



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
612 EAST LAMAR BLVD, SUITE 400
ARLINGTON, TEXAS 76011-4125

February 5, 2010

David J. Bannister, Vice President
and Chief Nuclear Officer
Omaha Public Power District
Fort Calhoun Station FC-2-4
P. O. Box 550
Fort Calhoun, NE 68023-0550

Subject: FORT CALHOUN STATION - NRC INTEGRATED INSPECTION
REPORT 05000285/2009005

Dear Mr. Bannister:

On December 31, 2009, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Fort Calhoun Station. The enclosed integrated inspection report documents the inspection findings, which were discussed on January 14, 2010, with Mr. T. Nellenbach, Plant Manager, and other members of your staff.

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

This report documents one NRC-identified finding of very low safety significance (Green). This finding was determined to involve a violation of NRC requirements. Additionally, three licensee-identified violations, which were determined to be of very low safety significance, are listed in this report. However, because of the very low safety significance and because they are entered into your corrective action program, the NRC is treating these findings as noncited violations, consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest the violations or the significance of the noncited violations, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555 0001, with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV, 612 E. Lamar Blvd, Suite 400, Arlington, Texas, 76011 4125; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at the Fort Calhoun facility. In addition, if you disagree with the characterization of any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region IV, and the NRC Resident Inspector at the Fort Calhoun Station. The information you provide will be considered in accordance with Inspection Manual Chapter 0305.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, and its enclosure, will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records 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/

Jeffrey A. Clark, P.E.
Chief, Project Branch E
Division of Reactor Projects

Docket: 50-285
License: DRP-40

Enclosure:
NRC Inspection Report 05000285/2009005
w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket: 50-285

License: DRP-40

Report: 05000285/2009005

Licensee: Omaha Public Power District

Facility: Fort Calhoun Station

Location: 9610 Power Lane
Blair, NE 68008

Dates: October 1 through December 31, 2009

Inspectors: J. Kirkland, Senior Resident Inspector
J. Wingeback, Resident Inspector
J. Mateychick, Senior Reactor Inspector
B. Larson, Senior Operations Engineer
I. Anchondo, Reactor Inspector, Plant support Branch 2
G. George, Reactor Inspector, Engineering Branch 1
D. Stearns, Health Physicist

Approved By: Jeffrey Clark, Chief, Project Branch E
Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000285/2009005; 10/31/2009 – 12/31/2009; Fort Calhoun Station, Integrated Resident and Regional Report; Access Control to Radiologically Significant Areas.

The report covered a 3-month period of inspection by resident inspectors and two announced baseline inspections by regional based inspectors. One Green noncited violation of significance was identified. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using Inspection Manual Chapter 0609, "Significance Determination Process." Findings for which the significance determination process does not apply may be Green or be assigned a severity level after NRC management review. 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

- Green. The inspectors identified a noncited violation of 10 CFR 19.12 for failure to provide adequate instruction to declared pregnant workers. Specifically, the licensee did not provide adequate information concerning the potential health protection problems and risk associated with exposure of an embryo/fetus to radiation and/or radioactive materials. The licensee entered this issue into their corrective action program as Condition Report CR 2009-5854.

The inspectors determined that the failure to provide adequate instruction to declared pregnant workers is a performance deficiency. The finding is more than minor because it is associated with the occupational radiation safety cornerstone attribute and adversely affects the objective to ensure adequate protection of worker health and safety from exposure to radiation during routine civilian nuclear reactor operation. Using the Occupational Radiation Safety Significance Determination Process, the inspectors determined this finding to be of very low safety significance because the finding did not involve ALARA planning and work controls, did not result in an overexposure, did not present a substantial potential for overexposure, and did not compromise the licensee's ability to assess dose. Additionally, the finding had a crosscutting aspect in the area of human performance, resources component, because the licensee failed to ensure the procedures related to declared pregnant workers included adequate instructions concerning the increased health concerns related to radiation exposure to the embryo/fetus [H.2(c)] (Section 2OS2).

B. Licensee-Identified Violations

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

REPORT DETAILS

Summary of Plant Status

The unit began this inspection period in Mode 1 at full rated thermal power and operated at approximately 100 percent until October 31, 2009. On November 1, 2009, the plant was shutdown for Refueling Outage number 25. On December 18, 2009, reactor criticality was achieved. The main generator was synched to the grid on December 20, 2009, and reactor power was raised to approximately 30 percent to stabilize secondary chemistry. Power ascension was halted at 49 percent power due to a steam leak in MS-475 (High Pressure Turbine Instrument Tap Root Valve) on December 21, 2009. Power was reduced to approximately 8 percent and the turbine was taken offline to repair MS-475. Following repairs to MS-475, the main generator was again synched to the grid on December 22, 2009. Reactor power was steadily raised to 66 percent on December 23, 2009. The unit returned to 100 percent power on December 29, 2009, and remained at that power level for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, and Emergency Preparedness

1R04 Equipment Alignments (71111.04)

.1 Partial Walkdown

a. Inspection Scope

The inspectors performed partial system walkdowns of the following risk-significant systems:

- December 18, 2009, Portions of the emergency diesel generators prior to the plant's transition to mode 2
- December 29, 2009, Portions of the low pressure safety injection system

The inspectors selected these systems based on their risk significance relative to the Reactor Safety Cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could affect the function of the system, and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, Updated Safety Analysis Report, technical specification requirements, administrative technical specifications, outstanding work orders, condition reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors also inspected accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The

inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the corrective action program with the appropriate significance characterization. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two partial system walkdown samples as defined in Inspection Procedure 71111.04-05.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

.1 Quarterly Fire Inspection Tours

a. Inspection Scope

The inspectors conducted fire protection walkdowns that were focused on availability, accessibility, and the condition of firefighting equipment in the following risk-significant plant areas:

- October 29, 2009, Fire Area 43, Service and Condensate Tank Area, Room 81
- November 18, 2009, Fire Area 30, Containment
- December 17, 2009, Fire Area 37, Battery Room 1, Room 54
- December 17, 2009, Fire Area 37, Battery Room 1, Room 55

The inspectors reviewed areas to assess if licensee personnel had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant; effectively maintained fire detection and suppression capability; maintained passive fire protection features in good material condition; and had implemented adequate compensatory measures for out of service, degraded or inoperable fire protection equipment, systems, or features, in accordance with the licensee's fire plan. The inspectors selected fire areas based on their overall contribution to internal fire risk as documented in the plant's Individual Plant Examination of External Events with later additional insights, their potential to affect equipment that could initiate or mitigate a plant transient, or their impact on the plant's ability to respond to a security event. Using the documents listed in the attachment, the inspectors verified that fire hoses and extinguishers were in their designated locations and available for immediate use; that fire detectors and sprinklers were unobstructed; that transient material loading was within the analyzed limits; and fire doors, dampers, and penetration seals appeared to be in satisfactory condition. The inspectors also verified that minor issues identified during the inspection were entered into the licensee's corrective action program. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of four quarterly fire-protection inspection samples as defined in Inspection Procedure 71111.05-05.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07)

.1 Annual

a. Inspection Scope

The inspectors reviewed licensee programs, verified performance against industry standards, and reviewed critical operating parameters and maintenance records for the Raw Water-Component Cooling Water Heat Exchanger, AC-1A. The inspectors verified that performance tests were satisfactorily conducted for heat exchangers/heat sinks and reviewed for problems or errors; the licensee utilized the periodic maintenance method outlined in EPRI Report NP 7552, "Heat Exchanger Performance Monitoring Guidelines"; the licensee properly utilized biofouling controls; the licensee's heat exchanger inspections adequately assessed the state of cleanliness of their tubes; and the heat exchanger was correctly categorized under 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one heat sink inspection sample as defined in Inspection Procedure 71111.07-05.

b. Findings

No findings of significance were identified.

