



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
1600 EAST LAMAR BLVD
ARLINGTON, TEXAS 76011-4511

March 16, 2012

EA-12-035

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 PROBLEM IDENTIFICATION AND
RESOLUTION INSPECTION REPORT 05000285/2011006 AND NOTICE OF
VIOLATION**

Dear Mr. Bannister:

On December 2, 2011, the U.S. Nuclear Regulatory Commission (NRC) completed an onsite Problem Identification and Resolution biennial team inspection at Fort Calhoun Station. The team provided you and other members of your staff a final debriefing of observations on December 2, 2011. The enclosed inspection report documents the inspection results that were discussed via a telephonic conference call on February 2, 2012, with you and other members of your staff.

This inspection was an examination of activities conducted under your license as they relate to problem identification and resolution and compliance with the Commission's rules and regulations and the conditions of your license. Within these areas, the inspection involved examination of selected procedures and representative records, observations of activities, and interviews with personnel.

Overall, the team noted deficiencies in all three areas of the problem identification and resolution process. Based on the inspection sample, the team concluded that the implementation of the corrective action program and overall performance related to identifying, evaluating, and resolving problems was frequently less than adequate. Licensee identified problems were entered into the corrective action program at a low threshold; however, problems were not consistently prioritized and evaluated commensurate with the safety significance of the problems and corrective actions were not always implemented in a timely manner. Lessons learned from industry operating experience were not consistently reviewed and applied when appropriate. Audits and self-assessments were generally used to identify problems and appropriate actions; however, the adequacy of the corrective actions for issues identified in audits and self-assessments was inconsistent. Safety Conscious Working Environment interviews and focus group sessions indicate that employees feel free to raise safety concerns to their management, to the corrective action program, and to the NRC without fear of

retaliation. However, there is a displayed lack of confidence by licensee employees that their concerns will receive the appropriate prioritization and resolution by licensee processes as required. Additionally, there were indications of a lack of resources in personnel as revealed by the high workload of many organizations.

Based on the results of this inspection, the NRC has identified seven findings that were evaluated under the risk significance determination process as having very low safety significance (Green). Six of these findings were determined to be violations of NRC requirements. The violations were evaluated in accordance with the NRC Enforcement Policy. The current Enforcement Policy is included on the NRC's Web site at: (<http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html>).

One of the violations is cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding it are described in detail in the subject inspection report. The violation is being cited in the Notice because the licensee failed to restore compliance within a reasonable period of time after the violation was identified consistent with Section 2.3.2 of the NRC Enforcement Policy.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. If you have additional information that you believe the NRC should consider, you may provide it in your response to the Notice. The NRC review of your response to the Notice will also determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

The NRC is treating five of the other six findings as non-cited violations consistent with Section 2.3.2 of the Enforcement Policy. The circumstances surrounding these non-cited violations are described in detail in the subject inspection report. If you contest these non-cited violations, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region IV; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at Fort Calhoun Station.

If you disagree with a crosscutting aspect assignment 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 Fort Calhoun Station.

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

D. Bannister

- 3 -

Sincerely,

/RA/

Ryan D. Alexander, Chief (Acting)
Technical Support Branch
Division of Reactor Safety

Docket: 50-285

License: DPR-40

Enclosures: Notice of Violation

Inspection Report 05000528/2011006

w/Attachment 1: Supplemental Information

Attachment 2: Initial Information Request

cc w/ encl: Electronic Distribution - Fort Calhoun Station

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R:_REACTORS_FCS\2011\FC 2011006 PI&R – HAF

ADAMS ML12079A224

<input checked="" type="checkbox"/> SUNSI Review	<input checked="" type="checkbox"/> Non-Sensitive <input type="checkbox"/> Sensitive	<input checked="" type="checkbox"/> Publicly Available <input type="checkbox"/> Non-Publicly Available	Reviewer Initials: HAF
DRP:F	TSB	EB1	
JWingebach <i>/RA via email/</i>	RCohen <i>/RA via text msg./</i>	RLatta <i>/RA/</i>	
February 29, 2012	February 23, 2012	February 22, 2012	
OB	TSB	TSB	
COsterholtz <i>/RA/</i>	HFreeman <i>/RA/</i>	RAlexander <i>/RA/</i>	
February 27, 2012	February 29, 2012	March 10, 2012	
ACES	DRP:F		
RKellar <i>/RA/</i>	JClark <i>/RA/</i>		
March 8, 2012	March 16, 2012		

NOTICE OF VIOLATION

Omaha Public Power District
Fort Calhoun Station

Docket No. 50-285
License No. DPR-40
EA-12-035

During an NRC inspection conducted on November 14, 2011, through February 2, 2012, one violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

- a. Title 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," states, in part, that measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected.

Contrary to the above, from 1998 to October 28, 2011, the licensee failed to establish measures to assure that conditions adverse to quality were promptly identified and corrected. Specifically, following the discovery of water intrusion in manholes MH-5, and MH-31, in 1998, 2005, and 2009, the licensee failed to establish an appropriate monitoring frequency to identify when the condition was occurring in order to mitigate potential common mode failure of safety-related raw water 4160 V motor cables in underground ducts and manholes.

This violation is associated with a (Green) SDP finding.

Pursuant to the provisions of 10 CFR 2.201, Omaha Public Power District is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001 with a copy to the Regional Administrator, Region IV, and a copy to the NRC Resident Inspector at the facility, that is the subject of this Notice, within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation; EA-12-035" and should include for each violation: (1) the reason for the violation, or, if contested, the basis for disputing the violation or severity level, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken, and (4) the date when full compliance will be achieved. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an order or a Demand for Information may be issued as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time.

