



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

October 29, 2008

Mr. David A. Baxter
Site Vice President
Duke Power Company, LLC
d/b/a Duke Energy Carolinas, LLC
Oconee Nuclear Station
7800 Rochester Highway
Seneca, SC 29672

**SUBJECT: OCONEE NUCLEAR STATION - INTEGRATED INSPECTION REPORT
05000269/2008004, 05000270/2008004, AND 05000287/2008004**

Dear Mr. Baxter:

On September 30, 2008, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Oconee Nuclear Station. The enclosed report documents the inspection results which were discussed on October 9, 2008, with you and members of your staff.

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

Based on the results of the inspection, no findings of significance were identified. However, a licensee identified violation, which was determined to be of very low safety significance, is listed in this report. Because of the very low safety significance and because it is entered into your corrective action program, the NRC is treating the finding as a non-cited violation (NCV), 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 United States Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555-0001, with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at the Oconee facility.

DEC

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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/

Steven D. Rose, Acting Chief
Reactor Projects Branch 1
Division of Reactor Projects

Docket Nos.: 50-269, 50-270, 50-287, 72-04
License Nos.: DPR-38, DPR-47, DPR-55

Enclosure: NRC Integrated Inspection Report 05000269/2008004, 05000270/2008004,
05000287/2008004 w/Attachment: Supplemental Information

cc w/encl: (See page 3)

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Letter to David A. Baxter from Steven D. Rose dated October 29, 2008

SUBJECT: OCONEE NUCLEAR STATION - INTEGRATED INSPECTION REPORT
05000269/2008004, 05000270/2008004, AND 05000287/2008004

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U. S NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos: 50-269, 50-270, 50-287, 72-04

License Nos: DPR-38, DPR-47, DPR-55

Report Nos: 05000269/2008004, 05000270/2008004, 05000287/2008004

Licensee: Duke Power Company, LLC

Facility: Oconee Nuclear Station, Units 1, 2 and 3

Location: 7800 Rochester Highway
Seneca, SC 29672

Dates: July 1, 2008 – September 30, 2008

Inspectors: A. Hutto, Senior Resident Inspector
E. Riggs, Resident Inspector
R. Hamilton, Senior Health Physicist (Section 2PS1, 4OA5.2)
G. Kuzo, Senior Health Physicist (Section 2OS1, 4OA1.2)
A. Nielsen, Health Physicist (Section 2OS3)
J. Commiskey, Health Physicist (Section 2PS3)
J. Rivera Ortiz, Reactor Inspector (Section 4OA5.4)
A. Vargas-Mendez, Reactor Inspector (Section 4OA5.4)

Approved by: Steven D. Rose, Acting Chief
Reactor Projects Branch 1
Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000269/2008004, 05000270/2008004, 05000287/2008004; 07/01/2008 - 09/30/2008; Oconee Nuclear Station, Units 1, 2, and 3; Routine Integrated Inspection Report.

The report covered a three-month period of inspection by the onsite resident inspectors and six region based inspectors (i.e., four health physicist and two reactor inspectors). 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 and Self-Revealing Findings

None.

B. Licensee-Identified Violations

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

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Report Details

Summary of Plant Status

Unit 1 began the report period at 100 percent rated thermal power (RTP). On August 9, 2008, the unit was reduced to approximately 88 percent RTP for turbine valve movement testing. The unit was returned to 100 percent RTP the same day, where it remained through the end of the report period.

Unit 2 began the report period at 100 percent RTP. On July 13, 2008, the unit was reduced to approximately 88 percent RTP for turbine valve movement testing. The unit was returned to 100 percent RTP the same day. On September 23, 2008, the unit was reduced to approximately 19 percent and taken off-line to repair an oil leak on the unit main step-up transformer. On September 27, 2008, following repairs, the unit was placed back on-line and power escalation commenced. The unit was returned to 100 percent RTP on September 29, 2008, where it remained through the end of the report period.

Unit 3 began the report period at 100 percent RTP. On September 13, 2008, the unit was reduced to approximately 88 percent RTP for turbine valve movement testing. The unit was returned to 100 percent RTP the same day, where it remained through the end of the report period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection

.1 Severe Thunderstorm Warning

a. Inspection Scope

The inspectors assessed if the licensee responded appropriately to a severe thunderstorm warning issued for the area surrounding the Oconee Nuclear Station on August 5, 2008. The inspectors discerned whether operations personnel entered Abnormal Procedure (AP) AP/0/A/1700/006, Natural Disaster, initiated Enclosure 5.4, Severe Weather, and reviewed Enclosure 5.1, Tornado Information.

b. Findings

No findings of significance were identified.

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.2 Tornado Warning

a. Inspection Scope

The inspectors assessed if the licensee responded appropriately to a tornado warning issued by the National Weather Service for the area surrounding the Oconee Nuclear Station on August 26, 2008. The inspectors verified that operations personnel entered AP/0/A/1700/006, Natural Disaster, and that efforts to restore Keowee Hydro Unit (KHU) 2 and the A train of Emergency Feedwater to service from planned maintenance and testing were underway in accordance with Enclosure 5.2, Tornado Warning, of the AP. The inspectors also determined whether all control room personnel reviewed Enclosure 5.1, Tornado Information, and per Enclosure 5.2, Tornado Warning, dispatched a licensed operator to the standby shutdown facility (SSF) to establish communications with the control room and dispatched an operator to the station auxiliary service water pump to align the pump per Enclosure 5.10 of the Unit 1 emergency operating procedure.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment

Partial Walkdown

a. Inspection Scope

The inspectors conducted partial equipment alignment walkdowns to evaluate the operability of selected redundant trains or backup systems while the other train or system was inoperable or out-of-service (OOS). The walkdowns included, as appropriate, reviews of plant procedures and other documents to determine correct system lineups, and verification of critical components 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. The following systems were included in this review:

- Unit 1 and 2 B and C Low Pressure Service Water (LPSW) pumps with A LPSW pump OOS for preventive maintenance (PMs)
- 3B and 3C High Pressure Injection (HPI) pumps with 3A HPI pump OOS for PMs
- 1B Low Pressure Injection (LPI) and Reactor Building Spray (RBS) trains with 1A LPI and RBS trains OOS for 1LP-21 PMs

b. Findings

No findings of significance were identified.

1R05 Fire Protection

Fire Area Walkdowns

a. Inspection Scope

The inspectors conducted tours in selected areas of the plant to assess whether combustibles and ignition sources were properly controlled, and that fire detection and suppression capabilities were intact. The inspectors selected the areas based on a review of the licensee's safe shutdown analysis and the probabilistic risk assessment based sensitivity studies for fire-related core damage sequences. Documents reviewed are listed in the Attachment to this report. The following areas were inspected during this inspection period:

- Unit 1 and 2 Control Room (1)
- Unit 3 Control Room (1)
- Turbine Building Basement (1)
- Standby Shutdown Facility (1)
- Turbine Building Operating Deck (1)

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification

Simulator Training

a. Inspection Scope

The inspectors observed licensed operator simulator training on September 25, 2008. The simulator scenarios involved entry into AP-26, Loss of Decay Heat Removal, for both a loss of power event and loss of inventory (decay heat drop line break). The scenarios also required entry into AP-30, Auxiliary Building Flood, due to an LPI pump leak and entry in to AP-18, Abnormal Release of Radioactivity. The inspectors observed crew performance in terms of: communications; ability to take timely and proper actions; prioritizing, interpreting, and verifying alarms; correct use and implementation of procedures, including the alarm response procedures; timely control board operation and manipulation, including high-risk operator actions; and, oversight and direction provided by the shift supervisor, including the ability to identify and implement appropriate Technical Specification (TS) actions and properly classify the simulated event.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope

The inspectors reviewed the licensee's effectiveness in performing routine maintenance activities. This review included an assessment of the licensee's practices pertaining to the identification, scoping, and handling of degraded equipment conditions, as well as common cause failure evaluations. For each item selected, the inspectors performed a detailed review of the problem history and surrounding circumstances, evaluated the extent of condition reviews as required, and reviewed the generic implications of the equipment and/or work practice problem. For those structures, systems, and components (SSCs) scoped in the Maintenance Rule per 10 CFR 50.65, the inspectors verified that reliability and unavailability were properly monitored and that 10 CFR 50.65 (a)(1) and (a)(2) classifications were justified in light of the reviewed degraded equipment condition. Documents reviewed are listed in the Attachment to this report. The inspectors reviewed the following items:

- Problem Investigation Process report (PIP) O-07-6053, Battery Failure in Uninterruptable Power Supply (UPS) LT-700 can only be detected through visual inspection, PIP O-07-6567, UPS power supply for 3RIA-59 found inoperable during inspection, and PIP O-08-0660, UPS Charger Failure at Lee Combustion Turbines
- PIP O-08-4829, Unit 2 HPI Pump Room Temperature is at 115 degrees F and approaching TS limit of 120 degrees F

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessment and Emergent Work Evaluations

a. Inspection Scope

The inspectors evaluated the following attributes for the selected SSCs and 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.