1R08 In-service Inspection Activities (71111.08)

.1 Inspection Activities Other Than Steam Generator Tube Inspection, Pressurized Water Reactor Vessel Upper Head Penetration Inspections, and Boric Acid Corrosion Control (71111.08-02.01)

a. Inspection Scope

The inspection procedure requires the review of two to three nondestructive examination activities to verify that indications, if present, are dispositioned in accordance with ASME Code requirements and applicable procedures. The inspectors reviewed 12 nondestructive examination activities including one examination having two acceptable relevant indications.

The inspectors directly observed the following nondestructive examinations:

<u>SYSTEM</u>	<u>WELD IDENTIFICATION</u>	<u>EXAMINATION TYPE</u>
Chemical Volume Control System	2-CH-14/02	Penetrant Test
Chemical Volume Control System	2-CH-14/02A	Penetrant Test
Chemical Volume Control System	2-CH-14/03	Penetrant Test
Chemical Volume Control System	2-CH-14/03A	Penetrant Test
Reactor Vessel Nozzle (Hot leg)	MRC-1/01 MRC-1/02	Ultrasonic Test Eddy Current Test

The inspectors reviewed records for the following nondestructive examinations:

<u>SYSTEM</u>	<u>IDENTIFICATION</u>	<u>EXAMINATION TYPE</u>
Shutdown Cooling	12-SDC-20/14	Ultrasonic Test
Shutdown Cooling	12-SDC-20/15	Ultrasonic Test
Reactor Vessel Nozzle (Hot leg)	MRC-2/01 MRC-2/02	Ultrasonic Test Eddy Current Test
Reactor Vessel Nozzle (Cold leg)	MRC-1/18 MRC-1/29	Ultrasonic Test Eddy Current Test
Reactor Vessel Nozzle (Cold leg)	MRC-1/30 MRC-1/17	Ultrasonic Test Eddy Current Test
Reactor Vessel Nozzle (Cold leg)	MRC-2/18 MRC-2/29	Ultrasonic Test Eddy Current Test
Reactor Vessel Nozzle (Cold leg)	MRC-2/30 MRC-2/17	Ultrasonic Test Eddy Current Test

The inspectors verified that the certification of all nondestructive examination technicians were current, and that their personal qualification met the approved procedure

requirements. Specific documents reviewed during the inspection are listed in the attachment.

The procedure requires inspectors, if applicable, to verify that for one to three welds on pressure boundary risk significant systems were performed in accordance with ASME Code requirements, or an NRC approved alternative. The licensee did not perform any ASME Code welds during the inspection.

These actions constitute completion of the requirements for Section 02.01.

b. Findings

No findings of significance were identified.

.2 Vessel Upper Head Penetration Inspection Activities (71111.08-02.02)

a. Inspection Scope

The licensee did not perform any vessel upper head penetration inspection activities. Because of Fort Calhoun replacing their reactor vessel head during the 2006 refueling outage and subsequent inspections in the 2008 refueling outage, the licensee has been approved to follow the requirements of ASME Code Case N-729-1, "Alternative Examination Requirements for PWR Reactor Vessel Upper Heads With Nozzles Having Pressure-Retaining Partial-Penetration Welds." Fort Calhoun will perform the next vessel upper head penetration inspection in 2012.

These actions constitute completion of the requirements for Section 02.02.

b. Findings

No findings of significance were identified.

.3 Boric Acid Corrosion Control Inspection Activities (71111.08-02.03)

a. Inspection Scope

The inspectors evaluated the implementation of the licensee's boric acid corrosion control program for monitoring degradation of those systems that could be adversely affected by boric acid corrosion. The inspectors reviewed the documentation associated with the licensee's boric acid corrosion control walkdown as specified in Program Basis Document PBD-10, "Boric Acid Corrosion Control," Revision 13. The inspectors also reviewed the visual records of the components and equipment. The inspectors verified that the visual inspections emphasized locations where boric acid leaks could cause degradation of safety-significant components. The inspectors also verified that the engineering evaluations for those components where boric acid was identified gave assurance that the ASME Code wall thickness limits were properly maintained. The inspectors confirmed that the corrective actions performed for evidence of boric acid

leaks were consistent with requirements of the ASME Code. Specific documents reviewed during this inspection are listed in the attachment.

The inspectors reviewed 13 engineering evaluations associated with boric acid leaks found since the previous outage. The evaluations consisted of leaks that were identified as major leaks according to the licensee's screening process. The evaluations were reviewed for the causes and corrective actions. The inspectors reviewed 14 condition reports associated with boric acid leaks and confirmed that the corrective actions were consistent with the established requirements.

These actions constitute completion of the requirements for Section 02.03.

b. Findings

No findings of significance were identified.

.4 Steam Generator Tube Inspection Activities (71111.08-02.04)

During the inspection, the licensee did not perform any steam generator tube inspection activities. Fort Calhoun replaced their steam generator during the 2006 refueling outage. The licensee will continue to follow the guidelines contained in Nuclear Energy Institute 97-06, and related Electric Power Research Institute reports.

These actions constitute completion of the requirements of Section 02.04.

.5 Identification and Resolution of Problems (71111.08-02.05)

a. Inspection scope

The inspectors reviewed 14 condition reports that dealt with inservice inspection activities and found the corrective actions were appropriate. From this review, the inspectors concluded that the licensee has an appropriate threshold for entering issues into the corrective action program and procedures that direct a root cause evaluation when necessary. The licensee also has an effective program for applying industry-operating experience. Specific documents reviewed during this inspection are listed in the attachment.

These actions constitute completion of the requirements of Section 02.05.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11)

.1 Quarterly Review

a. Inspection Scope

On October 6, 2009, the inspectors observed a crew of licensed operators in the plant's simulator to verify that operator performance was adequate, evaluators were identifying and documenting crew performance problems and training was being conducted in accordance with licensee procedures. The inspectors evaluated the following areas:

- Licensed operator performance
- Crew's clarity and formality of communications
- Crew's ability to take timely actions in the conservative direction
- Crew's prioritization, interpretation, and verification of annunciator alarms
- Crew's correct use and implementation of abnormal and emergency procedures
- Control board manipulations
- Oversight and direction from supervisors
- Crew's ability to identify and implement appropriate technical specification actions and emergency plan actions and notifications

The inspectors compared the crew's performance in these areas to pre-established operator action expectations and successful critical task completion requirements. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one quarterly licensed-operator requalification program sample as defined in Inspection Procedure 71111.11.

b. Findings

No findings of significance were identified.

.2 Annual Inspection

a. Inspection Scope

The inspectors reviewed the annual operating test results for 2009. Since this was the first half of the biennial requalification cycle, the licensee was not required to administer a written examination. These results were assessed to determine if they were consistent with NUREG 1021, "Operator Licensing Examination Standards for Power Reactors,"

guidance and Manual Chapter 0609, Appendix I, "Licensed Operator Requalification Significance Determination Process," thresholds. This review included the test results for a total of 11 crews (6 operating, 4 staff, and 1 instructor) composed of 52 licensed operators (34 senior reactor operators and 18 reactor operators). Nine of the 11 crews passed the simulator scenario portion of the annual operating test. Three licensed operators failed the job performance measures portion of the annual operating test. The crews and individual failures were successfully remediated before being returned to shift duties.

