



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
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ATLANTA, GEORGIA 30303-8931

January 29, 2010

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
05000390/2009005**

Dear Mr. Krich:

On December 31, 2009, 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 6, 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.

Based on the results of this inspection, the NRC has determined that one Severity Level IV violation of NRC requirements occurred. The NRC has also identified one additional issue that was evaluated under the risk significance determination process as having a very low safety significance (Green). The NRC has determined that a violation of NRC requirements is associated with this issue. However, because of the very low safety significance and categorization as Severity Level IV, and because they were 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.

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In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC 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 05000390/2009005
w/Attachment: Supplemental Information

cc w/encl: (See page 3)

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cc w/encl: (See page 3)

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Letter to R. M. Krich from Eugene F. Guthrie dated January 29, 2010

SUBJECT: WATTS BAR NUCLEAR PLANT - NRC INTEGRATED INSPECTION REPORT
05000390/2009005

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos: 50-390

License Nos: NPF-90

Report Nos: 05000390/2009005

Licensee: Tennessee Valley Authority (TVA)

Facility: Watts Bar Nuclear Plant, Unit 1

Location: Spring City, TN 37381

Dates: October 1, 2009 – December 31, 2009

Inspectors: R. Monk, Senior Resident Inspector
M. Pribish, Resident Inspector
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Approved by: Eugene F. Guthrie, Chief
Reactor Projects Branch 6
Division of Reactor Projects

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SUMMARY OF FINDINGS

IR 05000390/2009-005; 10/01/2009 - 12/31/2009; Watts Bar, Unit 1; Adverse Weather Protection and Other.

The report covered a three-month period of inspection by resident inspectors and announced inspections by one regional senior health physics inspector and three reactor inspectors. One Green finding, which was determined to be a non-cited violation (NCV), and one Severity Level IV (SL-IV) NCV were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, Reactor Oversight Process.

A. NRC-Identified Findings and Self-Revealing Findings

Cornerstone: Mitigating Systems

- Green. The inspectors identified a finding of very low safety significance and an associated NCV of 10 CFR 50.55a(f)(4) for the licensee's failure to meet in-service test requirements for the 1B auxiliary charging pump. Between December 2008 and December 2009, licensee personnel tested the pump and determined that it was in the required action range. The licensee failed to either declare the pump inoperable until corrected or perform an analysis in accordance with program requirements. As part of their corrective action, the licensee performed an analysis of the pump, revised test procedures, and entered the issue into the corrective action program (CAP) as PER 211724.

This finding was more than minor because if left uncorrected it has the potential to become a more significant safety concern. Specifically, the failure to adhere to equipment testing requirements could have allowed the loss of functional capability of the auxiliary charging pumps to exist without detection until the pumps were required to perform their designed safety function. The inspectors determined that the finding was of very low safety significance because the functional capability of the auxiliary charging pumps (ACPs) was not lost. The finding directly involved the cross-cutting area human performance under the supervisory and management oversight of work activities component, in that, the failures of the ACPs were left unresolved for an extended period of time over a number of failed tests. (H.4(c)). (Section 1R01.2)

- SL-IV. The inspectors identified an NCV of 10 CFR 50.71(e) for failure to adequately update the Updated Final Safety Analysis Report (UFSAR) to reflect that the additional diesel generator unit (ADGU) was never completed and made available for use as described in the UFSAR. The licensee entered these issues into the CAP as PER 175830.

This finding was considered as traditional enforcement because it had the potential for impacting the NRC's ability to perform its regulatory function. The inspectors used the NRC Enforcement Policy, Supplement I, to determine that the issue was more than minor because including references of incomplete equipment in the

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UFSAR would have a material impact on licensed activities associated with the on-site emergency AC power distribution system. This issue was considered a SL-IV violation because the inaccurate information was not used to make any change to the facility. No cross-cutting aspect was identified. (Section 4OA5.2)

B. Licensee-Identified Violations

Violations of very low safety significance, which were identified by the licensee, have been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. These violations and corrective actions are listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

Unit 1 was in the Unit 1 Cycle 9 (U1C9) refueling outage at the start of the inspection period. The unit completed the outage on October 20, 2009, and reached full power on October 24, 2009. The unit operated at or near 100 percent power for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection

.1 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 four 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.

- 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

b. Findings

No findings of significance were identified.

.2 Readiness to Cope with External Flooding

a. Inspection Scope

The inspectors performed one external flood protection measures review. The inspectors reviewed licensee flood analysis documents to identify design features important to external flood protection and areas that can be affected by flooding; design

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flood levels; and protection features for areas containing safety-related equipment, such as flood mode intersystem connections and installation procedures. The inspectors also walked down portions of the component cooling system, residual heat removal system, spent fuel pool cooling system, auxiliary feedwater system, and related ERCW and fire protection connections to verify that intersystem connection spool pieces were available to support flood mode operation for either hot shutdown or cold shutdown plant modes. The inspectors review testing records of the flood mode boration system. The inspectors interviewed cognizant licensee personnel about site flood protection measures and plant drainage plans. The inspectors also reviewed the licensee's corrective action program (CAP) for documents with respect to flood-related items identified in PERs written during calendar year 2008 through December 2009. Documents reviewed are listed in the Attachment.

b. Findings

Introduction: The inspectors identified a Green NCV of 10 CFR 50.55a(f)(4) for the licensee's failure to meet in-service test requirements for the 1B auxiliary charging pump. Between December 2008 and December 2009, licensee personnel tested the pump and did not take required actions based on testing results.

