



UNITED STATES
NUCLEAR REGULATORY COMMISSION

REGION IV
612 EAST LAMAR BLVD, SUITE 400
ARLINGTON, TEXAS 76011-4125

November 14, 2011

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 - NRC INTEGRATED INSPECTION REPORT 05000285/2011004

Dear Mr. Bannister:

On September 30, 2011, 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 October 13, 2011, with Mr. T. Nellenbach, Division Manager of Plant Operations, and other members of your staff.

Based on the results of this inspection, the NRC has identified issues that were evaluated under the risk significance determination process as having very low safety significance (Green). The NRC has determined that violations are associated with these issues. Additionally, one licensee-identified violation, which was determined to be of very low safety significance, is listed in this report. However, because of the very low safety significance and because they were entered into your corrective action program, the NRC is treating these findings as noncited violations, consistent with Section 2.3.2 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 Station facility. In addition, if you disagree with the cross-cutting aspect assigned to 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 facility.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, and its enclosure, will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web

Omaha Public Power District

- 2 -

site at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response should not include any personal privacy or proprietary, information so that it can be made available to the Public without redaction.

Sincerely,

/RAzua for/

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

Docket: 50-285
License: DPR-40

Enclosure:
NRC Inspection Report 05000285/2011004
w/Attachment: Supplemental Information

cc w/Enclosure:

Electronic Distribution

Electronic distribution by RIV:
 Regional Administrator (Elmo.Collins@nrc.gov)
 Deputy Regional Administrator (Art.Howell@nrc.gov)
 DRP Director (Kriss.Kennedy@nrc.gov)
 DRP Deputy Director (Troy.Pruett@nrc.gov)
 DRS Director (Anton.Vegel@nrc.gov)
 DRS Deputy Director (Tom.Blount@nrc.gov)
 Senior Resident Inspector (John.Kirkland@nrc.gov)
 Resident Inspector (Jacob.Wingebach@nrc.gov)
 Branch Chief, DRP/F (Jeffrey.Clark@nrc.gov)
 Project Engineer, DRP/F (Chris.Smith@nrc.gov)
 FCS Administrative Assistant (Berni.Madison@nrc.gov)
 Public Affairs Officer (Victor.Dricks@nrc.gov)
 Public Affairs Officer (Lara.Uselding@nrc.gov)
 Branch Chief, DRS/TSB (Dale.Powers@nrc.gov)
 Project Manager (Lynnea.Wilkins@nrc.gov)
 RITS Coordinator (Marisa.Herrera@nrc.gov)
 Regional Counsel (Karla.Fuller@nrc.gov)
 Congressional Affairs Officer (Jenny.Weil@nrc.gov)
 OEMail Resource

Inspection Reports/MidCycle and EOC Letters to the following:
 ROPreports

Only inspection reports to the following:
 RIV/ETA: OEDO (Mark.Franke@nrc.gov)
 DRS/TSB STA (Dale.Powers@nrc.gov)

File located: R:_REACTORS_FCS\2011\FCS 2011-004 RP JCK

SUNSI Rev Compl	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	ADAMS	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Reviewer Initials	RVA
Publicly Avail	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sensitive	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Sens. Type Initials	RVA
SRI:DRP/	RI:DRP/	SPE:DRP/	C:DRS/EB1	C:DRS/EB2	
JCKirkland	JFWingebach	WCSmith	TRFarnholtz	NFO'Keefe	
/RA via E/	/RA via E/	/RAzua for/	/RLatta for/	/RA/	
11/14/11	11/14/11	11/7/11	11/7/11	11/8/11	
C:DRS/OB	C:DRS/PSB1	C:DRS/PSB2	C:DRS/TSB	C:DRP/	
MShaire	MCHay	GEWerner	DAPowers	JAClark	
/RA/	/RA/	/RA/	/RA/	/RAzua for/	
11/8/11	11/8/11	11/8/11	11/8/11	11/14/11	

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket: 05000285

License: DPR-40

Report: 05000285/2011004

Licensee: Omaha Public Power District

Facility: Fort Calhoun Station

Location: 9610 Power Lane
Blair, NE 68008

Dates: July 1 through September 30, 2011

Inspectors: J. Kirkland, Senior Resident Inspector
J. Wingeback, Resident Inspector
P. Elkmann, Senior Emergency Preparedness Inspector
R. Azua, Senior Project Engineer

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

SUMMARY OF FINDINGS

IR 05000285/2011004; 07/01/2011 – 09/30/2011; Fort Calhoun Station, Integrated Resident and Regional Report; Operability Evaluations and Identification and Resolution of Problems

The report covered a 3-month period of inspection by resident inspectors and announced baseline inspections by region-based inspectors. Three Green noncited violations of significance were identified. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using Inspection Manual Chapter 0609, "Significance Determination Process." The cross-cutting aspect is determined using Inspection Manual Chapter 0310, "Components within the Cross Cutting Areas." 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

Cornerstone: Initiating Events

- Green. The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, Design Control, for failure to incorporate design information into procedures for operation of the component cooling water system for temporary off-normal system conditions during refueling.

The failure to ensure that the minimum flow assumption contained in calculation FC06700 was incorporated in component cooling water operating procedures is a performance deficiency. This was reasonably within the licensee ability to foresee and correct. The performance deficiency is more than minor as it affected the Initiating Events Cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown, as well as, power operations. Since the finding affects the safety of the reactor during refueling outages, forced outages, and maintenance outages, it was evaluated using Inspection Manual Chapter 0609, Appendix G. The finding did not require quantitative assessment and therefore is of very low safety significance or green. A crosscutting aspect was not assigned as none were reflective of current plant performance (Section 1R15).