The inspectors completed one inspection sample of the annual licensed operator requalification program.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors evaluated degraded performance issues involving the following risk significant systems:

- December 10, 2009, 10 CFR 50.65(a)(1) status of condensate pump FW-2B breaker failures
- December 14, 2009, Review of maintenance rule impact on the failure of the main generator output breaker to open during the plant shutdown

The inspectors reviewed events such as where ineffective equipment maintenance has resulted in valid or invalid automatic actuations of engineered safeguards systems and independently verified the licensee's actions to address system performance or condition problems in terms of the following:

- Implementing appropriate work practices
- Identifying and addressing common cause failures
- Scoping of systems in accordance with 10 CFR 50.65(b)
- Characterizing system reliability issues for performance
- Charging unavailability for performance
- Trending key parameters for condition monitoring
- Ensuring proper classification in accordance with 10 CFR 50.65(a)(1) or -(a)(2)

- Verifying appropriate performance criteria for structures, systems, and components classified as having an adequate demonstration of performance through preventive maintenance, as described in 10 CFR 50.65(a)(2), or as requiring the establishment of appropriate and adequate goals and corrective actions for systems classified as not having adequate performance, as described in 10 CFR 50.65(a)(1)

The inspectors assessed performance issues with respect to the reliability, availability, and condition monitoring of the system. In addition, the inspectors verified maintenance effectiveness issues were entered into the corrective action program with the appropriate significance characterization. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two quarterly maintenance effectiveness samples as defined in Inspection Procedure 71111.12-05.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13)

a. Inspection Scope

The inspectors reviewed licensee personnel's evaluation and management of plant risk for the maintenance and emergent work activities affecting risk-significant and safety-related equipment listed below to verify that the appropriate risk assessments were performed prior to removing equipment for work:

- October 19, 2009, Orange risk activity associated with the auxiliary building fire header being out of service
- November 3, 2009, Compensatory measures associated with loss of one channel of reactor vessel level indication

The inspectors selected these activities based on potential risk significance relative to the reactor safety cornerstones. As applicable for each activity, the inspectors verified that licensee personnel performed risk assessments as required by 10 CFR 50.65(a)(4) and that the assessments were accurate and complete. When licensee personnel performed emergent work, the inspectors verified that the licensee personnel promptly assessed and managed plant risk. The inspectors reviewed the scope of maintenance work, discussed the results of the assessment with the licensee's probabilistic risk analyst or shift technical advisor, and verified plant conditions were consistent with the risk assessment. The inspectors also reviewed the technical specification requirements and inspected portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two maintenance risk assessments and emergent work control inspection samples as defined in Inspection Procedure 71111.13-05.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the following issues:

- October 21, 2009, Operability of Diesel Generator 1 following failure of the voltage regulator
- October 22, 2009, Operability of Auxiliary Feedwater Pump FW-6 following ground fault on Control Board CB-20
- December 16, 2009, Operability of Low Pressure Safety Injection Pump SI-1A Suction Valve, HCV-2947, following failure of the valve operator
- December 17, 2009, Operability of charging pumps prior to reactor coolant temperature exceeding 210 degrees

The inspectors selected these potential operability issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the evaluations to ensure that technical specification operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the technical specifications and USAR to the licensee personnel's evaluations to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations. Additionally, the inspectors also reviewed a sampling of corrective action documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of four operability evaluations inspection samples as defined in Inspection Procedure 71111.15-04.

b. Findings

No findings of significance were identified.

1R19 Postmaintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed the following postmaintenance activities to verify that procedures and test activities were adequate to ensure system operability and functional capability:

- November 3, 2009, Postmaintenance testing following solenoid replacement on containment purge air inlet inboard isolation valve PCV-742C
- November 12, 2009, Postmaintenance testing following replacement of bus tie breaker between bus 1B4A and 1B3A-4A, BT-1B4A
- November 27, 2009, Postmaintenance testing of containment spray header isolation valve HCV-344, following repairs to a leaking seat
- December 15, 2009, Postmaintenance testing following replacement of pressurizer power operated relief valve PCV-102-2
- December 28, 2009, Postmaintenance testing following replacement of relay AI-31-TEST-PB-K2

The inspectors selected these activities based upon the structure, system, or component's ability to affect risk. The inspectors evaluated these activities for the following (as applicable):

- The effect of testing on the plant had been adequately addressed; testing was adequate for the maintenance performed
- Acceptance criteria were clear and demonstrated operational readiness; test instrumentation was appropriate

The inspectors evaluated the activities against the technical specifications, the Updated Final Safety Analysis Report, 10 CFR Part 50 requirements, licensee procedures, and various NRC generic communications to ensure that the test results adequately ensured that the equipment met the licensing basis and design requirements. In addition, the inspectors reviewed corrective action documents associated with postmaintenance tests to determine whether the licensee was identifying problems and entering them in the corrective action program and that the problems were being corrected commensurate with their importance to safety. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of five postmaintenance testing inspection samples as defined in Inspection Procedure 71111.19-05.

b. Findings

No findings of significance were identified.

1R20 Refueling and Other Outage Activities (71111.20)

a. Inspection Scope

The inspectors reviewed the outage safety plan and contingency plans for the refueling outage, conducted November 1 through December 20, 2009, to confirm that licensee personnel had appropriately considered risk, industry experience, and previous site-specific problems in developing and implementing a plan that assured maintenance of defense in depth. Additionally, the inspectors reviewed the licensee's crane and heavy lift inspection activities, in accordance with Operating Experience Smart Sample FY2007-03, Revision 2, "Crane and heavy lift inspection, supplemental guidance for IP-71111.20."

During the refueling outage, the inspectors observed portions of the shutdown and cooldown processes and monitored licensee controls over the outage activities, which are listed below:

- Configuration management, including maintenance of defense in depth, is commensurate with the outage safety plan for key safety functions and compliance with the applicable technical specifications when taking equipment out of service.
- Clearance activities, including confirmation that tags were properly hung and equipment appropriately configured to safely support the work or testing.
- Installation and configuration of reactor coolant pressure, level, and temperature instruments to provide accurate indication, accounting for instrument error.
- Status and configuration of electrical systems to ensure that technical specifications and outage safety-plan requirements were met, and controls over switchyard activities.
- Monitoring of decay heat removal processes, systems, and components.
- Verification that outage work was not impacting the ability of the operators to operate the spent fuel pool cooling system.
- Reactor water inventory controls, including flow paths, configurations, and alternative means for inventory addition, and controls to prevent inventory loss.

- Controls over activities that could affect reactivity.
- Maintenance of secondary containment as required by the technical specifications.
- Refueling activities, including fuel handling and sipping to detect fuel assembly leakage.
- Startup and ascension to full power operation, tracking of startup prerequisites, walkdown of the drywell (primary containment) to verify that debris had not been left which could block emergency core cooling system suction strainers, and reactor physics testing.
- Licensee identification and resolution of problems related to refueling outage activities.

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one refueling outage and other outage inspection sample as defined in Inspection Procedure 71111.20-05.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed the Updated Final Safety Analysis Report, procedure requirements, and technical specifications to ensure that the surveillance activities listed below demonstrated that the systems, structures, and/or components tested were capable of performing their intended safety functions. The inspectors either witnessed or reviewed test data to verify that the significant surveillance test attributes were adequate to address the following:

- Preconditioning
- Evaluation of testing impact on the plant
- Acceptance criteria
- Test equipment
- Procedures
- Jumper/lifted lead controls

- Test data
- Testing frequency and method demonstrated technical specification operability
- Test equipment removal
- Restoration of plant systems
- Fulfillment of ASME Code requirements
- Updating of performance indicator data
- Engineering evaluations, root causes, and bases for returning tested systems, structures, and components not meeting the test acceptance criteria were correct
- Reference setting data
- Annunciators and alarms setpoints

The inspectors also verified that licensee personnel identified and implemented any needed corrective actions associated with the surveillance testing.