If you contest this enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

Because your response 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 site at <http://www.nrc.gov/reading-rm/adams.html>, to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by

10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

In accordance with 10 CFR 19.11, you may be required to post this Notice within two working days of receipt.

Dated this 16th day of March 2012

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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket: 05000528
License: DPR-40
Report: 05000528/2011006
Licensee: Omaha Public Power District
Facility: Fort Calhoun Station
Location: Fort Calhoun, Nebraska
Dates: November 14, 2011, through February 2, 2012
Team Leader: Harry A. Freeman, Senior Reactor Inspector
Inspectors: Ronald B. Cohen, Senior Reactor Inspector
Robert M. Latta, Senior Reactor Inspector
Clyde C. Osterholtz, Senior Operations Engineer
Jacob F. Wingeback, Resident Inspector
Approved By: Ryan D. Alexander, Chief (Acting)
Technical Support Branch
Division of Reactor Safety

SUMMARY OF FINDINGS

IR 05000285/2011006; Omaha Public Power District; on November 14, 2011, – February 2, 2012; Fort Calhoun Station "Biennial Team Inspection of the Identification and Resolution of Problems."

The inspection was performed by three senior reactor inspectors, a senior operations engineer, and a resident inspector. As a result of these efforts, seven NRC identified Green findings of very low safety significance were identified during this inspection. One of the findings was cited for the licensee's failure to correct a long standing deficiency (previously documented as a non-cited violation), within a reasonable time. Five of the other six findings were classified as non-cited violations. The findings were evaluated using the significance determination process (SDP). The significance of most findings is indicated by their color (Green, White, Yellow, 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.

Identification and Resolution of Problems

The team reviewed approximately 400 condition reports, work orders, engineering evaluations, root and apparent cause evaluations, and other supporting documentation to determine if problems were being properly identified, characterized, and entered into the corrective action program for evaluation and resolution. The team also reviewed a sample of system health reports, self-assessments, trending reports and metrics, and various other documents related to the corrective action program.

Overall, the NRC noted deficiencies in all three areas of the problem identification and resolution process. Most significantly, the licensee's own root cause assessment of the external flood protection violation concluded that they had not been effective in ensuring that the associated performance deficiencies were adequately identified, evaluated, and resolved, and that these same performance deficiencies also extended into other station activities and could impact overall station performance – a significant condition adverse to quality. This is a concern because problem identification and resolution is one of the primary reactor oversight process crosscutting areas that the NRC defines as the fundamental performance attribute that extends across all cornerstones of safety. The NRC identified that the licensee failed to correct this condition, identify the cause, and preclude recurrence as required.

The team noted that while the licensee was identifying and placing a large number of adverse conditions into the corrective action process (nearly 21,000 in two and a half years), the associated corrective actions were often narrowly focused and failed to adequately identify the extent of cause and extent of condition, where required. The team also identified that due to the lack of an effective trending program, the licensee failed to identify degrading performance and therefore was unable to take action prior to the manifestation of conditions adverse to quality. Furthermore, the team identified numerous condition reports whose prioritization was inconsistent with the condition described. Examples included inoperable safety related equipment classified as "broke-fix," contrasted with a minor personal injury, which resulted in an extensive root cause analysis. Several workers commented that everything was classified a priority, and therefore; nothing was a priority. In fact, the licensee classified 65 condition reports

as significant conditions adverse to quality during the inspection period, roughly four times the typical number. Additionally, the team found examples of repetitive failures that were indicative of programmatic inadequacies. These examples included the failure to adequately utilize industry operating experience, inadequacies in the implementation of the corrective action program which was narrowly focused on resolving discrete conditions, and limited use of 10 CFR Part 21 reportability issues, which were typically closed without appropriate systematic equipment evaluation considerations.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Miscellaneous

- Green. The team identified a Green non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Actions." After identifying deficiencies that constituted a significant condition adverse to quality in the implementation of the corrective action program, the licensee failed to identify the cause and develop corrective actions to preclude repetition.

The licensee's failure to implement corrective actions for an identified root cause in accordance with corrective action program procedures was a performance deficiency. This performance deficiency is more than minor because it is associated with, and adversely affects, the protection-against-external-factors attribute of 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. The finding is of very low safety significance because it did not represent a loss of system safety function, did not represent the actual loss of safety function of a single train for greater than its technical specification allowed outage time, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding has a crosscutting aspect in the decision-making component of the human performance crosscutting area because the licensee failed to use a systematic process when faced with the uncertain or unexpected situation that deficiencies related to external flood protection also extended into other station activities and could impact overall station performance [H.1(a)]. (Section 4OA2.e(1))

Cornerstone: Initiating Events

- Green. The NRC identified a cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for failure to take effective corrective action following the initial discovery of water intrusion in cable vault manholes MH-5 and MH-31 in 1998, 2005, 2009, and 2011. Specifically, the licensee failed to take effective corrective action to establish an appropriate monitoring frequency, which took into account variable environmental conditions to mitigate potential common mode failure of raw water 4160 V motor cables in underground ducts and manholes identified during the Component Design Basis Inspection performed in 2009. The violation is being cited because the licensee had failed to restore compliance in a reasonable period following documentation of the issue as a non-cited violation issued December 30, 2009.