Description: 10 CFR 50.55a(f)(4) states in part, pumps and valves which are classified as American Society of Mechanical Engineers (ASME) Code Class 1, Class 2, and Class 3 must meet the in-service test requirements set forth in the ASME Operational Maintenance (OM) Code. The 2001 ASME OM Code, ISTB 6200 (b) states in part, when the pump is in the action range, the pump shall be declared inoperable until the cause of the deviation has been determined and the condition corrected, or an analysis of the pump is performed and new reference values are established in accordance with ISTB 6200 (c). ISTB 6200 (c) states, if the pump is within either the alert or required action range and the pump's continued use at the changed value is supported by an analysis, a new set of reference values may be established. The analysis shall include verification of the pump's operational readiness, the cause of the change in pump performance, and an evaluation of all trends indicated by all available data.

During the annual external flooding inspection, the NRC inspectors reviewed the licensee's capability to meet Technical Requirement 3.7.2, Flood Protection Plan. In part, the plan relied on the capability of the 1A and 1B auxiliary charging pumps (ACPs) and the Flood Mode Boration Makeup System to supply inventory makeup of borated water to the reactor primary system during a design basis flooding event.

The inspectors reviewed the test history for the ACPs and found that 1B ACP failed In-Service Testing (IST) in December of 2008 and again in March of 2009. The results of the failed tests placed the 1B ACP in the action range of ISTB 6200 (b). In August of 2009, the inspectors observed the licensee's inability to control discharge pressure during IST on the 1A ACP. The flow rates were significantly below normal and licensee personnel aborted and rescheduled the test. The inspectors questioned the licensee about the functional status of the ACPs.

In late October 2009, licensee personnel retested both ACPs with a revised procedure and new equipment line-up. The flow rates fell from a historic level of 350 gallons per hour to approximately 100 gallons per hour on each pump. The results of this test placed both the 1B and 1A ACPs in the required action range of ISTB 6200 (b).

Although there were a number of ACP failures between December 2008 and December 2009, the ACPs were not declared inoperable nor were the actions required by ISTB 6200 taken. On December 17, 2009, Engineering personnel completed a functional evaluation to explain the deviation in the ACPs flow rate and to satisfy the requirements of ISTB 6200 (c). That evaluation indicated that the incorrect valve line-up was used in all previous tests, which caused a decrease in flow rate once the correct line-up was used. In addition, it indicated that the ACPs were only rated for 100 gallons per hour and that the functional requirements of the system were approximately one-third of the rated flow rate.

Analysis: The inspectors determined that the failure to implement procedural requirements of the 2001 ASME OM Code, ISTB 6200, was a performance deficiency. The deficiency was reasonably within the licensee's ability to foresee and correct. The inspectors reviewed IMC 0612, Appendix B, and determined that was more than minor because if left uncorrected it has the potential to become a more significant safety concern. Specifically, the failure to adhere to equipment testing requirements could have allowed the loss of functional capability of the auxiliary charging pumps to exist without detection until the pumps were required to perform their designed safety function. The inspectors evaluated the risk significance of this finding using NRC Manual Chapter 0609, "Significance Determination Process," Attachment 4, Phase 1. The inspectors screened the finding to be of very low safety significance (Green) because the safety function of the auxiliary charging pumps (ACP's) was not lost for any single train or for the auxiliary charging system. The cause of this finding has a cross-cutting aspect in the work practices component of the human performance area because the license failed to ensure adequate supervisory and management oversight of work activities, such that nuclear safety was supported. Specifically, the IST failures of the ACPs were left unresolved for an extended period of time over a number of failed tests. (H.4(c))

Enforcement: 10 CFR 50.55a(f)(4) states in part, pumps and valves which are classified as ASME Code Class 1, Class 2, and Class 3 must meet the in-service test requirements set forth in the ASME OM Code. The 2001 ASME OM Code, ISTB 6200 (b) states in part, when the pump is in the action range, the pump shall be declared inoperable until the cause of the deviation has been determined and the condition corrected, or an analysis of the pump is performed and new reference values are established in accordance with ISTB 6200 (c). Contrary to the above, between December 2008 and December 2009, the 1B auxiliary charging pump, an ASME Class 3 component, did not meet in-service test requirements set forth in the ASME OM Code, in that, when the pump was in the action range, the licensee neither declared the pump inoperable until the cause of the deviation had been determined nor performed an analysis of the pump and establish new reference values in accordance with ISTB 6200 (c).

As part of their immediate corrective actions, the licensee performed an analysis of the pump and revised pump test procedures. Because this violation was of very low safety significance and was entered into the corrective action program (PERs 211724), this violation is being treated as an NCV consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 05000390/2009005-01, Failure to Implement Analysis for Failed Auxiliary Charging Pumps.

1R04 Equipment Alignment

.1 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 (OOS). 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.

- 1B containment spray system (CSS) while 1A CSS was OSS for maintenance
- 1B residual heat removal (RHR) system while 1A RHR system was OSS for maintenance
- A-train auxiliary feedwater (AFW) system during B-train AFW maintenance

b. Findings

No findings of significance were identified.

.2 Complete System Walkdown

a. Inspection Scope

The inspectors conducted one detailed walkdown/review of the alignment and condition of the RHR system to verify proper equipment alignment and to identify any discrepancies that could impact the function of the system and increase risk. The inspectors utilized licensee procedures, as well as licensing and design documents, when verifying that the system alignment was correct. During the walkdown, the inspectors also verified, as appropriate, that: (1) valves were correctly positioned and did not exhibit leakage that would impact the function(s) of any valve; (2) electrical power was available as required; (3) major portions of the system and components were correctly labeled, cooled, ventilated, etc.; (4) hangers and supports were correctly installed and functional; (5) essential support systems were operational; (6) ancillary equipment or debris did not interfere with system performance; (7) tagging clearances were appropriate; and, (8) valves were locked as required by the licensee's locked valve program. Pending design and equipment issues were reviewed to determine if the

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identified deficiencies significantly impacted the system's functions. Items included in this review were the operator workaround list, the temporary modification list, system health reports, and outstanding maintenance work requests and WOs. In addition, the inspectors reviewed the licensee's corrective action program to ensure that the licensee was identifying equipment alignment problems and that they were properly addressed for resolution. Further, various operating experience documents and reports were reviewed to identify if this experience was utilized and addressed by the licensee. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

.1 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, 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.

