UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
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ATLANTA, GEORGIA 30303-1257

October 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 05000390/2010004 AND 05000390/2010501

Dear Mr. Krich:

On September 30, 2010, the United States Nuclear Regulatory Commission (NRC) completed an inspection at your Watts Bar Nuclear Plant, Unit 1. The enclosed integrated inspection report documents the inspection results which were discussed on October 1, 2010, with Mr. D. Grissette and other members of your staff.

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

This report documents two licensee-identified findings which were determined to be of very low safety significance. 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 2.3.2 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 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 05000390/2010004 AND 05000390/2010501
w/Attachment: Supplemental Information

cc w/encl: (See page 3)

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

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

SUBJECT: WATTS BAR NUCLEAR PLANT - NRC INTEGRATED INSPECTION REPORT 05000390/2010004 AND 05000390/2010501

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No:	50-390
License No:	NPF-90
Report No:	05000390/2010004 AND 05000390/2010501
Licensee:	Tennessee Valley Authority (TVA)
Facility:	Watts Bar Nuclear Plant, Unit 1
Location:	Spring City, TN 37381
Dates:	July 1 – September 30, 2010
Inspectors:	R. Monk, Senior Resident Inspector M. Pribish, Resident Inspector L. Miller, Senior Emergency Preparedness Inspector (1EP2, 1EP3, 1EP4, 1EP5, 4OA1, 4OA6) H. Gepford, Technical Assistant (2RS1, 2RS4, 4OA1, 4OA5) G. Kuzo. Senior Health Physics Inspector (2RS6, 4OA1, 2RS6, 4OA1) C. Dykes, Health Physics Inspector (2RS7) W. Loo, Senior Health Physics Inspector (2RS5, 4OA5)
Approved by:	Eugene F. Guthrie, Chief Reactor Projects Branch 6 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000390/2010-004 AND 05000390/2010501; 7/01/2010 – 09/30/2010; Watts Bar, Unit 1

The report covered a three-month period of routine inspection by resident inspectors. Two Green licensee-identified violations are documented. 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

None.

B. Licensee-Identified Violations

Two 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 the corrective actions 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 (RTP) until August 14, 2010, when an electro-hydraulic control (EHC) leak occurred on a low pressure turbine reheat stop valve. The unit was downpowered to less than 5 percent to take the turbine offline. Repairs were made to the EHC line and the unit was returned to full power operation on August 16, 2010. The unit operated at or near 100 percent RTP for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection

1R01 Flood Protection Measures

External Flood Protection Inspection

a. Inspection Scope

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 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 the Intake Pumping Station which houses the Emergency Raw Cooling Water (ERCW) pumps and the high pressure fire protection pumps. The inspectors interviewed cognizant licensee personnel about site flood protection measures and plant drainage plans. The inspectors also reviewed the licensee's CAP for documents with respect to flood-related items identified in PERs written during CY 2009 and through September 2010. Documents reviewed are listed in the attachment. This activity constituted one inspection sample.

b. Findings

No findings were identified.

1R04 Equipment Alignment

Partial System Walkdowns

a. Inspection Scope

The inspectors conducted three equipment alignment partial walkdowns, listed below, to evaluate the operability of selected redundant trains or backup systems with the other train or system inoperable or out of service. The inspectors reviewed the functional system descriptions, Updated Final Safety Analysis Report (UFSAR), system operating procedures, and technical specifications (TS) to determine correct system lineups for the

current plant conditions. The inspectors performed walkdowns of the systems to verify that critical components were properly aligned and to identify any discrepancies which could affect operability of the redundant train or backup system. Documents reviewed are listed in the attachment to this report.

- Partial walkdown of A-train auxiliary building gas treatment system (ABGTS) removed from service for scheduled maintenance
- Partial walkdown of B-train auxiliary air control air system following maintenance on the B-train auxiliary control air system
- Partial walkdown of A-train RHR while B Train RHR removed from service for maintenance.

b. Findings

No findings were identified.

.2 Complete System Walkdown

a. Inspection Scope

The inspectors conducted one detailed walkdown/review of the alignment and condition of the boric acid transfer 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 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/work orders (WOs). In addition, the inspectors reviewed the licensee's corrective action program (CAP) to ensure that the licensee was identifying equipment alignment problems and to ensure they were properly addressed for resolution. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R05 Fire Protection

Fire Protection Tours

a. Inspection Scope

The inspectors conducted tours of the six 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.

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

b. Findings

No findings were identified.

1R06 Flood Protection Measures

a. Inspection Scope

The inspectors reviewed internal flood protection measures for the emergency diesel generator building. 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. Documents reviewed are listed in the Attachment. This activity constituted one inspection sample.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification

a. Inspection Scope

On September 14, 2010, the inspectors observed the simulator evaluations for Operations Crew 2 per 3-OT-SRT-E-3-7, STGR with a Steam Generator PORV Failed Open. The plant conditions led to a Site Area Emergency level classification. Performance indicator credit was taken by the licensee for this activity.

The inspectors specifically observed the simulator evaluations for the following attributes related to the operating crews' performance:

- Clarity and formality of communication
- Ability to take timely action to safely control the unit
- Prioritization, interpretation, and verification of alarms
- Correct use and implementation of Abnormal Operating Instructions (AOIs) and Emergency Operating Instructions (EOIs)
- Timely and appropriate emergency action level declarations per Emergency Plan Implementing Procedures (EPIP)
- Control board operation and manipulation, including high-risk operator actions
- Command and Control provided by the unit supervisor and shift manager

The inspectors 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. This activity constituted one inspection sample.

b. Findings

No findings 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).

- B-train main control room chiller essential raw cooling water (ERCW) temperature control valve (TCV) failures
- Return of the SDBR chiller system to a(2) after ERCW TCV modifications

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control

a. Inspection Scope

The inspectors evaluated, as appropriate, for the four work activities listed below: (1) the effectiveness of the risk assessments performed before maintenance activities were conducted; (2) the management of risk; (3) that, upon identification of an unforeseen situation, necessary steps were taken to plan and control the resulting emergent work activities; and (4) that maintenance risk assessments and emergent work problems were adequately identified and resolved. The inspectors verified that the licensee was complying with the requirements of 10 CFR 50.65 (a)(4); SPP-7.0, Work Control and Outage Management; NPG-SPP-07.1, One Line Work Management; and TI-124, Equipment to Plant Risk Matrix. This inspection satisfied four inspection samples for Maintenance Risk Assessment and Emergent Work Control.

- Risk associated with B-train auxiliary building gas treatment system (ABGTS) filter replacement and excavation for A-train high pressure fire protection header leak
- Risk associated with Eagle 21 rack failure and planned maintenance on the turbine-driven auxiliary feedwater (TDAFW) pump
- Risk assessment of work week 508 which included B-train emergency gas treatment system (EGTS) and B-train RHR out of service for planned maintenance
- Risk assessment of work week 511 which included E-B ERCW pump replacement and C-S component cooling system (CCS) motor replacement and B main control room (MCR) chiller annual outage

b. Findings

No findings 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 significant determination process (SDP). The inspectors verified that the operability evaluations were performed in accordance with NPG-SPP-03.1, Corrective Action Program.

- Functional evaluation associated with Problem evaluation report (PER) 241402, Sync light in and out
- Functional evaluation associated with PER 241513, Missing washers on vital battery charger anchorage
- Functional evaluation associated with PER 244409, 1-FCU-1-7, #1 S/G blowdown valve failed to fully close on auto actuation signal
- Functional evaluation associated with PER 241712, High particulate in TDAFW oil system
- Functional evaluation associated with PER 245432, Ice condenser intermediate deck doors found frozen shut

b. Findings

No findings 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 1-10-0006-067-R1, Reposition of inlet and outlet valves for #2 RCP motor cooler to reduce flange leakage

b. Findings

No findings were identified.

.2 Permanent Plant Modifications

a. Inspection Scope

The inspectors reviewed one permanent plant engineering design calculation to verify that design output controls were adequate, affected operational procedures and licensing documents were identified and revised accordingly.

- EDC-54658A-Acceptance criteria for gas voids (CVCS, SI, CS, RHR)

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing

a. Inspection Scope

The inspectors reviewed five post-maintenance test procedures and/or test activities, (listed below) as appropriate, for selected risk-significant mitigating systems to assess whether: (1) the effect of testing on the plant had been adequately addressed by control room and/or engineering personnel; (2) testing was adequate for the maintenance performed; (3) acceptance criteria were clear and adequately demonstrated operational readiness consistent with design and licensing basis documents; (4) test instrumentation had current calibrations, range, and accuracy consistent with the application; (5) tests were performed as written with applicable prerequisites satisfied; (6) jumpers installed or leads lifted were properly controlled; (7) test equipment was removed following testing; and (8) equipment was returned to the status required to perform its safety function. The inspectors verified that these activities were performed in accordance with SPP-8.0, Testing Programs; NPG-SPP-06.3, Pre-/Post-Maintenance Testing; and NPG-SPP-07.1, On Line Work Management.