- PIP O-08-4787, Operational Risk Assessment Monitor (ORAM) Update Due to Severe Thunderstorm Warning
- Critical Activity Plan for 1LP-22 Mechanical and Electrical PMs
- Critical Activity Plan for 0HPSW-25 and 0HPSW-27 replacement
- Critical Activity Plan for OD500947 - Trenching and Underground Ductbank for Protected Service Water Building

- PIP O-08-5094, Unit 2 Normal Feeder Breaker #1 Trip Coil Light Extinguished (N1-2 breaker)
- KHU-1 with 7C Lee Combustion Turbine OOS for PMs

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed selected operability evaluations affecting risk significant systems, to assess, as appropriate: (1) the technical adequacy of the evaluations; (2) whether continued system operability was warranted; (3) whether other existing degraded conditions were considered; (4) if compensatory measures were involved, whether the compensatory measures were in place, would work as intended, and were appropriately controlled; and (5) where continued operability was considered unjustified, the impact on TS limiting condition for operations. Documents reviewed are listed in the Attachment to this report. The inspectors reviewed the following operability evaluations:

- PIP O-08-4045, Unable to Obtain Required Recirc Flow While Performing Unit 1 Turbine Driven Emergency Feedwater Pump (TDEFWP) Test
- PIP O-08-4062, Max Recirc Flow for TDEFWP is not Verified by Periodic Test Procedure
- PIP O-08-4364, SSF Heating Ventilation Air Conditioning (HVAC) Service Water (SW) Pump #1 Packing Leakage is Excessive
- PIP O-08-5075, NRC GL08-01 Evaluation Identified Potential Trapped Air Pockets in the "B" RBS Headers, Upstream of BS-2
- PIP O-08-5094, Unit 2 Normal Feeder Breaker #1 Trip Coil Light Extinguished (N1-2 breaker)
- PIP O-08-4076, Unit 2 TDEFWP Recirc Greater Than 200 gpm
- PIP O-08-3958, Unit 1 Pressurizer Heater Group C Did Not Energize When Required

b. Findings

No findings of significance were identified.

1R18 Plant Modifications

Temporary Modifications

a. Inspection Scope

The inspectors reviewed documents and observed portions of the installation of two selected temporary modifications. Among the documents reviewed were system design bases, the Updated Final Safety Analysis Report (UFSAR), TS, system operability/

availability evaluations, and the 10 CFR 50.59 screening. The inspectors observed, as appropriate, that the installation was consistent with the modification documents, was in accordance with the configuration control process, adequate procedures and changes were made, and post installation testing was adequate. The following items were reviewed under this inspection procedure:

- OD 202311, Modify Unit 2 Stator Coolant Temperature Circuit
- OD 201838, Modify Unit 2 Operator Aid Computer to Actuate Statalarms 2SA9-38 and 2SA9-50
- OD 501667, Temp Cooling Train Connected to the Chilled Water System

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing

a. Inspection Scope

The inspectors reviewed PMT procedures and/or test activities, as appropriate, for selected risk significant 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 observed testing and/or reviewed the results of the following tests:

- PT/1/A/0251/001, A LPSW Pump Test Following Motor Testing and Inspection and Breaker Relay Maintenance
- PT/0/A/0250/025, HPSW Pump and Fire Protection Flow Test Following Replacement of A HPSW Pump's Rotating Element
- PT/0/A/0610/024, Keowee Emergency Start for Troubleshooting and Post Maintenance Checkouts Following KHU-2 Governor PMs
- PT/2/A/0150/022M, 2FDW-315 and 316 Stroke Test Following Valve PMs

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors witnessed surveillance tests and/or reviewed test data of the risk-significant SSCs listed below, to assess, as appropriate, whether the SSCs met TS, UFSAR, and licensee procedure requirements. In addition, the inspectors determined if the testing effectively demonstrated that the SSCs were ready and capable of performing their intended safety functions.

- PT/0/A/0251/010, Auxiliary Service Water Pump Test (IST)
- PT/1/A/0152/007, Core Flood System Valve Stroke Test
- PT/1/A/0290/004, Turbine Stop Valve Test
- PT/0/A/0600/021, Standby Shutdown Facility Diesel-Generator Operation
- PT/1/A/0230/015, HPI Motor Cooler Flow Test
- PT/0/A/0620/019, KHU Over Frequency Protection Functional Test

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation

a. Inspection Scope

The inspectors observed and evaluated a simulator/plant based emergency preparedness drill held on August 26, 2008. The drill scenario involved a fire in the simulated unit's HPI pump room, which damaged the 1A HPI pump and resulted in an Alert declaration. The scenario progressed to Site Area Emergency declaration due to a simulated steam generator tube rupture. Consequently, two fission product barriers had been lost, specifically containment and the RCS. The scenario continued with the simulated evacuation of unnecessary site personnel. The operators were observed to determine if they properly classified the event and made the appropriate notifications for both the Alert and Site Area Emergency conditions. Notification sheets were reviewed for accuracy and to verify that protective action recommendations were made in accordance with the licensee's emergency plan procedures. The inspectors observed the post drill critique to assess whether the licensee appropriately captured drill deficiencies and/or weaknesses.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstones: Occupational and Public Radiation Safety

2OS1 Access Control To Radiologically Significant Areas

a. Inspection Scope

Access Control - The inspectors reviewed and evaluated licensee guidance and its implementation for controlling and monitoring worker access to radiologically significant areas and tasks associated with Unit 1 (U1), Unit 2 (U2) and Unit 3 (U3) routine operations and previous Refueling Outage activities. The inspectors evaluated changes to, and adequacy of, procedural guidance; directly observed implementation of established administrative and physical radiation controls; appraised radiation worker (radworker) and health physics technician (HPT) knowledge of, and proficiency in, implementing radiation protection (RP) activities; and assessed occupational exposures to radiation and radioactive material.

The inspectors directly observed controls established for radworker and HPT staff in actual or potential airborne radioactivity area, radiation area, high radiation area (HRA), locked-high radiation area (LHRA), and very high radiation area (VHRA) locations. The inspectors verified posting and control of LHRA/VHRA boundaries/doors and evaluated the adequacy of the licensee's LHRA and VHRA key controls through procedural reviews, supervisory and HPT interviews, and direct observations of program implementation. Established radiological controls were observed directly and evaluated for selected tasks including resin sluicing and dewatering activities, in-service inspection, scaffold building, waste gas decay tank sampling, and routine operations. Postings and physical controls established within the radiologically controlled area (RCA) for access to U1, U2 and U3 auxiliary building and turbine building locations, radioactive waste building, and spent fuel pool areas (SFP) were evaluated directly during facility tours. The inspectors independently measured radiation dose rates during these tours. In addition, the inspectors directly observed conduct of licensee surveys and results of radiation levels, airborne radionuclide concentrations, and/or surface contamination levels for select areas and equipment involved in on-going work activities. Results were compared to current licensee surveys and assessed against established postings and established radiation controls. In addition administrative and physical controls for several tasks completed during the previous outages, including Alloy 600 repairs and in-core maintenance activities, were reviewed and discussed in detail.

For the resin sluicing and dewatering tasks the inspectors attended pre-job briefings and reviewed radiation work permit (RWP) details to assess communication of radiological control requirements to workers. Electronic dosimeter (ED) alarm set-points were evaluated against area radiation survey results for the referenced activities. Radworker adherence to select RWPs and HPT proficiency in providing job coverage were evaluated through direct observations, and interviews with licensee staff.

The inspectors walked down the SFP areas to determine if appropriate controls were applied to materials and equipment stored in the pools and reactor cavity. The

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inspectors also reviewed the inventory of items stored in the pools. Controls and their implementation for LHRAs and for storage and retrieval for irradiated material within the SFPs were reviewed and discussed.

The inspectors evaluated implementation and effectiveness of licensee controls for both airborne and external radiation exposures. The inspectors reviewed select whole-body count analyses to evaluate implementation and effectiveness of personnel monitoring and administrative and physical controls including air sampling, barrier integrity, engineering controls, and postings for tasks having the potential for individual worker internal exposures to exceed 30 millirem committed effective dose equivalent. Effectiveness of external radiation exposure controls were evaluated through review and discussion of individual worker dose as measured by ED for select tasks.

Activities were evaluated against the UFSAR, TS, and 10 CFR Parts 19 and 20 requirements. Specific assessment criteria included 10 CFR 19.12; 10 CFR 20, Subparts B, C, F, G, H, and J; and approved licensee procedures. Licensee guidance documents, records, and data reviewed within this inspection area are listed in Section 2OS1 and 4OA1 of the Attachment to this report.

Problem Identification and Resolution - The inspectors reviewed and assessed select PIPs associated with access control to radiologically significant areas, radiation worker performance, and HPT proficiency. The inspectors evaluated the licensee's ability to identify, characterize, prioritize, and resolve the identified issues in accordance with procedures NSD 208, Problem Identification Process, Rev. 28. Specific corrective action program (CAP) documents associated with access control issues, personnel radiation monitoring, and personnel exposure events reviewed and evaluated during inspection of this program area are identified in Sections 2OS1 and 4OA1 of the Attachment to this report.

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

b. Findings

No findings of significance were identified.

2OS3 Radiation Monitoring Instrumentation and Protective Equipment

a. Inspection Scope

Radiation Monitoring Instrumentation - During tours of the auxiliary building and spent fuel pool areas, the inspectors observed installed radiation detection equipment including the following instrument types: Area Radiation Monitors (ARMs), Continuous Air Monitors (CAMs), Personnel Contamination Monitors (PCMs), and portal monitors at the Protected Area exit. The inspectors observed the physical location of the components, noted the material condition, and compared sensitivity ranges with UFSAR requirements.

In addition to equipment walk-downs, the inspectors observed functional checks and alarm setpoint testing of various fixed and portable detection instruments, including portable ion chambers, telepoles, PCMs, and portal monitors. The most recent 10 CFR Part 61 analysis for Dry Active Waste (DAW) was reviewed to determine if calibration and check sources are representative of the plant source term.

The inspectors reviewed the last two calibration records for selected PCMs, portal monitors, auxiliary building ARMs, and containment high-range ARMs. Calibration stickers on portable survey instruments were noted during inspection of storage areas for "ready-to-use" equipment.

Operability and reliability of selected radiation detection instruments were reviewed against details documented in the following: 10 CFR Part 20; NUREG-0737, Clarification of TMI Action Plan Requirements; Technical Specifications (TS) Section 3; UFSAR Chapter 12; and applicable licensee procedures. Documents reviewed during the inspection are listed in Section 2OS3 of the Attachment to this report.

