UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET, SW, SUITE 23T85
ATLANTA, GEORGIA 30303-8931

July 30, 2009

Mr. Preston D. Swafford
Chief Nuclear Officer and Executive Vice President
Tennessee Valley Authority
3R Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

SUBJECT: WATTS BAR NUCLEAR PLANT - NRC INTEGRATED INSPECTION REPORT 05000390/2009003 AND 05000391/2009003

Dear Mr. Swafford:

On June 30, 2009, the United States Nuclear Regulatory Commission (NRC) completed an inspection at your Watts Bar Nuclear Plant, Units 1 and 2. The enclosed integrated inspection report documents the inspection results which were discussed on July 9, 2009, with Mr. G. Boerschig 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 one NRC-identified finding of very low safety significance (Green) which was determined to be a violation of NRC requirements. Additionally, a licensee-identified violation which was determined to be of very low safety significance is listed in this report. 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 Section VI.A.1 of 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 addition, if you disagree with the characterization of any finding 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 Watts Bar. The information you provide will be considered in accordance with Inspection Manual Chapter 0305.

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, 50-391
License No.: NPF-90 and Construction
Permit No.: CPPR-92

Enclosure: NRC Inspection Report 05000390/2009003, 05000391/2009003
w/Attachment: Supplemental Information

cc w/encl: (See page 3)

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Letter to Preston D. Swafford from Eugene Guthrie dated July 30, 2009

SUBJECT: WATTS BAR NUCLEAR PLANT - NRC INTEGRATED INSPECTION REPORT 05000390/2009 AND 05000391/2009

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos:	50-390, 50-391
License Nos:	NPF-90 and Construction Permit CPPR-92
Report Nos:	05000390/2009003, 05000391/2009003
Licensee:	Tennessee Valley Authority (TVA)
Facility:	Watts Bar Nuclear Plant, Units 1 and 2
Location:	Spring City, TN 37381
Dates:	April 1, 2009 – June 30, 2009
Inspectors:	R. Monk, Senior Resident Inspector M. Pribish, Resident Inspector P. Higgins, Project Engineer
Approved by:	Eugene F. Guthrie, Chief Reactor Projects Branch 6 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000390/2009-003, 05000391/2009-003; 04/01/2009 - 06/30/2009; Watts Bar Nuclear Plant, Units 1 and 2; Identification and Resolution of Problems.

The report covered a three-month period of routine inspection by the resident inspectors and one regional project engineer. One NRC-identified Green finding which is a non-cited violation (NCV) was 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 NRC identified a Green, non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion V, Instructions, Procedures, and Drawings, for the licensee's failure to adequately implement work order instructions to maintain the integrity of the intake pumping station (IPS) missile shield, as designed.

  The inspectors determined the licensee's failure adequately implement work order instructions to maintain the integrity of the IPS missile shield was a performance deficiency. The failure to assure adequate tornado missile protection had a credible impact on reactor safety because of the potential exposure of both trains of the ERCW system to tornado induced damage. The inspectors reviewed Inspection Manual Chapter (IMC) 0612 and determined that the finding is more than minor because the finding was associated with the design control and protection against external events attributes of the Mitigating Systems cornerstone and adversely affected the cornerstone objective of ensuring the reliability and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors evaluated this finding using IMC 0609, Significance Determination Process, and determined that it was of very low safety significance (Green) given that the safety function of the ERCW system was not assumed to be completely failed or unavailable due to a severe weather initiating event. The finding directly involved the cross-cutting area of human performance under the procedural compliance aspect of the work practices component, in that, the work order instructions for restoration of the IPS missile shield after maintenance were not followed and the reliability and capability of the IPS missile shield was affected. (H.4.b). (Section 4OA2.2)

B. Licensee-Identified Violations

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

REPORT DETAILS

Summary of Plant Status

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

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather

.1 Actual Adverse Weather

a. Inspection Scope

Inspectors responded to the control room when a tornado watch was issued for Rhea County on April 10, 2009. Inspectors observed the licensee taking actions in accordance with Abnormal Operating Instruction (AOI)-8, Tornado Watch or Warning. The watch was subsequently upgraded to a warning, and the licensee continued to execute additional actions required by the procedure which included area walkdowns for high winds susceptibility, anchoring cranes, various notifications, and securing specified safety-related ventilation systems. Documents reviewed are listed in the report attachment.

b. Findings

No findings of significance were identified

.2 Review of Offsite and Alternate AC Power System Readiness

a. Inspection Scope

Inspectors verified plant features, interviewed control room personnel, and reviewed procedures for operation and continued availability of offsite and alternate AC power systems and determined they were appropriate. Inspectors reviewed the licensee's procedures and interface agreements affecting these areas and the communications protocols between the northeast area dispatcher and the control room to verify that the appropriate information is exchanged when issues arise that could impact the offsite power system and the alternate AC power system. Documents reviewed are listed in the report attachment.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment

Partial 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.