- Cable spreading room
- 480 V reactor (Rx) motor-operated valve (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 Room I, II, III, IV, V

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures

.1 Internal Flooding

a. Inspection Scope

The inspectors reviewed one internal flood protection measures sample for the intake pumping structure. Flood protection features were examined to verify that they were installed and maintained consistent with the plant design basis. The inspectors also reviewed the licensee 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 and 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.

b. Findings

No findings of significance were identified.

1R08 Inservice Inspection Activities

From September 28, 2009 through October 2, 2009, the inspectors conducted a review of the implementation of the licensee's Inservice Inspection (ISI) Program for monitoring degradation of the reactor coolant system, steam generator tubes, emergency feedwater systems, risk significant piping and components and containment systems.

The inspections described in Sections 1R08.1, 1R08.2, R08.3 and IR08.4 below constituted one inservice inspection sample as defined in Inspection Procedure 71111.08-05.

.1 Piping Systems ISI

a. Inspection Scope

The inspectors observed the following non-destructive examinations mandated by the ASME Section XI Code to evaluate compliance with the ASME Code Section XI and Section V requirements and if any indications and defects detected were detected, to determine if these were dispositioned in accordance with the ASME Code or an NRC approved alternative requirement.

- Phased Array Ultrasonic examination of RHR elbow to pipe weld at RHRS-169
- Phased Array Ultrasonic examination of RHR elbow to pipe weld at RHRS-170
- Ultrasonic examination of RHR elbow to pipe weld at RHRS-152A

The inspectors reviewed records of the following non-destructive examinations mandated by the ASME Section XI Code to evaluate compliance with the ASME Code Section XI and Section V requirements and, if any indications and defects detected were

detected, to determine if these were dispositioned in accordance with the ASME Code or an NRC approved alternative requirement.

- Magnetic particle examination on component 2-067A-T008-11-A C0 R0 24” ERCW pipe to tee
- Radiographic examination on X-61A 6” line

The inspectors reviewed records of the following pressure boundary welds completed for risk significant systems during the outage and during the current Unit 1 refueling outage to determine if the licensee applied the preservice non-destructive examinations and acceptance criteria required by the construction Code NRC approved Code Case, NRC approved Code relief request or the ASME Code Section XI, as applicable. Additionally, the inspectors reviewed the welding procedure specification and supporting weld procedure qualification records to determine if the weld procedures were qualified in accordance with the requirements of Construction Code and the ASME Code Section IX.

- WO 08-822009-004 “ECRW Intake 24” Tie-in crosstie”, ASME Class III
- WO 08-810945-000 “Replace ERCW at X-61A”, ASME Class II
-

b. Findings

No findings of significance were identified.

.2 Reactor Pressure Vessel Upper Head Penetration Inspection Activities

a. Inspection Scope

For the Unit 1 vessel head, a VT-2 visual examination was required this outage pursuant to 10 CFR 50.55a(g)(6)(ii)(D).

The inspectors reviewed records of the visual examination conducted on the Unit 1 reactor vessel head to determine if the activities were conducted in accordance with the requirements of ASME Code Case N-729-1 and 10 CFR 50.55a(g)(6)(ii)(D). In particular, the inspectors confirmed that:

- the required examination scope (volumetric and surface coverage) was achieved and limitations (if applicable were recorded) in accordance with the licensee procedures,
- if indications or defects were identified, the licensee documented the conditions in examination reports and/or entered this condition into the corrective action system and implemented appropriate corrective actions, and
- if indications were accepted for continued service the licensee evaluation and acceptance criteria were in accordance with the ASME Section XI Code, 10 CFR 50.55a(g)(6)(ii)(D) or an NRC approved alternative.

The licensee did not perform any welded repairs to vessel head penetrations since the beginning of the preceding outage for Unit 1. Therefore, no NRC review was completed for this inspection procedure attribute. The inspectors also reviewed portions of the video footage of the VE examinations for the bottom-mounted instrument penetrations to ensure examinations were being performed in accordance with the requirements of ASME Code Case N-722-1 and 10 CFR 50.55a(g)(6)(ii)(E).

b. Findings

No findings of significance were identified.

.3 Boric Acid Corrosion Control (BACC)

a. Inspection Scope

On October 1, 2009, the inspectors performed an independent walkdown of the Unit 1 containment, which had received a recent licensee boric acid walkdown and determined whether the licensee's BACC visual examinations emphasized locations where boric acid leaks can cause degradation of safety significant components.

The inspectors reviewed the following licensee evaluations of reactor coolant system components with boric acid deposits to determine if degraded components were documented in the corrective action system. The inspectors also evaluated corrective actions for any degraded reactor coolant system components to determine if they met the ASME Section XI Code and/or NRC approved alternative.

- WO 08-816329-000, "RCP 3 seal injection flow", 09/01/2008
- WO 09-817070-000, "Dry boron on fitting at the bottom of valve", 09/15/2009
- WO 08-813989-000, "1/4" Parker Tee", 07/03/08

The inspectors reviewed the following corrective actions related to evidence of boric acid leakage to determine if the corrective actions completed were consistent with the requirements of the ASME Code Section XI and 10 CFR Part 50, Appendix B, Criterion XVI.