The failure to take effective corrective action to ensure the reliability and capability of the safety-related cables powering the raw water pump motors was a performance deficiency. Furthermore, the finding was within the licensee's ability to foresee and

correct because the licensee had multiple opportunities to correct the continuing challenge to the safety-related cables and raceways for the raw water system over an extended period. The finding was more than minor because it adversely affected the Mitigating Systems Cornerstone attribute of design control for ensuring the availability, reliability, and capability of systems that respond to Initiating Events to prevent undesirable consequences. The finding is of very low safety significance because it was a design deficiency that did not result in loss of operability or functionality.

This finding has a crosscutting aspect in the decision-making program component of the human performance area because the licensee failed to use conservative assumptions in decision-making and adopt a requirement to demonstrate that the proposed action was safe in order to proceed rather than a requirement to demonstrate that it was unsafe in order to disapprove the action. Specifically, from 2005 until 2011, the licensee chose to postpone installation of proposed water level control corrective actions and failed to appropriately monitor water intrusion into underground ducts and manholes MH-5 and MH-31 for raw water 4160 V motor cables multiple times [H.1(b)]. (Section 4OA2.e(2))

- Green. The NRC identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure to properly implement procedural requirements to control transient equipment and materials. Specifically, on November 14, 2011, the team identified loose maintenance carts, improperly stored ladders, excessive transient combustible material, inadequately evaluated scaffolding being stored near safety-related equipment, and a procedure which failed to provide guidance for inspection and removal of foreign material in the spent fuel pool as a result of a non-functional skimmer.

The repeated failures of plant personnel to follow the procedural requirements for the control of transient materials were performance deficiencies. The finding was more than minor because if left uncorrected, the deficiencies could lead to a more significant safety concern. The finding is of very low safety significance because it did not represent a loss of system safety function, did not represent the actual loss of safety function of a single train for greater than its technical specification allowed outage time, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event.

This finding has a crosscutting aspect in the corrective action program component of the problem identification and resolution area because the licensee failed to track and trend information from the corrective action program (recurring transient equipment issues) in the aggregate to identify programmatic and common cause problems [P.1(b)]. (Section 4OA2.e(7))

Cornerstone: Mitigating Systems

- Green. The NRC identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to promptly correct conditions adverse to quality. Specifically, the licensee failed to correct degraded conditions associated with the electrical supply cable insulation for the component cooling water motors originally identified in 2003. In addition, the licensee did not have justification for the temporary repairs made to the cables nor for continued operability.

The failure of the licensee to promptly correct conditions adverse to quality associated with the loss of full qualification of plant components due to degraded electrical supply cable insulation was a performance deficiency. This performance deficiency was more than minor because it was associated with the equipment performance attribute of the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding has very low safety significance because it did not represent a loss of system safety function, did not represent the actual loss of safety function of a single train for greater than its technical specification allowed outage time, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event.

This finding has a crosscutting aspect in the resources component of the human performance area because the licensee failed to minimize long-standing equipment issues by correcting these deficiencies [H.2(a)]. (Section 40A2.e(3))

- Green. The NRC identified a finding for failure of the licensee to follow directions of an apparent cause evaluation to perform an extent of condition evaluation. Specifically, following the identification of an inadequate temporary design modification that rendered annunciator CB 20, Panel A18, Window C3 inoperable on July 5, 2011, engineering personnel failed to perform an extent of condition evaluation to identify other annunciator windows rendered inoperable by the design modification.

The failure of engineering personnel to perform an extent of condition evaluation as directed by the apparent cause evaluation for a temporary modification following identification of an unexpected condition was a performance deficiency. The finding is more than minor because the failure to adequately implement the corrective actions associated with the temporary modification's identified deficiencies affects the equipment performance attribute of the Mitigating Systems Cornerstone and affects the cornerstone objective of ensuring availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding is of very low safety significance because it did not represent a loss of system safety function, did not represent the actual loss of safety function of a single train for greater than its technical specification allowed outage time, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event.

The finding has a crosscutting aspect in the corrective action program component of the human performance area associated with work practices because engineering personnel failed to follow direction and ensure that an extent of condition review mandated by an apparent cause evaluation was performed [H.4(b)]. (Section 40A2.e(4))

- Green. The NRC identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the failure to establish adequate measures for the selection and review for suitability of application of parts equipment, and processes that are essential to the safety-related function of structures, systems, and components. Specifically, the team identified numerous condition reports involving inadequate implementation of vendor manual information that affected the suitability of application of parts equipment, and processes that are essential to the safety-related function of structures, systems, and component repair and refurbishment activities over an extended period.

The failure to properly maintain design information associated with vendor manuals to ensure information, which affected the suitability of application of parts equipment, and processes, essential to the safety-related function of structures, systems, and component repair and refurbishment activities, was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the design control attribute of the Mitigating Systems Cornerstone, and affected the associated cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences, and was therefore a finding. The finding has very low safety significance because it did not represent a loss of system safety function, did not represent the actual loss of safety function of a single train for greater than its technical specification allowed outage time, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event.

This finding has a crosscutting aspect in the decision making component of the human performance area because the licensee failed to make safety-significant decision using a systemic process which included formally defining the authority and roles for decisions in that the licensee chose not to fill key positions responsible for the program for several years [H.1(a)]. (Section 40A2.e(5))

- Green. The NRC identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for inadequate procedures that are used to implement the licensee trending program. Specifically, on December 1, 2011, the team identified a deficiency regarding the licensee's inability to implement adequate procedures for gathering, analyzing, and communicating information related to low-level performance vulnerabilities and repeat occurrences prior to the emergence of more significant events.