- Partial walkdown of 2A-A, 1B-B, and 2B-B diesel generators (DGs) while 1A-A DG out of service (OOS) for overhaul
- Partial walkdown of 1B residual heat removal system (RHR) while the 1A RHR pump OOS for maintenance
- Partial walkdown of 1A containment spray system (CSS) while the 1B CCS OOS for maintenance

b. Findings

No findings of significance were identified.

1R05 Fire Protection

Fire Protection - Tours

a. Inspection Scope

The inspectors conducted tours of nine 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, SPP-10.10, Control of Transient Combustibles, SPP-10.11, 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.

- A-train RHR pump room
- B-train RHR pump room
- A-train containment spray (CS) pump room
- B-train CS pump room
- Turbine-driven auxiliary feedwater room
- A-train centrifugal charging pump (CCP) room
- B-train CCP room
- A-train safety injection pump (SIP) room
- B-train SIP room

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance

a. Inspection Scope

The inspectors performed one heat sink performance review. The inspectors reviewed the licensee's program for maintenance and testing of the 1B-B EDG heat exchangers. Specifically, the review included the program for testing and analysis of the 1B1 (1-HTX-082-720B1) and 1B2 (1-HTX-082-720B2) EDG jacket water heat exchangers. The inspectors reviewed the ERCW system description and the heat exchanger performance and 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 also 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 if wall loss indications and tube plugging requirements were being identified. Documents reviewed are listed in the attachment to this report.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification

a. Inspection Scope

On April 27, 2009, the inspectors observed the simulator evaluations for scenario 3-OT-SRT-H1-3, Loss of Feedwater Induced Loss of Secondary Heat Sink. The plant conditions led to a site area emergency level classification.

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

- Clarity and formality of communication
- Ability to take timely action to safely control the unit
- Prioritization, interpretation, and verification of alarms
- Correct use and implementation of 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 also attended the critique to assess the effectiveness of the licensee evaluators and to verify that licensee-identified issues were comparable to issues identified by the inspectors.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope

The inspectors reviewed the two performance-based problems listed below. The focus of the reviews was 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).

- Problem evaluation report (PER) 139875, B-train main control room chiller trip following 1B emergency diesel generator (EDG) blackout testing
- Compressed air system 10 CFR 50.65 a(1) to a(2) classification

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

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; SPP-7.1, Work Control Process; and TI-124, Equipment to Plant Risk Matrix.

- Maintenance risk associated with 1A EDG component outage and Unit 2 construction in the 161kv switchyard
- Maintenance risk associated with 2A EDG component outage, Unit 2 construction activities in electrical boardrooms and 161 kv switchyard
- Maintenance risk associated with 2B EDG component outage and the 1B CSS component outage

- Probabilistic risk assessment evaluation response WBN-1-09-039 closed power-operated relief valve (PORV) block valve 1-FCV-68-332 with degraded essential raw cooling water (ERCW) pump couplings

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed five 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 SDP. The inspectors verified that the operability evaluations were performed in accordance with SPP-3.1, Corrective Action Program.

- PER 166396, Intake pumping station roof missile shield girder anchor bolt stripped threads
- PER 168079, Digital hydrometer programmable functions not calibrated properly
- PER 167189, Star sprinkler head recall
- PER 172256, ABSCE air in-leakage through SR dampers is potentially masked by nonsafety-related dampers
- PER 155878, Failure of a SDBR chiller temperature control valve to adequately open

b. Findings

No findings of significance 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; SPP-6.3, Pre-/Post-Maintenance Testing; and SPP-7.1, Work Control Process.

