OSG4099 Appendix E, MELB Moderate Energy Line Break (MELB) Flooding Study (Intake Pumping Station)
WO 10-811526 B Strainer Room Sump Pump B
WO 09-820527 B Strainer Room Sump Pump A
Dwg 1-47610-40

Section 1R07: Heat Sink Performance
TI-79.823 Diesel Generator 2A-A Jacket Water Cooler Performance Test
TI-79.821 Diesel Generator 1A-A Jacket Water Cooler Performance Test
TI-79.000 Program for implementing NRC Generic letter 89.13
Calculation MDQ00008220030077 – DG JWHX

Section 1R11: Licensed Operator Requalification
Job performance measures (JPMs):
JPM 3-OT-JPMR108, Return PRM N-42 to Service Per AOI-4, rev. 3.
JPM 3-OT-JPMR093, Establish RCS Bleed Paths Per FR-H.1, rev. 8.
JPM 3-OT-JPMR018, Perform Boration of the RCS During an ATWS Per FR-S.1., rev. 6.
JPM 3-OT-JPMA049B, 1B-B Diesel Generator Idle Start for Warm Up Per SOI-82.02., rev. 1.
JPM 3-OT-JPMS090A, Classify the Event per the REP (ATWS-Reactor Tripped Locally), rev. 5.
JPM 3-OT-JPMA136, Control the 1B-B Motor-Driven AFW Pump Discharge Pressure Control Valve Locally per AOI-30.2, Appendix C., rev. 3.
JPM 3-OT-JPMR071A, Align an RHR Train for Hot Leg Recirculation per ES-1.4, rev. 5, 9/1/2010.
JPM 3-OT-JPMR173A, Start Up Upper Containment Purge Per SOI-30.02, rev. 0, 11/01/2010.
JPM 3-OT-JPMR027A, Raise Cold Leg Accumulator Level Per SOI-63.01, rev. 5, 10/05/2010.
JPM 3-OT-JPMS082A, Classify the Event per the REP (Loss of Main Control Room Annunciation), rev. 8, 10/05/2010.

Procedures:
OPDP-10, License Status Maintenance, Reactivation and Proficiency for Non-Licensed Positions, rev. 2, 06/01/2010.
TI-12.10, Control of Sensitive Equipment, rev. 00003, Watts Bar Unit 1.
TRN 11.4, Continuing Training for Licensed Personnel, rev. 0016, 03/11/2010.
TRN 11.8, Operator License Examinations and Renewals, rev. 8, 10/05/2010.
TRN 11.9, Simulator Exercise Guide Development and Revision, rev. 0006, 10/23/2009.
TRN-11.10, Annual Requalification Examination Development and Implementation, rev. 16, 05/26/2010.
TRN-11.12, Job Performance Measure Development, Administration, and Evaluation Manual, rev. 0004, 07/25/2008.
TRN-11.14, TVA Operator Licensing Examination Security Program, rev. 0004, 07/03/2006.
TRN-12, Simulator Regulatory Requirements, rev. 0009, 10/22/2010.
3TRN-205.2, Evaluation.

Simulator Exam Scenarios (SES):
3-OT-SRE022A, Feedwater Malfunction Followed by Large Break LOCA, rev. 4, 09/29/2010.
3-OT-SRE004A, Feed Water Isolation Followed by a Steam Generator Tube Rupture, rev. 5, 09/30/2010.

Simulator Transient Tests:
Transient Test-2 (TT-2), Loss of Normal and Emergency Feedwater, (2009 and 2010).
TT-4, Simultaneous Four Loop Reactor Coolant Pump Trip, (2009 and 2010).
TT-6, Manual Turbine Trip Without Reactor Trip, (2009 and 2010).

Simulator Steady State Tests:
TRN-12 100%, 75%, 25% Steady-State Performance Test, (2008, 2009, 2010).
Steady State Drift Test—60 minute run at 100% power (2010).

Simulator Malfunction Tests:
FW05, Main Feed Pump Trip (2005 and 2009).
FW09, Loss of Vacuum (2003 and 2007).
IA02, Loss of Non-Essential Control Air (2004 and 2008).
IA03, Loss of Essential Control Air (2003 and 2007).
TH09, Fuel Cladding Failure (2003 and 2007).