- Green. The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion V for failure to have adequate instructions, procedures, or drawings including appropriate quantitative or qualitative acceptance criteria to ensure they can detect reactor coolant leakage, as required by the Updated Safety Analysis Report, using the containment dew point instrument or containment sump level instruments.

Title 10 CFR Part 50, Appendix B, Criterion V states, "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 this, the inspectors determined that the licensee's failure to have adequate instructions, procedures, or drawings including appropriate quantitative or qualitative acceptance criteria to ensure they can detect a one gallon per minute leak in four hours was a performance deficiency. This was within the licensee's ability to foresee and correct. The performance deficiency is more than minor as it affected the Initiating Events Cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Since the finding occurred during power operation and included structures, systems, and components where existing Significance Determination Process guidance is not adequate to provide reasonable estimates of the finding significance within the established Significance Determination Process timeliness goal of 90 days, the finding was evaluated using Inspection Manual Chapter 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria." Using Table 4.1, "Qualitative Decision – Making Attributes for NRC Management Review," the finding was determined to be of very low safety significance (Green). This finding does not have a crosscutting aspect as the performance characteristic described by a potential crosscutting aspect did not occur within the last three years (Section 4OA2).

Cornerstone: Barrier Integrity

- Green. The inspectors identified a noncited violation of 10 CFR 50 Appendix B Criterion XVI for the failure to identify and correct a condition adverse to quality. Specifically, with regard to the calibration of the load weighing system for the HE-2 crane prior to its use in lifting the spent fuel transfer cask, loaded with spent fuel, out of the spent fuel pool. This issue was entered into the licensee's corrective action program as Condition Report 2009-3186.

The failure by the licensee to promptly identify and correct the condition whereby the HE-2 crane load weighing system had not been calibrated or tested for an extended period of time leading up to its use during the lift of the spent fuel transfer cask on July 7, 2009, is a performance deficiency. The performance deficiency was determined to be more than minor because it adversely impacted the spent fuel pool fuel handling attribute of the Barrier Integrity Cornerstone objective of providing reasonable assurance that physical design barriers (fuel cladding) protect the public from radionuclide releases caused by accidents or events. Specifically, the licensee failed on more than one occasion to identify and correct a condition whereby the load cell for the HE-2 crane was neither calibrated nor tested prior to lifting the spent fuel transfer cask, loaded with spent fuel, out of the spent fuel pool. Using Attachment 4 of Inspection Manual Chapter 0609, the inspectors determined that this finding has a very low safety significance (Green) because it did not result in a fuel handling error that caused damage to fuel clad integrity or a dropped assembly. The finding was not found to be indicative of current plant performance and thus no crosscutting aspect was identified (Section 4OA2).

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 the inspection period shutdown, with all fuel removed from the core. On May 30, 2011, core reload was completed, and the unit remained in Mode 5 for the remainder of the inspection procedure.

1. REACTOR SAFETY

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

1R01 Adverse Weather Protection (71111.01)

.1 Summer Readiness for Offsite and Alternate-ac Power

a. Inspection Scope

The inspectors performed a review of preparations for summer weather for selected systems, including conditions that could lead to loss-of-offsite power and conditions that could result from high temperatures. The inspectors reviewed the procedures affecting these areas and the communications protocols between the transmission system operator and the plant to verify that the appropriate information was being exchanged when issues arose that could affect the offsite power system. Examples of aspects that were considered in the inspectors' review included:

- The coordination between the transmission system operator and the plant's operations personnel during off-normal or emergency events
- The explanations for the events
- The estimates of when the offsite power system would be returned to a normal state
- The notifications from the transmission system operator to the plant when the offsite power system was returned to normal

During the inspection, the inspectors focused on plant-specific design features and the procedures used by plant personnel to mitigate or respond to adverse weather conditions. Additionally, the inspectors reviewed the Updated Safety Analysis Report and performance requirements for systems selected for inspection, and verified that operator actions were appropriate as specified by plant-specific procedures. Specific documents reviewed during this inspection are listed in the attachment. The inspectors also reviewed corrective action program items to verify that the licensee was identifying adverse weather issues at an appropriate threshold and entering them into their

corrective action program in accordance with station corrective action procedures. The inspectors' reviews focused specifically on the following plant systems:

- Main Service Transformers, Emergency Diesel Generators, 161 kV Distribution, and 345 kV Distribution Systems throughout flooding activities

These activities constitute completion of one readiness for summer weather affect on offsite and alternate-ac power sample as defined in Inspection Procedure 71111.01-05.

b. Findings

No findings were identified.

1R04 Equipment Alignments (71111.04)

.1 Partial Walkdown

a. Inspection Scope

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

- July 1 – July 29, 2011, Portions of the Raw Water System, continuously walked down during site wide flood response
- July 1 – July 29, 2011, Portions of the Component Cooling Water System, continuously walked down during site wide flood response
- July 1 – July 29, 2011, Portions of the Spent Fuel Pool Cooling System, continuously walked down during site wide flood response

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 three partial system walkdown samples as defined in Inspection Procedure 71111.04-05.

b. Findings

No findings were identified.