The failure to implement adequate procedures to trend conditions adverse to quality is a performance deficiency. The finding affected the Mitigating Systems Cornerstone and was more than minor because if left uncorrected, the deficiency could lead to a more significant safety concern. The finding has very low safety significance because it did not represent a loss of system safety function, did not represent the actual loss of safety function of a single train for greater than its technical specification allowed outage time, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event.

This finding has a crosscutting aspect in the corrective action program component of the problem identification and resolution area because the licensee failed to thoroughly evaluate problems associated with the trending program such that the resolutions address causes and extent of conditions, as necessary [P.1(c)]. (Section 40A2.e(6))

B. Licensee-Identified Violations

None

REPORT DETAILS

4. OTHER ACTIVITIES (OA)

4OA2 Problem Identification and Resolution (71152)

The team based the following conclusions on the sample of corrective action documents that were initiated in the assessment period, June 2009 to the end of the on-site portion of the inspection on December 2, 2011.

a. Assessment of the Corrective Action Program

(1) Inspection Scope

The team reviewed approximately 400 condition reports including associated root cause, apparent cause, and direct cause evaluations, from approximately 21,000 that had been issued between June 2009 to December 2, 2011, to determine if problems were being properly identified, characterized, and entered into the corrective action program for evaluation and resolution. The team reviewed a sample of system health reports, operability determinations, self-assessments, trending reports and metrics, and various other documents related to the corrective action program. The team evaluated the licensee's efforts in establishing the scope of problems by reviewing selected logs, work requests, self-assessments results, audits, system health reports, action plans, and results from surveillance tests and preventive maintenance tasks. The team reviewed work requests and attended the licensee's daily Corrective Action Review Board and the management review committee meetings to assess the reporting threshold, prioritization efforts, and significance determination process, as well as observing the interfaces with the operability assessment and work control processes when applicable. The team's review included verifying the licensee considered the full extent of cause and extent of condition for problems, as well as how the licensee assessed generic implications and previous occurrences. The team assessed the timeliness and effectiveness of corrective actions, completed or planned, and looked for additional examples of similar problems. The team conducted interviews with plant personnel to identify other processes that may exist where problems may be identified and addressed outside the corrective action program.

The team also reviewed corrective action documents that addressed past NRC-identified violations to ensure that the associated corrective actions adequately addressed the issues described in the inspection reports. The team also reviewed a sample of corrective actions closed to other corrective action documents to ensure that corrective actions were still appropriate and timely.

The team considered risk insights from both the NRC's and Fort Calhoun Station risk assessments to focus the sample selection and plant tours on risk significant systems and components. The team selected the following risk significant systems: auxiliary feedwater system exclusive of the turbine-driven auxiliary feedwater pump, and the component cooling water system. The samples reviewed by the team focused on, but were not limited to, these systems. The team conducted a walkdown of these systems to assess whether problems were appropriately identified and entered into the corrective action program.

(2) Assessments

Identification of Problems

In general, the team concluded that the licensee has been identifying problems and entering them into their corrective action program at appropriately low thresholds. For example, Fort Calhoun personnel had identified and initiated approximately 21,000 condition reports during the two and a half-year period of review. However, the team identified many examples of failures to document problems resulting in missed opportunities for the licensee to identify adverse trends. Examples include: failure to identify adverse trends in critical quality equipment (CQE) issues; failure to identify adverse trends in housekeeping; failure to identify trends in vendor manuals; and only two corrective actions program trend evaluations issued in two years (rather than one evaluation per quarter by process). Specific examples of ineffective identification of issues include:

- Failure to Perform Extent of Condition Evaluation. The NRC identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for failure to assure that conditions adverse to quality were promptly identified and corrected. Specifically, following the identification of an ineffective temporary design modification on July 5, 2011, which caused an unexpected loss of annunciator in the control room, engineering personnel failed to ensure that a temporary modification adequately addressed other potential adverse affects to control room indications because they did not perform an extent of condition as directed. This failure could have prevented the licensee from identifying other conditions adverse to quality (40A2.e(4)).
- Failure to Implement an Adequate Trending Program. The NRC identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for inadequate procedures used to implement the licensee's trending program. Specifically, the failure to implement adequate procedures to trend conditions adverse to quality is a performance deficiency (40A2.e(6)).
- Failure to Follow Housekeeping Program Requirements. The NRC identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure to properly implement housekeeping procedures to control transient equipment and materials. Specifically, the team identified via walk-downs loose maintenance carts, improperly stored ladders, excessive transient combustible material and inadequately evaluated scaffolding (40A2.e(7)).
- Failure to Maintain External Flood Procedures. In Inspection Report 2010008, the NRC identified a Yellow violation of Technical Specification 5.8.1.a, "Procedures," for failure to establish and maintain procedures that protect the intake structure and auxiliary building during external flooding events because the procedural guidance of GM-RR-AE-1002, "Flood Control Preparedness for Sandbagging," was inadequate. Specifically, stacking and draping sandbags at a height of four feet over the top of

floodgates would be insufficient to protect the vital facilities to the level described in Updated Safety Analysis Report and station procedures (VIO 2010008-01).

- Failure to Maintain Licensed Operator Examination Integrity. In Inspection Report 2010005, the NRC identified a Green non-cited violation of 10 CFR Part 55.49, "Integrity of Examinations and Tests," for the failure of the licensee to ensure that the integrity of an operating test administered to licensed operators was maintained. Two licensed operators received five job performance measures for their retake operating tests that had been potentially compromised during earlier weeks when the current week's operating test book was left out and uncontrolled overnight in the training building (NCV 2010005-01).