- October 8, 2009, Channel A, safety injection, containment spray and recirculation actuation test
- October 28, 2009, Monthly surveillance test for station batteries 1 and 2
- October 29, 2009, Raw water system categories A and valve B exercise test (pump inservice test sample)
- November 9, 2009, raw water pump AC-10D quarterly inservice test
- November 13, 2009, Local leak rate test on penetration M-86, for valve SI-176 (containment isolation valve local leak-rate test sample)

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of five surveillance testing inspection samples as defined in Inspection Procedure 71111.22-05.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

.1 Training Observations

a. Inspection Scope

The inspectors observed a simulator training evolution for licensed operators on October 5, 2009, which required emergency plan implementation by a licensee operations crew. This evolution was planned to be evaluated and included in the performance indicator data regarding drill and exercise performance. The inspectors observed event classification and notification activities performed by the crew. The inspectors also attended the postevolution critique for the scenario. The focus of the inspectors' activities was to note any weaknesses and deficiencies in the crew's performance and ensure that the licensee evaluators noted the same issues and entered them into the corrective action program. As part of the inspection, the inspectors reviewed the scenario package and other documents listed in the attachment.

These activities constitute completion of one sample as defined in Inspection Procedure 71114.06-05.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational and Public Radiation Safety

2OS1 Access Control to Radiologically Significant Areas (71121.01)

a. Inspection Scope

This area was inspected to assess licensee personnel's performance in implementing physical and administrative controls for airborne radioactivity areas, radiation areas, high radiation areas, and worker adherence to these controls. The inspectors used the requirements in 10 CFR Part 20, technical specifications, and the licensee's procedures required by technical specifications as criteria for determining compliance. During the inspection, the inspectors interviewed the radiation protection manager, radiation protection supervisors, and radiation workers. The inspectors performed independent radiation dose rate measurements and reviewed the following items:

- Performance indicator events and associated documentation packages reported by the licensee in the Occupational Radiation Safety Cornerstone
- Controls (surveys, posting, and barricades) of radiation, high radiation, or airborne radioactivity areas

- Radiation work permits, procedures, engineering controls, and air sampler locations
- Conformity of electronic personal dosimeter alarm set points with survey indications and plant policy; workers' knowledge of required actions when their electronic personnel dosimeter noticeably malfunctions or alarms
- Barrier integrity and performance of engineering controls in airborne radioactivity areas
- Adequacy of the licensee's internal dose assessment for any actual internal exposure greater than 50 millirem committed effective dose equivalent
- Physical and programmatic controls for highly activated or contaminated materials (nonfuel) stored within spent fuel and other storage pools
- Self-assessments, audits, licensee event reports, and special reports related to the access control program since the last inspection
- Corrective action documents related to access controls
- Licensee actions in cases of repetitive deficiencies or significant individual deficiencies
- Radiation work permit briefings and worker instructions
- Adequacy of radiological controls, such as required surveys, radiation protection job coverage, and contamination control during job performance
- Dosimetry placement in high radiation work areas with significant dose rate gradients
- Changes in licensee procedural controls of high dose rate - high radiation areas and very high radiation areas
- Controls for special areas that have the potential to become very high radiation areas during certain plant operations
- Posting and locking of entrances to all accessible high dose rate - high radiation areas and very high radiation areas
- Radiation worker and radiation protection technician performance with respect to radiation protection work requirements

These activities constitute completion of 21 of the required 21 samples as defined in Inspection Procedure 71121.01-05.

b. Findings

No findings of significance were identified.

2OS2 ALARA Planning and Controls (71121.02)

a. Inspection Scope

The inspectors assessed licensee personnel's performance with respect to maintaining individual and collective radiation exposures as low as is reasonably achievable. The inspectors used the requirements in 10 CFR Part 20 and the licensee's procedures required by technical specifications as criteria for determining compliance. The inspectors interviewed licensee personnel and reviewed the following:

- Current 3-year rolling average collective exposure
- Five outage or on-line maintenance work activities scheduled during the inspection period and associated work activity exposure estimates which were likely to result in the highest personnel collective exposures
- Site-specific trends in collective exposures, plant historical data, and source-term measurements
- Site-specific ALARA procedures
- Three work activities of highest exposure significance completed during the last outage
- ALARA work activity evaluations, exposure estimates, and exposure mitigation requirements
- Intended versus actual work activity doses and the reasons for any inconsistencies
- Interfaces between operations, radiation protection, maintenance, maintenance planning, scheduling and engineering groups
- Integration of ALARA requirements into work procedure and radiation work permit documents
- Person-hour estimates provided by maintenance planning and other groups to the radiation protection group with the actual work activity time requirements
- Shielding requests and dose/benefit analyses
- Dose rate reduction activities in work planning

- Postjob (work activity) reviews
- Assumptions and basis for the current annual collective exposure estimate, the methodology for estimating work activity exposures, the intended dose outcome, and the accuracy of dose rate and man-hour estimates
- Method for adjusting exposure estimates, or replanning work when unexpected changes in scope or emergent work were encountered
- Exposure tracking system
- Use of engineering controls to achieve dose reductions and dose reduction benefits afforded by shielding
- Workers' use of the low dose waiting areas
- First-line job supervisors' contribution to ensuring work activities are conducted in a dose efficient manner
- Exposures of individuals from selected work groups
- Records detailing the historical trends and current status of tracked plant source terms and contingency plans for expected changes in the source term due to changes in plant fuel performance issues or changes in plant primary chemistry
- Source-term control strategy or justifications for not pursuing such exposure reduction initiatives
- Specific sources identified by the licensee for exposure reduction actions, priorities established for these actions, and results achieved since the last refueling cycle
- Radiation worker and radiation protection technician performance during work activities in radiation areas, airborne radioactivity areas, or high radiation areas
- Declared pregnant workers during the current assessment period, monitoring controls, and the exposure results
- Self-assessments, audits, and special reports related to the ALARA program since the last inspection
- Resolution through the corrective action process of problems identified through postjob reviews and postoutage ALARA report critiques

- Corrective action documents related to the ALARA program and follow-up activities, such as initial problem identification, characterization, and tracking
- Effectiveness of self-assessment activities with respect to identifying and addressing repetitive deficiencies or significant individual deficiencies

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of 29 of the required 29 samples as defined in Inspection Procedure 71121.02-05.

b. Findings

Introduction. The inspectors identified a Green noncited violation of 10 CFR 19.12 for failure to provide adequate instruction to declared pregnant workers. Specifically, the licensee did not provide adequate information concerning the potential health protection problems and risk associated with exposure of the embryo/fetus to radiation and/or radioactive materials.

Description. During a review of the licensee's declared pregnant worker program, the inspectors noted that the licensee's program did not contain sufficient guidance to properly inform the declared pregnant worker of the additional health problems associated with radiation exposure to the embryo/fetus. The form utilized by the licensee required the individual to state they were declaring either their pregnancy or their anticipated pregnancy. At that point, the individual would sign the form and an investigative whole body count would be performed. The form would then be forwarded to a dosimetry technician who would enter the appropriate administrative exposure limits into the computer. The form did not have a requirement to ensure the worker was aware of the reduced radiation exposure limits and potential risks to the embryo/fetus. The licensee indicated that they did not specifically brief the worker on the potential risk of radiation exposure to the embryo/fetus at the time of the pregnancy declaration.

Analysis. The inspectors determined that the failure to provide adequate instruction to declared pregnant workers is a performance deficiency. The finding is more than minor because it is associated with the Occupational Radiation Safety Cornerstone attribute and adversely affects the objective to ensure adequate protection of worker health and safety from exposure to radiation during routine civilian nuclear reactor operation. Using the Occupational Radiation Safety Significance Determination Process, the inspectors determined this finding to be of very low safety significance because the finding did not involve ALARA planning and work controls, did not result in an overexposure, did not present a substantial potential for overexposure, and did not compromise the licensee's ability to assess dose. Additionally, the finding had a crosscutting aspect in the area of human performance, resources component, because the licensee failed to ensure the procedures related to declared pregnant workers included adequate instructions concerning the increased health concerns related to radiation exposure to the embryo/fetus [H.2(c)].