.2 Complete Walkdown

a. Inspection Scope

On September 21, 2011, the inspectors performed a complete system alignment inspection of the shutdown cooling system to verify the functional capability of the system. The inspectors selected this system because it was considered both safety significant and risk significant in the licensee's probabilistic risk assessment. The inspectors inspected the system to review mechanical and electrical equipment line ups, electrical power availability, system pressure and temperature indications, as appropriate, component labeling, component lubrication, component and equipment cooling, hangers and supports, operability of support systems, and to ensure that ancillary equipment or debris did not interfere with equipment operation. The inspectors reviewed a sample of past and outstanding work orders to determine whether any deficiencies significantly affected the system function. In addition, the inspectors reviewed the corrective action program database to ensure that system equipment-alignment problems were being identified and appropriately resolved. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one complete system walkdown sample as defined in Inspection Procedure 71111.04-05.

b. Findings

No findings 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:

- August 24, 2011, Fire Areas 37 and 38, Battery Rooms 1 and 2 (Rooms 54 and 55)

- August 24, 2011, Fire Areas 36A and 36B, East and West Switchgear Rooms (Rooms 56E and 56W)
- September 30, 2011, Fire Area 13, Mechanical Penetration Area (Room 13)
- September 30, 2011, Fire Area 16, Valve Area 2 (Room 15A)

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 were identified.

1R11 Licensed Operator Requalification Program (71111.11)

a. Inspection Scope

On September 26, 2011, 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
- Supervisors oversight and direction
- 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 were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

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

- September 22, 2011, SI-5 Outlet Header Control Valves LCV-383-1 and LCV-383-2

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 one quarterly maintenance effectiveness sample as defined in Inspection Procedure 71111.12-05.

b. Findings

No findings 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:

- June 8, 2011, Risk management actions associated with the loss of two 480-volt buses, 1B4A and 1B3A-4A
- June 26, 2011, Risk management actions associated with the failure of the aquadam
- June 27, 2011, Risk management actions associated with the failure of both trains of switchgear ventilation

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 three maintenance risk assessments and emergent work control inspection samples as defined in Inspection Procedure 71111.13-05.

b. Findings

No findings were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the following issues:

- July 1, 2011, Functionality of Diesel Driven Auxiliary Feedwater Pump, FW-54, following voiding
- August 1, 2011, Operability of Component Cooling Water Pumps following pump cavitation
- August 26, 2011, Technical Specification 2.4.1 operability concerns

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 Updated Final Safety Analysis Report 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 three operability evaluations inspection samples as defined in Inspection Procedure 71111.15-04

b. Findings

Introduction. The inspectors identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, Design Control, for failure to incorporate design information into procedures for operation of the component cooling water system for temporary off-normal system conditions during refueling.

Description. Calculation FC06700 estimates maximum allowable flow from a single operating component cooling water pump with the component cooling water surge tank empty during temporary off-normal system conditions during refueling. It concludes, if total component cooling water flow is maintained at or below 5000 GPM with one pump operating, then adequate net positive suction head will be maintained for the realistic range of expected component cooling water temperatures during a refueling outage. These requirements are not contained in any licensee procedure regarding this system lineup.

On May 20, 2011 the component cooling water surge tank was in the process of being depressurized to allow for the removal of the component cooling water surge tank relief valve AC-341. Operators near the component cooling water pumps heard a change in pump noise and observed small variations in the running component cooling water pump amps. Based on these observations, they secured the maintenance and restored the component cooling water surge tank overpressure. The component cooling water flow prior to the evolution was approximately 5,200 gallons, which is contrary to the FC06700 calculation.

Analysis. The failure to ensure that the maximum flow assumption contained in calculation FC06700 was incorporated in component cooling water operating procedures is a performance deficiency. This was reasonably within the licensee ability to foresee and correct. The performance deficiency is more than minor as it affected the Initiating Events Cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown, as well as, power operations. Since the finding affects the safety of the reactor during refueling outages, forced outages, and maintenance outages, it was evaluated using Inspection Manual Chapter 0609, Appendix G. The finding did not require quantitative assessment and therefore is of very low safety significance or green. A crosscutting aspect was not assigned as none were reflective of current plant performance.

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion III, Design Control states, in part, that "Means shall be established to assure that applicable regulatory requirements and the design basis... for those structures, systems, and components to which this appendix applies are correctly translated into specifications, drawings, procedures, and instructions..." Contrary to this, the maximum flow assumption of calculation FC06700 have never been incorporated into specifications, procedures, or instructions to ensure safe operation of the component cooling water system during temporary off-normal system conditions during refueling. Because this violation was of very low safety

significance and it was entered into the licensee's corrective action program as CR 2011-4886, this violation is being treated as a noncited violation, consistent with Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000285/2011004-01, "Failure to incorporate design information into procedures."

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:

- September 17, 2011, Postmaintenance testing following maintenance to repair Raw Water / Component Cooling Water Heat Exchanger 1A, Raw Water Inlet Valve HCV-2882A

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 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 one postmaintenance testing inspection sample as defined in Inspection Procedure 71111.19-05.

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP4 Emergency Action Level and Emergency Plan Changes (71114.04)

a. Inspection Scope

The inspectors performed in-office reviews of the Fort Calhoun Station Emergency Plan, Section E, "Notification Methods and Procedures," Revision 26, and Section J, "Protective Response," Revision 21. These revisions:

- Clarified that hourly informational updates to offsite agencies may be extended to once per shift (twelve hours) when requested by offsite authorities during long term events
- Removed the Bellevue First Baptist Church as a reception center for emergency planning zone evacuees (with the prior approval of FEMA Region VII)

These revisions were compared to their previous revisions, to the criteria of NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1, and to the standards in 10 CFR 50.47(b) to determine if the revisions adequately implemented the requirements of 10 CFR 50.54(q). These reviews were not documented in safety evaluation reports and did not constitute approval of licensee-generated changes; therefore, these revisions are subject to future inspection.

These activities constitute completion of two samples as defined in Inspection Procedure 71114.04-05.

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06)

.1 Training Observations

a. Inspection Scope

The inspectors observed a simulator training evolution for licensed operators on August 16, 2011 which required emergency plan implementation by a licensee operations crew. This evolution was planned to be evaluated and included in 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 post-evolution 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 were identified.