Self-Contained Breathing Apparatus (SCBA) and Protective Equipment - Selected SCBA units staged for emergency use in the Control Room and other locations were inspected for material condition, air pressure, and number of units available. The inspectors also reviewed maintenance records for selected SCBA regulators for the past five years and certification records associated with supplied air quality.

Qualifications for individuals responsible for testing and repairing SCBA vital components were evaluated through review of training records. In addition, Main Control Room operators were interviewed to determine their knowledge of available SCBA equipment locations, including corrective lens inserts if needed, and their training on bottle change-out during a period of extended SCBA use. Respirator qualification records were reviewed for several Main Control Room operators and emergency responder personnel in the Maintenance Department.

Licensee activities associated with maintenance and use of respiratory protection equipment were reviewed against 10 CFR Part 20; RG 8.15, Acceptable Programs for Respiratory Protection; and applicable licensee procedures. Documents reviewed during the inspection are listed in Section 2OS3 of the Attachment to this report.

Problem Identification and Resolution - Selected licensee PIPs associated with instrumentation and protective equipment were reviewed and assessed. The inspectors evaluated the licensee's ability to identify, characterize, prioritize, and resolve the identified issues in accordance with procedure NSD 208, Problem Investigation Process, Rev 29. The inspectors also evaluated the scope of the licensee's internal audit program and reviewed recent assessment results. Documents reviewed are listed in Section 2OS3 of the Attachment to this report.

The inspectors completed 9 of the 9 required line-item samples detailed in IP 71121.03.

b. Findings

No findings of significance were identified.

Cornerstone: Public Radiation Safety

2PS1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems

a. Inspection Scope

Effluent Monitoring and Radwaste Equipment - During inspector walk-downs, accessible sections of the liquid and gaseous radioactive waste (radwaste) processing and effluent systems were assessed for material condition and conformance with system design diagrams. The inspection included the decant and waste monitoring tanks; demineralizer system; liquid waste system pumps, valves, and piping; liquid waste disposal system effluent monitor (RIA-33); turbine building sump effluent monitors (RIA-54 and 3RIA-54); waste gas disposal system effluent monitors (1RIA-37,38 and 3RIA-37,38); condenser air ejector off gas monitors (1/2/3RIA-40); unit vent effluent monitors (1/2/3RIA-43,44,45,46); radwaste facility vent effluent monitor (4RIA-45); and associated airborne effluent sample lines. The inspectors interviewed radwaste personnel regarding equipment configuration and effluent monitor operation.

The inspectors reviewed performance records and calibration results for selected radiation monitors, flowmeters, and air filtration systems. For monitors 1RIA-37, 1RIA-38, and RIA-33, the inspectors reviewed the two most recent calibration records. The inspectors also reviewed the last two functional/flow checks for the U1 process monitors. The inspectors reviewed the out-of-service monitors from July 2007 to July 2008, to verify that required compensatory sampling was performed. Performance and operations of the systems were reviewed and discussed with cognizant licensee personnel.

Current licensee programs for monitoring, tracking, and documenting the results of both routine and abnormal liquid releases to onsite and offsite surface and ground water environs were reviewed and discussed in detail. Specifically, the inspectors reviewed and discussed the effect of routine effluent liquid releases made in accordance with Offsite Dose Calculation Manual (ODCM) requirements on surface water indicator station sample tritium concentrations. The results from the 14 pairs of groundwater sampling wells that were installed in late 2007 were discussed. In addition, historical tritium concentration results for ground water monitoring wells associated with onsite chemical treatment/retention ponds were reviewed and discussed in detail. Reports associated with abnormal liquid releases and corrective actions were reviewed and discussed with responsible licensee representatives to evaluate the potential onsite/offsite environmental impact of significant leakage/spills from onsite systems, structures, and components. Finally, current licensee capabilities and routine surveillances to minimize and rapidly identify any abnormal leaks from liquid radioactive waste tanks, processing lines, and spent fuel pools, were reviewed and discussed in detail.

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Installed configuration, material condition, operability, and reliability of selected effluent sampling and monitoring equipment were reviewed against details documented in the following: 10 CFR Part 20; Regulatory Guide (RG) 1.21, Measuring, Evaluating and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials In Liquid and Gaseous Effluents from Light-Water Cooled Nuclear Power Plants; ONS Technical Specifications (TS), Section 5.0; the ODCM, Rev. 46; Selected Licensee Commitments (SLC), Section 16.11; and Updated Final Safety Analysis Report (UFSAR), Chapter 11. Procedures and records reviewed during the inspection are listed in Section 2PS1 of the Attachment to this report.

Effluent Release Processing and Quality Control (QC) Activities - The inspectors discussed the process for performing liquid and gaseous releases with chemistry personnel in the radwaste facility control room. HP technician proficiency in processing and counting effluent samples was evaluated.

QC activities associated with gamma spectroscopy were discussed with count room technicians and HP supervision. The inspectors reviewed daily Performance Data Logs from January 1, 2007, to July 16, 2008, for High Purity Germanium (HPGe) detectors No. 2, 3, 4, and 5; and reviewed licensee procedural guidance for count room QC activities. The inspectors also reviewed Performance Data Logs for the liquid scintillation counters. The inspectors reviewed calibration records for HPGe detector No. 2 (select counting geometries) and liquid scintillation counter No. TR-1. In addition, results of the radiochemistry cross-check program for July 2007 through January 2008 were reviewed and discussed with cognizant licensee individuals.

Selected portions of procedures for effluent sampling, processing, and release were evaluated for consistency with licensee actions. Three liquid and three gaseous release permits were reviewed against ODCM specifications for pre-release sampling and effluent monitor setpoints. The inspectors discussed performance of pre-release sampling and analysis, release permit generation, and radiation monitor setpoint adjustment with chemistry technicians and control room operators. The inspectors reviewed the 2006 and 2007 Annual Radiological Effluent Release Reports to evaluate reported doses to the public and ODCM changes. Public dose calculations were reviewed and discussed with cognizant licensee personnel.

Observed task evolutions, and offsite dose results were evaluated against details and guidance documented in the following: 10 CFR Part 20 and Appendix I to 10 CFR Part 50; ODCM; RG 1.21; RG 1.109, Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50 Appendix I; RG 1.33, Quality Assurance Program Requirements; and TS Section 5.0. Procedures and records reviewed during the inspection are listed in Section 2PS1 of the Attachment to this report.

Problem Identification and Resolution - Multiple PIPs and a Focus Area Evaluation associated with effluent release activities were reviewed and assessed. The inspectors evaluated the licensee's ability to identify, characterize, prioritize, and resolve selected issues in accordance with Nuclear Site Directive (NSD) 208, Problem Investigation Process, Rev. 29. Reviewed documents are listed in Section 2PS1 of the Attachment to this report.

The inspectors completed the three specified line-item samples detailed in IP 71122.01.

b. Findings

No findings of significance were identified.

2PS3 Radiological Environmental Monitoring Program (REMP) and Radioactive Material Control Program

a. Inspection Scope

REMP Implementation

The inspectors observed routine sample collection and surveillance activities required by the licensee's REMP. The inspectors noted the material condition and operability of airborne particulate and iodine sampling stations. The environmental thermoluminescent dosimeters (TLDs) that were co-located with the air samplers were checked for material condition and appropriate identification. The inspectors observed collection of milk samples from the Clemson University Dairy. The inspectors determined the current location of selected air samplers, TLDs, and the milk sample, using a handheld GPS. The inspectors discussed land use census results, changes to the ODCM, and sample collection / processing activities with responsible staff.

The inspectors reviewed the last two calibration records for selected environmental air samplers. The inspectors also reviewed the 2006 and 2007 Annual Radiological Environmental Operating Reports (AREOR), results of the 2006 and 2007 inter-laboratory cross-check program, and selected procedures 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.

Procedural guidance, program implementation, and environmental monitoring results were reviewed against: 10 CFR Part 20; Appendix I to 10 CFR Part 50; TS Section 5.0; ODCM, Rev. 48; SLC Section 16.11; RG 4.15, Quality Assurance 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 2PS3 of the Attachment to this report.

Meteorological Monitoring Program - The inspectors directly observed the physical condition of primary (Northwest) and backup (Keowee River) meteorological monitoring towers and discussed equipment operability, reliability, and maintenance activities with responsible licensee representatives. The inspectors reviewed calibration records for applicable tower instrumentation, and evaluated measurement data recovery for CY 2006 through CY 2008.

Licensee procedures and activities related to meteorological monitoring were evaluated against ODCM; UFSAR Section 2.3; ANSI/ANS-2.5-1984, Standard for Determining Meteorological Information at Nuclear Power Sites; and Safety Guide 23, Onsite Meteorological Programs. Documents reviewed are listed in Section 2PS3 of the Attachment to this report.

Unrestricted Release of Materials from the Radiologically Controlled Area (RCA) - The inspectors observed surveys of material and personnel being released from the RCA using small article monitor, personnel contamination monitor, and portal monitor instruments. The inspectors also observed source check testing of these instruments and discussed equipment sensitivity, alarm setpoints, and release program guidance with licensee staff. The inspectors compared recent 10 CFR Part 61 results for the Dry Active Waste (DAW) waste stream with radionuclides used in calibration and check sources to evaluate the appropriateness and accuracy of release survey instrumentation. The inspectors also reviewed the last two calibration records for selected release point survey instruments.

Licensee programs for monitoring materials and personnel released from the RCA were evaluated against 10 CFR Part 20 and IE Circular 81-07, Control of Radioactively Contaminated Material. Documents reviewed are listed in Section 2PS3 of the Attachment to this report.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification

.1 Mitigating Systems Cornerstone

a. Inspection Scope

The inspectors reviewed the PI listed in the table below (for all three units), to determine their accuracy and completeness against requirements in Nuclear Energy Institute (NEI) 99-02, Regulatory Assessment Performance Indicator Guideline, Rev. 5.