Enforcement. Title 10 CFR 19.12.a(2), states that all individuals who in the course of employment are likely to receive in a year an occupational dose in excess of 100 millirem shall be instructed in the health protection problems associated with exposure to radiation and/or radioactive material. Contrary to the above, the licensee failed to provide sufficient instructions to declared pregnant workers. Instructions provided did not ensure the worker was aware of the increased sensitivity to radiation of the embryo/fetus, nor ensure the worker was aware of the decreased radiation limits during the time of the pregnancy. Because the finding is of very low safety significance and has been entered into the licensee's corrective action program as Condition Report 2009-5854, this violation is being treated as a noncited violation consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 0500285/2009005-01, "Failure to Provide Adequate Instruction to Pregnant Workers."

4. OTHER ACTIVITIES

40A1 Performance Indicator Verification (71151)

.1 Data Submission Issue

a. Inspection Scope

The inspectors performed a review of the performance indicator data submitted by the licensee for the fourth Quarter 2009 performance indicators for any obvious inconsistencies prior to its public release in accordance with Inspection Manual Chapter 0608, "Performance Indicator Program."

This review was performed as part of the inspectors' normal plant status activities and, as such, did not constitute as a separate inspection sample.

b. Findings

No findings of significance were identified.

.16 Occupational Exposure Control Effectiveness (OR01)

a. Inspection Scope

The inspectors sampled licensee submittals for the occupational radiological occurrences performance indicator for the period from the fourth quarter 2008 through the third quarter 2009. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, was used. The inspectors reviewed the licensee's assessment of the performance indicator for occupational radiation safety to determine if indicator related data was adequately assessed and reported. To assess the adequacy of the licensee's performance indicator data collection and analyses, the inspectors discussed with radiation protection staff, the scope and breadth of its data review, and the results of those reviews. The inspectors independently reviewed electronic dosimetry dose rate

and accumulated dose alarm and dose reports and the dose assignments for any intakes that occurred during the time period reviewed to determine if there were potentially unrecognized occurrences. The inspectors also conducted walkdowns of numerous locked high and very high radiation area entrances to determine the adequacy of the controls in place for these areas.

These activities constitute completion of one sample of the occupational radiological occurrences as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

.17 Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual Radiological Effluent Occurrences (PR01)

a. Inspection Scope

The inspectors sampled licensee submittals for the Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual Radiological Effluent Occurrences performance indicator for the period from the fourth quarter 2008 through the third quarter 2009. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, was used. The inspectors reviewed the licensee's issue report database and selected individual reports generated since this indicator was last reviewed to identify any potential occurrences such as unmonitored, uncontrolled, or improperly calculated effluent releases that may have impacted offsite dose. The inspectors reviewed gaseous effluent summary data and the results of associated offsite dose calculations for selected dates between the fourth quarter of 2008 through the third quarter of 2009 to determine if indicator results were accurately reported. The inspectors also reviewed the licensee's methods for quantifying gaseous and liquid effluents and determining effluent dose.

These activities constitute completion of one sample of the radiological effluent technical specifications/offsite dose calculation manual radiological effluent occurrences as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

40A2 Identification and Resolution of Problems (71152)

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness, Public Radiation Safety, Occupational Radiation Safety, and Physical Protection

.1 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

As part of the various baseline inspection procedures discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that they were being entered into the licensee's corrective action program at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed. The inspectors reviewed attributes that included the complete and accurate identification of the problem; the timely correction, commensurate with the safety significance; the evaluation and disposition of performance issues, generic implications, common causes, contributing factors, root causes, extent of condition reviews, and previous occurrences reviews; and the classification, prioritization, focus, and timeliness of corrective actions. Minor issues entered into the licensee's corrective action program because of the inspectors' observations are included in the attached list of documents reviewed.

These routine reviews for the identification and resolution of problems did not constitute any additional inspection samples. Instead, by procedure, they were considered an integral part of the inspections performed during the quarter and documented in Section 1 of this report.

b. Findings

No findings of significance were identified.

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's corrective action program. The inspectors accomplished this through review of the station's daily corrective action documents.

The inspectors performed these daily reviews as part of their daily plant status monitoring activities and, as such, did not constitute any separate inspection samples.

b. Findings

No findings of significance were identified.

40A3 Event Follow-up (71153)

- .1 (Closed) LER 05000285/2009003-00, Void in Safety Injection Piping During Operation Due to Inadequate Procedural Guidance

And

(Closed) Unresolved Item 05000285/2009007-003, Managing Gas Accumulation in Emergency Core Cooling System, Decay Heat Removal, and Containment Spray System

On April 30, 2009, a void was discovered on the cooled suction line to High Pressure Safety Injection Pump SI-2B. Based on the period from the end of the 2008 Refueling Outage to the time of the discovery of the void, this made SI-2B inoperable for greater than the Technical Specification allowed 24 hours. Actions were taken to successfully vent the void. Follow-up ultrasonic testing was done to confirm the location was water filled. The LER was reviewed by the inspectors, no findings of significance were identified. However, there was a licensee-identified violation of NRC requirements. The licensee documented the failed equipment in Condition Report 2009-2069. The LER and unresolved item are closed.

40A5 Other Activities

- .1 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

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

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

b. Findings

No findings of significance were identified.

- .2 Temporary Instruction 2515/172, "Reactor Coolant System Dissimilar Butt Welds" (Closed)

Temporary Instruction 2515/172 was previously performed at Fort Calhoun Station in April 2008. The results of the previous inspections are documented in Inspection Report 05000285/2008003.

Following guidance of Temporary Instruction 2515/172, the inspectors have completed all NRC activities associated with this Temporary Instruction.

a. Licensee's Implementation of the Materials Reliability Program (MRP)-139 Baseline Inspection

- i. During Refueling Outage 24, in spring 2008, the licensee identified the existence of Alloy 82/182, nozzle-to-safe-end butt welds, in the reactor hot leg and cold leg nozzles. MRP-139 baseline inspections on the dissimilar metal butt welds were performed in the current Refueling Outage 25, November 2009. The inspectors reviewed the baseline inspections and verified that the inspections were completed in accordance to MRP-139. No relevant indications were identified during the inspection of the reactor hot leg and cold leg nozzles
- ii. Currently, the licensee is not planning to deviate from the requirements of MRP-139 and all future examinations are scheduled in accordance with this document.

b. Volumetric Examinations

- i. The inspectors reviewed the baseline ultrasonic examinations of the reactor hot leg and cold leg nozzles, as indicated in Section "IP 71111.08" of this report. The licensee determined that no relevant indications were identified during the examination.
- ii. This item is not applicable because the licensee did not employ weld overlays.
- iii. The certification records of ultrasonic examination personnel used in the examination were reviewed. All personnel records indicated that they were qualified under the Electric Power Research Institute Performance Demonstration Initiative.
- iv. No deficiencies were identified during the nondestructive examinations.

c. Weld Overlays

This item is not applicable because the licensee did not employ weld overlays.

d. Mechanical Stress Improvement

This item is not applicable because the licensee did not employ mechanical stress improvement.

e. Inservice Inspection Program

Reactor hot leg and cold leg nozzles at Fort Calhoun Station are appropriately categorized as “D” and “E”, respectively. Future ultrasonic inspection plans for both hot leg and cold leg welds are consistent with MRP-139, Category “D” and “E” requirements. Plans for future inspections are included in the licensee’s MRP-139 program inservice inspection program. The next reactor hot leg and cold leg inspections will occur in spring 2014.

f. Findings

No findings of significance were identified.

.3 (Closed) Unresolved Item URI 05000285/2005008-05: Assessing and Managing Maintenance Risk for Post-Fire Safe Shutdown Equipment

This unresolved item involves external event risk. The issues identified affect all nuclear power plants and will receive the reviews required for generic requirements (e.g., a backfit analysis). Depending upon the results of that analysis, the issue might be revisited. Consequently, this unresolved item is being administratively closed.