4. OTHER ACTIVITIES

4OA1 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 second Quarter 2011 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 a separate inspection sample.

b. Findings

No findings were identified.

.2 Safety System Functional Failures (MS05)

a. Inspection Scope

The inspectors sampled licensee submittals for the safety system functional failures performance indicator for the period from the third quarter 2010 through the second quarter 2011. To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, and NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 50.73." The inspectors reviewed the licensee's operator narrative logs, operability assessments, maintenance rule records, maintenance work orders, issue reports, event reports, and NRC integrated inspection reports for the period of July 1, 2010, through June 30, 2011, to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of one safety system functional failures sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.3 Mitigating Systems Performance Index - Emergency ac Power System (MS06)

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index - emergency ac power system performance indicator for the period from the third quarter 2010 through the second quarter 2011. To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6. The inspectors reviewed the licensee's operator narrative logs, mitigating systems performance index derivation reports, issue reports, event reports, and NRC integrated inspection reports for the period of July 1, 2010, through June 30, 2011, to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk co-efficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of one mitigating systems performance index emergency ac power system samples as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.3 Mitigating Systems Performance Index - High Pressure Injection Systems (MS07)

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index - high pressure injection systems performance indicator for the period from the third quarter 2010 through the second quarter 2011. To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6. The inspectors reviewed the licensee's operator narrative logs, issue reports, mitigating systems performance index derivation reports, event reports, and NRC integrated inspection reports for the period of July 1, 2010, through June 30, 2011, to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk co-efficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance.

The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of one mitigating systems performance index high pressure injection system samples as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

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

4OA2 Identification and Resolution of Problems (71152)

.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 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

Introduction. The inspectors identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion V for failure to have adequate instructions, procedures, or drawings including appropriate quantitative or qualitative acceptance criteria to ensure they can detect reactor coolant leakage, as required by the Updated Safety Analysis Report, using the containment dew point instrument or containment sump level instruments.

Description. While reviewing licensee leakage detection information, the inspectors identified a performance deficiency regarding leakage detection procedures. Specifically, the licensee does not have procedures, instructions, drawings, or readily available information that direct and enable the use of the containment dew point and sump level instruments when the Containment Air Particulate Monitor (RM-050) and Containment Gas Monitor (RM-051) are inoperable. The Updated Safety Analysis Report Section 4.3.15 states, in part, "A leak detection sensitivity of one gallon per minute within four hours is required as a result of implementing 'Leak-Before-Break' methodology to exempt the reactor coolant loop piping system from consideration of the dynamic effects of a postulated primary pipe break (4-45). The containment atmosphere radiation monitors (gaseous and particulate) have the required sensitivity (4-47). They are considered to be the primary means of detecting reactor coolant system leakage (4-45). The containment dew point and sump level instruments, together, provide and alternate means of detecting one gallon per minute in four hours (4-48). They are considered backup to the primary means of detection (4-45)." Specifically, the inspectors were concerned that given the above information, when both credited radiation monitors were taken out of service, even though the containment sump level indicators and containment dew point indicator were operable, the licensed operators did not have the resources and procedures necessary to use those instruments to detect a one gallon per minute reactor coolant system leak in four hours. While the specific combinations of equipment were operable, neither the operator knowledge nor procedures were available to detect a one gallon per minute reactor coolant system leak in four hours. The licensee documented the inspectors concerns in Condition Reports CR 2011-1671 and CR 2011-2866. The licensee had previously identified a similar concern in Condition Report CR 199901833.

While further researching this issue the inspectors reviewed Condition Report CR 2009-2537 which details a condition when both credited radiation monitors were inoperable from November 21, 2008, until April 14, 2009. This condition was reported to the NRC in licensee event report 2009-002. Given the above information, during this time period, the licensee would not have been able to detect a one gallon per minute leak in four hours using the equipment required per the technical specifications. The licensee has documented this concern in Condition Report CR 2011-5826.

Analysis. Title 10 CFR Part 50, Appendix B, Criterion V states, "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 this, the inspectors determined that the licensee's failure to have adequate instructions, procedures, or drawings including appropriate quantitative or qualitative acceptance criteria to ensure they can detect a one gallon per minute leak in four hours was a performance deficiency. This was within the licensee's ability to foresee and correct. The performance deficiency is more than minor as it affected the Initiating Events Cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Since the finding occurred during power operation and included structures, systems, and components where existing Significance Determination Process guidance is not adequate to provide reasonable estimates of the finding significance within the established Significance Determination Process timeliness goal of 90 days, the finding was evaluated using Inspection Manual Chapter 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria." Using Table 4.1, "Qualitative Decision –Making Attributes for NRC Management Review," the finding was determined to be of very low safety significance (Green). This finding does not have a crosscutting aspect as the performance characteristic described by a potential crosscutting aspect did not occur within the last three years.

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion V states, "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. Instructions, procedures or drawings shall include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished." Contrary to this, the licensee did not have prescribed documented instructions, procedures, or drawings including appropriate quantitative or qualitative acceptance criteria for detecting a one-gallon per minute reactor coolant system leak in four hours. This resulted in a situation where no credited method was in place to ensure the licensee was able to detect a one gallon per minute leak in four hours. Specifically, from November 21, 2008, till April 14, 2009, the licensee could not interpret any credited means of reactor coolant system leak detection. Because this violation was of very low safety significance and entered into the licensee's corrective action program as CR 2011-5826, this violation is being treated as a non-cited violation, consistent with Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000285/2011004-02 "Failure to provide adequate procedures to ensure leak before break commitment."