Prioritization and Evaluation of Issues

The team found that the licensee had generally prioritized condition reports adequately; however, the team found some condition reports that had been inconsistently prioritized. Examples included inoperable safety related equipment classified as "broke-fix" contrasted with a minor personal injury that resulted in an extensive root cause analysis. Additionally, the team found that the licensee tended to over-prioritize which adversely impacted the work load of the staff. The team found that the licensee generally performed operability assessments in a timely manner. Performance deficiencies noted in the area of prioritization and evaluation included:

- Failure to Perform an Operability Determination after Identifying a Degraded Condition. In Inspection Report 2009007, the NRC identified a Green non-cited violation for the licensee's failure to meet 10 CFR Part 50, Appendix B, Criterion V, in that the licensee failed to perform an operability determination for a degraded condition. The licensee determined that certain relays classified as Functional Importance Determination 1, should be replaced every 9 or 15 years depending the duty cycle and environmental conditions. However, most of the relays in the emergency diesel generator had been in service since initial installation, over 35 years ago (NCV 2009007-01).
- Failure to Properly Apply an Approved ASME Code Case. In Inspection Report 2010006, the NRC identified a Green non-cited violation of 10 CFR 50.55a(b)(5)(i) because the licensee failed to adequately apply ASME Section XI Code Case N-513-2 when they evaluated a degraded section of raw water piping for operability (NCV 2010006-03).
- Failure to Determine the Cause of the Out Of Tolerance Condition Regarding Reactor Protection System Channel A Trip Unit 6. In Inspection Report 2011002, the NRC identified a Green non-cited violation of 10 CFR 50 Appendix B Criterion XVI, "Corrective Actions," for repeatedly failing to determine the cause of and take prompt corrective actions for the out of tolerance condition impacting reactor protection system channel A trip unit 6, (a significant condition adverse to quality) from July 28, 2003, through November 29, 2010 (NCV 2011002-02).
- Inadequate Maintenance Procedure Results in Water in East Switchgear Room and Room 19. In Inspection Report 2010004, a self-revealing Green non-cited violation

of Fort Calhoun Station Technical Specification 5.8.1, occurred for the licensee's failure to provide an adequate maintenance procedure for fire protection system flushing. Specifically, while performing OP-PM-FP-1000 on August 19, 2010, water backed up the VA-87 drain line and spilled onto the east switchgear room floor, into Room 19 below, as well as pooling on top of and inside of cable trays (NCV 2010004-08).

Effectiveness of Corrective Action Program

Overall, the team concluded that the licensee did not consistently develop appropriate corrective actions to address problems. The team identified twelve corrective actions associated with conditions adverse to quality that were not completed in a timely or effective manner. The NRC defines a condition adverse to quality as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances that adversely affect the functional capability of a structure, system or component, and a significant condition adverse to quality is one that requires prompt evaluation of the cause, implementation of corrective actions that will prevent recurrence, and reporting to appropriate levels of management. Examples include: multiple examples of condition reports (CRs) questioning degraded non-conforming implementation with inadequate corrective actions; multiple examples of degraded equipment failures without adequate extent of condition/cause (i.e., what else is degraded/nonconforming that has not been adequately evaluated); process does not force action until actual failures occur (only risk significant failures); surveillance test program alert range does not drive degraded but nonconforming evaluations; and numerous examples of degraded components (not fully qualified) that are determined to be operable. Specific examples included:

- Inadequate Implementation of Problem Identification and Resolution Program. The NRC identified a Green non-cited violation of 10 CFR Part 50 Appendix B, Criterion XVI, "Corrective Actions," for the failure to promptly identify and correct significant conditions adverse to quality in the implementation of the Problem Identification and Resolution program (4OA2.e(1)).
- Failure to Establish Adequate Measures to Maintain Vendor Manual Design Control Information. The NRC identified a Green cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the failure to establish adequate measures for the selection and review for suitability of application of parts equipment, and processes that are essential to the safety-related function of structures, systems, and components. Specifically, the team identified numerous condition reports involving inadequate implementation of vendor manual information that affected the suitability of application of parts equipment, and processes that are essential to the safety-related function of structures, systems, and component repair and refurbishment activities over an extended period of time. (4OA2.e(5)).
- Inadequate Corrective Actions to Ensure Reliability of Raw Water Pump Power Cables. The NRC identified a Green cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for failure to take effective corrective action following the initial discovery of water intrusion in cable vault manholes MH-5 and MH-31 in 1998, 2005, 2009 and 2011. Specifically, the licensee failed to take effective corrective action to establish an appropriate monitoring frequency which

took into account variable environmental conditions to mitigate potential common mode failure of raw water 4160 V motor cables in underground ducts and manholes identified during the Component Design Basis Inspection performed in 2009. The violation is cited because the licensee failed to restore compliance in a reasonable period following documentation of the issue as a non-cited violation issued December 30, 2009 (4OA2.e(2)).