- WO 110954478, PMTI 53437-01 for 0-CHGR-236-1-D, Vital Battery I battery charger
- WO 10-813224-000, 0-SI-31-31-A, Control room emergency air temperature control system Train-A operability test
- WO 111283415, 1-SI-901, Valve full stroke exercising during plant operation – main steam for failure of 1-FCV-1-7, S/G blowdown to close on auto actuation signal
- WO 09-822315, Setpoint verification for 0-PS-032-85B, ACAS normal air isolation
- WO 09-821848, 1A-A thermal barrier booster pump rebuild

b. Findings

No findings were identified

1R22 Surveillance Testing

a. Inspection Scope

The inspectors witnessed four 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. Documents reviewed are listed in Attachment.

In-Service Test:

- WO 10-813690, 1-SI-72-904-A, Check valve testing during operations – containment spray (A-train)
- WO 10-813864, 1-SI-72-904B, Check valve testing during operations – containment spray (B-train

Ice Condenser Surveillance

- WO 10-813408-000, 1-SI-61-6, Weekly ice condenser intermediate deck doors visual inspection

RCS Leak Rate:

- WO 10-814107-000, 1-SI-68-32, Reactor coolant system water inventory balance

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP2 Alert and Notification System Testing

a. Inspection Scope

The inspector evaluated the adequacy of the licensee's methods for testing the alert and notification system in accordance with NRC Inspection Procedure 71114, Attachment 02, "Alert and Notification System Evaluation". The applicable planning standard 10 CFR Part 50.47(b)(5) and its related 10 CFR Part 50, Appendix E, Section IV.D requirements were used as reference criteria. The criteria contained in NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1, was also used as a reference.

The inspector reviewed various documents which are listed in the Attachment. This inspection activity satisfied one inspection sample for the alert and notification system on a biennial basis.

b. Findings

No findings were identified.

1EP3 Emergency Preparedness Organization Staffing and Augmentation System

a. Inspection Scope

The inspector reviewed the licensee's Emergency Response Organization (ERO) augmentation staffing requirements and process for notifying the ERO to ensure the readiness of key staff for responding to an event and timely facility activation. The qualification records of key position ERO personnel were reviewed to ensure all ERO qualifications were current. A sample of problems identified from augmentation drills or system tests performed since the last inspection were reviewed to assess the effectiveness of corrective actions.

The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 03, "Emergency Response Organization Staffing and Augmentation System." The applicable planning standard, 10 CFR 50.47(b)(2) and its related 10 CFR 50, Appendix E requirements were used as reference criteria.

The inspector reviewed various documents which are listed in the Attachment to this report. This inspection activity satisfied one inspection sample for the ERO staffing and augmentation system on a biennial basis.

b. Findings

No findings were identified.

1EP4 Emergency Action Level and Emergency Plan Changes

a. Inspection Scope

Since the last NRC inspection of this program area**,** Revisions 90 and 91 of the Emergency Plan were implemented based on the licensee's determination, in accordance with 10 CFR 50.54(q), that the changes resulted in no decrease in the effectiveness of the Plan, and that the revised Plan continued to meet the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50. The inspector conducted a sampling review of the Plan changes and implementing procedure changes made between June 1, 2009, and July 31, 2010 to evaluate for potential decreases in effectiveness of the Plan. However, this review was not documented in a Safety Evaluation Report and does not constitute formal NRC approval of the changes. Therefore, these changes remain subject to future NRC inspection in their entirety.

The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 04, "Emergency Action Level and Emergency Plan Changes." The applicable planning standard (PS), 10 CFR 50.47(b)(4) and its related 10 CFR 50, Appendix E requirements were used as reference criteria.

The inspector reviewed various documents which are listed in the Attachment. This inspection activity satisfied one inspection sample for the emergency action level and emergency plan changes on an annual basis.

b. Findings

No findings were identified.

1EP5 Correction of Emergency Preparedness Weaknesses

a. Inspection Scope

The inspector reviewed the corrective actions identified through the Emergency Preparedness program to determine the significance of the issues and to determine if repeat problems were occurring. The facility's self-assessments and audits were reviewed to assess the licensee's ability to be self-critical, thus avoiding complacency and degradation of their emergency preparedness program. In addition, the inspector reviewed licensee self-assessments and audits to assess the completeness and effectiveness of all emergency preparedness related corrective actions.

The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 05, "Correction of Emergency Preparedness Weaknesses." The applicable planning standard, 10 CFR 50.47(b)(14) and its related 10 CFR 50, Appendix E requirements were used as reference criteria.

The inspector reviewed various documents which are listed in the Attachment. This inspection activity satisfied one inspection sample for the correction of emergency preparedness weaknesses on a biennial basis.

b. Findings

No findings were identified.

1EP6 Drill Evaluation

a. Inspection Scope

On July 20, 2010, the inspectors observed a licensee-evaluated emergency preparedness drill, listed below, to verify that the emergency response organization was properly classifying the event in accordance with EPIP-1, Emergency Plan Classification Flowchart, and making accurate and timely notifications and protective action recommendations in accordance with EPIP-2, Notification of Unusual Event; EPIP-3, Alert; EIPIP-4, Site Area Emergency; EPIP-5, General Emergency; and the Radiological

Emergency Plan. In addition, the inspectors verified that licensee evaluators were identifying deficiencies and properly dispositioning performance against the performance indicator criteria in Nuclear Energy Institute (NEI) 99-02, Regulatory Assessment Performance Indicator Guideline.

- A fire in a running RHR pump leads to an Alert classification
- A contaminated injured individual is transported off-site
- Small reactor coolant system (RCS) leak increases in size to a loss of coolant accident (LOCA) complicated by an anticipated transient without scram (ATWS) leads to Site Area Emergency

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstones: Occupational Radiation Safety and Public Radiation Safety

2RS1 Radiological Hazard Assessment and Exposure Control

a. Inspection Scope

Radiological Hazard Assessment: The inspectors reviewed a number of radiological surveys, including those performed for airborne areas, of locations throughout the facility including the Unit 1 (U1) and Unit 2 (U2) pipe chases, U1 containment, and the auxiliary building. The inspectors also walked down those same areas and select radioactive material storage locations with a survey instrument, evaluating material condition, posting, and radiological controls. The inspectors observed jobs in radiologically risk-significant areas including high radiation areas (HRAs) and areas with, or with the potential for, airborne activity. The inspectors determined that the surveys were adequate in thoroughness and frequency for the identified hazards.

Instructions to Workers: During plant walk downs, the inspectors observed labeling and radiological controls on containers of radioactive material. The inspectors also reviewed radiation work permits (RWP) used for accessing HRAs and airborne areas, verifying that appropriate work control instructions and electronic dosimeter (ED) setpoints had been provided and to assess the communication of radiological control requirements to workers. For selected tasks, the inspectors attended pre-job briefings that reviewed RWP details with the workers. The inspectors reviewed selected ED dose and dose rate alarms, to verify workers properly responded to the alarms and that the licensee's review of the events was appropriate. Through observation of pre-job RWP briefings and Health Physics Technician (HPT) coverage of workers, the inspectors determined the licensee had established adequate means to notify workers of changing radiological conditions.

Contamination and Radioactive Material Control: The inspectors observed the release of potentially contaminated items from the radiologically controlled area (RCA) and from contaminated areas (i.e. U1 containment). The inspectors also reviewed the procedural requirements for, and equipment used to perform, the radiation surveys for release. During plant walk downs, the inspectors evaluated radioactive material storage areas and containers, including satellite RCAs and yard areas, assessing material condition, posting/labeling, and control of materials/areas. In addition, the inspectors reviewed the sealed source inventory and verified labeling, storage conditions, and leak testing of selected sources.

Radiological Hazards Control and Work Coverage: The inspectors evaluated licensee performance in controlling worker access to radiologically significant areas and monitoring jobs in-progress during the week of the onsite inspection. Established radiological controls were evaluated for selected tasks including at-power containment entries to perform LLRT on the airlocks and maintenance on the accumulators. The inspectors evaluated the effectiveness of radiation exposure controls, including air sampling, barrier integrity, engineering controls, and postings.