Cornerstone: Mitigating Systems		
Performance Indicator	Verification Period	Records Reviewed
Safety System Functional Failures	3 rd and 4 th quarters of 2007 and 1 st and 2 nd quarters of 2008	Licensee Event Reports

b. Findings

No findings of significance were identified.

.2 Occupational and Public Radiation Safety Cornerstones

a. Inspection Scope

The inspectors sampled licensee submittals for the PIs documented below for the period from October 2007 through March 2008. 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, Rev. 5, were used to verify the basis in reporting for each data element.

The inspectors completed two of the required samples for IP 71151, one for the occupational radiation safety PI and one for the public radiation safety PI.

Occupational Radiation Safety Cornerstone - The inspectors reviewed PIPs generated from October 2007 through March 2008 related to Occupational Exposure Control Effectiveness, in order to ensure that radiological occurrences were properly classified per NEI 99-02 guidance. The inspectors also reviewed electronic dosimeter alarm logs, radioactive material intake records, PCE records, and selected PIPs for the same period. In addition, licensee procedural guidance for classifying and reporting PI events was evaluated. Documents reviewed are listed in Section 4OA1 of the Attachment to this report.

Public Radiation Safety Cornerstone - The inspectors reviewed the Radiological Control Effluent Release Occurrences PI results for the period of October 2007 through March 2008. For the assessment period, the inspectors reviewed monthly dose calculations to the public, out-of-service effluent radiation monitors, and selected PIPs related to Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual issues. The inspectors also reviewed licensee procedural guidance for collecting and documenting PI data. Documents reviewed are listed in Section 4OA1 of the Attachment to this report.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems

.1 Daily Screening of Corrective Action Reports

In accordance with IP 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 daily screening of items entered into the licensee's corrective action program. This review was accomplished by reviewing copies of PIPs, attending daily screening meetings, and accessing the licensee's computerized database.

.2 Focused Review

a. Inspection Scope

The inspectors performed an in-depth review of one issue entered into the licensee's corrective action program. The samples were within the mitigating systems and initiating events cornerstones and involved risk significant systems. Specifically, the review involved follow-up on corrective actions identified in PIPs O-07-1662 and O-07-0937. The issues addressed in these PIPs were the subject of a supplemental inspection completed in 2007 (IR 05000269,270,287/2007009). The inspectors reviewed the completion status of corrective actions to verify that they were either completed or scheduled appropriately for completion commensurate with the safety significance of the issue.

b. Findings

No findings of significance were identified.

4OA5 Other Activities

.1 Operation of an Independent Spent Fuel Storage Installation (ISFSI)

a. Inspection Scope

Under the guidance of IP 60855.1, the inspectors observed operations involving spent fuel storage and reviewed the licensee's procedure for storing spent fuel in the ISFSI (MP/0/A/1500/016). The inspectors reviewed Oconee Nuclear Engineering Instruction (ONEI-400) for Dry Storage Certification (DSC) for ISFSI shipments DSC-092 through DSC-101 and discussed spent fuel documentation with the cognizant reactor engineer to verify that the licensee has identified each fuel assembly, recorded the parameters and characteristics of each fuel assembly, and has maintained a record of each fuel assembly as a controlled document. The inspectors also observed selected licensee activities related to the shipment DSC-101 to verify that they performed these activities in a safe manner and in compliance with approved procedures.

The inspectors reviewed selected completed procedures for physical inspection and inventory of the ISFSI (PT/0/A/0750/003, Physical Inventory of Reportable Special Nuclear Material, Enclosure 13.6, Dry Cask Storage Inspections) and completed ONEI-400s to verify that records have been established for all spent fuel in storage in the ISFSI, that duplicate records are maintained by the licensee, and that an inventory has been conducted on all spent fuel stored in the ISFSI at least every 12 months.

The inspectors reviewed selected screening evaluations performed pursuant to 10 CFR 72.48 since the last inspection (June 2007). There were no 72.48 evaluations performed during this period, as all document changes screened as not needing a 72.48 evaluation. The inspectors reviewed the following 72.48 screening evaluations:

- Revision 17 of the Oconee Site Specific ISFSI UFSAR

b. Findings

No findings of significance were identified.

.2 Radiological Controls for an ISFSI

a. Inspection Scope

Access controls and surveillance results for the licensee's ISFSI activities were evaluated. The evaluation included review of ISFSI radiation control surveillance procedures and assessment of ISFSI radiological surveillance data. During tours of the ISFSI storage facilities, the inspectors observed access controls; thermoluminescent dosimeter (TLD) locations and material condition; and radiological postings on the perimeter security fence. The inspectors observed licensee staff performing radiation surveys of the general area and selected casks currently maintained within the established ISFSI Storage Pad area. Survey results were compared to licensee survey data and established postings.

Program guidance, access controls, postings, equipment material condition, and surveillance data results were reviewed against details documented in applicable sections of the UFSAR; 10 CFR Parts 20 and 72; applicable Certificates of Compliance and TS details; and licensee procedures. Licensee guidance documents, records, and data reviewed within this inspection area are listed in Sections 2OS1 and 4OA5.2 of the Attachment to this report.

b. Findings

No findings of significance were identified.

.3 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 reviews and inspection activities.

b. Findings

No findings of significance were identified.

.4 (Open) NRC Temporary Instruction (TI) 2515/172, Reactor Coolant System Dissimilar Metal Butt Welds (DMBW) - Units 1, 2, and 3

a. Inspection Scope

From August 18 to 22, 2008, the inspectors reviewed the licensee's activities onsite related to the inspection and mitigation of dissimilar metal butt welds in the Reactor Coolant System (RCS) to ensure that the licensee activities were consistent with the industry requirements established in the Materials and Reliability Program (MRP) document MRP-139, "Primary System Piping Butt Weld Inspection and Evaluation Guidelines," July 2005. An additional in-office review was conducted for Units 2 & 3. The inspection activities covered the following for primary system piping 1-inch nominal pipe size (NPS) or larger: a) implementation of baseline inspections (or mitigation) of Alloy 82/182 DMBW that operate at pressurizer, hot leg and cold leg temperatures, b) review of documentation for volumetric examinations performed on mitigated and non-mitigated DMBW, c) review of welding documentation for DMBW that were mitigated by Full Structural Weld Overlay (FSWOL), and d) review of the licensee program for in-service inspection of DMBW as established in the MRP-139 document. Documents reviewed are listed in the Attachment to this report.

b. Findings and Observations

No findings of significance were identified.

MRP-139 Baseline Inspections

- (1) Have the baseline inspections been performed or are they scheduled to be performed in accordance with MRP-139 guidance?

Yes, the licensee has completed and scheduled all baseline volumetric examinations in Units 1, 2, and 3 consistent with the requirements of MRP-139.

For the Units 1, 2, and 3 Alloy 82/182 DMBWs located in the Pressurizer, the licensee implemented mitigation by FSWOL prior to December 31, 2007. These welds were the pressurizer surge line nozzle, spray nozzle, and safety relief nozzles. Following completion of the FSWOL in these locations, the licensee performed a volumetric examination of the welds using ultrasonic (UT) phase array technology qualified in accordance with the Electric Power Research Institute (EPRI), Performance Demonstration Initiative (PDI) program.

For the Alloy 82/182 DMBWs less than or equal to 14-inches nominal pipe size (NPS) and operating at temperatures equivalent to the hot leg, the licensee implemented mitigation as follows: FSWOL on hot leg surge line nozzle and the decay heat removal nozzle in Unit 1 and Unit 3 prior to December 31, 2008, and FSWOL on hot leg surge line nozzle in Unit 2 prior to December 31, 2008. Following completion of the FSWOL in these locations, the licensee performed a volumetric examination of the welds using PDI qualified UT phase array technology. The licensee is planning to complete the FSWOL and the volumetric exam on Unit 2 decay heat removal nozzle in the fall 2008, prior to December 31, 2008.

Oconee Units 1, 2, and 3 do not have Alloy 82/182 DMBWs larger than 14-inches NPS exposed to temperatures equivalent to the hot leg. In addition, all baseline volumetric exams for Alloy 82/182 DMBWs exposed to temperatures equivalent to the cold leg (i.e. Reactor Vessel Core Flood nozzle, Reactor Coolant Pumps (RCPs) inlet and outlet nozzles, letdown nozzles, and High Pressure Safety Injection (HPI)/Make-up nozzles) were scheduled in accordance with MRP-139. The licensee also completed the evaluation of volumetric exam coverage for the cold leg DMBWs listed above and found coverage limitations on the RCPs inlet and outlet nozzles. The licensee is planning to grind the weld surface at these locations in order to obtain the coverage required by PDI procedures and MRP-139.

- (2) Is the licensee planning to take any deviations from MRP-139 requirements?
No, the licensee has not submitted any requests for deviation from MRP-139 requirements.

Volumetric Examinations

The inspectors selected the following DMBWs for the volumetric examination review:

- (a) Unit 1: Hot Leg Decay Heat Removal Nozzle DMBW after mitigation by FSWOL
- (b) Unit 2: Hot Leg Surge Line Nozzle DMBW after mitigation by FSWOL
- (c) Unit 3: Pressurizer Surge Line DMBW after mitigation by FSWOL

- (1) For each examination inspected, was the activity performed in accordance with the examination guidelines in MRP-139, Section 5.1, for unmitigated welds or mechanical stress improved welds and consistent with NRC staff relief request authorization for overlaid welds?

Yes, the volumetric examination of the welds listed above were performed in accordance with a qualified procedure for UT examination, consistent with MRP-139 requirements and the proposed alternatives approved by the NRC in two safety evaluation reports (SERs) dated August 6, 2007, and January 17, 2008, (ADAMS Accession Numbers ML071280781 and ML073460027, respectively).