- WO 08-823105-000, "Body to bonnet joint is leaking on 1-CKV-62-658", 12/19/2008
- WO 08-823634-000, "Boron water leak of one drop per minute catch installed", 04/24/2009
- WO 09-813109-000, "Pressure transmitter downstream of 1-RTV-62-396A is leaking", 09/10/2009

b. Findings

No findings of significance were identified.

.4 Identification and Resolution of Problems

a. Inspection Scope

The inspectors performed a review of ISI related problems entered into the licensee's corrective action program and conducted interviews with licensee staff to determine if:

- the licensee had established an appropriate threshold for identifying ISI related problems,
- the licensee had performed a root cause (if applicable) and taken appropriate corrective actions, and
- the licensee had evaluated operating experience and industry generic issues related to ISI and pressure boundary integrity.

The inspectors performed these reviews to evaluate compliance with 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requirements. The corrective action documents reviewed by the inspectors are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Regualification

a. Inspection Scope

The inspectors performed one quarterly licensed operator requalification program review. On November 17, 2009, the inspectors observed the simulator evaluations for Operations Shift Crew 1 per 3-OT-SRT-AOI-39-2, Revision 0, Load Reduction/Trip due to Main Feed Pump problems/ATWS. The plant conditions led to a site area emergency level classification.

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

- Clarity and formality of communication
- Ability to take timely action to safely control the unit
- Prioritization, interpretation, and verification of alarms
- Correct use and implementation of abnormal operating instructions and emergency operating instructions
- Timely and appropriate emergency action level declarations per emergency plan implementing procedures
- Control board operation and manipulation, including high-risk operator actions
- Command and control provided by the unit supervisor and shift manager

The inspectors 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 inspector.

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).

- Unplanned loss of volume control tank inventory due to failed valve operator reach rods in the chemical and volume control system
- Return of 125VDC vital power from (a)(1) to (a)(2)

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control

a. Inspection Scope

The inspectors evaluated, as appropriate for the two 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. This inspection satisfied two inspection samples for Maintenance Risk Assessment and Emergent Work Control.

- Maintenance risk associated with 1B-B charging pump, 1B-B essential raw cooling water strainer, and Train-B essential control air OOS
- Maintenance risk during 1A emergency diesel generator 24-hour run and the 1A 480v board room air conditioner removed from service

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed three 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 SPP-3.1, Corrective Action Program.

- PER 204881, Wrong measuring test equipment accuracy used for ice condenser surveillance
- PER 175501, Breaching of the auxiliary building secondary containment envelope (ABSCE) by blocking auxiliary building doors A152 and A159 open
- PER 208966, Flow reduction in flood mode auxiliary charging pumps due to change in test methodology

b. Findings

No findings of significance were identified.

1R18 Plant Modifications

1. Temporary Plant Modifications

a. Inspection Scope

The inspectors reviewed one temporary plant modification against the requirements of SPP-9.5, Temporary Alterations, and SPP-9.4, 10 CFR 50.59 Evaluation of Changes, Test, and Experiments, and verified that the modification did not affect system operability or availability as described by the TS and UFSAR. In addition, the inspectors determined whether: (1) the installation of the temporary modification was in accordance with the work package; (2) adequate configuration control was in place; (3)

procedures and drawings were updated; and, (4) post-installation tests verified operability of the affected systems.

- TACF 0-09-0003-090 R0, B-train ERCW radiation monitor operation with sample flow routed through either one or both of the monitor's detector chambers

b. Findings

No findings of significance were identified.

.2 Permanent Plant Modifications

a. Inspection Scope

The inspectors reviewed two permanent plant modifications to verify that design change installation controls were adequate, affected operational procedures and licensing documents were identified and revised accordingly, and that post-maintenance testing and equipment return to service was adequate.

- Design Change Notice (DCN) 52285, Add Unit 2 vital inverters including static switches and regulated by-pass transformers and supply Unit 2 vital instrument power boards on each channel from its dedicated inverter
- DCN 52798, Install cross-connect piping between the headers on both ERCW supply trains to allow the train to remain operable with one strainer isolated

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.

- WO 08-812562-048, PMTI 52285 for Unit 2 vital inverter installation
- WO 09-817075-000, PMT for DCN 54102, Replace capillary sense line for A-train SDBR chiller TCV
- WO 09-813122-000, PMT for Station Air Compressor C high and low pressure end piston rod packing replacement
- WO 07-822924-005, PMT for DCN 52216, Revise EGTS logic to handle post-LOCA reset of phase A isolation
- WO 09-822714-000, PMT for replacement of ERCW pump E-B

b. Findings

No findings of significance were identified.

1R20 Refueling and Outage Activities

a. Inspection Scope

The inspectors reviewed the outage risk control plan for the U1C9 refueling outage (RFO) to assess whether the licensee had appropriately considered risk, industry experience, and previous site-specific problems, and to also confirm that the licensee had mitigation/response strategies for loss of key safety functions.

The licensee began its U1C9 RFO on September 20, 2009. From that date through the end of the inspection period, the inspectors observed portions of the shutdown, cooldown, defueling, refueling, and maintenance activities to verify that the licensee maintained defense-in-depth commensurate with the outage risk plan and applicable TS. The inspectors monitored licensee controls over the outage activities listed below. In addition, the inspectors reviewed the licensee's CAP to ensure that the licensee was identifying equipment alignment problems and that they were properly addressed for resolution. This inspection satisfied one inspection sample for Refueling Activities.