- Work order (WO) 08-821967-000, Drag test and overspeed test following overhaul per MI-82.6, Six-year diesel engine inspection 1A EDG
- WO 08-818218-000, Inspection of diesel generator 2A-A, MI-82.008
- WO 09-810735-000, Shutdown boardroom chiller B-B periodic maintenance
- WO 09-812416-000, A-train EGTS charcoal filter bed replacement
- WO 09-814267-000, A-train SDBR chiller tripped on high discharge pressure

b. Findings

No findings of significance 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; SPP-8.2, 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.

Routine Surveillance Tests:

- WO 09-810689, SI-82-11-A, Monthly diesel generator start and load test DG 1A-A
- WO 09-811179-000, 1-SI-30-26-A, Containment air return fan 1A-A quarterly operability test
- WO 09-811750-000, 0-SI-30-7-B, Auxiliary building gas treatment system pressure test Train-B

In-Service Test:

- WO 09-810672-000, 1-SI-70-904A, Valve full stroke exercise during plant operation component cooling water (Train-A)
- WO 09-813960-000, 1-SI-67-905A, ERCW screen wash pump 1A-A quarterly performance test

RCS Leak Detection Surveillance Test:

- WO 09-811204-000, 1-SI-90-13, 92-day channel operational test of the containment building lower compartment particulate radiation monitor loop 1-LPR-90-106A

Ice Condenser Surveillance Test:

- WO 09-811972-000, 1-SI-61-6, Weekly ice condenser intermediate deck doors visual inspection

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation

a. Inspection Scope

The inspectors observed a licensee-evaluated emergency preparedness drill to verify that the emergency response organization was properly classifying the event in accordance with Emergency Plan Implementing Procedure (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. The scenario involved a tornado strike which lead to an alert condition; a second tornado strike lead to a site area emergency, then a general emergency. In addition, the inspectors verified that licensee evaluators were identifying deficiencies and properly dispositioning performance against the performance indicator criteria in Nuclear Energy Institute 99-02, "Regulatory Assessment Performance Indicator Guideline".

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verifications

a. Inspection Scope

The inspectors sampled licensee submittals for the two PIs listed below. To verify the accuracy of the PI data reported for the period April 1, 2008, through March 31, 2009, the inspectors reviewed licensee records and interviewed cognizant personnel. The PI definitions and guidance contained in NEI 99-02, Regulatory Assessment Indicator Guideline, Revision 5, were used to verify the basis in reporting for each data element.

Mitigating Systems Cornerstone PI

- Safety system functional failures

Barrier Integrity Cornerstone PI

- RCS leak rate

b. Findings

No findings of significance were identified.

4OA2 Identification & Resolution of Problems

.1 Review of Items Entered into the Corrective Action Program

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 (CAP). This review was accomplished by reviewing daily PER summary reports and attending daily PER review meetings.

.2 Annual Sample: Corrective Actions Associated Missing Bolting Hardware on the Intake Pumping Station (IPS) Missile Shield

a. Inspection Scope

The inspectors reviewed the apparent cause and the planned and completed corrective actions for PER 167323, IPS Missile Shield Bolting.

b. Background

The essential raw cooling water (ERCW) and high pressure fire protection (HPFP) pumps are located on elevation 741.0 of the IPS. A safety-related structural steel framing system (missile shield) composed of multiple panels, at elevation 754.0, is designed to protect safety-related IPS equipment from airborne projectiles generated during a design basis tornado event. The IPS missile shield is restrained with a combination of hold-down anchor bolts and bolted splice plates. To facilitate maintenance on IPS equipment, individual missile shield panels can be removed.

On March 31, 2009, the licensee discovered one missing hold-down anchor bolt and six missing splice plate bolts from a missile shield panel located on the B-train side of the IPS. PER 167323 was initiated and the missing bolts were replaced using work order 09-812965-000. The licensee determined that the bolts should have been reinstalled on November 19, 2007, using the instructions contained in work order 05-824524-000, which included steps for status control and independent verification. The licensee determined the apparent cause for the missing bolts was lack of accountability in work practices and documentation at the supervisory and craft level and that the craft failed to execute the work order as written. A contributing cause was determined to be a lack of understanding by the craft, supervisors and foremen of the requirements to maintain the missile shield design configuration and the impact of altering that configuration. Corrective actions for PER 167323 include the development of maintenance fundamentals including expected performance standards and required detail for documenting work, training on independent and concurrent verification, and a briefing on the importance of maintaining the design configuration of the IPS missile shields.