40A6 Meetings

Exit Meeting Summary

On November 6, 2009, the inspectors discussed the inspection results of the licensed operator requalification program annual operating test with Mr. R. Cade, Manager, Operations Training and Simulator. The licensee acknowledged the results. The inspectors confirmed that proprietary information was not provided for the inspection.

On November 16, 2009, the inspectors presented the inspection results of the inservice inspection to Mr. Jeffrey Reinhart, Site Vice President, and other members of your staff. The licensee acknowledged the issues presented. The inspectors returned all proprietary information reviewed during the inspection.

On November 18, 2009, the inspectors presented the inspection results to you, and other members of your staff. The licensee acknowledged the issues presented. The inspector asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On January 14, 2010, the inspectors presented the inspection results to Mr. T. Nellenbach, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspector asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

40A7 Licensee-Identified Violations

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

- .1 Technical Specifications 5.11.2 requires that locked doors shall be provided to prevent unauthorized entry into areas with radiation greater than 1000 millirem per hour and the keys shall be maintained under the administrative control of the Shift Manager and/or the Manager, Radiation Protection. Contrary to this requirement, on November 13, 2009, a radiation protection technician inadvertently placed a key to the hand-hole covers of the 'B' steam generator into the trash receptacle when exiting the containment building. The key was found approximately two hours later. This was identified in the licensee's corrective action program as Condition Report 2009-5650. This finding is of very low safety significance because there was no indication that the key was used by unauthorized personnel to access the steam generator hand-holes.
- .2 Technical Specification 5.8.1 requires the licensee to establish, maintain, and implement written procedures covering the applicable procedures recommended by Regulatory Guide 1.33, Revision 2, Appendix A, 1978. Section 7.e(1) of Appendix A lists procedures for access control to radiation areas including a radiation work permit system. The licensee's Radiation Work Permit 09-2522, states that workers are to contact radiation protection for current survey data and a briefing prior to entering a posted high radiation area. Contrary to this requirement, on November 17, 2009, two workers were observed crossing a boundary to a high radiation area. When questioned about the briefing, the individuals stated they had not received a briefing for entry into the room. The individuals were excluded from entering the radiologically controlled area until interviews could be performed. This was identified in the licensee's corrective action program as Condition Report 2009-5813. This finding is of very low safety significance because there was no overexposure, no potential for overexposure, and the licensee's ability to assess dose was not compromised.
- .3 Title 10 CFR Part 50, Appendix B Criterion V, "Instructions, Procedures, and Drawings", states in part, "Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings." Contrary to the above, the licensee failed to review and identify Safety Injection System high point vents during the development of the system drain and refill procedure. A resulting void in the high pressure safety injection pump SI-2B cooled suction line rendered SI-2B inoperable from approximately May 18, 2008 until April 30, 2009. This finding had very low safety significance because the alternate high pressure safety injection train SI-2A/2C was available during the period the gas void existed in the cooled suction piping to high pressure safety injection pump SI-2B. This finding was identified in the licensee's corrective action program as Condition Report 2009-2069 and was reported as LER 05000285/2009003-00.

SUPPLEMENTAL INFORMATION
KEY POINTS OF CONTACT

Licensee Personnel

R. Acker, Station Licensing
S. Andersen, Comp. Engineering, Supervisor
E. Breault, Health Physicist
D. Brehm, Supervisor, Radiological Equipment
L. Cherko, Senior Radiation Protection Technician
R. Ciemers, Nuclear Engineering, Division Manager
A. Clark, Manager, Security
R. Clemens, Division Manager, Nuclear Engineering
P. Cronin, Manager, Operations OPPD
P. Downey, ISI Program Engineer
M. Frans, Manager, System Engineering
J. Gasper, Manager, Design Engineering
J. Grewe, Welding Engineer
D. Guinn, Supervisor Regulatory Compliance
P. Hamer, ISI Engineer
R. Haug, Training Manager
J. Herman, Manager, Engineering Programs
R. Hodgson, Manager, Radiation Protection
T. Hutchinson, SIG Program Engineer
B. Lisowyj, Project Manager
D. Little, Specialist, Radiological Health
A. Lollis, Supervisor, ALARA
T. Mathews, Manager, Nuclear Licensing
E. Matzke, Compliance
S. Miller, Supervisor, System Engineer
G. Miller, ISI Coordinator
T. Nellenbach, Plant Manager
T. Pilmaier, Manager, Performance Improvement
J. Reinhart, Site Vice President
L. Shubert, Chemical Operations, Supervisor
C. Smith, Shift Technical Advisor
T. Steckelberg, Health Physicist
M. Tesar, Nuclear Support Service, Division Manager
D. Travsch, Assistant Plant Manager
T. Uehling, Manager, Chemistry
C. Wyffels, Wesdyne, ISI

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

0500285/2009005-01	NCV	Failure to Provide Adequate Instruction to Pregnant Workers (Section 2OS1)
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Closed

05000285/2005008-05	URI	Assessing and Managing Maintenance Risk for Post-Fire Safe Shutdown Equipment (Section 4OA5)
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05000285/2009003-00	LER	Void in Safety Injection Piping During Operation Due to Inadequate Procedural Guidance (Section 4OA3)
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05000285/2009007-03	URI	Managing Gas Accumulation in Emergency Core Cooling System, Decay Heat Removal, and Containment Spray System (Section 4OA3)
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05000285/2515/172	TI	Reactor Coolant System Dissimilar Metal Butt Welds (Section 4OA5)
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LIST OF DOCUMENTS REVIEWED

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
OI-SI-1	Safety Injection – Normal Operation	118
OI-DG-1	Operating Instruction – Diesel Generator No. 1	48
OI-DG-2	Operating Instruction – Diesel Generator No. 2	53

Section 1RO4: Equipment Alignment

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
E-23866-210-130 SH COV	Safety Injection and Containment Spray System P&ID	56
E-23866-210-130 SH 1	Safety Injection and Containment Spray System P&ID	102
E-23866-210-130 SH 2	Safety Injection and Containment Spray System P&ID	66
E-23866-210-130 SH 2A	Safety Injection and Containment Spray System P&ID	21

Section 1RO4: Equipment Alignment

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
E-23866-210-130 SH 2B	Safety Injection and Containment Spray System P&ID	13
B120F03001, SH 1	Lube Oil System Schematic for DG-1	15
B120F03001, SH 2	Lube Oil System Schematic for DG-2	25
B120F04002, SH 1	Jacket Water Schematic for DG-1	25
B120F04002, SH 2	Jacket Water Schematic for DG-2	21
B120F07001, SH 1	Starting Air System Schematic for DG-1	34
B120F07001, SH 2	Starting Air System Schematic for DG-2	25

Section 1RO5: Fire Protection

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EA-FC-97-001	FCS Fire Hazards Analysis Manual	15
USAR 9.11	Updated Safety Analysis Report Fire Protection Systems	19
SO-G-28	Standing Order, Station Fire Plan	77
SO-G-58	Standing Order, Control of Fire Protection System Impairments	36
SO-G-91	Standing Order, Control and Transportation of Combustible Materials	25
SO-G-102	Standing Order, Fire Protection Program Plan	8
SO-G-103	Standing Order, Fire Protection Operability Criteria And Surveillance Requirements	24
AOP-06	Fire Emergency	22
AOP-06-01	Fire Emergency, Auxiliary Building Radiation Controlled Areas and Containment	1
AOP-06-02	Fire Emergency, Uncontrolled Areas of Auxiliary Building	0
AOP-06-03	Fire Emergency, Miscellaneous Areas	0