- Licensee implementation of clearance activities to ensure equipment was appropriately configured to safely support the work or testing
- Reactivity controls to verify compliance with TS and that activities which could affect reactivity were reviewed for proper control within the outage risk plan
- Licensee control of heavy loads while moving the reactor vessel head from the vessel to the head stand
- Refueling activities for compliance with TS to verify proper tracking of fuel assemblies from the spent fuel pool to the core and to verify foreign material exclusion was maintained
- Heatup and startup activities to verify that TS, license conditions, and other requirements, commitments, and administrative procedure prerequisites for mode changes were met prior to changing modes or plant conditions; reactor coolant system (RCS) integrity verified by reviewing RCS leakage calculations; and containment integrity verified by reviewing the status of containment penetrations and containment isolation valves

- Containment closure activities, including a detailed containment walkdown prior to startup, to verify no evidence of leakage and that debris had not been left which could affect the performance of the containment sump or ice condenser

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors witnessed two 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.

Ice Condenser Test:

- WO 08-821128-000, 1-SI-61-S, 18 month ice condenser lower inlet doors inspection

In-Service Test:

- WO 09-818069, 1-SI-63-901-A, Safety Injection Pump 1A-A Quarterly Performance Test

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation

a. Inspection Scope

On November 17, 2009, the inspectors observed the licensed operator retraining simulator evaluations for Operations Shift Crew 1 per 3-OT-SRT-AOI-39-2, Revision 0, Load Reduction/Trip due to Main Feed Pump problems/ATWS. The plant conditions led to a site area emergency level classification which was properly classified by the shift crew 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-4, Site Area 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 99-02, Regulatory

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Assessment Performance Indicator Guideline. This inspection satisfied one inspection sample for Drill Evaluation.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2OS1 Access Control to Radiologically Significant Areas

a. Inspection Scope

Access Control: The inspectors evaluated licensee performance in controlling worker access to radiologically significant areas and monitoring jobs in-progress associated with the U1C9 RFO. The inspectors directly observed implementation of administrative and physical radiological controls; evaluated radiation worker (radworker) and radiation protection technician (RPT) knowledge of and proficiency in implementing radiation protection requirements; and assessed worker exposures to radiation and radioactive material.

During facility tours, the inspectors directly observed postings and physical controls for radiation areas, high radiation areas (HRA), locked high radiation areas (LHRA) and potential airborne radioactivity areas established within the radiation control area (RCA) of the Unit 1 (U1) upper containment, U1 lower containment, the auxiliary building, and radioactive waste (radwaste) processing and storage locations. The inspectors independently measured radiation dose rates or directly observed conduct of licensee radiation surveys for selected RCA areas. Results were compared to current licensee surveys and assessed against established postings and Radiation Work Permit (RWP) controls. Licensee key control and access barrier effectiveness were evaluated for selected LHRA and very high radiation area (VHRA) locations. Changes to procedural guidance for LHRA and VHRA controls were discussed with radiation protection supervisors. Controls and their implementation for storage of irradiated material within the spent fuel pool were reviewed and discussed in detail. In addition, licensee controls for areas where dose rates could change significantly as a result of plant shutdown and refueling operations were reviewed and discussed.

Established radiological controls were evaluated for selected U1C9 tasks including reactor coolant pump seal removal, containment high range radiation monitor calibration, and rod drive mechanism cooler removal/replacement, ultrasonic fuel cleaning equipment demobilization, scaffolding support, and shielding. For selected tasks, the inspectors attended pre-job briefings and reviewed RWP details to assess the communication of radiological control requirements to workers. Occupational workers' adherence to selected RWPs and RPT proficiency in providing job coverage were evaluated through direct observations and interviews with licensee staff. Electronic

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dosimeter (ED) alarm set points and worker stay times were evaluated against area radiation survey results for containment and refuel floor activities.

The inspectors evaluated the effectiveness of radiation exposure controls, including air sampling, barrier integrity, engineering controls, and postings through a review of both internal and external exposure results. Worker exposure as measured by ED and by licensee evaluations of personnel contamination events during U1C9 activities were reviewed and assessed. For HRA tasks involving significant dose rate gradients, the inspectors evaluated the procedural guidance for use and placement of whole body and extremity dosimetry to monitor worker exposure. The inspectors also reviewed and discussed selected whole-body count analyses and internal dose assessments conducted during the current refueling outage.

Radiation protection activities were evaluated against the requirements of UFSAR Section 12; TS Sections 5.4 and 5.7; 10 CFR, Parts 19 and 20; and approved licensee procedures. Records reviewed are listed in Section 2OS1 of the Attachment.

Problem Identification and Resolution: The licensee's CAP documents associated with access control to radiologically significant areas were reviewed and assessed. This included review of selected PERs related to radworker and RPT performance. The inspectors evaluated the licensee's ability to identify, characterize, prioritize, and resolve the identified issues in accordance with procedure SPP-3.1, Corrective Action Program, Revision 15. The inspectors also evaluated the scope of the licensee's internal audit program and reviewed recent assessment results. Licensee CAP documents reviewed are listed in Section 2OS1 of the Attachment.

The inspectors completed the 21 required line-item samples described in Inspection Procedure (IP) 71121.01.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification

a. Inspection Scope

Occupational Radiation Safety Cornerstone: The inspectors reviewed performance indicator (PI) data collected from April 1, 2008, through September 30, 2009, for the Occupational Exposure Control Effectiveness PI. For the reviewed period, the inspectors assessed CAP records to determine whether HRA, VHRA, or unplanned exposures, resulting in TS or 10 CFR 20 non-conformances, had occurred during the review period. In addition, the inspectors reviewed selected personnel contamination event data, internal dose assessment results, and ED alarms for cumulative doses and/or dose rates exceeding established set-points. The reviewed data were assessed against guidance contained in Nuclear Energy Institute (NEI) 99-02, Regulatory

Assessment Indicator Guideline, Revision. 6. The reviewed documents relative to these PI reviews are listed in Sections 2OS1 and 4OA1 of the Attachment.