No findings of significance were identified with the corrective action plan for PER 167323. However, while reviewing PER 167323 and PER 166396, which was written to document a stripped hold-down anchor bolt on the A-train side of the missile shield, the inspectors identified that the failure of the licensee to adequately implement procedures to maintain the design of the IPS missile shield, as documented in PER 167323, was not an isolated case. On April 16, 2009, the inspectors identified additional loose/stripped and missing hold-down anchor bolts and splice plate bolts on the IPS missile shield. The licensee initiated PER 168839 based on the inspector's observations.

c. Findings

Introduction: The NRC identified a Green, non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion V, Instructions, Procedures, and Drawings, for the licensee's failure to adequately implement work order instructions to maintain the integrity of the intake pumping station (IPS) missile shield, as designed.

Description: The essential raw cooling water (ERCW) and high pressure fire protection (HPFP) pumps are located on elevation 741.0 of the IPS. A structural steel framing system (missile shield) composed of multiple panels, at elevation 754.0, is designed to protect safety-related IPS equipment from airborne projectiles generated during a design basis tornado event. The IPS missile shield is restrained with a combination of hold-down anchor bolts and bolted splice plates. To facilitate maintenance on IPS equipment, individual missile shield panels can be removed. Work order instruction 08-818588-000 provided steps for status control and independent verification that all bolting material removed was reinstalled per the design specifications.

On April 16, 2009, the inspectors identified several loose/stripped and missing hold-down anchor bolts and splice plate bolts on the IPS missile shield. The licensee initiated PER 168839 and performed a complete walkdown of the IPS missile shield to determine the extent of loose/stripped/missing hardware. On April 23, 2009, the licensee reported that the IPS missile shield had been restored to its full structural qualification. On April 30, 2009, the inspectors identified that some repairs completed on April 23, 2009, were not performed in accordance with civil engineering design output for missing or stripped splice plate welded nuts. The licensee initiated PER 170028 and made the appropriate repairs per civil engineering design output, DCN C-03890-A.

Analysis: The inspectors determined that the licensee's failure to adequately implement work order instructions for maintaining IPS missile shield integrity was a performance deficiency. The failure to assure adequate tornado missile protection had a credible impact on reactor safety because of the potential exposure of both trains of the ERCW system to tornado induced damage. The inspectors reviewed Inspection Manual Chapter (IMC) 0612 and determined that the finding is more than minor because the finding was associated with the design control and protection against external events attributes of the Mitigating Systems cornerstone and adversely affected the cornerstone objective of ensuring the reliability and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors evaluated this finding using IMC 0609, Significance Determination Process (SDP), and determined that it was of very low safety significance (Green) given that the finding did not screen as potentially risk significant due to a severe weather initiating event based on the severe weather screening criteria of the SDP phase I screening worksheet. This determination was based on the inspector's review of functional evaluation 43452 which determined that the functional capability of the missile shield for a design basis tornado event was reduced, but the missile shield would have performed its designed safety-related function of protecting both trains of the ERCW system from tornado induced damage. The finding directly involved the cross-cutting area of human performance under the procedural compliance aspect of the work practices component, in that, the work order instructions for restoration of the IPS missile shield after maintenance were not followed and the reliability and capability of the IPS missile shield was affected (H.4.b).

Enforcement: 10 CFR 50 Appendix B, Criterion V states, in part, that activities affecting quality shall be prescribed by documented instructions or procedures of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions or procedures. Contrary to the above, on April 16 and 30, 2009, the NRC identified that the licensee failed to accomplish documented instructions contained in work order 08-818588-000 to ensure that the design of the safety-related IPS missile shield was maintained. Because this finding was of very low safety significance and has been entered into the corrective action program as PERs 168839 and 170028, this violation is characterized as an NCV, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000390/2009003-01, Failure to Adequately Implement Procedures to Maintain the Design of the Intake Pumping Station Missile Shield.

.3 Semi-Annual Review to Identify Trends

a. Inspection Scope

As required by Inspection Procedure 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 January 2009 through June 2009, although some examples expanded beyond those dates when the scope of the trend warranted.

b. Findings and Observations

No findings of significance were identified. A potential trend was identified from the information reviewed.