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
D-4147 Sheet 1	Containment and Auxiliary Building Elevation 1036' Portable Fire Extinguisher Locations	8
D-4147 Sheet 3	Ground Floor Plan Elev. 1007' Portable Fire Extinguisher Locations	11

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>NUMBER</u>	<u>NUMBER</u>
FC05814	UFHA Combustible Loading	11

Section 1RO7: Heat Sink Performance

PROCEDURES

<u>NUMBER</u>	<u>NUMBER</u>	<u>NUMBER</u>
PE-RR-CCW-0100	Disassembly, Cleaning, and Repair of CCW Heat Exchanger – Raw Water Side	35

WORK ORDER

341977-01

Section 1RO8: Inservice Inspection Activities

PROCEDURE

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
PBD-10	Boric Acid Corrosion Control	13
SE-EQT-MX-0002	Carbon Steel and Low Alloy Steel Fasteners Inservice Testing Inspections	10
OP-ST-SI-3021	Room 21 Safety Injection/Containment Spray Pumps and Valve Exercise Inservice Test	9
SE-EQT-MX-0002	Carbon Steel and Low Alloy Steel Fasteners Inservice Testing Refueling Inspections	8

Section 1RO8: Inservice Inspection Activities

PROCEDURE

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	2009 – Reactor Vessel Nozzle Examinations	1
PDI-ISI-254-SE	Remote Inservice Examination of Reactor Vessel Nozzle to Safe End, Nozzle to Pipe, and Safe End to Pipe Welds	3
QCP-400	Visual Inspection	12
OPPD-PT-98-1	Liquid Penetrant Examination – Solvent Removable, Visible Dye Technique	3
OPPD-UT-98-2	Manual Ultrasonic Examination of Austenitic Piping Welds	2
PDI-UT-2	PDI Generic Procedure for the Ultrasonic Examination of Austenitic Pipe Welds – Table 2	March 23, 2009

NONDESTRUCTIVE EXAMINATION REPORTS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
B-64	Liquid Penetrant Examination, 2-CH-14	November 11, 2009
A-42	Ultrasonic Examination, 12-SDC-20/14	November 11, 2009
A-42	Ultrasonic Examination, 12-SDC-20/15	November 11, 2009

WORK ORDER PACKAGES

303475 01	358330 02	346456 01	237110 01
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CONDITION REPORTS/DISPOSITION REQUEST

2007-4921	2008-1454	2008-2187	2008-4065	2009-2394	2009-2854
2009-3752	2009-4475	2009-4642	2009-5038	2009-5583	2009-2279
2008-7075	2009-5773				

Section 1R11: Licensed Operator Requalification Program

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
AOP-05	Emergency Shutdown	10
AOP-22	Reactor Coolant Leak	30
EOP-00	Standard Post Trip Actions	24
EOP-20	Functional Recovery Procedure	23

MISCELLANEOUS DOCUMENTS

<u>TITLE</u>	<u>REVISION</u>
Simulator Evaluation Guide 84207, SGTR on RC-2B & UHE on RC-2A	6

Section 1R13: Maintenance Effectiveness

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
ANSI N18.7	Administrative Controls for Nuclear Power Plants	1972
SO-M-100	Standing Order, Conduct of Maintenance	52
SO-M-101	Standing Order, Maintenance Work Control	85
PBD-16	Maintenance Rule	8
PED-SEI-34	Maintenance Rule Program	8

MISCELLANEOUS DOCUMENTS

<u>TITLE</u>	<u>DATE</u>
Summary of scheduled activities affecting plant risk	week of October 18, 2009
Functional Scoping Data Sheet 1506: MFW CNDPMP	2a
Functional Scoping Data Sheet 1021: EDS GENELE	3
Apparent Cause Analysis Summary Report: Failure of Lockout Relays to Trip When Turbine Taken Off-Line: Condition Report 2009-5203	1

CONDITION REPORTS

200700166	200701069	2007-2580	2007-2732	2007-5237	2008-0369
2009-1069	2009-1072	2009-1834	2009-2351	2009-5203	

WORK ORDERS

37738-540

Section 1R15: Operability Evaluations

DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
USAR 8.4	Emergency Power Sources	12
SDBD-DG-112	Emergency Diesel Generators	25
SDBD-SI-LP-133	Low Pressure Safety Injection	28
USAR 6.2	Safety Injection	34
USAR 9.4	Auxiliary Feedwater Systems	19
USAR 9.2	Chemical and Volume Control System	24
SDBD-CH-108	Chemical and Volume Control System	23
SDBD-FW-AFW-117	Auxiliary Feedwater	23

CORRECTIVE ACTION DOCUMENT NAME

2009-4972 2009-5010 2009-6641 2009-6643

Section 1R19: Postmaintenance Testing

CONDITION REPORTS

2009-5239 2009-5361 2009-5900 2009-5976 2009-6410
2009-6843

WORK ORDERS

00357679 00181503 00301749 00363628 00314126

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
OP-ST-VA-3002	Ventilating Air System Cold Shutdown Category A Valve Exercise and Remote Indication Verification Test	6
EM-CP-05-BT-1B4A	Calibration of 480 VAC Tie Breaker Located in Cubicle BT-1B4A	9
IC-ST-RC-0024	Test of PORVs Actuation from RPS High Pressurizer Pressure Trips	2

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
SE-ST-RC-3004	Power Operated Relief Valve Offsite Exercise Test	1
PE-RR-RC-0402	Removal, Repair, and Installation of Pressurizer Power Operated Relief Valves	8

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
E-23866-210-110, SH 1A	Reactor Coolant System Flow Diagram P&ID	16
11405-E-30, SH 6	Stored Energy System & Miscellaneous Systems S. C. & I.	21
E-23866-411-13, SH 1	Reactor Protective System Schematic	22
E-23866-411-13, SH 1	Reactor Protective System Schematic	10

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EC33464	Replace AK-50 480V Main & Bus-Tie Breakers With Molded Case Type or Equivalent	0
USAR 4.3	Reactor Coolant System: Component and System Design and Operation	34
Tech Spec	Fort Calhoun Technical Specifications	263

Section 1R19: Postmaintenance Testing

CONDITION REPORTS

2009-5239 2009-5900 2009-5361 6410 6843

WORK ORDERS

00357679 00181503 00301749 00363628

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
OP-ST-VA-3002	Ventilating Air System Cold Shutdown Category A Valve Exercise and Remote Indication Verification Test	6
EM-CP-05-BT-1B4A	Calibration of 480 VAC Tie Breaker Located in Cubicle BT-1B4A	9
IC-ST-RC-0024	Test of PORVs Actuation from RPS High Pressurizer Pressure Trips	2
SE-ST-RC-3004	Power Operated Relief Valve Offsite Exercise Test	1
PE-RR-RC-0402	Removal, Repair, and Installation of Pressurizer Power Operated Relief Valves	8

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
E-23866-210-110, SH 1A	Reactor Coolant System Flow Diagram P&ID	16
11405-E-30, SH 6	Stored Energy System & Miscellaneous Systems S. C. & I.	21
E-23866-411-13, SH 1	Reactor Protective System Schematic	22
E-23866-411-13, SH 1	Reactor Protective System Schematic	10

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EC33464	Replace AK-50 480V Main & Bus-Tie Breakers With Molded Case Type or Equivalent	0
USAR 4.3	Reactor Coolant System: Component and System Design and Operation	34
Tech Spec	Fort Calhoun Technical Specifications	263

Section 1R20: Refueling and Other Outage Activities

CONDITION REPORTS

QCIR 20090240 CR 2007-5273 CR 2009-4746 CR 200601495 CR 2009-5256

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
GM-OI-HE-1	Polar Crane Normal Operation	16
GM-OI-HE-2	Auxiliary Building Crane Normal Operation	18
MM-RR-RC-0305	Removal of Reactor Vessel Closure Head, Hold Down Ring, and Upper Guide Structure	31
MM-RI-HE-0550	Polar Crane Inspection	26
MM-RR-RC-0308A	Removal of Core Support Barrel	12
SO-G-61	Rigging Inspection	29