During walk downs with a radiation survey meter, the inspectors independently verified ambient radiological conditions were consistent with licensee performed surveys, RWPs, and pre-job briefings; observed the adequacy of radiological controls; and observed controls for radioactive materials stored in the spent fuel pool. The inspectors also reviewed the procedural guidance for multi- and extremity badging. For HRA tasks involving significant dose rate gradients, the inspectors evaluated the use and placement of whole body and extremity dosimetry to monitor worker exposure. The inspectors also reviewed and discussed selected whole body count (WBC) analyses conducted during the fall 2009 refueling outage and calendar year (CY) 2010 to date. The inspectors reviewed RWPs for use in airborne areas, ensuring the prescribed controls were appropriate for the conditions as identified in radiological surveys and air samples. ED alarm set points and worker stay times were evaluated against area radiation survey results for containment and auxiliary building activities.

Risk-Significant HRA and Very HRA Controls: The inspectors discussed the controls and procedures for locked HRAs (LHRAs) and very HRAs (VHRAs) with health physics supervisors and the radiation protection manager. The inspectors observed the issuance of LHRA keys and evaluated the storage, inventory, and handling of LHRA/VHRA keys. During plant walk downs, the inspectors verified the posting/locking of LHRA/VHRA areas.

Radiation Worker Performance and Radiation Protection Technician Proficiency: The inspectors observed radiation worker performance through direct observation. Jobs observed included routine maintenance activities in the auxiliary building and accumulator maintenance in U1 containment while at power. Some of these jobs were performed in high radiation, airborne, and/or contaminated areas. The inspectors also observed HPTs providing pre-job/RWP briefings, releasing material from the RCA, and providing field coverage of jobs.

Problem Identification & Resolution: Licensee CAP documents associated with radiation monitoring and exposure control were reviewed and assessed. This included review of selected PERs related to radworker and HPT 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, Rev. 19. 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 2RS1 of the Attachment.

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 2RS1 of the Attachment.

The inspectors completed the one specified line-item sample detailed in IP 71124.01.

b. Findings

No findings were identified.

2RS4 Occupational Dose Assessment

a. Inspection Scope

The inspectors evaluated current program activities and results associated with internal and external radiation exposure monitoring of occupational workers. The review included program guidance, equipment and changes, as applicable; QA activities, results, and responses to identified issues; and individual dose results for occupational workers.

External Dosimetry: The inspectors reviewed and discussed program guidance for monitoring external and internal radiation exposures of occupational workers. The inspectors verified National Voluntary Laboratory Accreditation Program (NVLAP) certification data and discussed program guidance for storage, processing, and results for active and passive personnel dosimeters currently in use. Comparisons between ED and TLD data were reviewed and discussed.

Internal Dosimetry: Program guidance, instrument detection capabilities, and select results for internally deposited radionuclide dosimetry were reviewed in detail. The inspectors reviewed routine termination and follow-up in vivo (WBC) analyses, as well as in vitro bioassays conducted for tritium monitoring and routine termination. In addition, guidance for collection and conduct of special bioassay sampling were discussed in detail.

Special Dosimetric Situations: The inspectors reviewed monitoring conducted and results obtained for special dosimetric situations. The methodology and results of monitoring occupational workers within non-uniform external dose fields were evaluated. In addition, the adequacy of dosimetry program guidance and its implementation were reviewed for shallow dose assessments. Neutron monitoring was reviewed and discussed. The inspectors reviewed monitoring and results for declared pregnant

workers documented in licensee records since January 1, 2009. In addition, proficiency of dosimetry staff involved in conducting skin dose assessments, neutron monitoring, and whole body counting equipment operations were evaluated through direct interviews, onsite observations, and review and discussions of completed records and supporting data.

Problem Identification & Resolution: The inspectors reviewed and discussed selected CAP documents associated with occupational dose assessment. The reviewed items included PERs, self-assessment, and quality assurance audit documents. The inspectors evaluated the licensee's ability to identify, characterize, prioritize, and resolve identified issues in accordance with licensee procedure SPP-3.1, Corrective Action Program, Rev. 19.

Occupational dose assessment guidance and activities were evaluated against the requirements of the 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 2RS4 of the Attachment.

The inspectors completed the one specified line-item sample detailed in IP 71124.04.

b. Findings

No findings were identified.

2RS5 Radiation Monitoring Instrumentation

a. Inspection Scope

The inspectors reviewed the licensee's radiation monitoring instrumentation programs verify the accuracy and operability of radiation monitoring instruments used to monitor areas, materials, and workers to ensure a radiologically safe work environment and to detect and quantify radioactive process streams and effluent releases.

Walkdowns and Observations: During tours of the auxiliary building and RCA exit point, the inspectors observed installed radiation detection equipment including area radiation monitors, continuous air monitors, personnel contamination monitors (PCM), portal monitors (PM), small article monitors (SAM), and WBC equipment. During the tours, the adequacy of the equipment's physical location and material condition were evaluated.

From a review of selected records and discussions with cognizant licensee personnel, the inspectors evaluated completion and adequacy of equipment calibrations and assessed system operability and reliability.

During equipment walk-downs, the inspectors observed functional checks of various fixed and portable radiation monitoring/detection instruments. The observations included source checks of PCM, PM, SAM, and WBC equipment. The inspectors reviewed calibration records and discussed the functional testing and testing intervals for selected PCM and PM equipment located at the RCA exit. PCM equipment detection capabilities were demonstrated using a low-level radionuclide source that was passed through the equipment. The operability and analysis capabilities of the WBC equipment were evaluated. WBC equipment operations were reviewed and discussed with cognizant licensee representatives.

For selected portable survey instrumentation used in field tasks, the inspectors observed HPT selection of survey instruments, completion of required performance and/or functional checks, and use of instruments. Availability of portable instruments for licensee use, provided by the licensee's calibration facility in Muscle Shoals, AL, was evaluated through observation of instruments staged for issue and discussion with licensee personnel. For select frisker and portable survey instruments used in the field, the inspectors noted operability and verified calibration dates. Calibration data for selected portable instruments staged or recently used for coverage of radiation worker were also reviewed.

Operability and reliability of selected radiation detection instruments were reviewed against 10 CFR Part 20; UFSAR Chapters 11 and 12; and applicable licensee procedures. Documents reviewed during the inspection are listed in Sections 2RS5 of the Attachment.

Calibration and Testing Program: The inspectors reviewed the last two calibration records for selected effluent, process, area radiation, and post-accident monitors that included 1-RI-90-10B and 0-RE-90-133. In addition to evaluating the calibration procedures, calibration geometry, functional tests, and calibration sources, the

inspectors verified monitor setpoints were consistent with and/or changed in accordance with ODCM and/or site procedures.

Instrumentation used in the chemistry counting room was evaluated for material condition, operability, and use. Daily control charts for two high-purity germanium spectroscopy systems and one liquid scintillation counter (LSC) were reviewed. In addition, the inspectors reviewed the most recent calibration of one of the spectroscopy systems for various counting geometries and the most recent calibration of the LSC. The inspectors also reviewed the cross-check analysis results for the past year.

For the whole body counter, the inspectors reviewed the most recent calibration, assessed the isotope library, observed performance of daily Quality Control checks, and verified appropriate check sources and calibration sources were used. In addition, the inspectors reviewed calibrations of, and observe performance of source checks on, the following instruments: PCM Numbers (Nos.) 842444 and 848502; and SAM No. 843451.

The inspectors reviewed through direct observation instrument source and response checks; however, instrument calibrations were conducted by the licensee's Western Area Radiological Laboratory and the inspectors reviewed selected instrument calibration records, assessment of the calibration range (calibration geometry, sources, etc.) and the annual Shepherd calibrator recertification. Portable instrument calibration records included an ion chamber instrument, high-range extendable Geiger-Mueller instrument, and frisker.

Problem Identification and Resolution: Selected corrective action program documents associated with radiation monitoring instruments, including problem evaluation reports and audits, were reviewed and assessed. This review of corrective action documents included evaluating the licensee's response to indications of degraded count room instrument performance. The inspectors verified that problems were being identified at an appropriate threshold and resolved in accordance with procedure SPP-3.1, Corrective Action Program, Rev. 19. Documents reviewed are listed in Section 2RS5 of the Attachment.

The inspectors completed the one specified line-item sample detailed in IP 71124.05.

b. Findings

No findings were identified.