- Failure to Correct Degraded Electrical Insulation on the Component Cooling Water System Motors Cables. The NRC identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for failing to promptly identify and correct conditions adverse to quality. Specifically, the licensee failed to identify degraded conditions associated with the electrical supply cable insulation for the component cooling water motors and to correct those conditions (4OA2.e(3)).
- Failure to Correct a Degraded Contactor in the Reactor Protective System. In Inspection Report 2011007, the NRC identified a White violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for failure to identify the cause and preclude the shading coils from becoming loose material in the M2 trip contactor assembly of the reactor protection system that subsequently resulted in a failed contactor (VIO 2011007-01).
- Failure to Correct Repeated Tripping of the Turbine Driven Auxiliary Feedwater Pump FW-10. In Inspection Report 2010006, the A self-revealing non-cited violation of 10 CFR 50 Appendix B, Criterion XVI, "Corrective Action," occurred for the licensee's repeated failure to assure that a condition adverse to quality was corrected. Specifically, five instances were identified where the licensee failed to correct an adverse configuration design which allowed the turbine-driven auxiliary feedwater pump FW-10 exhaust backpressure trip reset lever to be bumped and unlatched which would have prevented the pump from starting when required. The failure to correct this adverse condition resulted in the turbine-driven auxiliary feedwater pump reset lever becoming unlatched and causing the pump to trip off during a surveillance test start attempt on February 17, 2010 (NCV 2010006-01).
- Failure to Properly Translate Raw Water System Design Basis Requirements. In Inspection Report 2009003, the NRC identified a Green cited violation of 10 CFR Part 50, Appendix B, Criterion III, for the failure to correctly translate the Fort Calhoun Station raw water strainer component's design basis into specifications, procedures, and instructions. The raw water strainers were incorrectly translated as non-safety-related in design documents for their function of filtering small debris from the raw water system although the equipment is relied upon for design basis accident mitigation. This violation was identified by the NRC in 2007 and was a continuing violation that had not been corrected in a reasonable time (VIO 2009003-01).
- Inadequate Reportability Guidance. In Inspection Report 2010002, the NRC identified a Severity Level IV, non-cited violation of Fort Calhoun Technical Specification 5.8.1 for inadequate corrective action documents. Specifically, the documents do not adequately address assigning reportability evaluations. As a

result, the licensee failed to evaluate the reportability of a condition that was determined to be reportable until questioned by the NRC (NCV 2010002-01).

- Failure to Submit Licensee Reports. The NRC identified numerous examples of Severity Level IV, non-cited violations for the failures to submit licensee event reports within 60 days of discovery of an event as required by 10 CFR 50.73.
 - The turbine-driven auxiliary feedwater pump, FW 10, was inoperable from February 26 until April 6, 2009, which is reportable as a condition prohibited by technical specifications. On March 11, 2009, the electric motor-driven auxiliary feedwater pump, FW-6, was inoperable for approximately four hours when diesel generator 1 was inoperable. With both auxiliary feedwater pumps simultaneously inoperable, this was reportable as an event that could have prevented fulfillment of a safety function. The licensee determined that a licensee event report was required to be submitted within 60 days of April 6, 2009, and had not been submitted (NCV 2010003-05).
 - The diesel fuel oil storage system was inoperable for approximately 24 hours from January 6, 2010, until January 7, 2010. On January 6, 2010, fuel oil transfer pump FO-37 was inoperable due to a fire main rupture submerging the pump for approximately 24 hours. With no other means to transfer fuel from storage tank FO-10 to FO-1, the fuel oil storage system was inoperable, and the fuel volume in FO-10 was unavailable. This was reportable as a condition prohibited by technical specifications (NCV 2010004-02).
 - On November 29, 2010, the licensee had the available information to determine reactor protection system channel A trip unit 6 had been inoperable from November 8 until November 29, 2010. Per the licensee's technical specifications, reactor protection system channel A trip unit 6 should have been in the tripped condition within 48 hours from time of discovering loss of operability. This is a reportable as a condition prohibited by technical specifications (NCV 2011002-03).
- Failure to Perform Checks at the Beginning of Each Work Shift on the Main Hoist Limit Switches. In Inspection Report 2009004, the NRC identified a Green finding for failure to perform checks at the beginning of each shift on the main hoist limit switches of the refueling area crane (HE – 2) in the spent fuel pool area as specified in ANSI B30.2 – 1976 on June 29, 2009. The finding had a crosscutting aspect in problem identification and resolution because the licensee failed to take appropriate corrective actions to address safety issues (FIN 2009004-03).

b. Assessment of the Use of Operating Experience

(1) Inspection Scope

The team examined the licensee's program for reviewing industry operating experience, including reviewing the governing procedure and self-assessments. A sample size of twenty operating experience notifications that had been issued during the assessment period were reviewed to assess whether the licensee had appropriately evaluated the notification for relevance to the facility. The team then examined whether the licensee

had entered those items into their corrective action program and assigned actions to address the issues.

(2) Assessment

Overall, the team determined that the licensee was not adequately evaluating industry operating experience for relevance to the facility, based upon the multiple examples documented in Section 4OA2.e(5) where the licensee failed to incorporate vendor information into their vendor manuals. In addition, the team found that while the licensee did have a program to assess operating experience, their evaluations were often narrowly focused (i.e., evaluations were closed if the condition was not like-for-like) and did not assess similar or related conditions at the facility. For example, the licensee's assessment of NRC Information Notice 2011-15, "Steel Containment Degradation and Associated License Renewal Aging Management Issues," concluded that the information was not applicable because the examples given related to General Electric boiling water reactors. The information notice itself stated, "Although this IN [Information Notice] describes corrosion due to presence of water in inaccessible areas and degradation of coatings and pitting corrosion of the torus steel shell of BWR [boiling-water reactor] Mark I containments, there have also been instances of corrosion and pitting of pressurized-water reactor (PWR) and other BWR containments due to long term exposure to water and moisture, including that in inaccessible areas."