The inspectors identified that the licensee had failed to recognize, on a number of occasions, conditions adverse to quality. This failure had typically been instances where inspectors had directly observed equipment conditions during routine walkdowns in the plant or had recognized a condition where a corrective action document should have been generated and was not until prompted by the inspectors. The inspectors determined that each of the issues identified were found to be minor violations of regulatory requirements. However, the inspectors engaged the licensee as to potential reasons for the increase in NRC identified conditions adverse to quality. Additionally, the licensee maintains a metric to monitor the number of NRC identified issues. It appeared to undercount by a significant percentage. In response, the licensee initiated PER 177413 which will specifically look into Organizational and Programmatic aspects of the issues in aggregate to provide insights into managerial methods and behaviors. See attachment for PER details.

4OA3 Event Followup

Loss of Function of Unit 1 Secondary Containment Boundary

a. Inspection Scope

On May 27, 2009, the licensee determined that both trains of the ABGTS were inoperable (see section 4OA7). In an attempt to implement compensatory measures for the system, the licensee physically damaged one metal door and two fabric doors while securing auxiliary building general ventilation. These temporary doors were installed by a Unit 1 DCN to provide for Unit 1's secondary containment boundary while Unit 2 containment was breached for construction activities. The fabric doors were repaired and the boundary returned to service late on the same day. The metal door was not repaired as of the writing of this report and the system remains in an operable but non-conforming condition. Inspectors followed or directly observed all activities associated with the recovery of this boundary.

On June 27, 2009, the licensee was changing alignment of the auxiliary building general ventilation system with the addition of some operating precautions to attempt to minimize auxiliary building differential pressure with that of the building surroundings and again damaged the two fabric doors. Inspectors responded to the site to review the associated operability determination and discuss the event with plant personnel. The doors were repaired within the allotted TS LCO time.

As additional measures, the licensee closed the Unit 2 reactor building equipment access doors and performed special testing to verify that these doors would protect the inner fabric door from all differential pressures that could be developed by the general ventilation system. Inspectors reported to the site to observe the PORC review of the special test and later the actual testing of the door configurations per the special test procedure.

(Note): The fabric doors form two ends of an airlock between Unit 2 containment and the Unit 1 shared auxiliary building.

b. Findings

No findings of significance 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 of significance were identified.

4OA6 Meetings, including Exit

The inspectors presented the inspection results to Mr. G. Boerschig and other members of licensee management at the conclusion of the inspection on July 9, 2009. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

4OA7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which meets the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as an NCV.

- TS 3.7.12 required that two trains of the Auxiliary Building Gas Treatment System (ABGTS) be operable in Modes 1, 2, 3, and 4 and during movement of irradiated fuel assemblies in the fuel handling area. Contrary to this, on May 28, 2009 the 'A' train of ABGTS was found to be inoperable, and on May 30, 2009 the 'B' train was also found to be inoperable. This was identified in the licensee's CAP as PER 164765. This finding is of very low safety significance because it only represented a degradation of the radiological barrier function provided for the auxiliary building.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel

G. Boerschig, Plant Manager
M. Brandon, Licensing and Industry Affairs Manager
B. Eiford-Lee, Chemistry Manager
A. Hooks, Radiation Protection Supervisor
B. Hunt, Operations Superintendent
M. McFadden, Site Nuclear Assurance Manager
T. Nahay, Scheduling Manager
A. Scales, Operations Manager
D. Voeller, Maintenance and Modifications Manager

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

50-390/2009003-01	NCV	Failure to Adequately Implement Procedures to Maintain the Design of the Intake Pumping Station Missile Shield (Section 4OA2.2)

Closed

None

Discussed

None

Attachment

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

IGA 6, Intergroup Service Agreement for Transmission/Power Supply
TRO-TO-SOP-10.130, Watts Bar Nuclear Plant (WBN) Grid Operating Guide
SPP-7.1, On Line Work Management
TI-12.15, 161kv Offsite Power Requirements
TRO-VP-SPP-10.006, Loss of SCADA and/or EMS

Section 1R07: Heat Sink Performance

Technical Instruction TI-79.000 Generic Letter 89-13 Heat Exchanger Test Program
N-ET-6 Eddy Current Examination Of Tubing In Balance Of Plant Components
NETP-108 Heat Exchanger Testing And Maintenance Program
Eddy Current Inspection Results-Diesel Generator Water Jacket Cooler 1B1
Eddy Current Inspection Results-Diesel Generator Water Jacket Cooler 1B2

Section 4OA2: Identification & Resolution of Problems

NRC Identified PERS:

Risk:
161964: Safety injection (SI) relief valve swap was not in weekly risk assessment. (When analyzed – Yellow risk)
164966: During SI relief valve swap, operators did not realize they had entered the Yellow condition.
165076: During SI relief valve swap, all risk management actions (RMAs) were not implemented. (All RMAs would not have been implemented a month earlier when work was originally scheduled.)
169490: Operators classified grid risk as Yellow. Questioning by inspectors on procedure use indicated a Green risk condition.