.3 Selected Issue Follow-up Inspection

a. Inspection Scope

During a review of items entered in the licensee's corrective action program, the inspectors recognized a corrective action report documenting the problems identified with the Dry Fuel Storage Project and the HE-2 Crane Up Rate Project. The licensee entered the issue into the corrective action program as Condition Report CR 2009-3186.

b. Findings

Introduction. The inspectors identified a Green, noncited violation of 10 CFR Part 50 Appendix B Criterion XVI for the failure to identify and correct a condition adverse to quality. Specifically, with regard to the calibration of the load weighing system for the HE-2 crane prior to its use in lifting the spent fuel transfer cask, loaded with spent fuel, out of the spent fuel pool. This issue was entered into the licensee's corrective action program as Condition Report 2009-3113.

Description. On February 11, 2006, the licensee originally issued Condition Report CR 2006-0589 to document problems with the HE-2 crane load weighing system readouts. This condition report was closed without clearly defining any cause or actions taken. On May 23, 2006, the licensee used Procedure MM-RI-HE-0551, "Annual Inspection of Auxiliary Building Crane," to calibrate the HE-2 crane load weighing system. The craft determined that the load weighing system could not be calibrated using the procedure as written. As a result, Condition Report CR 2006-0749 was written against the adequacy of the procedure, and not the failure to perform the calibration on the load weighing system. The work package was closed without indication that the load weighing system had not been calibrated.

During the licensee's review of Condition Report CR 2006-0749 it was identified that Procedure MM-RI-HE-0551 was never intended for use as a calibration procedure. Procedure IC-CP-01-7031 Revision 0 was developed for this purpose and was issued on February 15, 2006.

On September 3, 2008, Work Order 00266202 was generated to troubleshoot the indication and calibration of the load weighing system for the HE-2 crane. The work order notes indicated that calibration of the load weighing system would not be possible with Procedure MM-RI-HE-0551, which had been provided for the task. The work order notes also indicated that calibration of the load weighing system for the main hoist was not required at that time. As a result, the licensee personnel decided to "zero" the load cell display so applicable portions of Procedure MM-RI-HE-0551 could be used for post maintenance test purposes. Licensee personnel failed to originate any documentation that the load weighing system for the HE-2 crane had not been calibrated.

During the development of the HE-2 crane modification package, the load weighing system was excluded from the package and from the post-modification testing. The

crane up rate was designed specifically so that calibration of the load weighing system would not be required, and that only the resetting of the load limit was needed to support the HE-2 up rate and could be performed by the crane vendor. When the licensee performed the load test on the HE-2 crane modification, the load weighing system tripped off. Licensee personnel believed that the load weighing system just needed to be re-zeroed to operate correctly, so for the remainder of the HE-2 crane load test, the load weighing system was bypassed. On July 7, 2009, while lifting the spent fuel transfer cask, loaded with spent fuel, out of the spent fuel pool, the HE-2 crane load weighing system tripped on overload protection. This prevented the cask from being fully withdrawn from the pool. The licensee was forced to re-set the cask back down at the bottom of the spent fuel pool. A subsequent investigation by the licensee identified that the HE-2 crane load weighing system was not only out of calibration, it was also operating well outside of its design range of 4-20 milliamps.

Analysis. The failure by the licensee to promptly identify and correct the condition whereby the HE-2 crane load weighing system had not been calibrated or tested for an extended period of time leading up to its use during the lift of the spent fuel transfer cask on July 7, 2009, is a performance deficiency. The performance deficiency was determined to be more than minor because it adversely impacted the spent fuel pool fuel handling attribute of the Barrier Integrity Cornerstone objective of providing reasonable assurance that physical design barriers (fuel cladding) protect the public from radionuclide releases caused by accidents or events. Specifically, the licensee failed on more than one occasion to identify and correct a condition whereby the load cell for the HE-2 crane was neither calibrated nor tested prior to lifting the spent fuel transfer cask, loaded with spent fuel, out of the spent fuel pool. Using Attachment 4 of Inspection Manual Chapter 0609, the inspectors determined that this finding has a very low safety significance (Green) because it did not result in a fuel handling error that caused damage to fuel clad integrity or a dropped assembly. The finding was not found to be indicative of current plant performance and thus no crosscutting aspect was identified.

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," states that measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and non-conformances are promptly identified and corrected. Contrary to this, the licensee failed to identify and correct a condition adverse to quality. Specifically with regard to the calibration of the load weighing system for the HE-2 crane prior to its use in lifting the spent fuel transfer cask, loaded with spent fuel, out of the spent fuel pool. Because this finding is of very low safety significance and has been entered into the corrective action program as Condition Report CR 2009-3186, this violation is being treated as a non-cited violation consistent with Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000285/2011004-03, "Failure to Identify and Correct the Lack of Calibration for the HE-2 Crane Load Weighing System."

40A3 Event Follow-up (71153)

.1 (Open and Closed) Licensee Event Report 05000285/2011-002-00: Failure of an RPS Trip Unit

On November 29, 2010, during the performance of a work order, voltage at reactor protective system connection T-74 was found 39 millivolt (mV) higher than connection T-17 (reactor protective system ground). The allowed limit is 4 mV. Connection T-74 is the signal common lead for steam generator pressure channels 902 and 905 inputs to trip unit 6 (low steam generator pressure) and trip unit 7 (asymmetric steam generator transient). Further investigation determined that the affected channels should have been declared inoperable. With a channel of the reactor protective system inoperable the appropriate section of technical specifications should have been entered. The technical specifications for limiting condition of operation action times were not met.

A root cause analysis is in progress. The results of the analysis will be reported in a revision to this licensee event report.