The procedure was a vendor's proprietary procedure for UT phased array and it was qualified in accordance with ASME Section XI, Appendix VIII, as implemented through the EPRI PDI Program. Prior to the examination, the licensee verified the FSWOL surface flatness and roughness to ensure it permitted volumetric examination. The licensee conducted the examination at the proper time after the FSWOL was completed. The licensee was able to obtain adequate coverage in the UT examination.

- (2) For each examination inspected, was the activity performed by qualified personnel?

Yes, the personnel involved in the UT examinations listed above were qualified in accordance with MRP-139 requirements and the licensee's proposed alternative. The examiners were qualified Level II in the UT method as required by the 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.

- (3) For each examination inspected, was the activity performed such that deficiencies were identified, dispositioned, and resolved?

Yes, the inspectors reviewed documentation to verify that deficiencies were evaluated and corrected. Based on the inspection activities, the inspectors determined that the examination was conducted in a manner such that deficiencies were identified, dispositioned, and resolved.

Weld Overlays

The inspectors selected the following FSWOLs for review:

- (a) Unit 1: Hot Leg Decay Heat Removal Nozzle FSWOL
- (b) Unit 2: Hot Leg Surge Line Nozzle FSWOL
- (c) Unit 3: Pressurizer Surge Line FSWOL

- (1) For each weld overlay inspected, was the activity performed in accordance with ASME Code welding requirements and consistent with NRC staff relief requests authorizations? Has the licensee submitted a relief request and obtained NRR staff authorization to install weld overlays?

Yes, the licensee installed the FSWOLs listed above in accordance with the applicable sections of the ASME Boiler and Pressure Vessel Code (ASME Code). The licensee submitted relief requests (RRs) 06-ON-004, 07-ON-001, and 07-ON-004 to request approval for proposed alternatives to certain ASME Code requirements for the purpose of performing FSWOLs. On August 6, 2007 and January 17, 2008, the NRC issued two SERs to approve the proposed alternatives (ADAMS Accession Numbers ML071280781 and ML073460027, respectively).

The inspectors reviewed welding procedure specifications, procedure qualification records, weld filler metal certifications, and welding process control sheets for the FSWOLs listed above to verify compliance with ASME Section IX requirements and adherence to the SERs. The inspectors also reviewed a number of non-conformance reports regarding weld overlay quality issues to ensure that they were properly evaluated and corrected without deviations from the approved alternatives.

- (2) For each weld overlay inspected, was the activity performed by qualified personnel?

Yes, welding personnel involved in the FSWOLs listed above were qualified in accordance with the requirements identified in ASME Code Section IX, "Qualification Standard for Welding and Brazing Procedures, Welders, Brazers, and Welding and Brazing Operators." The inspectors reviewed the welder performance qualification test records and welding process control sheets to verify that welders were qualified for the specific welding method they implemented.

- (3) For each weld overlay inspected, was the activity performed such that deficiencies were identified, dispositioned, and resolved?

Yes, the inspectors reviewed non-conformance documentation to verify that deficiencies were evaluated and corrected. Based on inspection activities, the inspectors determined that the installation of the FSWOL was conducted in a manner such that deficiencies were identified, dispositioned, and resolved.

Mechanical Stress Improvement (Not Applicable)

The licensee has not implemented Mechanical Stress Improvement as a mitigation method for DMBWs.

In-service Inspection Program

- (1) Has licensee prepared an MRP-139 in-service inspection program?

No, the licensee did not have a stand alone MRP-139 in-service inspection program document. The licensee's MRP-139 inspection program consisted of the documents listed below, which were previously prepared documents, and the inclusion of MRP-139 requirements as augmented inspections in the ASME Section XI In-service Inspection Program (ISI Program). The inspectors reviewed the following documents and held discussions with licensee representatives:

- Engineering Support Document (ESD) – “Alloy 600 Aging Management: Oconee, McGuire, and Catawba Nuclear Stations,” Revision 3
- Fourth Ten-Year Interval In-service Inspection Plan, Oconee Nuclear Station Units 1, 2,3, and Keowee Hydro Station Units 1 & 2 General Requirements, Revision 1
- Fourth Ten-Year Interval In-service Inspection Plan, Oconee Nuclear Station Unit 1, Revision 1
- Fourth Ten-Year Interval In-service Inspection Plan, Oconee Nuclear Station Unit 2, Revision 1
- Fourth Ten-Year Interval In-service Inspection Plan, Oconee Nuclear Station Unit 3 and Keowee Hydro Station Units 1 & 2, Revision 1

- (2) In the MRP-139 in-service inspection program, are the welds appropriately categorized in accordance with MRP-139?

The inspectors reviewed all identified DMBWs within the scope of MRP-139 for appropriate categorization in accordance with Section 6 of that document. The licensee did not have a stand alone program describing all the welds within the scope of MRP-139 and what category each weld fell into. The licensee used the ISI program to identify all DMBWs within scope of MRP-139, schedule the corresponding in-service inspections, and specify the inspection frequencies consistent with the categories in MRP-139.

The licensee excluded three locations with Alloy 82/182 from the scope of MRP-139 program: Core Flood Tank nozzles, Core Flood Tank pressure relief nozzles, and cold leg HPI/Make-up Nozzles. The licensee considered that the Core Flood Tank nozzles are not part of the primary system and their operating temperature is significantly lower than the cold leg temperature, and therefore they are outside the scope of MRP-139. On the other hand, the integrity of the cold leg HPI/Make-up nozzles is monitored under the Thermal Fatigue Management Program. Since 1997, Oconee Units 1, 2 and 3 have had thermal fatigue issues

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at the HPI/Make-up nozzles, which have resulted in weld failures and thermal sleeve cracking. In response to this thermal fatigue issue, the licensee has implemented design changes, replaced part of the Alloy 82/182 with Alloy 52/152, and increased visual and volumetric inspections frequencies. The licensee considered that thermal fatigue was a dominant failure mechanism compared with primary water stress corrosion cracking and therefore they have followed a more conservative inspection and evaluation program than MRP-139. Currently, the licensee conducts volumetric inspection of the HPI/Make-up nozzles DMBWs in Units 1, 2, and 3 every other outage using a PDI qualified procedure. This inspection frequency exceeds the requirements of MRP-139.

- (3) Are inspection frequencies consistent with the requirements of MRP-139?

Yes, planned inspection frequencies for welds in the MRP-139 program are consistent with the requirements of MRP-139.

- (4) What is the licensees' basis for categorizing welds as H or I and plans for addressing potential PWSCC?

No welds were categorized as Categories H or I.

- (5) What deviations has the licensee incorporated and what approval process was used?

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

4OA6 Management Meetings (Including Exit Meeting)

Exit Meeting Summary

The inspectors presented the inspection results to Mr. David Baxter, Site Vice President, and other members of licensee management at the conclusion of the inspection on October 9, 2008. The licensee acknowledged the findings presented. The inspectors asked the licensee whether any of the material examined during the inspection should be considered proprietary. No proprietary information was identified.

4OA7 Licensee Identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for disposition of NCVs.

- TS 5.4.1 requires that procedures shall be established, implemented and maintained covering the applicable procedures recommended in Regulatory Guide 1.33. Regulatory Guide 1.33, Appendix A, Section 9, requires procedures for performing maintenance. Contrary to the above, the licensee failed to adequately establish and implement their procedure for SSF pressurizer heater switch replacement such that the switch for the Unit 1 bank 2 group C heaters

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was wired to prevent normal operation. This was identified in the licensee's corrective action program as PIP O-08-3958. This finding is of very low safety significance because it does not represent a design or qualification deficiency resulting in the loss of operability or functionality.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

E. Anderson, Superintendent of Operations
S. Batson, Engineering Manager
D. Baxter, Site Vice President
D. Brewer, Safety Assessments Manager
R. Brown, Emergency Preparedness Manager
E. Burchfield, Reactor and Electrical Systems Manager
C. Curry, Mechanical/Civil Engineering Manager
P. Culbertson, Maintenance Manager
G. Davenport, Compliance Manager
R. Digenes, Relief Supervisor - Surveillance & Control
R. Fruedenberger, Safety Assurance Manager
M. Glover, Station Manager
D. Hubbard, Training Manager
J. Kammer, Modification Engineering Manager
T. King, Security Manager
E. Lampe, Scientist - Technical Support
B. Meixell, Regulatory Compliance
D. Peltola, Site Alloy 600 Program Owner
W. Pursley, RP Supervising Scientist - Technical Support
J. Shuping, Corporate Alloy 600 Program Owner
M. Stephenson, Shift Operations Manager
J. Smith, Regulatory Compliance
J. Steely, Continuing Training Supervisor
J. Twiggs, Radiation Protection Manager
J. Weast, Regulatory Compliance
L. Wehrman, Senior Scientist - Technical Support
D. Zimmerman, Corporate UT Level III

NRC

S. Rose, Acting Chief, Reactor Projects Branch 1
L. Olshan, Project Manager, NRR

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Section 1R15: Operability Evaluations