Lack of Awareness (operators, maintenance, radiation protection):
160511: RHR heat exchanger insulation not completely installed
163523: Turbine-driven auxiliary feedwater (TDAFW) inboard pump bearing bubbler found empty
170985: TDAFW inboard pump bearing bubbler found empty (third time by inspectors)
165622: Cable stored on emergency gas treatment system (EGTS) temperature indicator
165895 and 165936: A-shutdown board air handling unit noisy with failed bearing (impending failure)
166277: Computer room CO_2 pushbutton was covered with red duct tape
166339: Diesel fire pump controller door left open to possible water spray during testing
167328: Missing condulet cover on #1 main turbine throttle valve
174784: Out of tolerance readings during MSB PMT on chiller TCV testing documented w/ no action/justification

Plant modifications:
160440: 50.59 for EDC 52270 did not account for increase in frequency of a loss of normal feedwater
160595: Scaffold U1/U2 interface - ladder on EGTS conduit
170059: Scaffolding touching 2A emergency diesel generator (EDG) while in operation
161312 and 165885: Unrecognized modification to EDG corridor affected flood levels in EDG
166216: Temporary alteration in a work order, technical evaluations to support operability are not maintained by operations
166253: Temporary alteration in a work order, technical evaluations for auxiliary oil pump troubleshooting did not consider all failure modes

Corrective action program effectiveness:
162319: High range radiation monitor (HRRM) insulation resistance effects not taken into account when returning HRRMs to operable and closing PER 100095 (prior NRC NCV).
162656: HRRM PER was not flagged for operability review and was not caught by the PER screening committee.
166324: Portions of HFA relay setup procedure were omitted due to work order process not recognizing maintenance instruction revision (prior NRC NCV).
170984: Review of logs by inspectors indicated 57 ice condenser doors had degraded seals. No PER written until prompted by inspectors.
172508: One ice condenser intermediate deck door found frozen shut. Per corrective action procedure, a PER should have been written for the unplanned limiting condition for operation (LCO) entry but was not. Also, a trending PER should have been written but was not until prompted by inspectors.
173148: Six ice condenser intermediate deck doors found frozen shut. Per corrective action procedure, a PER should have been written for the unplanned LCO entry but was not. Also, a trending PER should have been written but was not until prompted by inspectors.
174335: Nine ice condenser intermediate deck doors found frozen shut. Per corrective action procedure, a PER should have been written for the unplanned LCO entry but was not. Also, a trending PER should have been written but was not until prompted by inspectors.

Other:
162433: Maintenance rule process is missing feedback loop that resulted in declaring auxiliary building gas treatment system (ABGTS) a(1) even though a functional evaluation had determined a previous condition was not a functional failure.
166338: Condition exists for debris to enter the auxiliary feedwater system from the nonsafety-related condensate storage tank.
171992: During review of licensee-generated study of temperature-induced currents on HRRM system, the plant staff missed that a steady-state temperature effect was found. Hence this additional effect was not addressed until identified by inspectors.
173137: Licensee isolated a leaking safety-related area cooler and, therefore, no operability determination was made. The licensee later un-isolated the cooler for operational reasons but failed to realize that an operability determination was required. The inspectors engaged engineering personnel as to operability and management as to what process should have prevented the return to service of degraded equipment. Engineering determined that operability could not be justified; the cooler was re-isolated. (Licensee currently evaluating reportability.)
173287: The licensee identified the failure to have ever performed an adequate surveillance on both trains of ABGTS as a missed surveillance and invoked SR 3.0.3. Inspectors disagreed

with characterizing the issue as a missed surveillance, but rather a never adequately performed surveillance which would require TS 3.7.12 B, a six hour shutdown specification.
173310: Secondary containment was breached at a temporary door to Unit 2 equipment hatch due to shutdown of the normal ventilation system. A security member was posted. When questioned by inspectors as to firewatch duties, the officer stated that he had not been given firewatch duties. In addition to a security breach, this was also a fire barrier breach.
173372: Lack of guidance to plant staff as to treatment of grid status during loss of SCADA.