The wire between terminals T-74 and relay contact terminal 12 was replaced.

This licensee event report is closed. The inspectors will review the condition described in revision 1 of this licensee event report.

.2 (Open and Closed) Licensee Event Report 05000285/2011-002-01: Failure of an RPS Trip Unit

On November 29, 2010, during the performance of a work order, voltage at reactor protective system connection T-74 was found 39 millivolt (mV) higher than connection T-17 (reactor protective system ground). The allowed limit is 4 mV. Connection T-74 is the signal common lead for steam generator pressure channels 902 and 905 inputs to trip unit 6 (low steam generator pressure) and trip unit 7 (asymmetric steam generator transient). Further investigation determined that the affected channels should have been declared inoperable. With a channel of reactor protective system inoperable the appropriate section of technical specifications should have been entered. The technical specifications for limiting condition of operation action times were not met.

The root causes are determined to be the following:

1. Management has not effectively enforced expectations of rigorous troubleshooting standards for equipment important to safety and/or operation.
2. The standards for implementation of the Corrective Action Program have been ineffective in identifying and driving resolution of repeat and less-significant failures of equipment important to safety and/or operation

The wire between terminals T-74 and relay contact terminal 12 was replaced.

This licensee event report was reviewed by the inspectors. A Green noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI was issued regarding this condition (05000285/2011002-02). This licensee event report is closed.

.3 (Open and Closed) Licensee Event Report 05000285/2011-004-01: Isolation of Both Trains of Safety Related Auxiliary Feedwater

On February 5, 2011, during plant startup activities, operations personnel initiated a transition from auxiliary feedwater to main feedwater while in Mode 2 (Hot Standby Condition). During the transition, auxiliary feedwater was being supplied by a safety-related motor-driven auxiliary feedwater pump (FW-6) through the auxiliary feedwater nozzles (HCV-1107A/B and HCV-1108A/B). With main feedwater aligned and feeding both steam generators, the control room operator was directed to shut down FW-6 and return the system to its normal alignment. During this activity the control room operator placed both inboard isolation valves, as directed by procedure, HCV-1107A and HCV-1108A, into their closed position. This action defeated automatic initiation via an auxiliary feedwater actuation signal to open the valves, rendering both trains of auxiliary feedwater inoperable. The condition lasted approximately three minutes.

The root cause analysis for this event determined that technical reviews performed on the operating instruction for auxiliary feedwater were incomplete in their consideration of how plant mode changes affected auxiliary feedwater safety system status.

The condition was recognized and the control switches were placed in "Auto" restoring both trains to operable. The affected procedure will be revised to correct the problem prior to plant startup following the 2011 refueling outage.

This licensee event report was reviewed by the inspectors. A Green noncited violation of Fort Calhoun Station Technical Specification 5.8.1 was issued regarding this condition (05000285/2011002-01). This licensee event report is closed.

.4 (Closed) Licensee Event Report 05000285/2011-007-00: Violation of Technical Specifications due to Reactor Coolant System Boundary Leakage

On April 12, 2011, during the performance of an inspection of reactor coolant pump, RC-3C, and its studs, a small boric acid leak was discovered. The leak was on a 3/4-inch nominal diameter stainless steel pipe welded to the pump upstream of isolation valve RC-270 (RC-3C, reactor coolant pump casing gasket leak detection pressure indication alarm PIA-3195 root valve). The pipe connects the area between the inner and outer gaskets on the reactor coolant pump casing to a pressure indicator alarm. The pipe had a through-wall crack. On May 30, 2011, it was determined that the failure of the pipe violated technical specifications for zero pressure boundary leakage.

The root cause of the crack was trans-granular stress corrosion cracking caused by a post-manufacturing bend in a susceptible material that was in a corrosive environment.

The affected pipe was replaced. Equivalent indicator piping for the other three reactor coolant pumps was inspected and one of those lines was also replaced due to an unacceptable bend in the pipe. The line was evaluated for trans-granular stress corrosion cracking and no indications were found. Associated instrument lines for the reactor coolant pumps were evaluated and no susceptibility to trans-granular stress corrosion cracking was noted.

This licensee event report was reviewed by the inspectors. A licensee identified violation of Fort Calhoun Technical Specification 2.1.4 was issued regarding this condition and is included in section 4OA7 of this report. This licensee event report is closed.

.5 (Open) Licensee Event Report 05000285/2011-008-00: Fire in Safety Related 480 Volt Electrical Bus

On June 7, 2011, at approximately 9:30 a.m. Central Daylight Time, a failure of a safety related 480-volt ac (Vac) load center supply breaker in the switchgear room occurred (Bus 1B4A). Fire alarms were received in the control room and the Halon System that protects the switchgear rooms discharged. The fire brigade responded and found the room filled with smoke, but no active fire. At 9:40 a.m. Central Daylight Time an alert was declared for a fire affecting the operability of plant safety systems required to establish or maintain safe shutdown. At 1:13 p.m. Central Daylight Time on June 7, 2011, Fort Calhoun Station exited the alert after confirming that the fire was extinguished and the area was ventilated to restore access.

Shutdown cooling remained in-service during the event. Fort Calhoun Station was also in an emergency classification of a Notification of Unusual Event (NOUE) due to high Missouri River level.

A root cause analysis is in progress. The results of the analysis and corrective actions will be reported in a revision to this licensee event report.