Written Examinations Reviewed:
Week 2 RO and SRO Biennial Written Exams (2009).
Week 4 RO and SRO Biennial Written Exams (2009).
Week 5 RO and SRO Biennial Written Exams (2009).

Condition Reports:
PER 152195, “Unit 1 experienced a reactor trip in response to a turbine trip.”
PER 152955, “Reactor Trip due to a personnel error – Human Performance.”
PER 154635, Human performance – self checking was a flawed defense.
PER 210805, Identifies that SROs are not being trained as ROs to take the OATC position when it is necessary.

Other Documents:
Feedback Comments from Licensed Operator Requalification, 2008 to 2010.
Licensed operator medical records (10).
Closed Simulator Discrepancy Reports (DRs) since 2008.
Open/Active Simulator DR List as of 11/15/2010.
Assessment Number – WBN-TRN-10-034, Snapshot Self Assessment Report: Procedure Adherence and Command and Control issues
2008/2009 Review of LOR Training Program.
3-OT-MSC-147, "Self Study Guide, Unit 2 Job Familiarization Guide." (5 Guides)
LER 390/2008-005, "Report of Inoperability of Radiation Monitor due to Non-conservative setpoint."
LER 390/2008-004, "Automatic Reactor Trip in Response to Opening of Exciter Field Breaker."
SR 164113, Learning Opportunity (LO) from Licensed Operator Requalification (LOR) Program Review 2008 and 2009.
SR 164119, Learning Opportunity (LO) from Licensed Operator Requalification (LOR) Program Review 2008 and 2009. Provide additional training on Logic and Schematic print reading for the four identified 2009 Biennial Written Exam weakness areas, Steam Dump System, Containment Isolation Signals, Radiation Monitors, Rod Control System.

Section 1R15: Operability Evaluations
PER 178806
PER 240363
Ice Condenser Trending and Inspection Data, 8/28/2010-10/12/2010

Section 4OA2: Problem Identification and Resolution
PER 148716
MWO 09-816926, ERCW Pump B-A
MWO 05-817978, ERCW Pump A-A
MWO 07-819029, ERCW Pump D-A
MWO 08-822029, ERCW Pump C-A
MWO 09-816921, ERCW Pump E-A
MWO 09-816925, ERCW Pump G-A
MWO 09-816922, ERCW Pump H-A
EDC-53982, Update of ERCW System Description for replaced pumps
DCN 52920, ERCW Pump Replacement
DCN S-1081-A, Shaft and Bearing Material Change
PER 252780 PSC clock reset for missed immediate action to stop missile shield re installation.
PER 252215 PSC clock reset issue was not flagged by PSC as Potential Operability and Potential Reportability.
PER 241755 – Completeness of actions on pre-startup up PER for Unit 1 related to loose control board lugs

LIST OF ACRONYMS

ANS	Alert and Notification System Testing
ARERR	Annual Radiological Effluent Release Report
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CY	calendar year
DEP	Emergency Response Organization Drill/Exercise Performance
EAL	Emergency Action Level
ED	electronic dosimeter
ERO	Emergency Response Organization
HPT	Health Physics Technician
HRA	high radiation area
IP	Inspection Procedure
LHRA	locked high radiation area
LSC	liquid scintillation counter
NEI	Nuclear Energy Institute
No.	Number
NSTS	National Source Tracking System
ODCM	Offsite Dose Calculation Manual
PCM	personnel contamination monitor
PERs	Problem Evaluation Report
PI	Performance Indicator
PM	portal monitor
PS	Planning Standard
QA	Quality Assurance
RCA	radiologically controlled area
RG	Regulatory Guide
REMP	Radiological Environmental Monitoring Program
Rev.	Revision
RS	Radiation Safety
RWP	radiation work permit
SAM	small article monitor
TBSS	Turbine Building System Sump
TI	Temporary Instruction
TLDs	thermoluminescent dosimeters
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
U1	Unit 1
U2	Unit 2
VHRA	very high radiation area
WBC	whole body count