Public Radiation Safety Cornerstone: The inspectors reviewed the Radiological Control Effluent Release Occurrences PI results for the period of April 1, 2008, through September 30, 2009. For the assessment period, the inspectors reviewed cumulative doses to the public, gaseous and liquid effluent release permits, and selected PERs related to effluent control. The inspectors also reviewed licensee procedural guidance for collecting and documenting PI data. The reviewed data were assessed against guidance contained in NEI 99-02, Regulatory Assessment Indicator Guideline, Revision 6. Documents reviewed are listed in Section 4OA1 of the Attachment.

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 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 2009 through December 2009, although some examples expanded beyond those dates when the scope of the trend warranted. This inspection satisfied one inspection sample for Semi-annual Trend Review.

b. Assessment and Observations

No findings of significance were identified. However, the inspectors identified an increase in the number of functional evaluations that exceeded the licensee's timeliness requirements as stated in licensee procedure NEDP-22, Functional Evaluations. NEDP-22 states that if a functional evaluation cannot be completed in 20 calendar days, a preliminary evaluation shall be performed and an extension request prepared, including

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a reason for the extension, a projected date for completion, and actions required to complete the final functional evaluation. Additionally, the extension shall be approved by the engineering manager, the plant manager, and attached to the PER with the preliminary functional evaluation. The inspectors reviewed the completed functional evaluations and determined that although completed after NEDP-22 timeliness requirements, no operability calls had been missed. The licensee entered the issue into the CAP as PER 210800.

.3 Annual Sample: Review of Operator Workarounds

a. Inspection Scope

The inspectors reviewed the operator workaround program to verify that workarounds were identified at an appropriate threshold, were entered into the CAP, and that corrective actions were proposed or implemented. Specifically, the inspectors reviewed the licensee's workaround list and repair schedules, conducted tours, and interviewed operators about required compensatory actions. Additionally, the inspectors looked for undocumented workarounds, reviewed appropriate system health documents, and reviewed PERs related to items on the workaround list.

b. Findings and Observations

No findings of significance were identified.

4OA3 Event Followup

.1 (Closed) Licensee Event Report (LER) 05000390/2009-002: Emergency Diesel Generator Actuation due to Loss of Power to 6.9 kV Shutdown Board

The licensee has concluded that the root cause of the loss of power to the 2B-B shutdown board was a failure of the fast transfer circuit to communicate the position of the alternate feeder breaker to the normal feeder breaker. The failure of this circuit was due to a misalignment of the arm which actuates the fast transfer micro switch. No guidance was given in the vendor manual to check this alignment as part of the breaker's preventive maintenance (PM) program. Other similar safety-related breakers have been checked. One other misalignment was found and corrected. Other corrective actions include changes to the vendor manual to provide guidance and incorporation into the PM program of this guidance. The LER was reviewed by the inspectors, and no findings of significance were identified. This LER is closed.

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

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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.

.2 Review of UFSAR for Additional Emergency Diesel Generator Unit

a. Inspection Scope

Review of the UFSAR for discrepancies between the additional diesel generator unit (ADGU) as described in UFSAR and the current as-built condition of the ADGU on the plant site.

b. Findings

Introduction: The inspectors identified a Severity Level IV NCV of 10 CFR 50.71(e) for failure to update the UFSAR. The licensee failed to remove references to the ADGU from the UFSAR following the decision to not complete the ADGU.

Description: The inspectors identified that the UFSAR describes the capability of the ADGU to electrically substitute for any of the 4 emergency diesel generators. Acceptance testing of the ADGU has never been completed and, therefore, cannot perform this function. Interviews with licensee personnel indicate that, at original licensing, there was intent to complete the ADGU and it was, therefore, included in the FSAR. However, after licensing, the ADGU was not completed. The UFSAR was never updated to reflect the fact. The licensee entered these issues into their CAP as PER 175830.

Analysis: The failure to adequately update the UFSAR as required by 10 CFR 50.71(e) is a performance deficiency. This issue was considered as traditional enforcement because it had the potential for impacting the NRC's ability to perform its regulatory function. The inspectors used the NRC Enforcement Policy, Supplement I, and determined that the issue was more than minor because including the ADGU in the UFSAR would have a material impact on licensed activities associated with on-site electrical distribution system. The violation was considered a Severity Level IV violation because the inaccurate information was not used to make any change to the facility. No cross-cutting aspect was identified.

Enforcement: 10 CFR 50.71(e) requires that licensees shall periodically update the Final Safety Analysis Report, originally submitted as part of the application for the operating license, to assure that the information included in the report contains the latest information developed. This submittal shall include all safety analyses and evaluations

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in support of approved license amendments. Contrary to the above, between February 1996 and December 2009, the licensee failed to update the UFSAR to accurately reflect the functional capability of the ADGU. The failure to adequately update the UFSAR as required by 10 CFR 50.71(e) is characterized as a Severity Level IV violation. However, because the safety significance of this violation was low, was not repetitive or willful, and was entered into the licensee's CAP as PER 175830, this violation is being treated as an NCV consistent with NRC Enforcement Policy and is identified as NCV 05000390/2009005-02: Failure to Adequately Update the UFSAR for the Removal of the Additional Diesel Generator Unit.

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

b. 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" was issued February 21, 2008, to support the evaluation of the licensees' implementation of MRP-139.