2RS6 Radioactive Gaseous and Liquid Effluent Treatment

a. Inspection Scope:

Program Reviews: The inspectors reviewed the 2008 and 2009 Annual Radiological Effluent Release Report (ARERR) documents for consistency with the requirements in the ODCM and TS details. Routine and abnormal radioactive effluent release results and reports, as applicable, were reviewed and discussed with responsible licensee representatives. Detailed reviews of liquid releases and potential reporting requirements

for abnormal releases from the Turbine Building System Sump (TBSS) vent to an onsite location as a result of a degraded check valve were reviewed and discussed to evaluate licensee actions. Status of radioactive gaseous and liquid effluent processing and monitoring equipment and activities, and changes thereto, as applicable, as described in the UFSAR were reviewed. In addition, QA program activities, including inter-laboratory comparison analysis results, were reviewed and discussed with responsible licensee representatives.

Equipment Walk downs: The inspectors walked down selected components of the gaseous and liquid waste processing and discharge systems to ascertain material condition, configuration and alignment. To the extent practical the inspector observed the material condition in-place liquid waste processing equipment for indications of degradation or leakage that could constitute a possible release pathway to the environment. The walk downs conducted with systems engineering personnel included discussion and evaluation of observed leaks, material condition, work order status, and configuration control with selected tanks, piping, and valves. The inspectors toured gaseous waste processing valve gallery and discussed pressure test surveillance tests conducted and associated results.

Instruments and Equipment: The inspectors discussed, and verified flow rates for the Auxiliary Building Plant Vent system and sampling system. For the subject system, sampling and processing of the weekly effluent release permit was observed and discussed with responsible chemistry staff. Licensee actions associated with back-flow issues associated with the Auxiliary Building Plant Vent Stack particulate sampling equipment were reviewed and discussed in detail with responsible chemistry staff. In addition, the inspectors reviewed and discussed recent ventilation surveillance test results for the Auxiliary Building Gas Treatment System Filter Trains ‘A’ and ‘B’, Emergency Gas Treatment System Filter Trains ‘A’ and ‘B’, and Containment Purge Air Cleanup System Trains ‘A’ and ‘B’.

Effluents: The inspectors reviewed selected liquid and gaseous release permits, and verified monthly gaseous and liquid effluent dose calculation summaries. The sites 10 CFR 61 analyses were reviewed for expected nuclide distribution from the aspects of quantifying effluents, the treatment of hard to detect nuclides, determining appropriate calibration nuclides for instruments and whole body counting libraries. For abnormal releases from the Turbine Building sump vent to an onsite location which was identified in CY 2007, the inspectors reviewed and discussed estimated radionuclide types and quantities. In addition, the inspector verified current monitoring associated with the released material and potential dose impacts.

Ground Water Protection: The licensee’s implementation of the Industry Ground Water Protection Initiative was reviewed for changes since the last inspection. This review included review of documentation of onsite monitoring in wells, electrical vaults, manholes, and canals. The review also included discussion with plant personnel about abnormal liquid effluent discharges to onsite locations as a result of inoperative check valve associated with the Turbine Building sump vent.

Problem Identification and Resolution: Selected CAP documents associated with radiation monitoring instruments, including PER documents, licensee audits and required reports were reviewed, assessed and resolved in accordance with SPP-3.1, Corrective Action Program, Rev. 19.

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

Documents reviewed are listed in Sections 2RS6 and 2RS7 of the Attachment. The inspectors completed the one specified line-item sample detailed in IP 71124.06.

b. Findings

No findings were identified. However, the inspectors reviewed an issue of agency-wide concern involving the licensee's failure to properly report abnormal liquid releases containing low concentrations of tritium from the TBSS vent to an onsite ground location initially identified on February 20, 2007, in the subsequent ARERR as a performance deficiency of TS requirements. Based on known radionuclide types and concentrations, up to 800 picocuries per liter of tritium, and results of nearby onsite monitoring wells, the inspectors noted dose consequences to onsite and offsite workers, and the potential impact on ground water were negligible. This failure to comply with TS 5.9.3, ODCM reporting requirements constituted a violation of minor significance that is not subject to enforcement action in accordance with the NRC's Enforcement Policy. In addition, the inspectors noted that a licensee misinterpreted guidance for voluntary communication of the event as outlined in Nuclear Energy Institute (NEI) 07-07, 'Industry Ground Water Protection Initiative', August 2007. Specifically, the inspectors noted that contrary to the established voluntary guidance, the licensee had not communicated this event with appropriate state and local officials, although the released volume of liquids containing detectable activity exceeded 100 gallons. These issues are tracked in the licensee's CAP under PER Document Nos. 120034, 161184, 225322, and 225323.

2RS7 Radiological Environmental Monitoring Program (REMP)

a. Inspection Scope

REMP Implementation: The inspectors observed routine sample collection and surveillance activities as required by the licensee's REMP. The inspectors noted the material condition and operability of airborne particulate filter sample stations at selected monitoring locations. Selected environmental thermoluminescent dosimeters (TLDs) were checked for material condition and appropriate identification. In addition, automatic water samplers were inspected for material condition at selected river water locations and onsite groundwater locations. The inspectors determined the current location of selected air samplers, TLDs, water samplers, and dairy farm using NRC global

positioning system instrumentation. Land use census results, changes to the ODCM, and sample collection/processing activities were discussed with environmental technicians. Inspectors observed the collection of environmental samples from dairy and surface water using techniques in accordance with licensee procedures. The samples observed were representative of release pathways as specified in the ODCM.

The inspectors reviewed calibration records for selected environmental air samplers. The inspectors also reviewed the 2008 and 2009 Radiological Environmental Operating Reports, results of the 2008 and 2009 interlaboratory cross-check program, and a procedure for environmental sample collection and processing. Selected environmental measurements were reviewed for consistency with licensee effluent data, evaluated for radionuclide concentration trends, and compared with detection level sensitivity requirements.

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

Procedural guidance, program implementation, and environmental monitoring results were reviewed against: 10 CFR Part 20; Appendix I to 10 CFR Part 50; Technical Specifications (TS) Section 5.0; ODCM; Regulatory Guide (RG) 4.15, Quality Assurance (QA) for Radiological Monitoring Programs (Normal Operation) - Effluent Streams and the Environment; and the Branch Technical Position, An Acceptable Radiological Environmental Monitoring Program - 1979. Documents reviewed are listed in Section 2RS7 of the Attachment.

Meteorological Monitoring Program: The inspectors observed the physical condition of the meteorological tower and discussed equipment operability and maintenance history with cognizant licensee representatives. The inspectors compared locally generated meteorological data with information available to control room operators. For selected meteorological measurements of wind speed, wind direction, and temperature, the inspectors reviewed calibration records for applicable tower instrumentation and evaluated measurement data recovery for 2008 and 2009.

Inspectors verified that missed environmental samples were identified and reported in the 2008 and 2009 annual environmental monitoring report. The licensee identified the missed samples in their corrective action program. Documents reviewed are listed in Section 2RS7 of the Attachment.

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

Problem Identification and Resolution: The inspectors reviewed selected PERs and audits in the areas of environmental monitoring, meteorological monitoring, and release of materials. The inspectors evaluated the licensee's ability to identify, characterize, prioritize, and resolve the identified issues in accordance with procedure SPP-3.1,

Corrective Action Program, Rev. 19. Documents reviewed are listed in section 2RS7 in the Attachment.

The inspectors completed the one specified line-item samples detailed in IP 71124.07.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification

.1 Cornerstone: Mitigating Systems

a. Inspection Scope

The inspectors sampled licensee submittals for the five Performance Indicators (PI) listed below. To verify the accuracy of the PI data reported during the periods listed, PI definitions and guidance contained in NEI 99-02, Regulatory Assessment Indicator Guideline, were used to verify the basis in reporting for each data element.

- Mitigating System Performance Index (MSPI) – High pressure injection system
- MSPI - Cooling water systems
- MSPI - Heat removal system
- MSPI – RHR system
- MSPI - Emergency AC power

The inspector sampled licensee submittals relative to the PIs listed below for the period April 1, 2009, and June 30, 2010. To verify the accuracy of the PI data reported during that period, PI definitions and guidance contained in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, was used to confirm the reporting basis for each data element.

b. Findings

No findings were identified.

.2 Cornerstone: Emergency Preparedness

a. Inspection Scope

The inspector sampled licensee submittals relative to the PIs listed below for the period April 1, 2009, and June 30, 2010. To verify the accuracy of the PI data reported during that period, PI definitions and guidance contained in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, was used to confirm the reporting basis for each data element.

- Emergency Response Organization Drill/Exercise Performance
- ERO Drill Participation
- Alert and Notification System Reliability

For the specified review period, the inspector examined data reported to the NRC, procedural guidance for reporting PI information, and records used by the licensee to identify potential PI occurrences. The inspector verified the accuracy of the PI for ERO drill and exercise performance through review of a sample of drill and event records. The inspector reviewed selected training records to verify the accuracy of the PI for ERO drill participation for personnel assigned to key positions in the ERO. The inspector verified the accuracy of the PI for alert and notification system reliability through review of a sample of the licensee's records of periodic system tests. The inspector also interviewed the licensee personnel who were responsible for collecting and evaluating the PI data. Licensee procedures, records, and other documents reviewed within this inspection area are listed in the Attachment.

b. Findings

No findings were identified.