.6 (Open) Licensee Event Report 05000285/2011-009-00: Manual Start of a Safety System

On June 26, 2011, at approximately 1:25 a.m. Central Daylight Time, the AquaDam®, which was providing enhanced flood protection for Fort Calhoun Station, failed after being struck by a skid loader. As a precautionary measure, plant operators used the abnormal operating procedures to align necessary plant equipment to alternate (emergency) power supplies. Emergency diesel generator 2 was manually started to remove bus 1A4 from offsite power. Diesel generator 1 was manually started to remove bus 1A3 from offsite power as well. Both emergency diesel generators loaded on their respective busses as designed. Offsite power remained available throughout the event. No safety-related equipment was impacted by the water intrusion. Plant equipment was realigned to the off-site power-operating configuration and the emergency diesel generators were secured.

Fort Calhoun Station was also in a Notification of Unusual Event (NOUE), since June 6, 2011, due to high Missouri River level. River level at the time of this event was 1006 feet 6 inches mean sea level.

40A6 Meetings

Exit Meeting Summary

On August 16, 2011, the inspectors discussed results of the in-office review of changes to the licensee's emergency plan with Mr. A. Berck, Supervisor, Emergency Planning, and other members of the licensee's 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 October 13, 2011, the inspectors presented the inspection results of the inspection to Mr. T. Nellenbach, Division Manager of Plant Operations, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors 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 Specification 2.1.4 states, in part, that the "Reactor coolant systems operational LEAKAGE shall be limited to: No Pressure Boundary LEAKAGE..." Contrary to this, pressure boundary leakage occurred during the operating cycle prior to the April 2011 refueling outage. The licensee removed the cracked line and replaced it. The finding was determined to be Green as it would not have resulted in exceeding any technical specification limit for reactor coolant system leakage. Because this violation was of very low safety significance and it was entered into the licensee's corrective action program as CR 2011-3198, this violation is being treated as a non-cited violation consistent with Section 2.3.2.a of the NRC Enforcement Policy.

SUPPLEMENTAL INFORMATION
KEY POINTS OF CONTACT

Licensee Personnel

R. Acker, Licensing Engineer
S. Baughn, Manager, Nuclear Licensing
A. Berck, Supervisor, Emergency Planning
B. Blome, Manager, Quality Assurance
C. Cameron, Supervisor Regulatory Compliance
G. Cavanaugh, Manager, Performance Improvement
M. Frans, Manager, Engineering Programs
S. Gebers, Manager, Emergency Planning and Health Physics
W. Hansher, Supervisor, Nuclear Licensing
R. Haug, Manager, Training
J. Herman, Division Manager, Nuclear Engineering
K. Kingston, Manager, Chemistry
A. Lollis, Acting Manager, Radiation Protection
E. Matzke, Senior Licensing Engineer
S. Miller, Manager, Design Engineering
K. Naser, Manager, System Engineering
T. Nellenbach, Division Manager, Plant Operations
M. Smith, Manager, Operations
T. Uehling, Manager, Maintenance

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

- 05000285/2011-008-00 LER Fire in Safety Related 480 Volt Electrical Bus (Section 4OA3)
- 05000285/2011-009-00 LER Manual Start of a Safety System (Section 4OA3)

Opened and Closed

- 05000285/2011-002-00 LER Failure of an RPS Trip Unit (Section 4OA3)
- 05000285/2011-002-01 LER Failure of an RPS Trip Unit (Section 4OA3)
- 05000285/2011-004-01 LER Isolation of Both Trains of Safety Related Auxiliary Feedwater (Section 4OA3)
- 05000285/2011004-01 NCV Failure to incorporate design information into procedures (Section 1R15)
- 05000285/2011004-02 NCV Failure to provide adequate procedures to ensure leak before break commitment (Section 4OA2)
- 05000285/2011004-03 NCV Failure to Identify and Correct the Lack of Calibration for the HE-2 Crane Load Weighing System (Section 4OA2)

Closed

- 05000285/2011-007-00 LER Violation of Technical Specifications due to Reactor Coolant System Boundary Leakage (Section 4OA3)

LIST OF DOCUMENTS REVIEWED

Section 1RO1: Adverse Weather Protection

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
AOP-31	161 KV Grid Malfunctions	11
NOD-QP-36	Grid Operations and Control of Switchyard at FCS	20
OI-EG-2	161 KV Grid System Normal Operation	19
OI-EG-3	EMS Post-FCS-Trip 161 KV Voltage Prediction and Switchyard Status	10

Section 1RO4: Equipment Alignment

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
OI-CC-1	Component Cooling System Normal Operation	69
OI-RW-1	Raw Water System Normal Operation	101
OI-SC-1	Shutdown Cooling Initiation	52
OI-SFP-1	Spent Fuel Pool Cooling Normal Operation	34

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
11405-M-10	Auxiliary Coolant, Component Cooling System Flow Diagram, Sheet 1	66
11405-M-10	Auxiliary Coolant, Component Cooling System Flow Diagram, Sheet 2	17
11405-M-10	Auxiliary Coolant, Component Cooling System Flow Diagram, Sheet 3	24
11405-M-10	Auxiliary Coolant, Component Cooling System Flow Diagram, Sheet 4	12
11405-M-10, COV	Composite Flow Diagram, Auxiliary Coolant, Component Cooling System, Sheet COV	30
11405-M-100	Raw Water Flow Diagram	99
11405-M-11	Auxiliary Coolant, Spent Fuel Pool Cooling System Flow Diagram	55
E-23866-210-30	Composite Flow Diagram, Safety Injection and Containment Spray System, Sheet COV	69
E-23866-210-30	Safety Injection and Containment Spray System Flow Diagram, Sheet 1	111
E-23866-210-30	Safety Injection and Containment Spray System Flow Diagram, Sheet 2	66

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
E-23866-210-30	Safety Injection and Containment Spray System Flow Diagram, Sheet 2A	24
E-23866-210-30	Safety Injection and Containment Spray System Flow Diagram, Sheet 2B	15
E-23866-210-30	Safety Injection and Containment Spray System Flow Diagram, Sheet 3	28