Additionally, the team noted that in some cases, the amount of time taken to assess the applicability or to incorporate the information was excessive. In response to NRC Information Notice 2011-14, "Component Cooling Water System Gas Accumulation and Other Performance Issues," the licensee responded that The Component Cooling Water System is not currently in the "Managing Gas Accumulation in Safety Systems" Program (PBD-32) and that an action item initiated in 2009 was written to review this system to determine if it needs to be included in the program. Other findings identified during the inspection period include:

- Failure to Establish Adequate Measures to Maintain Vendor Manual Design Control Information. The NRC identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the failure to establish adequate measures for the selection and review for suitability of application of parts equipment, and processes that are essential to the safety-related function of structures, systems, and components. Specifically, the licensee's failure to establish adequate measures involving vendor manual design controls were repeatedly documented in numerous condition reports over the inspection period. (4OA2e.(5)).
- Protective Action Recommendation Processes Allow for the Unnecessary Evacuation of the Public. In Inspection Report 2010003, the NRC identified a Green non-cited violation of 10 CFR 50.47(b)(10) and 50.54(q) for the failure to develop and put into place guidelines for the choice of protective actions during an emergency that were consistent with federal guidance. Specifically, the licensee's method for determining protective action recommendations could result in recommendations to evacuate members of the public in areas where dose projections did not exceed EPA protective action guides. This finding was associated with the operating experience component of the problem identification and resolution crosscutting area (NCV 2010003-04).

- Failure to Provide Procedural Guidance to Replace Or Evaluate Age Degraded Components. In Inspection Report 2011003, the A self-revealing Green non-cited violation of Fort Calhoun Technical Specification 5.8.1, "Procedures," occurred due to the failure of the licensee to ensure that adequate procedures were available for maintenance conducted on the reactor protective systems power supplies. Specifically, there was no procedural guidance to require replacement of power supplies, or an engineering justification for continued operation, once power supplies exceeded their vendor recommended life, and/or showed signs of failure and degradation. This finding was associated with the operating experience component of the problem identification and resolution crosscutting area because the licensee failed to adequately evaluate and communicate relevant internal and external operator experience (NCV 2011003-04).
- Failure to Verify that the Turbine Driven Auxiliary Feedwater Pump Exhaust Backpressure Trip Lever was Fully Latched. In Inspection Report 2010006, the NRC identified a Green non-cited violation of Technical Specification 5.8.1.a regarding the licensee's failure to implement written procedures as recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Paragraph 3.1 of Appendix A requires procedures for startup, shutdown and operation of the auxiliary feedwater system. Specifically, the licensee had no procedural guidance to verify full engagement of the turbine-driven auxiliary feedwater pump FW-10 exhaust backpressure trip mechanism when latched. This resulted in the licensee's failure to identify the partially latched condition of the exhaust trip mechanism which subsequently vibrated loose during a surveillance test causing a start failure of the pump, on February 17, 2010. This finding was associated with the operating experience component of the problem identification and resolution crosscutting area because the licensee failed to implement and institutionalize operating experience through changes to station operating procedures when they failed to incorporate industry information to verify the turbine-driven auxiliary feedwater pump is fully latched (NCV 2010006-02).

c. Assessment of Self-Assessments and Audits

(1) Inspection Scope

The team reviewed a sample size of five licensee self-assessments, surveillances, and audits to assess whether the licensee was regularly identifying performance trends and effectively addressing them. The team reviewed audit reports to assess the effectiveness of assessments in specific areas. The team evaluated the use of self- and third party assessments, the role of the quality assurance department, and the role of the performance improvement group related to licensee performance. The specific self-assessment documents reviewed are listed in the Attachment.

(2) Assessment

The team concluded that the licensee, in general, did have an adequate self-assessment process. The self-assessments and audits were generally self-critical, found safety issues and areas for improvement, and entered concerns into the corrective action program. However, a Safety Audit and Review Committee audit of the corrective action program completed in November 2010 failed to identify any strengths or weakness and

only identified one area for improvement. In addition, the quality department corrective action group completed a surveillance of a sample of industry operating experience issued between January and July 2009. No significant deficiency was identified and the group failed to note that assessments were frequently narrow in scope as discussed above. An additional finding associated with self-assessments and audits identified during this inspection period included:

- Failure to Conduct an Adequate Audit of Emergency Preparedness Interfaces with Offsite Authorities. In Inspection Report 2010003, the NRC identified a Green non-cited violation of 10 CFR 50.54(t)(2) for the failure to conduct an evaluation of the adequacy of interfaces between the licensee and state and local governments during a periodic review of the site emergency preparedness program. Specifically, the quality assurance audit team, for the February 2010 emergency preparedness audit, did not evaluate the adequacy of interfaces with offsite agencies and did not contact state or local emergency management or radiological health agencies during the audit to obtain information about their working relationships with the licensee (NCV 2010003-02).

d. Assessment of Safety-Conscious Work Environment

(1) Inspection Scope

The inspection team conducted five focus group interviews with members of security, instrumentation and control, electrical, operations, and engineering organizations for a total of 35 interviewees. The inspection team also conducted individual interviews with more than a dozen individuals. The interviewees represented various functional organizations, and ranged across staff and supervisor levels. The team conducted these interviews to assess whether conditions existed that would challenge the establishment of a safety conscious work environment at Fort Calhoun Station.

(2) Assessment

The inspection team found that licensee employees felt free to raise safety concerns to their management, the corrective action program, the employee concerns program, or to the NRC without fear of retaliation. The team identified a number of issues that may challenge the effectiveness of a safety conscious work environment based upon comments received during the interviews. These issues include a lack of availability of resources (both personnel and material), a lack of effective prioritization, a lack of confidence in the corrective action process, and a lack of communications from licensee management to personnel regarding the overall station recovery plan. Some of the more significant comments include:

- Some work groups were not comfortable or were not familiar with how to write condition reports.
- The station was good at identifying issues but poor at resolving them.
- The station has not done a good job at preventing events.