The documents reviewed by the inspector for this inspection are listed in the Attachment. From September 28, 2009 through October 2, 2009 the inspectors performed a review in accordance with TI-172 as described in the Observation Section below:

c. Observations

In accordance with requirements of TI 2515/172, Revision 0, the inspectors evaluated and answered the following questions:

(1) Implementation of the MRP-139 Baseline Inspections

1. a. Have the baseline inspection been performed or are they scheduled to be performed in accordance with MRP-139 guidance?

Yes. Alloy 82/182 DMBWs greater than 14" NPS exposed to temperatures equivalent to the hot and cold legs connecting to the Reactor Vessel for Unit 1 were examined for the baseline volumetric examination during Spring 2005 outage and supplemented with exams performed during the Fall 2009 outage. The examinations meet the MRP-139 implementation deadline of December 31, 2009, for the hot leg temperature and December 31, 2010, for the cold leg temperature

- b. Were the baseline inspections of the pressurizer temperature DMBWs completed?

Yes. The licensee has performed all required baseline inspections at the time of this review. This reporting requirement was addressed previously in the NRC

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integrated inspection report 05000390/2008003. No new information was noted during this inspection.

2. Is the licensee planning to take any deviations from the MRP-139 baseline inspection requirements of MRP-139? If so, what deviations are planned, what is the general basis for the deviation, and was the NEI- 03-08 process for filing a deviation followed?

No. The licensee has not submitted any requests for deviation from MRP-139 requirements.

(2) Volumetric Examinations

1. Were the examinations performed in accordance with the MRP-139, Section 5.1 guidelines and consistent with NRC staff relief request authorization for weld overlaid welds?

Yes. The volumetric examinations on the hot leg nozzle-to-safe end welds and the cold leg nozzle-to-safe end welds were performed in accordance with qualified procedures for UT examination in accordance with MRP-139 requirements. Procedures were qualified in accordance with ASME Section XI, Appendix VIII, as implemented through the EPRI Performance Demonstration Initiative (PDI) Program.

2. Were examinations performed by qualified personnel? (Briefly describe the personnel training/qualification process used by the licensee for this activity.)

Yes. The personnel that performed in the UT examinations of hot leg nozzle-to-safe end welds and the cold leg nozzle-to-safe end welds were qualified in accordance with MRP-139 requirements. The examiners were qualified Level II in the UT method as required by the vendor's UT procedure and in accordance with the vendor's written practice for NDE personnel. The UT examiners were also PDI qualified for the specific UT procedure they implemented. The final examination report, including calibration data sheets, was reviewed by a vendor's Level III in the UT method and a licensee's Level III in the UT method.

3. Were examinations performed such that deficiencies were identified, dispositioned, and resolved?

Yes. No deficiencies were identified.

(3) Weld Overlays

This portion of the TI was not inspected during the period of this report.

(4) Mechanical Stress Improvement (SI)

There were no additional stress improvement activities performed by this licensee to comply with their MRP-139 commitments this outage.

(5) Application of Weld Cladding and Inlays

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

(6) Inservice Inspection Program

1. Has the licensee prepared an MRP-139 inservice inspection program? If not, briefly summarize the licensee's basis for not having a documented program and when the licensee plans to complete preparation of the program.

No. The licensee did not have a stand-alone MRP-139 in-service inspection program document. The licensee's MRP-139 inservice inspection program is included in the ASME Section XI In-service Inspection Program (ISI Program). The inspectors reviewed the Watts Bar Second Interval ISI Plans for Unit 1. The licensee has updated the Second Interval ISI Plans to include the examination methods and frequencies for the MRP-139 ISI requirements.

2. In the MRP-139 inservice inspection program, are the welds appropriately categorized in accordance with MRP-139? If any welds are not appropriately categorized, briefly explain the discrepancies.

Yes. The welds were appropriately categorized by the licensee responsible engineer.

3. In the MRP-139 inservice inspection program, are the inservice inspection frequencies, which may differ between the first and second intervals after the MRP-139 baseline inspection, consistent with the inservice inspections frequencies called for by MRP-139?

Yes. The licensee has scheduled inspection frequencies for welds in the MRP-139 ISI program to be consistent with the requirements of MRP-139.

4. If any welds are categorized as H or I, briefly explain the licensee's basis of the categorization and the licensee's plans for addressing potential PWSCC.

No welds were categorized as Categories H or I.

5. If the licensee is planning to take deviations from the MRP-139 inservice inspection guidelines, what are the deviations and what are the general bases for the deviations? Was the NEI 03-08 process for filing deviations followed?

No deviations to MRP-139 have been incorporated by the licensee.

d. Findings

No findings of significance were identified.

.4 (Closed) NRC Temporary Instruction (TI) 2515/173 Review of the Implementation of the Industry Ground Water Protection Voluntary Initiativea. Inspection Scope

The inspectors reviewed elements of the licensee's environmental monitoring program to evaluate compliance with the voluntary Groundwater Protection Initiative (GPI) as described in NEI 07-07, Industry Ground Water Protection Initiative - Final Guidance Document, August 2007 (ADAMS Accession Number ML072610036). The inspectors interviewed personnel and reviewed the following items:

- Records of the site characterization of geology and hydrology. (Note: the most recent evaluation of the site characteristics was performed in 2004. A review planned for 2009, as per the TVA procedurally specified five-year frequency, was postponed.)
- Evaluations of systems, structures, and or components that contain or could contain licensed material and evaluations of work practices that involved licensed material for which there is a credible mechanism for the licensed material to reach the groundwater.
- Implementation of an onsite groundwater monitoring program to monitor for potential licensed radioactive leakage into groundwater.
- Procedures for the decision making process for potential remediation of leaks and spills, including consideration of the long term decommissioning impacts.
- Records of leaks and spills recorded, if any, in the licensee's decommissioning files in accordance with 10 CFR 50.75(g).
- Licensee briefings of local and state officials on the licensee's groundwater protection initiative.
- Protocols for notification to the local and state officials, and to the NRC regarding detection of leaks and spills.
- Protocols and/or procedures for thirty-day reports if an onsite groundwater sample exceeds the criteria in the radiological environmental monitoring program.
- Groundwater monitoring results as reported in the annual effluent and/or environmental monitoring report.