Section 1RO5: Fire Protection

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
SO-G-102	Standing Order, Fire Protection Program Plan	10
SO-G-103	Standing Order, Fire Protection Operability Criteria and Surveillance Requirements	25
SO-G-28	Standing Order, Station Fire Plan	81
SO-G-58	Standing Order, Control of Fire Protection System Impairments	37
SO-G-91	Standing Order, Control and Transportation of Combustible Materials	27

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EA-FC-97-001	Fire hazards Analysis Manual	16
FC05814	UFHA Combustible Loading Calculation	11
USAR 9.11	Updated Safety Analysis Report, Fire Protection Systems	22

Section 1R11: Licensed Operator Requalification

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
LOR TPMP	Licensed Operator Requal Training Program Master Plan	54
OPD-3-11	Licensed Activation and Watch station Maintenance	18
SO-G-26	Training and Qualification Programs Standing Orders	57

Section 1R12: Maintenance Effectiveness

CONDITION REPORTS

2008-3691 2008-5482

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
PBD-16	Program Basis Document, Maintenance Rule	9
PED-SEI-34	Maintenance Rule Program	8

MISCELLANEOUS DOCUMENTS

<u>TITLE</u>	<u>REVISION / DATE</u>
Maintenance Rule Scoping Data Sheet SWTSUC	4
Status of Equipment in MR Category (a)(1) or (a)(1) review	September 22, 2011

Section 1R13: Maintenance Risk Assessment and Emergent Work Controls

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
AOP-01	Acts of Nature	27
AOP-06	Fire Emergency	25
AOP-32	Loss of 4160 Volt of 480V Bus Power	17
SO-G-87	Non-Routine Activities Requiring Formalized Plans	14
SO-M-100	Standing Order, Conduct of Maintenance	54
SO-M-101	Standing Order, Maintenance Work Control	90

Section 1R15: Operability Evaluations

CONDITION REPORTS

2011-2400

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
NOD-QP-31.2	Functionality Evaluation	March 31, 2011

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
FC08056	Evaluation of a Steam Volume in the Discharge Piping for AFW Pump FW-54	October 11, 2011

Section 1R19: Postmaintenance Testing

CONDITION REPORTS

2011-5215 2011-7340 2011-7469

WORK ORDERS

414537 424349 424352

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
OP-ST-RW-3002A	Raw Water System Category A and B Valve Exercise Test	September 17, 2011
OP-ST-VX-3017A	Raw Water system Remote Position Indicator Verification Surveillance Test	September 17, 2011

Section 1EP6: Drill Evaluation

PROCEDURES

<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	2
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	2

Section 4OA1: Performance Indicator Verification

CONDITION REPORTS

2010-4838	2010-4964	2010-5063	2010-5084	2010-5147
2010-5289	2010-5311	2010-5393	2010-5452	2010-5602
2010-5620	2010-5816	2010-5861	2010-6159	2010-6163
2010-6430	2010-6502	2010-6547	2010-6710	2010-6868
2011-0049	2011-0052	2011-0286	2011-0311	2011-0597
2011-0679	2011-0724	2011-0733	2011-0759	2011-1184
2011-1292	2011-1407	2011-1585	2011-1610	2011-1750

CONDITION REPORTS

2011-1774	2011-1808	2011-1918	2011-1941	2011-1942
2011-1971	2011-1978	2011-1987	2011-1988	2011-1990
2011-2009	2011-2246	2011-2477	2011-2481	2011-2505
2011-2606	2011-2607	2011-2781	2011-2914	2011-2924
2011-3141	2011-3200	2011-3206	2011-3269	2011-3391
2011-3395	2011-3657	2011-3658	2011-3674	2011-3726
2011-3843	2011-3850	2011-3942	2011-4072	2011-4251
2011-4320	2011-4769	2011-4770	2011-4789	2011-4850
2011-4883	2011-4964	2011-5030	2011-5073	2011-5110
2011-5187	2011-5447	2011-6219	2011-6411	2011-6427
2011-6612	2011-6798	2011-6876	2011-6934	2011-6977
2011-7061	2011-7219	2011-7271	2011-7770	2011-7841

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	Various Operator Logs	October 1, 2010 to September 30, 2011
MSPI	Mitigating Systems Performance Index	0
NEI 99-02	Regulatory Assessment Performance Indicator Guideline	6

Section 40A2: Identification and Resolution of Problems

CONDITION REPORTS

2009-2502	2009-3113	2009-3186	2009-3521
-----------	-----------	-----------	-----------

WORK ORDERS (WO)

00266202	00346517
----------	----------

ENGINEERING CHANGES (EC)

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EC 42654	Upgrade of Auxiliary Building Crane HE-2	0

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	Dry Cask Storage Project Apparent Cause Evaluation (CR 2009-3186)	March 30, 2010
FC-OPS-084-99	Memorandum	October 22, 1999
IC-CP-01-7031	Calibration of Auxiliary Building Crane HE-2, Main and Auxiliary Hoist Load Cell Loops	0
LIC-93-0074	OPPD to NRC letter regarding Application for Amendment of Operating License	February 12, 1993
M85848	NRC to OPPD letter regarding Amendment No. 165 to TS	August 25, 1994
MC0194	Amendment No. 226 issuance	May 7, 2004
MM-RI-HE-0551	Annual Inspection of Auxiliary Building Crane HE-2	10
SO-R-2	Condition Reporting and Corrective Action	4
SO-R-2	Condition Reporting and Corrective Action	6
TAP – 37	Administration of Personnel Qualification Data	