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
100A2582-S	Hoist Assembly	0
100A3542-S	Main Hoist Assembly	0
100A5027	130 Ton Block Assembly	0
79E3077	Limit Switch (Main)	0
R74363	Trolley Layout	0

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
NUREG 0612	Control of Heavy Loads at Nuclear Power Plants	0
NRC RIS 2005-25	Clarification of NRC Guidelines for Control of Heavy Loads	0
EGM 07-006	Enforcement Discretion for Heavy Load handling Activities	0
NEI 08-05	Industry Initiative on Control of Heavy Loads	0
USAR 14.24	Safety Analysis Heavy Load Incident	21
FC07467	Reactor Vessel Head (and Missile Shield) Drop Dynamic Analysis	0
	Safety Evaluation by the Office of Nuclear Reactor Regulation Related to Nuclear Energy Institute (NEI) 08-05, Industry Initiative on Control of Heavy Loads	0

ASME Boiler and Pressure Vessel Code, Section III, "Rules for Construction of Nuclear Power Plant Components"	2007
NRC-84-0157, Letter from J.R. Miller, NRC to W.C. Jones OPPD, Control of Heavy Loads (Phase I)	May 22, 1984
NRC-85-0192, Letter from H. L Johnson, NRC to OPPD, Completion of Phase II "Control of Heavy Loads at Nuclear Power Plants" NUREG-0612	June 28, 1985
LIC-81-0164, Letter from W.C. Jones, OPPD to R.A. Clark, NRC, Response to Heavy Loads	November 30, 1981
LIC-84-094, Letter from W.C. Jones, OPPD to J.R. Miller, NRC, Fort Calhoun Station Unit No. 1 Control of Heavy Loads, Phase 2	April 6, 1984

Section 1R22: Surveillance Testing

CONDITION REPORTS

2009-2247 2009-5076 2009-5119

WORK ORDERS

00353024 00337034

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
OP-ST-RW-3002B	Raw Water System Category A and B Valve Exercise Test	10
SO-G-23	Surveillance Test Program	54
EM-ST-EE-0001	Monthly Surveillance Test for Station Battery No.1	15
EM-ST-EE-0002	Monthly Surveillance Test for Station Battery No.2	14
OP-ST-RW-3031	AC-10D Raw Water Pump Quarterly Inservice Test	6
IC-ST-AE-3186	Type C Local Leak Rate Test of Penetration M-86	8
OP-ST-ESF-0009	Channel A, Safety Injection, Containment Spray and Recirculation Actuation Test	56

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
11405-M-100	Raw Water Flow Diagram	97
11405-E-8	125 Volt DC Misc Power Distribution Diagram	62
2C6288	DC Distribution Schematic EE-8F	5
2C6289	DC Distribution Schematic EE-8G	6
E-4220	Containment Closure Status Board	3

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
PBD-2	Inservice Inspection Program	11
PED-QP-33	Inservice Inspection and Inservice Test Program	7
TDB-III.34	Technical Data Book AS-10D Pump Curve	29
TM B580.0200	Raw Water Pumps	

Section 1EP6: Drill Evaluation

DOCUMENT TYPE

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
TBD EPIP-OSC-1A	Recognition Category A - Abnormal Rad Levels/Radiological Effluent	1
TBD EPIP-OSC-1C	Recognition Category C – Cold Shutdown/Refueling System Malfunction	1
TBD EPIP-OSC-1E	Recognition Category E - Events Related to ISFSI	1
TBD EPIP-OSC-1F	Recognition Category F - Fission Product Barrier Degradation	1
TBD EPIP-OSC-1H	Recognition Category H - Hazards and Other Conditions Affecting Plant Safety	1
TBD EPIP-OSC-1S	Recognition Category S – System Malfunction	1

Section 20S1: Access Controls to Radiologically Significant Areas

PROCEDURE

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
RP-202	Radiological Surveys	34
RP-202	Radiological Surveys	34
RP-204	Radiological Area Controls	53
RP-205	DAC-Hour Tracking	6
RP-215	Refueling Shutdown, Forced Outages, and Plant Start-Up Initial Actions and Radiological Survey Procedure	11
RP-901	Evaluating Program Effectiveness	8
RPI-1	Personnel Monitoring and Decontamination	14
SO-O-26	Plant Keys	39
SO-O-47	Spent Fuel Pool Inventory Control	7
SO-G-101	Radiation Worker Practices	33

AUDITS, SELF-ASSESSMENTS, AND SURVEILLANCES

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
SA-09-0579	Self-Assessment Report; Radiation Protection Instruments	September 14, 2009
Various	Quality Surveillance Observations	December 2008 through September 2009

CONDITION REPORTS

CR 2008-6679	CR 2008-6795	CR 2008-7112	CR 2008-7414	CR 2009-0430
CR 2009-0581	CR 2009-0919	CR 2009-1640	CR 2009-2424	CR 2009-3609
CR 2009-3861	CR 2009-4174	CR 2009-4975	CR 2009-5579	

RADIATION WORK PERMITS

09-3515	Reactor Head Maintenance
09-3518	Reactor Head Removal
09-3527	Scaffold Installation and Removal

RADIOLOGICAL SURVEYS

09-1094 09-1096 09-1101 09-1102 09-1104 09-1107 09-1131
09-11336

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
333028-01	Work Order Package; Inventory RHRA and VHRA Keys	July 07, 2009
337904-01	Work Order Package; Inventory RHRA and VHRA Keys	October 16, 2009

Section 20S2: ALARA Planning and Controls

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
RP-205	DAC-Hour Tracking	6
RP-301	ALARA Planning/RWP Development and Control	39
RP-306	Hot Spot Identification and Tracking	19
RP-307	Use and Control of Temporary Lead Shielding	17
RP-602	Personnel Dosimetry Issuance and Change out	21
RP-606	Special Dosimetry Issue, Control and Use	12
RP-650	Internal Dosimetry Program	11
RP-901	Evaluating Program Effectiveness	8
RP-AD-300	ALARA Program	20
RP-AD-600	Dosimetry Program	20

AUDITS, SELF-ASSESSMENTS, AND SURVEILLANCES

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
09-QUA-065	Quality Department Surveillance Report; ALARA Activities	October 12, 2009
Various	Quality Surveillance Observations	December 2008 through September 2009

CONDITION REPORTS

2008-6737	2008-6842	2008-7272	2009-546	2009-0293
2009-0430	2009-0919	2009-1286	2009-1814	2009-3127
2009-3779	2009-3947	2009-4578		

RADIATION WORK PERMITS

09-0010	Radiation Protection Duties
09-3502	Minor Maintenance
09-3508	Fuel Movement/Upender Work
09-3518	Reactor Head Reassembly
09-3520	Valve Work

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
FC-RP-205-1	Airborne Radioactivity Area Entry Log	November 11, 2009
FC-RP-205-1	Airborne Radioactivity Area Entry Log	November 13, 2009
FC-RP-205-1	Airborne Radioactivity Area Entry Log	November 14, 2009
	ALARA Committee Meeting Minutes	February 23, 2009
	ALARA Committee Meeting Minutes	April 3, 2009
	ALARA Committee Meeting Minutes	June 8, 2009
	ALARA Committee Meeting Minutes	August 10, 2009
	Personnel Contamination Log	2009
	Fort Calhoun Dose Reduction Plan 2008-2012	November 09, 2009

Section 40A1: Performance Indicator Verification

PROCEDURE

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
NOD-QP-40	NRC Performance Indicator Program	5
NOD-QP-37	Performance Indicators Program	20