- Licensee and industry assessments of implementation of the groundwater protection initiative. (Note: the NEI audit of GPI implementation was in-progress at the time of the inspection but unavailable for NRC review.)

b. Findings

No findings contrary to the requirements of NEI 07-07 were identified. This TI is closed.

.5 (Closed) URI 05000390/2009002-02: Acceptability of Plant Alterations Without NRC Submittal

a. Inspection Scope

During the inspection of station evaluations of changes, tests, or experiments and permanent plant modifications conducted January 12-29, 2009, the inspectors identified an unresolved item related to modifications implemented by the licensee pertaining to its emergency gas treatment system (EGTS). The team observed that these modifications were implemented in spite of the licensee's recognition that calculations of record demonstrated that FSAR values relating to the system's operations were low by more than a minimal (i.e. >10% of the original) amount. The item was unresolved pending additional review by the NRC. The inspectors reviewed calculation, TI-RPS-198, "Dose to Control Room Personnel Due to a Regulatory Guide 1.4 Loss Of Coolant Accident", Rev. 21, performed by the licensee's contractor and further discussed this item with plant licensing personnel. Calculation refinements reduced the effective increase such that the control room beta radiation dose solution, though still demonstrating an increase, no longer deviated by more than 10% from values identified in the FSAR.

b. Findings

No findings of significance.

4OA6 Meetings, including Exit

An exit meeting was conducted with licensee management on October 2, 2009 for the ISI and TI-172 portions of the inspection.

On October 9, 2009, the inspectors discussed the results of the onsite inspection with Mr. Mike Skaggs, Site Vice President, and other responsible staff. The inspectors noted that some personally identifiable information was reviewed during the course of the inspection and that it would be properly destroyed when no longer needed.

On January 6, 2010, the inspectors presented the inspection results to Mr. Don Grisette, Site Vice President, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors confirmed that none of the potential report input discussed was considered proprietary.

4OA7 Licensee-Identified Violations

The following violations of very low safety significance (Green) were identified by the licensee and were violations of NRC requirements which meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as NCVs.

- 10 CFR 50.55a(g)(4) requires, in part, that pressurized water-cooled nuclear power facility components which are classified as ASME Code Class 1, Class 2, and Class 3 must meet the requirements set forth in ASME Section XI. ASME Code, Section XI, Subsection IWB, Article IWB-2500, Table IWB-2500-1, Item B5.10 requires a volumetric examination of all reactor vessel nozzle-to-safe end butt welds NPS 4 or larger each inspection interval. Contrary to this, the licensee failed to achieve the required examination coverage for eight welds during their 2005 examination effort due to a measurement discrepancy. This was identified in the licensee's corrective action program as PER 203409. This finding is of very low safety significance because supplemental examinations performed in 2009 revealed no indications in the above welds.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel

B. Belvin, Radiation Protection Manager
G. Boerschig, Plant Manager
M. Brandon, Licensing and Industry Affairs Manager
D. Burgess, Mechanical Engineer
J. Bushnell, Licensing Engineer
B. Eiford-Lee, Chemistry/Environmental Manager
D. Grisette, Site Vice President
G. Helton, NSSS System Engineer
W. Hooks, Radiation Protection
B. Hunt, Operations Superintendent
G. Mauldin, Site Engineering Manager
M. McFadden, Operations Manager
J. Milner, Radiation Protection
M. Pope, Licensing Engineer
A. Scales, Work Control Manager
C. Tudor, Engineering Programs Manager
D. Voeller, Maintenance and Modifications Manager
M. Welch, ISI/NDE Specialist
D. Watt, Supervisor of Welding and Special Processes

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Opened and Closed

05000390/2009005-01	NCV	Failure to Implement Analysis for Failed Auxiliary Charging Pumps (Section 1R01.2)
05000390/2009005-02	NCV	Failure to Adequately Update the UFSAR for the Removal of the Additional Diesel Generator Unit. (Section 4OA5.2)

Closed

05000390/2009-002	LER	Emergency Diesel Generator Actuation due to Loss of Power to 6.9 kV Shutdown Board (Section 4OA3.1)
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Attachment

05000390/2515/173	TI	Review of the Implementation of the Industry Ground Water Protection Voluntary Initiative (Section 40A5.1)
05000390/2009002-02	URI	Acceptability of Plant Alterations Without NRC Submittal (Section 1R17)

Discussed

None

LIST OF DOCUMENTS REVIEWED**Section 1R01: Adverse Weather Protection**

Updated Final Safety Analysis Report (UFSAR) Sections 2.4.14, 3.4
 Technical Requirements Manual 3.7.2 Flood Protection Plan
 WO 07-813047, TI-50.048 Auxiliary Charging Pump 1A Performance Test
 WO 07-820886, TI-50.048 Auxiliary Charging Pump 1A Performance Test
 WO 08-820274, TI-50.048 Auxiliary Charging Pump 1A Performance Test
 WO 09-813537, TI-50.048 Auxiliary Charging Pump 1A Performance Test
 WO 07-813073, TI-50.049 Auxiliary Charging Pump 1B Performance Test
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