.3 Cornerstone: Occupational Radiation Safety

a. Inspection Scope

Occupational Radiation Safety Cornerstone: The inspectors reviewed Performance Indicator (PI) data collected from October 1, 2009, through June 30, 2010, 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 NEI 99-02, "Regulatory Assessment Indicator Guideline," Rev. 6. The reviewed documents relative to these PI reviews are listed in Sections 2RS1 and 4OA1 of the Attachment.

Public Radiation Safety Cornerstone: The inspectors reviewed the Radiological Control Effluent Release Occurrences PI results for the Public Radiation Safety Cornerstone from January 1, 2009, through June 30, 2010. For the assessment period, the inspectors reviewed cumulative and projected doses to the public and PER documents related to Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual issues. Inspection emphasis was placed on recently identified abnormal liquid releases from the TB sump. Documents reviewed are listed in section 2RS6 of the Attachment.

b. Findings

No findings were identified.

4OA2 Identification & Resolution of Problems

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

As required by Inspection Procedure 71152, Identification and Resolution of Problems, and in order to help identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's CAP. This review was accomplished by reviewing daily PER summary reports and attending daily PER review meetings.

.2 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. Documents reviewed are listed in Attachment.

b. Findings and Observations

No findings were identified.

4OA3 Event Followup

a. Inspection Scope

On August 15, 2010, during a plant downpower to perform Main Turbine maintenance, the plant experienced an unplanned feedwater heater string isolation resulting in a valid actuation of the Auxiliary Feedwater System.

Inspectors responded to the event, reviewed plant logs, procedures and corrective action documents. The inspectors interviewed personnel associated with plant down power and associated feedwater heater isolations.

b. Findings

None

4OA5 Other Activities

.1 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

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

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

b. Findings

No findings were identified.

.2 (Closed) TI 2515/179 Verification of Licensee Responses to NRC Requirement for Inventories of Materials Tracked in the National Source Tracking System (NSTS) Pursuant to Title 10, Code of Federal Regulations, Part 20.2207 (10 CFR 20.2207)

a. Scope

The inspectors performed the TI concurrent with IP 71124.01 Radiation Hazard Analysis. The inspectors reviewed the licensee's source inventory records and identified the sources that met the criteria for reporting to the NSTS. The inspectors visually identified the sources contained in various calibration systems and verified the presence of the source by direct radiation measurement using a calibrated portable radiation detection survey instrument. The inspectors reviewed the physical condition of the irradiation device. The inspectors reviewed the licensee's procedures for source receipt, maintenance, transfer, reporting and disposal. The inspectors reviewed documentation that was used to report the sources to the NSTS. Documents reviewed are listed in sections 2RS1 of the Attachment.

b. Findings

There were no findings of significance. This completes the Region II inspection requirements.

4OA6 Meetings, including Exit

.1 Exit Meeting Summary

On October 1, 2010, the inspectors presented the inspection results to Mr. Don Grissette, 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.

On August 12, 2010, the lead inspector presented the inspection results of the EP inspection to Mr. D. Grissette and other members of his staff. The inspector confirmed that proprietary information was not provided during the inspection.

On August 16, 2010, the inspectors discussed the results of the onsite radiation protection inspection with Mr. D. Grissette, Site Vice President, and other responsible staff. Subsequently, on September 22, the inspectors re-exited with Mr. M. Brandon, Safety and Licensing, regarding the resolution of identified concerns regarding ODCM reporting requirements and NEI 07-07 voluntary communications associated with abnormal radioactive liquid releases from the TBSS to an onsite location originally identified in Calendar Year 2007. The inspectors noted that the failure to report the abnormal release in the CY 2008 ARERR was determined to be a minor violation of TS 5.9.3 reporting requirements and that the abnormal release of more than 100 gallons of liquids with detectable concentrations of radionuclides met the voluntary communication specifications detailed in NEI-07-07 for communicating with local and state authorities. 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.

4OA7 Licensee Indentified Violations

The following violations of very low safety significance (Green) were identified by the licensee and are a violation of NRC requirements which meet the criteria of the NRC Enforcement Policy, for being dispositioned as non-cited violations.

.1 Inadequate Fire Barrier

Facility Operating License NPF-90 for Watts Bar Nuclear Plant Unit 1, Condition 2.F, requires that TVA shall implement and maintain in effect all provisions of the approved fire protection program as described in the Fire Protection Report (FPR).

Contrary to the above, on August 18, 2010, the licensee identified a failure to comply with the fire barrier sealing requirements of the FPR when two three-inch conduit penetrations were determined to be improperly sealed in the two-hour fire barrier separating the 2B 480V transformer room from the unit 2 south valve vault room. Upon identification of the degraded penetrations, the licensee established the required compensatory fire watches until the penetrations were properly sealed. This was identified in the licensee's CAP as PER 245285. This finding was of very low safety significance in accordance with IMC 0609, Appendix F, Attachment 1, Fire Protection SDP Phase 1 Worksheet, because the fire barrier was only moderately degraded and there were no fixed or in-situ fire ignition sources that would subject the degraded fire barrier to direct flame impingement.

.2 Failure to comply with Technical Specification 3.3.1

Technical Specification 3.3.1 provides required actions for removing Power Range detector channels from service while in Modes 1 and 2. Required action D.2.2 requires that SR 3.2.4.2, verification of QPTR within limit using either the movable incore detectors or the PDMS, Power Distribution Monitoring System, within 12 hours when power level greater than 75 percent.

Contrary to the above, with reactor power at 100 percent RTP, power range detector N44 was removed from service for greater than 12 hours without performing required action D.2.2. Specifically, with the PDMS out of service, a flux map with the moveable incore detector system was not performed. This was identified in the licensee's CAP as PER 254334. This finding was of very low safety significance in accordance with IMC 0609, Attachment 4, SDP Phase 1, Table 4.1, Characterization Worksheet, because the flux tilt was within specification before and after the timeframe that the PDMS was out of service with no rod motion during the timeframe.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel

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

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Opened and Closed

None

Closed

2515/179	TI	Verification of Licensee Responses to NRC Requirement for Inventories of Materials Tracked in the National Source Tracking System (NSTS) Pursuant to Title 10, Code of Federal Regulations, Part 20.2207 (10 CFR 20.2207)

Discussed

None

Attachment

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
Installation, Modification and Maintenance of insulated Cables Rated up to 15kV, G38, Rev 20
WO# 94-12326-19 Supplemental Raychem Application Data Sheet for Splice ID WBN-SPL-12627
CDB790801002 – Intake Pumping Station – Concrete
Drawings: 31N221 sheets 1 through 6
WB-DC-20 – Intake Pumping Station

Section 1R04: Equipment Alignment

SOI-74.01 Attachment 1P, Residual Heat Removal System Power Checklist 74.01P
SOI-74.01-Attachment 1V, Residual Heat Removal System Valve Checklist 74.01V
SOI-74.01 Attachment 2P, Residual Heat Removal System Power Checklist 74.02P
SOI-74.01-Attachment 2V, Residual Heat Removal System Valve Checklist 74.02V
SOI-30.06 Attachment 1P, Auxiliary Bldg Gas Treatment System Checklist 30.06 P
SOI-30.06 -Attachment 1V, Residual Heat Removal System Valve Checklist 30.06 V
SOI-32.02 Checklist 1, Auxiliary Bldg Gas Treatment System Power Alignment Verification
SOI-32.02 - Attachment 1, Auxiliary Bldg Gas Treatment System Valve Alignment Verification

Section 1R06: Flood Protection Measures

TVA Calculation WBNOSG4099, Moderate Energy Line Break (MELB) Flooding Study
TVA Calculation WBNOSG4100, System Isolation for MELB Flooding
TVA Calculation WBNOSG4101, MELB Safe Shutdown Logic Diagram and Equipment List
WB-DC-40-31.51, Evaluating the Effects of Flooding Due To Moderate Energy Pipe Failures Inside and Outside Containment
N3-82-4002, Standby Diesel Generator System Description
TVA Drawing 47E235-29, Environmental Data, Environment Mild, Elevation 742.0

Section 1R22: Surveillance Testing

TI-68.018, RCS Leakage Monitoring and Action Plans
ASME OM Code 2001
TI-100.006, Inservice Testing Program