OSS-0254.00-00-1009, Design Basis Specification for SSF HVAC System
 OSC-2240, Verification of SSF Sump System Parameters - NSM ON -1012
 OSS-0254.00-00-1000, Design Basis Specification for the Emergency Feedwater and the Auxiliary Service Water Systems
 Drawing OFD-121D-1.1, Unit 1 Flow Diagram of Emergency Feedwater System
 Drawing OFD-121D-2.1, Unit 2 Flow Diagram of Emergency Feedwater System
 Drawing OFD-121D-3.1, Unit 3 Flow Diagram of Emergency Feedwater System
 UFSAR Section 10.4.7, Emergency Feedwater System
 OSC-2515, Verification of Emergency Feedwater System Flow Utilizing MFW System Bypass
 Unit 1 TDEFW Pump Minimum Recirculation Flow Test failure Root Cause Report
 TS LCO 3.7.5, Emergency Feedwater System
 PT/1/A/0600/012, TDEFW Pump Test
 PT/2/A/0600/012, TDEFW Pump Test
 PT/3/A/0600/012, TDEFW Pump Test
 OSS-0254.00-00-1034, Design Basis Specification for the Reactor Building Spray System
 Drawing OFD-103A-1.1, Unit 1 Flow Diagram of Reactor Building Spray System
 Drawing OFD-103A-2.1, Unit 2 Flow Diagram of Reactor Building Spray System
 Drawing OFD-103A-3.1, Unit 3 Flow Diagram of Reactor Building Spray System
 OSC-7592, BS-1 and 2 Stroke Time and Header Fill Time Calculation
 OSC-9592, Gas-Water Waterhammer Loads in Building Spray Header (re: PIP O-08-5075)
 TS LCO 3.6.5, Reactor Building Spray and Cooling Systems
 TS LCO 3.8.1, AC Sources - Operating
 Unit 2 Normal Feeder Breaker #1 Trip Coil Light Extinguished (N1-2 bkr) Apparent Cause Report

Section 1R18: Plant Modifications

OD202311, Unit 2 Modify Stator Coolant Temperature Circuit
 ODMI, Modify Unit 2 SC High Temp Runback to 2/2 logic
 PIP O-08-3695, One of three temperature lights for the Unit 2 Stator Coolant high water outlet temperature was not lit
 PIP O-08-3827, One of three temperature lights for the Unit 2 Stator Coolant high water outlet temperature found not lit
 PIP O-08-4008, One of three temperature lights for the Unit 2 Stator Coolant high water outlet temperature found not lit

Section 2OS1: Access Control To Radiologically Significant Areas

Procedures, Instructions, Guidance Documents, and Operating Manuals
 Nuclear System Directive (NSD) 208, Problem Investigation Process, Revision (Rev.) 29
 NSD 501 Temporary storage of radioactive material in the spent fuel pool, Rev. 05
 Standard Health Physics Procedure (SH)/O/B/2000/001, Operational Beta Program, Rev. 001
 Standard Health Physical Procedure (SH)/O/B/2000/012, Access Controls for High, Locked High, and Very High Radiation Areas, Rev. 08

SH/0/B/2000/0005, Posting of Radiation Control Zone, Rev. 06

Health Physics (HP) procedure, HP/0/B/1000/104, Radiological protection requirements for incore detector work, Rev. 12

Maintenance Directive (MD) 3.2.34, Maintenance Risk Assessment Process, Rev. 010

Radiation Work Permit (RWP) No. 11, Routine Spent Fuel Fuel Area (Excluding Refueling), Rev. 26

RWP 20, Preventative maintenance/periodic testing (PM/PT) and miscellaneous ISI work, Rev. 25

RWP 5006, Unit 1,2,3, Auxiliary building and radioactive waste facility spent resin operation, Rev. 22

RWP 1176, U1 Rx Bldg Incore Instrumentation work, Rev. 11

RWP 3022, U3 Rx Bldg – Alloy 600 replacement / repair and associated activities, Rev.2

RWP 3101, U3 Rx Bldg exempt change valve replacement, Rev. 13

Records and Data

Personnel Contamination Event (PCE) data: July 2007 through July 2008: Detailed reviews for PCE Numbers 07-016 (05/01/07), 07-080 (11/07/07), 07-094 (11/14/07), 07-099 (11/14/07), 07-122 (12/10/07), 08-013 (04/18/08), 08-022 (05/22/08)

Internal Dose Summary: Unit 3 End of Cycle 23 Refueling Outage

High Radiation Area Key Inventory Monthly Data Records: January - June 2008

LHRA/VHRA Key Issue log, 07/14-16/2008

Survey No. M-111207-2, U3 Reactor Building Basement, 11/12/07

Survey No M-070708-22, Room 619 Unit 1/2 Spent Fuel Pool, 07/07/08

Survey No. O-071508-8, RW 109 Baseline survey associated with resin batch tank sluice, 07/15/08

Survey No. M-71508-23, Rad Waste Room 130, 07/15/2008

Survey No. M-71608-1, Corridor to Shielded Area Sump, 07/16/08

Survey No. M-71608-3, RW 130:Top of HIC Shield, 07/16/08

Survey No. M-070708-22, Room 619 Unit 1/2 Spent Fuel Pool, 07/07/08

Survey No. O-71708-4, U2 E Penetration Room, various pipe welds in overhead, 07/17/08

Survey No. M-042008-21, U1 Reactor Building 1st Floor

Alpha Air Sample Data – related to PIP 07-7072, 12/02/07

Resin Sluice Surveillance Data, 07/15/08, implementing HP/0/B10000/089

Access Controls for High, Locked High, and Very High Radiation Areas Data for Resin Sluicing on 07/15/08 implementing HP/0/B/2000/012

Non-SNM Equipment Inventory, Unit 1 and 2 Spent Fuel Pool, and Unit 3 Spent Fuel Pool, 2008-05-04

Corrective Action Program (CAP) Documents

PIP O-07-02969, Unplanned side rod puller event created need for RP Technician to be continuously posted in Spent Fuel Pool, 05/22/07

PIP O-07-03002, Existing gates at normal sump, letdown cooler room, and first floor cage at East stairwell do not meet standards for access control, 05/23/07

PIP O-07-03026, Cannot cut up source funnel until dose source is determined, 05/24/07

PIP O-07-06621, Worker violated RWP hold point, 11/14/07

PIP O-07-06626, Personnel contamination event No. 07-099, 11/15/07

PIP O-07-06075, Due to failed fuel on Unit 3, RP surveys indicate that beta dose rates have increased along with station half-value layer, 10/31/07

PIP O-07-06476, Work crew failed to re-establish contact with RP, prior to resuming work in the reactor building, 11/12/07

PIP O-07-07072, RP continuous air monitors went into alarm resulting in evacuation of the third and fourth floor of the reactor building, 12/02/07

PIP No. O-08-02260, Elevated dose rates discovered on bottom of incore tank and in the general area below on 1st floor, 04/20/08

PIP O-08-02338, Security required to make rounds in LHRA during de-fuel, 04/22/08

PIP O-08-02975, Clamshell device at other facility proved to be ineffective for use associated with posted LHRA locations, 05/06/08

PIP O-08-03231, Personnel contamination event No. 08-022, skin contamination (face/chin), 05/22/08

PIP G-08-00238, Evaluate RP and security key/lock programs, 03/11/08

2OS3: Radiation Monitoring Instrumentation and Protective Equipment

Procedures and Guidance Documents

SH/0/B/2000/013, Removal of Items from RCA/RCZs, Rev. 2

SH/0/B/2008/003, Operation of Radiation Protection Portable Survey Instruments, Rev. 2

HP/0/B/1010/002, Radiological Respiratory Quality Assurance, Rev. 19

HP/0/B/1010/004, Selection of Proper Respiratory Protective Equipment and Respiratory Surveillance Requirements, Rev. 31

HP/0/B/1004/063, Inservice Radiation Protection Instrument Performance Check, Rev. 6

HP/0/B/1000/067 E, Quality Assurance for Automated Personnel Monitors, Rev. 21

IP/0/A/0361/004, Sorrento Digital High Range Area Monitor Calibration, Rev. 31

NSD 208, Problem Investigation Process, Rev 29

Records

PCM (ARGOS) Calibrations, No. 1901, 3/28/07 and 3/17/08

PM-7 Calibrations, No. 1918, 7/10/07 and 6/17/08; No. 1919, 7/10/07 and 6/17/08

SAM-11 Calibrations, No. 1890, 3/27/07 and 3/17/08; No. 1888, 2/28/07 and 2/14/08; No. 1889, 2/28/07 and 2/14/08

Work Order 98611035-01, U1 Extended Range RIA Area Monitor Cal, 1/20/04

Work Order 01679805-01, U1 Extended Range RIA Area Monitor Cal, 7/31/07

Work Order 98737982-01&02, 1RIA-57&58 Hi-Range RB Monitor Cal, 1/4/06

Work Order 01727746, 1RIA-57&58 Hi-Range RB Monitor Cal, 8/23/07

10 CFR Part 61 Analysis, Dry Active Waste, 8/28/07

Breathing Air Compressor Air Quality Analyses, 3rd quarter 2006 - 2nd quarter 2008

SCBA Maintenance History, Air Pressure Regulator Nos. 02298, 02300, and 02358, June 2003 - June 2008

SCBA Qualification Records, Selected Operations and Maintenance Personnel

Corrective Action Program Documents

GO-07-02(NPA)(RP)(ALL), Radiation Protection Functional Area Audit, 2/19/07 - 3/1/07

PIP O-07-06747, Breathing air to "Delta Suit" temporarily lost, 11/19/07

PIP O-08-01545, Radiation monitoring system changed to Maintenance Rule 'A1' status, 3/26/08
 PIP O-08-01359, SLC 16.12.2 entry due to RIA-6 spiking, 3/14/08

Section 2PS1: Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems

Procedures, Guidance Documents, and Reports

ONS Selected Licensee Commitments (SLC) Section 16.11, Radiological Effluents Control Offsite Dose Calculation Manual, Revision (Rev.) 48

HP/0/B/1000/083, Cumulative Off-Site Dose From Liquid And Gaseous Effluents, Rev.12

HP/0/B/1000/060 D, Procedure For Vent, Air Ejector And Reactor Building Sampling And Analysis, Rev. 43

HP/0/B/1000/060 B, Reactor Containment Building Sampling And Release Rate Determination For Gaseous Purge, Rev.55

HP/0/B/1000/082, Dose Protection For Untreated Radioactive Wastes, Rev.7

HP/0/B/1000/060 A, Waste Gas Decay Tank Sampling and Release Requirements, Rev. 50