Section 1EP2: Alert and Notification System Testing

Procedures

EPDP-10, Facilitation of the Alert and Notification System and Pager Tests, Rev. 0
EPDP-14, Evaluation of Changes to Alert and Notification Systems (ANS), Rev. 0
EPFS-9, Inspection, Service, and Maintenance of the Prompt Notification System (PNS) at Browns Ferry, Sequoyah, and Watts Bar Nuclear Plants, Rev. 3

Records and Data

PNS Monthly and Bi-weekly Activation Results, October 1, 2008 – June 30, 2010
Annual Maintenance documentation conducted June 4, 2008 - April 01, 2009

Section 1EP3: Emergency Preparedness Organization Staffing and Augmentation System

Procedures

EPDP-2, Emergency Duty Officer, Emergency Preparedness Staff and Operations Duty Specialist Notification Procedures

Records and Data

Reviewed a sample of training records of key ERO duty roster members (including CECC) to verify that qualifications
Green Team Training Drill, March 9, 2009
Orange Team Training Drill, April 29, 2009
Blue Team Training Drill, August 4, 2009
Red Team Training Drill, November 19, 2009
"A" Team Training Drill, July 20, 2010
"B" Team Training Drill, April 8, 2010

Section 1EP4: Emergency Action Level and Emergency Plan Changes

Procedures

EPDP-1, Procedures, Maps, and Drawings, Rev. 1

Records and Change Packages

NP-REP, Radiological Emergency Plan, Appendix C – Watts Bar Nuclear Plant, Rev. 90 and 91
NP-REP, Radiological Emergency Plan, Rev. 90 and 91
EPIP-1, Emergency Plan Classification Flowchart, Rev. 32 and 33
EPIP-3, Alert, Rev. 31
EPIP-6, Activation and Operation of the Technical Support Center (TSC), Rev. 37
CECC EPIP-19, Post Accident Core Damage Assessment, Rev. 16

Section 1EP5: Correction of Emergency Preparedness Weaknesses

Procedures

EPDP-8, Emergency Preparedness Quality Related Program, Rev. 0

Audits and Self-Assessments

2010 – QA-WB-10-007, Watts Bar Nuclear Plant – Quality Assurance – Oversight Report for the Period of January 1, 2010 - March 31, 2010
SSA1003, TVA Quality Assurance - Nuclear Power Group (NPG) – Radiological Emergency Preparedness - Audit Report, May 20, 2010
CRP-EP-S-09-001, Assessment of EP Mapping, 10/20/09 to 11/01/09
CRP-EP-S-09-002, Assessment of Alert and Notification Tone Alert Radios, 8/03/09 to 9/04/09
CRP-EP-S-09-004, Dose Assessment, December 15, 2009
CRP-EP-S-09-005, Effectiveness Review of CRP-PA-I-09-008 AFI-2, 8/14/09 to 8/18/09
WBN-SVP-S-10-003, Focused Assessment Emergency Preparedness Program, March 1 - 4, 2010
WBN-SVP-S-10-004, Non- ERO Staffing Population, 01/ 11- 01/13/2010

Problem Evaluation Reports (PERs)
173104, Accountability drill notification issue
173144, Assembly and Accountability
173793, no discussion of unit two personnel
173797, Pocket Ion Chambers used to track dose rates by security
173798, Need Alternate egress route
173799, evacuate personnel into the plume
173801, scenario development team
173802, untrained personnel in the OSC
173805, Exercise controllers did not protect scenario information from players
173806, CECC Radiological Assessment Team was unable to determine if the release was filtered or unfiltered.
173838, Evaluate process for sustained use of SCBAs by emergency responders
173976, ERO training verification
201265, Declaration of REP classification on CVCS system leaks
212311, REP duty team muster was poorly attended
213632, work control process failed to recognize 50.54q requirement
214500, ERO equipment issues identified during the 1/21/2010 ERO drill
214503, Drill scenario development deficiencies
215230, WBN needs a Site Specific Procedure to address Abnormal Site Conditions
217025, Evaluate potential for similar REP non-activation at Watts Bar

Section 2RS1: Radiological Hazard Assessment and Exposure Control
Procedures, Guidance Documents, and Manuals
SPP-5.1, Radiological Controls, Rev. 7
RCI-153, Radiation Work Permits (RWPs), Rev. 2
RCI-152, Radiological Postings, Rev. 6
RCI-127, Byproduct and Source Material Control, Rev. 14
RCI-101, Radiation, Contamination, and Airborne Surveys, Rev. 26
RCI-100, Control of Radiological Work, Rev. 36
RCI-103, Radioactive Material Control, Rev. 30

Records and Data
Dose and dose rate alarms, 09/01/09-05/26/10

Radiation Work Permits
09109177, U1C9 (HRA, CA, airborne) Reactor vessel O-ring replacement
091009178, U1C9 757' U1 reactor building fueled handling, inspection, etc.
09108070, U1C9 (HRA, CA) ISI in lower containment
09109193, U1C9 (LHRA, CA, airborne, hot particle) Unit 1 upper containment
09109176, U1C9 (HRA, CA, airborne) Upper internals removal and installation
09108312, U1C9 (HRA, CA) Removal/replacement/transport of CRDM coolers 1A-A and 1D-B
10100302, HRA/U2 startup, erect scaffold in U1 713' pipe chase
10200301, Install and remove shielding on refuel cavity; return HDR piping and spent resin piping in 713 pipe chase
10200031, Maint & mods performing corrective and preventative maintenance on U2 systems
10100320, (HRA, CA) HRAs in the RCA - LLRT including LLRT of airlocks, ISI, technical support, QA/QC activities to support plant ops

Radiation Surveys
140710101/140710102, Upper containment air sample, area R152
140710103/140710104, Lower containment air sample, area R103
071010-21, AB 692 G/A North
071010-23, AB 692 G/A East
071010-24, AB 692 G/A West
070810-9, CVCS Hold Up Tank Room A
070910-26, CVCS Hold Up Tank Room B
070210-26, U2 Containment Bldg Reactor Cavity Equipment Pit
050610-12, U2 Containment Bldg Seal Table
070110-9, U2 Pipe Chase 713'
101909-47, U2 Pipe Chase 713'
100509-45, U2 Pipe Chase 713'
071410-10, U1 Containment Bldg Polar Crane 819'
071410-13, U1 Containment Bldg Seal Table
071410-11, U1 Raceway 702'
071410-9, U1 Containment Bldge U/C G/A 802'

CAP Documents
WBN-RP-S-09-005, Access Control to Radiologically Significant Areas, July 2009
WBN-RP-F-10-003, Personnel Contamination, December 2009
WBN-RP-S-10-002, NRC Attachment 71124.01, April 2010
PER 205201, U2 individual receiving dose rate alarm in U2 713' pipe chase
PER 201381, High radiation area entry on incorrect RWP

Section 2RS4: Occupational Dose Assessment
Procedures, Guidance Documents, and Manuals
RCDP-7, Bioassay and Internal Dose Program, Rev. 1
RCTP-106, Special Dosimetry Operations, Rev. 1
RCI-111, Special Exposure Monitoring, Rev. 11
RCI-112, WBC Operation and Calibration, Rev. 16

Records and Data
2009 NVLAP Assessment Report
Whole Body Count results dated 07/09/09 and 08/14/09
Urinalysis results dated 01/11/10 and 03/03/10
Declared Pregnant Worker dosimetry results for declarations dated 08/11/09 and 05/18/10
Multibadge results: badge 9287 (03/14/08) and badge 9279 (03/14/08)

CAP Documents
WBN-RP-F-09-004, Bioassay and Internal Dose Program, June 2009
WBN-RP-F-10-004, External Dosimetry Use, March 2010
WBN-RP-S-10-003, NRC Attachment 71124.04, June 2010

Section 2RS5: Radiation Monitoring Instrumentation
Procedures, Guidance Documents, and Manuals
Chemistry Manual (CM), Chapter 9.02, Chemistry Countroom Quality Assurance and Control Program, Rev. 13