2006 ONS Annual Radioactive Effluent Release Report

2007 ONS Annual Radioactive Effluent Release Report

Records, Data, and Drawings

IP/0/B/0360/038, Sorrento 1-RIA-32 Auxiliary Building Gas Monitor (Calibration), 8/6/2007

IP/0/B/0360/037, Sorrento Gas Monitor (Calibration of 1-RIA 39 Control Room Gas Monitor), 10/31/2007

IP/0/B/0360/032, Sorrento Process Radiation Monitor Particulate Detector Calibration (Vent Stack Particulate Monitor 1-RIA 43), 2/19/2007

IP/0/B/0360/035, Sorrento Process Radiation Monitor Iodine Detector Calibration (Vent Stack Iodine Monitor 1 RIA-44), 4/16/2007

IP/0/B/0360/034, Sorrento Process Radiation Monitor High Range Gas Detector Calibration (Vent Stack High Range Gas Monitor 1 RIA-46), 2/12/2007

IP/0/B/0360/039, Sorrento Liquid Monitor Calibration (Turbine Building Sump Monitor 1RIA-54), 9/6/2006 and 9/17/2007

IP/0/B/0360/037, Sorrento Gas Monitor (Condenser Air Ejector U1 Vent Monitor Calibration), 7/30/ 2007

Corrective Action Program Documents/Audits

PIP O-07-01115, Vacuum breaker leaking

PIP O-07-01207, Turbine Sump Rad monitor alarm 1RIA-54

PIP O-07-02238, American Nuclear Insurers (ANI) issued a ground water protection guideline

PIP O-07-02331, Chemistry sampling contributed to 3RIA-32 alarm

PIP O-07-02888, Process monitor alarm after sampling- vacuum breaker leaking, (See PIP O-07-01115)

Section: 2PS3 Radiological Environmental Monitoring Program (REMP) and Radioactive Material Control Program

Procedures, Manuals and Guidance Documents

ONS Offsite Dose Calculation Manual (ODCM), Rev. 48
 Duke Energy Corporation Environmental Radiation (EnRad) Laboratories Procedures:
 Procedure 52, Rev 3, Preparation of Samples for Gamma Analysis
 Procedure 53, Rev 15, Preparation of Samples for Gross Alpha and Beta Analysis
 Procedure 62, Rev 1, Preparation of Tritium Samples
 Procedure 64, Rev 3, Preparation of Radio-Strontium Samples Using Extraction
 Chromatography
 Procedure 325, Rev 2, Operation of the ISCO 3710 Sampler
 Procedure 418, Rev 2, Release of Items from a Radiation Control Zone and / or a Radiation
 Control Area
 Procedure 700, Rev. 2, Preparation of Environmental Sampling Supply Kits
 Procedure 702, Rev. 5, Airborne Radioiodine and Airborne Particulate Sampling at Oconee
 Nuclear Station
 Procedure 703, Rev. 03, Water Sampling at Oconee Nuclear Station
 Procedure 705, Rev. 04, Broadleaf Vegetation Sampling at Oconee Nuclear Station
 Procedure 708, Rev. 04, Direct Radiation Measurement (TLDs) at Oconee Nuclear Station
 Procedure 715, Rev 1, Transfer of Oconee REMP Samples from Oconee Nuclear Station to
 EnRad Laboratories
 Procedure 716, Rev 2, EnRad Laboratories, Annual Land Census for Oconee Nuclear Station
 SH/ 0/B/2007/001, Rev 0, Radiological Environmental Monitoring Program Data Evaluation
 SH/ 0/B/2007/002, Rev 0, Land Use Census
 SH/ 0/B/2000/013, Rev 02, Removal of Items from the RCA / RCZs
 HB/0/B/1003/016, Rev 019, Calibration of Automatic Personnel Monitors
 IP/0/B/1601/004, Rev 4, Meteorological 12 VDC Power Supply Calibration Procedure
 IP/0/B/1601/003, Rev 37 and 38, Meteorological Equipment Checks
 IP/0/B/1601/004, Rev. 4, Meteorological 12 VDC Power Supply Calibration
 IP/0/B/1601/005, Revs 3 and 4, Raising and Lowering the Meteorological Tower Instrument
 Carriages
 IP/0/B/1601/006, Rev 8, Meteorological Uninterruptible Power System Functional Check
 Procedure
 IP/0/B/1601/008, Rev 9, Meteorological Precipitation Calibration
 IP/0/B/1601/011, Rev 9, Meteorological Wind Speed Calibration
 IP/0/B/1601/012, Rev 9, Wind Direction Channel Calibration
 IP/0/B/1601/014, Rev. 8, Meteorological Temperature and Delta Temperature Calibrations
 IP/0/B/1601/015, Rev. 2, Meteorological Data Logger Calibration

Records and Data

2006 Annual Radiological Environmental Operating Report (AREOR), Duke Energy Corporation
 Oconee Nuclear Station Units 1, 2, and 3
 2007 Annual Radiological Environmental Operating Report (AREOR), Duke Energy Corporation
 Oconee Nuclear Station Units 1, 2, and 3
 Environmental Laboratory Records Calibration Records for Detector 9, Serial # 12079977
 Annual Gamma LLD Verification for Air Radio-Iodine Cartridge
 Annual Gamma LLD Verification for Water
 Efficiency Calibration Records for Marinelli samples
 Efficiency Calibration Records for Filter and Charcoal Cartridges

Annual Calibration Data Sheet Records for ISCO Composite Samplers #: 00278, 00279, 00280, 00282, 00286, 01679, 02240.

Annual Calibration Data Sheet Records for Airsamplers #: 00287, 00288, 00289, 00290, 00295, 00298, 00303, 00307, 00317, 00324, 00346, 00347, 00350

Gamma Spectroscopy and Liquid Scintillation Control Charts

Oconee Data Recovery Performance Indicator Reports for CY 2006, CY 2007, Part of 2008

Work Orders

01777053-01, Meteorological Equipment Checks

01742009-01, Meteorological Equipment Checks

Corrective Action Program Documents/Audits/Assessments

PIPs O-06-07178, O-06-07563, O-06-07700, O-06-08184, O-07-01997, O-07-02610, O-07-04204, O-07-04946, O-07-05285, O-07-06191, O-08-00654, O-08-02129, O-08-02564, O-08-03019, O-08-03172

Environmental Meteorological Tower: O-06-04957, O-06-05378, O-07-01989, O-08-01942, O-08-02367

Assessments

G-07-00292, Evaluate & trend unavailable REMP TLDs (i.e., unavailable for analysis)

G-07-00400, Cs-137 was observed in routine environmental shoreline sediment sample (location 067, 4.34 miles SSE)

G-07-01048, Oconee Level 1 Assessment for REMP [GO-07-50(RP) (REMP) (ONS)], performed 6/4/2007

G-07-01049, 2007 Documentation of LLD/MDA Test Data for LIMS RGEN Report LLD_SLC
G-08-00298 ONS REMP equipment assessment # 08-53(RP) (REMP) (ONS) performed 2/11/2008

G-08-00516, NGO Program Review Board | Rad Environmental Monitoring [5/12/2008], PIP documentation

G-08-00298, ONS REMP equipment assessment # 08-53(RP) (REMP) (ONS) performed 2/11/2008

Section 40A1: Performance Indicator Verification

ONS Effluents Dose Summary Memo, 1/5/2008, 5/5/2008

Standard Radiation Protection Management Procedure (SRPMP) 10-1, NRC Performance Indicator Data Collection, Validation, Review and Approval, Rev. 02

Monthly PIP Searches August 2007- March 2008

Section 40A2: Identification and Resolution of Problems

PIP O-07-0937, NRC Final Significance Letter for White finding associated with inadequate FME control in the Unit 3 RBS suction

PIP O-07-1162, Root cause to Support NRC inspection of White finding associated with SSF wall breach

Section 40A5.2: Radiological Controls for an ISFSI

Procedures, Manuals, and Guidance Documents

HP/0/B/1000/097, Radiological Protection Requirements for Independent Spent Fuel Storage Installation Phases III, IV, and V (DSCs 41-99), Rev. 8

MP/0/A/1500/023, Independent Spent Fuel Storage Installation Phase V DSC Loading and Storage, Rev. 08

Section 40A5.4: TI 2515/172Units 1, 2, and 3 Shared Documents

Calculation Summary Sheet 86-9058397-000, B&W Design Core Flood Nozzle DM Weld Flaw Evaluation Summary, Revision 0

ASMEFAM-Section 4.8-QA-513, Preparation and Implementation of ASME Section XI In-service Inspection Plans Including Requirements for Augmented and Elective Examinations, Revision 22

Engineering Support Program Document, Reactor Coolant System HPI Nozzles, Revision 5
Alloy 600 Program Health Reports: 2003-2008

Calculation Summary Sheet 86-9062858-000, Oconee Core Flood Nozzle DM Weld Flaw Evaluation Summary, Revision 0

Problem Investigation Process (PIP) G-05-00255, Issuance of EPRI Materials Reliability Program document MRP-139 for Inspection and Evaluation of Primary System Butt Welds
PIP O-05-05023, Oconee PIP taken from PIP G-05-0255 to document Oconee specific concerns

Engineering Support Document (ESD) – “Alloy 600 Aging Management: Oconee, McGuire, and Catawba Nuclear Stations,” Revision 3

SI-UT-126, Procedure for the Phased Array Ultrasonic Examination of Weld Overlaid Similar and Dissimilar Metal Welds, Revision 3

ASME Code Case N-504-2, Alternative Rules for Repair for Class 1, 2 and 3 Austenitic Stainless Steel Piping, Section XI, Division 1

ASME Code Case N-638-1, Similar and Dissimilar Metal Welding Using Ambient Temperature Machine GTAW Temper Bead Technique, Section XI, Division 1