CM, Chapter 9.32, I.G. Detector Efficiency Calibration, Rev. 6
CM, Chapter 9.33, I.G. Detector Quality Control Data Collection, Rev. 15
CM. Chapter 9.41, Chemistry Countroom Calculation of Nuclide Activity, Rev. 9
CM, Chapter 9.60, Setup and Calibration of the Liquid Scintillation Counter, Rev. 10
CM, Chapter 13.0, Post-Accident Sampling and Analysis Chapter Administration, Rev. 11
CM, Chapter 13.08, Obtaining a Containment Atmosphere Sample, Rev. 9
IMI-90.011, General Atomic Model RP-1AM Module Alignment Used to Monitor RD-1-01 Detectors, Rev. 12
IMI-90.015, 18 Month Channel Operational Test of the Low Range Area Radiation Monitors, Rev. 10
IMI-90.020, 18 Month Channel Calibration (Source Cal) of the Low Range Area Radiation Monitors, Rev. 14
Rev. 14, RCI-109, Radiological Control Portable Instrumentation, Rev. 18
RCI-112, WBC Operation and Calibration, Rev. 16
RCI-121, Calibration and Operation of Eberline Contamination Monitors, Rev. 10
RCI-132, Calibration and Operation of Eberline Personnel Monitor (PM-7), Rev. 8
RCI-134, Calibration and Operational Eberline Gamma Tool Monitor (GTM), Rev. 6
RCI-143, Calibration and Operation of the Eberline Beta Particulate Monitor Model AMS-4, Rev. 2
RCI-146, Calibration and Operation of Eberline Small Article Monitor (SAM-11), Rev. 2
RCI-150, Calibration and Operation of the ThermoEberline PCM-2G Contamination Monitor, Rev. 3
TI-18, Calculation Methods for Effluent Radiation Monitors, Rev. 29
TVA No. LSCP-0078, Calibration Procedure for the MG DMC-90, 100, and 2000, Rev. 12

Records and Data Reviewed

0-ODI-90-59, 18 Month Channel Calibration Test of General Atomic Auxiliary Building Vent Total Gas Radiation Monitor Loop, Rev. 16, 0-LPR-90-101B, Dated 06/05/09
1-ODI-90-45, 18 Month Channel Calibration (Source Cal) of the Steam Generator Blowdown Liquid Sample Radiation Monitor Loops 1-LPR-90-120 or 1-LPR-90-121 , Rev. 13, Dated 10/18/09
1-SI-90-2, 18 Month Channel Calibration (Source Cal) of the Train B Containment Upper Compartment High Range Post Accident Area Radiation Monitor Loop, Rev. 6, 1-LPR-90-272, Dated 05/18/10
1-SI-90-4, 18 Month Channel Calibration (Source Cal) of the Train B Containment Lower Compartment High Range Post Accident Area Radiation Monitor Loop, Rev. 5, 1-LPR-90-274, Dated 10/28/09
1-SI-90-8, 18 Month Channel Calibration (Source Cal) of the General Atomic Containment Purge Air Exhaust Radiation Monitor Loop, Rev. 13, 1-LPR-90-131, Dated 12/04/09
Air Sampler Calibration Sheets, TVA #458824, S/N 1137, Dated 09/02/09 and 03/03/10
Calibration Certificates, J L Shepherd and Associates, Amersham x.8 Type Capsule, S/N 8812GM and Model 6810, S/N 83Cs-25, Dated 04/30/84; and J L Shepherd and Associates, Type 6810 Capsule, S/N 0307GY and New England Nuclear Type G316B Capsule, S/N KR-4099, Dated 04/22/92
Calibration Data Sheets, Instruments: Bicron/Micro-Rem, TVA #816255, Dated 10/29/09 and 05/20/10; Bicron/RSO-5, TVA #552667, Dated 02/10/10 and 06/28/10; Bicron/RSO-50, TVA #561248, Dated 08/12/09 and 02/10/10; Bicron/Surveyor 50, TVA #841774, Dated 12/07/09 and 07/06/10; Bicron/Surveyor M-X, TVA #568080, Dated 12/02/09 and

06/08/10; Eberline Teletector, TVA #522939, Dated 11/04/09 and 03/31/10; Ludlum/Model 3 (Frisker), TVA #860515, Dated 07/29/09 and 02/09/10; Ludlum 12-4, TVA #540014, Dated 08/05/09 and 05/20/10; W.B. Johnson VP-2E, TVA #551180, Dated 10/29/09 and 04/14/10

Calibration Reports, Area Monitor Calibrator RL-10, S/N 2638-5, Dated 12/08/75; and High Range Radiation Monitor Calibrator RT-11, S/N 29, Dated 01/06/83

Calibration of the Western Area Radiological Laboratory (WARL) High Level CS-137 Source Range, Dated 07/13/09

Certificate of Calibration, Standard Radionuclide Source, 72909-185, Dated 04/01/06

Certificates of Calibration Source, S/Ns 81-1406, Dated 05/13/81; and BA93-565, Dated 11/02/03

Certificate of Radioactivity Standard, Source Type 0360-0593-03, Beta Standard, S/N 81-559, Dated 07/08/81

Efficiency Calibration, Detector 2, Dated 03/23/10

Energy/Shape Calibration Worksheet, Watts Bar Nuclear Plant, Fastscan #2, Dated 08/15/06

Full System Health Reports from 10/01/09 – 05/31/10

I.G. Detector Efficiency Calibration, Chapter 9.32, Rev. 6, Appendix A, Detector Calibration Log, Detector ID: GSS-9278, Dated 06/15/10

IMI-90.020, 18 Month Channel Calibration (Source Cal) of the Low Range Area Radiation Monitors, Rev. 14, WBN-1-LPR-090-0001, Dated 12/03/09; WBN-1-LPR-090-0059, Dated 02/05/10; and WBN-1-LPR-090-0123, Dated 12/09/09

IMI-90.021, 18 Month Channel Calibration (Source Cal) of the Accident Radiation Monitor Outlet Personnel Entrance Radiation Monitor Loop, Rev. 2, 1-LPR-90-2, Dated 02/03/10

Initial – Detector Energy Calibration Check, Detector #3, Dated 07/13/10

New Values of Neutron Calibration Points, Calibration of 10 Ci PuBe Neutron Source, Dated 06/03/98

PCM-2G Calibration Date Sheets, PCM-2G TVA #848502, Dated 08/17/09 and 02/06/10

Periodic Calibration Work Order No. 09-814050-000, WBN-1-LPR-090-0059, Up Compartment Reac Bldg Area Mon Loop, Dated 02/05/10

PM-7 Calibration Sheets, PM-7 TVA #842444, S/N 404, Dated 12/10/09 and 06/04/10

Report of Calibration, Electroplated Alpha Source, Plutonium-239, Dated 07/15/80

Response Acceptance Windows for: Bicron Micro-Rem, Dated 01/06/10; Bicron RSO-5, 50, 50E & Eberline RO-2, 2A, Dated 01/06/10; Bicron Surveyor M-X, Dated 01/08/10; Frisker Type Instruments, Dated 01/06/10; Ludlum 3/3-99 and 14C, Dated 01/06/10; Neutron Survey Instrument, Dated 01/06/10; and Teletector Survey Meter, Dated 01/06/10

SAM-11 Calibration Data Sheets, SAM-11 TVA #843451, Dated 12/11/09 and 06/04/10

Setup and Calibration of the Liquid Scintillation Counter, Chapter 9.60, Rev. 10, Appendix A, Quality Control Chart for Liquid Scintillation, Dated 03/25 – 07/01/10

Watts Bar Nuclear Plant, Offsite Dose Calculation Manual (ODCM), Rev. 23

Whole Body Counting Measurement Quality Assurance – Fall 2009 Performance Test Results, Dated 10/11/06 and 01/21/10

<u>Corrective Action Program Documents</u>

PER No. 212755, RP Instrument PCM2G #848502 removed from service due to loss of sensitivity

PER No. 213024, SAM-11 #843451 removed from service due to failed response check

PER No. 219372, Teletector #525431 failed (no response) on all scales while in use in the field

PER No. 219373, RP Instrument PM-7 #842444 at West Security Gate House Portal failed response check on detector number 2
PER No. 220120, RP Instrument RM-14 frisker failed response check when checked in field
PER No. 221438, Gamma detector #2 used to count samples while uncalibrated

Section 2RS6: Radioactive Gases and Liquid Effluent Treatment

Procedures, Guidance Documents, and Manuals

0-Offsite-Dose Instruction (ODI) 090-31, Conditional Setpoint Adjustment, Rev. 0018
0-ODI-90-22, Weekly Auxiliary Building Exhaust Release, Rev. 0027
Chemistry Manual Chapter 9.02, Chemistry Countroom Quality Assurance and Control Program, Rev. 0013
Chemistry Manual (CM)-9.7.101, Auxiliary Building Exhaust Effluent Monitor Grab Sampling and Filter Replacement, Rev. 0015
Drawing 1-47W830-4, Mechanical Flow Diagram Waste Disposal System, Rev. 18
Drawing 1-47W852-1, Mechanical Flow Diagram Floor and Equipment Drains, Rev. 22
Offsite Dose Calculation Manual (ODCM) Rev. 23
RCDP, Protocol for Remediation of Inadvertent Spills or Leaks of Contminated Liquids, Rev. 0
SSP-5.14, Guide for Communicating Inadvertent Radiological Spills/Leaks to Outside Agencies, Rev. 0005
SPP-5.15, Fleet Ground Water Protection Program, Rev. 0001
Technical Instruction (TI) – 18, Calculation Methods for Effluent Radiation Monitors, Rev. 29

Records and Data Reviewed

0-ODI-90-22, Weekly Auxiliary Building Exhaust Release, Rev. 0027, Completed Data Sheet 07/14/10
2008 Annual Radioactive Effluent Release Report
2009 Annual Radioactive Effluent Release Report
Chemistry Manual (CM)-9.7.101, Auxiliary Building Exhaust Effluent Monitor Grab Sampling and Filter Replacement, Rev. 0015, Completed Data Sheets 07/14/10
Continuous Gaseous Effluent Permit Unit 1 100078.050.029 G, Auxiliary Building Exhaust 07/14/10
Inter-laboratory Cross Check Results: 1st Quarter 2009, 2nd Quarter 2009, 3rd Quarter 2009, 4th Quarter 2009, 1st Quarter 2010
System Health Report, System 077, Waste Disposal, 2/1/2010 – 5/31/2010 [Preliminary Data]
WBN Chemistry Cross Check Reports, 2009 and 2010 (1st & 2nd Quarters)
Work Order (WO) 04-815006-002, Perform Hydrostatic Testing of In-service Leak Check on the new Installed Radwaste, Steam Generator Blowdown and Condensate DI Yard Piping Per DCN 51690
WO 07-812643-000, WBN-1 MISC-040, Miscellaneous Equipment Record Unit 1 System 040, Air Release Check Valve on Chemical Header Gooseneck on grassy Knoll by West Portal
WO 08-820225-000, Emergency Gas Treatment System Filter Train-B Test, Dated 02/13/09
WO 08-820230-000, Auxiliary Building Gas Treatment System Filter Train-B Test, Dated 02/13/09
WO 08-820404-000, Auxiliary Building Gas Treatment System Filter Train-A Test, Dated 03/12/09
WO 08-820827-000, Containment Purge Air Cleanup System Train-B Test, Dated 12/18/09
WO 08-821062-000, Containment Purge Air Cleanup System Train-A Test, Dated 12/18/09

WO 08-821173-000, Gross Leakage Rate of the Waste Gas System, Dated 10/05/09
WO 09-812365, Auxiliary Building Gas Treatment System Filter Train-A Test, Dated 03/12/09
WO 09-816300-000, Emergency Gas Treatment System Filter Train-A Test, Dated 06/17/09

CAP Documents
PER 120034, Vent Overflow in Yard
PER 161184, TBSS Discharge pathway
PER 165575, ABGTS Train A charcoal failed acceptance test
PER 207457, Effluent gas releases exceeded October 2009 goal
PER 207458, Liquid effluent releases exceeded the site and annual goal in October 2009
PER 207867, O-RE-90-101 particulate filter indicated reverse flow through filter
PER 208544, Unable to meet requirements of 1-ODCM-90-26 Section 6.5
PER 209613, Unanticipated ODCM entry associated with 1 RM-90-400
PER 209695, O-RE-90-101 filters changed by MIG instead of Chemistry
PER 212001, RM-101 filter showing improper filter deposition
PER 213982, Reverse flow on 0-RE-90-101
PER 216216, CM-9.7.2.400 procedure corrections
PER 216231, CM-9.7.101 needs an enhancement
PER 216755, 0-RE-101 and 0-RE-90-132 safety hazard with thermally hot pipes
PER 216763, Reverse sample flow thru 0-RM-90-101
PER 224268, Chemistry procedure CM-9.7.101 section 6.8 does not address REM cart
PER 225322, Corrective Actions for PER 161184, TBSS Pathway Walkdown
PER 225323, SSP-5-14 is inadequate for determining voluntary reporting requirements
PER 228166, 0-RE-90-101 Charcoal filter support assembly cartridge cap discovered
PER 228491, Enhance CM-9.7.101
PER 230382, ODI-9.7.101 is missing a plant identifier for the flow reset switch
PER 236531, Chemistry technician failed an analytical blind sample

Section 2RS7: Radioactive Environmental Monitoring Program
Procedures, Instructions, Guidance Documents, and Operating Manuals
0-ODI-10-22, 6 Month Channel Calibration Meteorological Monitoring Instrumentation, Rev. 5
0-PI-CEM-12.0, Collection of Radiological Environmental Monitoring Samples, Rev. 4
0-PI-CEM-11.0, Monitoring Well Sampling and Maintenance, Rev. 3
EPFS-3, Servicing of Meteorological Equipment at Environmental Data Stations, Rev. 14
EPFS-4, Environmental Data Station Meteorological Sensor Exchange, Rev. 16
EPFS-12, Repair and Preventive Maintenance Procedure for Radiological Environmental Monitoring Air Sampling System, Rev. 0
EPFS-6, Calibration of Environmental Data Station Data Logger and Sonic Channels, Rev. 15
EPSF-7, Radio and Meteorological Tower Inspection, Rev. 4
G-03, Gamma Analysis by Germanium Spectroscopy, Rev. 6
I-01, Iodine-131 Activity Determination in Environmental Samples, Rev. 11
EPFS-2, Control Room Notification, Rev. 6
SC-03, Calibration Procedure for Radiological Environmental Monitoring Air Sampler System Gas Meter, Rev. 4
SP-01, Sample Preparation, Rev. 8
TLD-0018, Environmental Dosimetry Procedure, Rev. 10
QC-01, Reproducibility Check, Rev. 5

Records and Data Reviewed

Calibration Data Sheet, Radiological Environmental Monitoring Air Sampler Gas Meter, Stations LM1, Dated 04/12/10; LM-2B, Dated 04/12/10; LM-2A, Dated 04/12/10; LM3, Dated 04/12/10; LM4, Dated 04/12/10; PM2, Dated 04/12/10; PM3, Dated 04/12/10; PM4, Dated 04/12/10; PM5, Dated 04/12/10; RM3, Dated 04/12/10; RM-2A, Dated 04/12/10; and RM-2B, Dated 04/12/10

Meteorological Monitoring Program Including Sensor Problems, Tower Unavailability and Data Transmission/Display Discrepancies for 2009 YTD

Meteorological Sensor Exchange Forms, Dated 03/03/10, 09/08/09, 10/29/09, 10/04/09, and 03/08/10

Watts Bar Nuclear Plant (WBNP), Offsite Dose Calculation Manual (ODCM), Rev. 23

WBNP Unit 1, Annual Radiological Environmental Operating Reports – 2008 and 2009

SAR Change Request, SAR Change Package No. 8-022-S00

Corrective Action Program (CAP) Documents

Focused Self Assessment Report, Assessment No. CRP-TPR-F-09-001, Dated 07/02/09

PER No. 161184, Turbine building station sump discharge pathway

PER No. 225322, A WO for the check valve stuck open on the TBSS discharge pathway

PER No. 161547, Sample volume from Well C was not adequate due to problem with composite sampler on well

PER No. 166974, A sample was missed on LM-3 due to operator error.

PER No. 170941, Total sample volume was in adequate for air filter and charcoal cartridge samples due to a sampling pump failure on station LM-4

PER No. 179440 At Station LM-3 total sample volume for air filter and charcoal cartridge was not measured due to failure of a gas meter.

PER No. 205579, Total sample volume for air filter and charcoal cartridge was not adequate due to broken drive belt on pump for station PM-2.

Snapshot Self-Assessment Report, Assessment No. CRP-TPR-S-10-002, Radiological Environmental Monitoring Program Air Sampler Performance, Dated 10/19-23/2009

Section 4OA1: Performance Indicator (PI) Verification

Procedures

EPDP-11, Emergency Preparedness Performance Indicators, Rev. 1

SPP-3.4, Performance Indicator Program, Rev. 10

Records and Data

Documentation of Performance Indicator data April 1, 2009, to June 30, 2010, for DEP, ANS, and ERO

List of dosimeter alarms, September 1, 2009 – July 13, 2010

Explanation of selected dosimeter alarms, document, Dated 05/26/10

CAP Documents

WBN-RP-S-10-005, Performance Indicator Verification: Occupational Exposure Control Effectiveness, April 2010

PER 208795, Dosimetry Investigation Report #093045

Section 4OA2: Problem Identification and Resolution

OPDP-1, Conduct of Operations
ODM-15.1, Operator Workarounds, Burdens, Challenges, Control Room Deficiencies, and AUO Rounds

LIST OF ACRONYMS

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