ASME Code Case N-740, Dissimilar Metal Weld Overlay for Repair or Mitigation of Class 1, 2 and 3 Items, Section XI, Division 1

ASME Code Case N-740-1, Dissimilar Metal Weld Overlay for Repair or Mitigation of Class 1, 2 and 3 Items, Section XI, Division 1

Alloy 600 Aging Management, Oconee, McGuire and Catawba Nuclear Stations. Revision 3

Unit 1 Documents

Fourth Ten-Year Interval In-service Inspection Plan, Oconee Nuclear Station Unit 1, Revision 1

Welding Procedure Specification (WPS) 01-08-T-804-Bottom, Revision 1

Procedure Qualification Record (PQR)-01-08-T-032, Revision 0

PQR-01-01-T-802, Revision 2

PQR A843256-52, Revision 1

WPS-43-43-T-001, Revision 3

PQR A43256-52, Revision 2

PQR-1001, Revision 1

Certified Material Test Reports (CMTRs) for Filler Metal Heat Lots NX0B67TK and NX5213TK

Weld Traveler No. 102836-305, Unit 1 Pressurizer Spray Nozzle, Revision 2

Weld Traveler No. 102836-306, Unit 1 Pressurizer Hot Leg Surge Nozzle, Revision 2

Weld Traveler No. 102836-306, Unit 1 Pressurizer Surge Nozzle, Revision 3

Weld Traveler No. 102836-305, Unit 1 Safety Relief Valve Nozzles, Revision 2

Weld Traveler No. 104533-TR-006, Unit 1 Decay Heat Nozzle, Revision 1

Examination Data Sheet No. DH Weld Overlay 1-LP-0140-25V, 4/29/08

UT Instrument Linearity Reports ONS-001, -002

Procedure SI-UT-126, Procedure for the Phased Array Ultrasonic Examination of Weld Overlay

Similar and Dissimilar Metal Welds, Revision 3

PDI Protocol SI-UT-126 – Table 1, Revision 0

Performance Demonstration Qualification Sheet 535, Procedure SI-UT-126, Revision 0

Final Report: Ultrasonic Examination of Pressurizer Nozzle to Safe End Pressurizer Relief

Nozzle Weld Overlay No. 1-PZR-91-1-OL

Final Report: Ultrasonic Examination of Pressurizer Nozzle to Safe End Pressurizer Relief

Nozzle Weld Overlay No. 1-PZR-91-2-OL

Final Report: Ultrasonic Examination of Pressurizer Nozzle to Safe End Pressurizer Relief

Nozzle Weld Overlay No. 1-PZR-91-3-OL

Final Report: Ultrasonic Examination of Pressurizer Nozzle to Safe End Pressurizer Spray

Nozzle Weld Overlay No. 1-RC-0230-57V

Final Report: Ultrasonic Examination of Pressurizer Nozzle to Safe End Pressurizer Hot Leg

Surge Nozzle Weld Overlay No. 1-RC-0229-67V

Final Report: Ultrasonic Examination of Pressurizer Nozzle to Safe End Pressurizer Surge

Nozzle Weld Overlay No. 1-RC-0229-68V

Liquid Penetrant Examination Report 104533-PT-001 (Prior to FSWOL of Unit 1 Decay Heat

Nozzle)

Non-Conformance Report (NCR) 08-211, Dimensional Changes to the Weld Overlay Design of the Decay Heat Nozzle Weld, Revision 0

Unit 2 Documents

Fourth Ten-Year Interval In-service Inspection Plan, Oconee Nuclear Station Unit 2, Revision 1

Weld Traveler No. 103349-305, Unit 2 Pressurizer Safety Relief Nozzles, Revision 0

Examination Data Sheet No. 2-PZR-WP91-1-WBM-DM, 5/13/07

Examination Data Sheet No. 2-PZR-WP91-2-WBM-DM, 5/14/07

Examination Data Sheet No. 2-PZR-WP91-3-WBM-DM, 5/14/07

Examination Data Sheet No. 2-RC-0326-21V-WBM-DM, 5/15/07

Examination Data Sheet No. 2-RC-0326-22V-WBM-DM, 5/15/07

Examination Data Sheet No. 2-RC-0266-23V-WBM-DM, 5/13/07

Weld Traveler No. 103349-306, Unit 2 Hot Leg Surge Nozzle, Revision 1

Liquid Penetrant Examination Report OC-PT-07-04 (Prior to FSWOL of Unit 2 Hot Leg Surge Nozzle)

CMTR for Filler Metal Heat Lot NX4720TK

NCR 07-143, Unit 2 Pressurizer Hot Leg Nozzle, Revision 1

WPS-01-08-T-804-Surge-103349, Revision 0

Unit 3 Documents

Weld Traveler No. 104212-TR-002, Unit 3 Pressurizer Spray Line, Revision 0
Weld Traveler No. 104212-TR-004, Unit 3 Pressurizer Surge Line, Revision 0
Weld Traveler No. 104212-TR-005, Unit 3 Hot Leg Surge Line, Revision 0
Weld Traveler No. 104212-TR-006, Unit 3 Decay Heat Line, Revision 0
Phased Array Ultrasonic Examination Record 3-LP-0247-14V-WBM-DM, FWSOL Hot of Hot
Leg Decay Heat Line
Phased Array Ultrasonic Examination Record 3-LP-0247-14V-WBM-DM, FWSOL of Hot Leg
Surge Line
Phased Array Ultrasonic Examination Record 3-LP-0247-14V-WBM-DM, FWSOL of Pressurizer
Safety
Phased Array Ultrasonic Examination Record 3-LP-0247-14V-WBM-DM, FWSOL of Pressurizer
Relief
Phased Array Ultrasonic Examination Record 3-LP-0247-14V-WBM-DM, FWSOL of Pressurizer
Spray Line
Phased Array Ultrasonic Examination Record 3-LP-0247-14V-WBM-DM, FWSOL of Pressurizer
Surge Nozzle
Liquid Penetrant Examination Report DE-ONS-PT009 (Prior to FSWOL of Unit 3 Pressurizer
Surge Line Nozzle)
Alloy 600 Unit 3 Lessons Learned, 1/08/2008

LIST OF ACRONYMS

ADAMS	-	Agency Wide Documents Access and Management System
AP	-	Abnormal Procedure
AREOR	-	Annual Radiological Environmental Operating Reports
ARMs	-	Area Radiation Monitors
ASW	-	Auxiliary service Water
AVR	-	Automatic Voltage Regulator
CAMs	-	Continuous Air Monitors
CAP	-	Corrective Action Program
CFR	-	Code of Federal Regulations
CY	-	Calendar Year
DAC-hour	-	Derived Air Concentration-hour
DAW	-	Dry Active Waste
DEC	-	Duke Energy Corporation
DMBW	-	Dissimilar Metal Butt Welds
DPC	-	Duke Power Company
DSC	-	Dry Storage Certification
ED	-	electronic dosimeter
EOC	-	End-of-Cycle
EPRI	-	Electric Power Research Institute
ESD	-	Engineering Support Document
FSWOL	-	Full Structural Weld Overlay
GM	-	Geiger-Mueller
GPM	-	Gallons per Minute
GPS	-	Global Positioning System
HP	-	Health Physics
HPGe	-	High Purity Germanium
HPI	-	High Pressure Injection
HPSW	-	High Pressure Service Water
HPT	-	Health Physics Technician
HVAC	-	Heating Ventilation Air Condition
IP	-	Inspection Procedure
IR	-	Inspection Report
ISFSI	-	Independent Spent Fuel Storage Installation
IST	-	Inservice Testing
LHRA	-	Locked High Radiation Area
KHU	-	Keowee Hydro-electric Unit
LPI	-	Low Pressure Injection
LPSW	-	Low Pressure Service Water
MD	-	Maintenance Directive
MP	-	Maintenance Procedure
mrem	-	millirem
MRP	-	Materials and Reliability Program
NCV	-	Non-Cited Violation
NPS	-	Nominal Pipe Size
NRC	-	Nuclear Regulatory Commission
NSD	-	Nuclear Site Directive
OA	-	Other Activities

ODCM	-	Offsite Dose Calculation Manual
OOS	-	Out-of-Service
ORAM	-	Operational Risk Assessment Monitor
OS	-	Occupational Radiation Safety
PARS	-	Publicly Available Records
PCE	-	Personnel Contamination Event
PCMs	-	Personnel Contamination Monitors
PDI	-	Performance Demonstration Initiative
PI	-	Performance Indicator
PIP	-	Problem Investigation Process report
PM	-	Preventive Maintenance
PMT	-	Post-Maintenance Test
QC	-	Quality Control
Radworker	-	Radiation Worker
RBS	-	Reactor Building Spray
RCA	-	Radiologically Controlled Area
RCS	-	Reactor Coolant System
REMP	-	Radiological Environmental Monitoring Program
Rev.	-	Revision
RG	-	Regulatory Guide
RP	-	Radiation Protection
RPMP	-	Radiation Protection Management Procedure
RWP	-	Radiation Work Permit
RTP	-	Rated Thermal Power
SCBA	-	Self-Contained Breathing Apparatus
SDP	-	Significance Determination Process
SER	-	Safety Evaluation Report
SFP	-	Spent Fuel Pool
SH	-	Standard Health Physics Procedure
SLC	-	Selected Licensee Commitment
SSC	-	Structures, Systems, and Components
SSF	-	Standby Shutdown Facility
SW	-	Service Water
TDEFWP	-	Turbine Driven Emergency Feedwater Pump
TI	-	Temporary Instruction
TLD	-	Thermoluminescent Dosimeters
TS	-	Technical Specification
U 1	-	Unit 1
U 2	-	Unit 2
U 3	-	Unit 3
UFSAR	-	Updated Final Safety Analysis Report
UPS	-	Uninterruptable Power Supply
UT	-	Ultra Sonic Examination
VHRA	-	Very High Radiation Area