- Most work groups were suffering from labor shortages. The amount of time required to recruit, hire, and train new employees was such that groups were losing employees faster than they were being brought onboard.
- The work schedule is just less than overwhelming.
- Some work groups were spending a significant amount of time (80 percent) addressing condition reports and had little time for their primary tasks.
- Management overreacted to issues. Everything at Fort Calhoun was classified as a priority. When everything is a priority, nothing gets priority attention.

e. Specific Issues Identified During This Inspection

(1) Failure to Correct Identified Corrective Action Program Deficiencies

Introduction: The team identified a Green non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Actions." After identifying deficiencies that constituted a significant condition adverse to quality in the implementation of the corrective action program, the licensee failed to identify the cause and develop corrective actions to preclude repetition.

Description: The team reviewed elements of the licensee's root cause analysis for external flooding protection (condition report CR 2010-2387) that were associated with inadequacies in the station's corrective action program. The team noted that actions related to Root Cause 8.3, problem identification and resolution, concluded that the licensee had not effectively ensured that performance deficiencies related to external flooding, had been adequately identified, evaluated, and resolved. The root cause report included a recommendation that the licensee determine whether these performance deficiencies extended into other program areas. One of the actions the licensee took to identify the extent of the condition was to perform a behavioral gap analysis, focused on the implementation of the corrective action process. This gap analysis indicated that the deficiencies related to the flooding events extended into other station activities and could adversely affect the overall station performance in the identification and resolution of problems. Based upon the root and contributing causes listed in condition report CR 2010-2387 and the observations listed in the gap analysis, the team concluded that the potential existed for significant programmatic deficiencies in the licensee's implementation of its corrective action program. However, the licensee had not taken actions within the corrective action program to address these broader deficiencies.

The licensee's quality assurance program (QAP-10.4) defines a significant condition adverse to quality as one that includes widespread noncompliance with the quality assurance plan, for which the actual or potential consequences warrant an increased level of management attention. The team determined that the programmatic deficiencies in the corrective action program, as identified in the licensee's gap analysis, met this definition of a significant condition adverse to quality. However, the licensee failed to enter this condition in its corrective action program, identify the cause or to develop corrective actions to preclude repetition.

Subsequent to the team's finding, the licensee initiated condition report CR 2011-10135 and performed a root cause assessment. The licensee found that:

"The adverse condition in the Safety Culture Area of Problem Identification and Resolution (PI&R) has substantial nuclear, radiological, and industrial safety significance. This condition brings into question and challenges the integrity of the process that provides for the timely identification and reporting of issues, their evaluation, and the formulation of timely and effective corrective actions. This can lead to long standing issues which do not get noticed and corrected in a timely manner. This culture over time will lead to a reduction in the level of nuclear safety at the station."

Analysis: The licensee's failure to implement corrective actions for an identified root cause in accordance with corrective action program procedures was a performance deficiency. This performance deficiency is more than minor because it is associated with, and adversely affects, the protection-against-external-factors attribute of 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. Using Inspection Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the team determined the finding to be of very low safety significance (Green) because it did not represent a loss of system safety function, did not represent the actual loss of safety function of a single train for greater than its technical specification allowed outage time, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding has a crosscutting aspect in the decision-making component of the human performance crosscutting area because the licensee failed to use a systematic process when faced with the uncertain or unexpected situation that deficiencies related to external flood protection also extended into other station activities and could impact overall station performance [H.1(a)].

Enforcement: Title 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requires, in part, that measures shall be established to assure that conditions adverse to quality are promptly identified and corrected. In the case of significant conditions adverse to quality, the measures shall assure that the cause of the condition is determined and corrective action taken to preclude repetition. Contrary to the above, from March 24, 2011, to December 2, 2011, for a significant condition adverse to quality, the licensee failed to assure that the cause of the condition was determined and corrective action taken to preclude repetition.

Specifically, the licensee identified deficiencies in the implementation of its corrective action program were a significant condition adverse to quality on March 24, 2011, but failed to determine its cause and take corrective action to preclude its repetition until after December 2, 2011. Because this violation is of very low safety significance and entered in the licensee's corrective action program as condition report CR 2011-10135, this violation is being treated as a non-cited violation consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000285/2011006-01, "Failure to Correct Identified Corrective Action Program Deficiencies."

(2) Inadequate Corrective Actions to Ensure Reliability of Raw Water Pump Power Cables

Introduction: The team identified a Green cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for failure to take effective corrective action following the initial discovery of water intrusion in cable vault manholes MH-5 and MH-31 in 1998, 2005, 2009, and 2011. Specifically, the licensee failed to take effective corrective action to establish an appropriate monitoring frequency which took into account variable environmental conditions to mitigate potential common mode failure of raw water 4160 V motor cables in underground ducts and manholes identified during the Component Design Basis Inspection performed in 2009. The violation is being cited because the licensee had failed to restore compliance in a reasonable period following documentation of the issue as a non-cited violation issued December 30, 2009.

Description: The motors driving the raw water pumps, AC-10A through AC-10D, are powered through 4160 V cables routed through duct banks and manholes (MH-5 and MH-31) between the plant building and the intake structure. Updated Safety Analysis Report Section 8.5, Cable Installation, Section 8.5.1.f states, in part, that, "The E prefixed cables inside the screen house [intake structure] and between the plant building and screen house are routed in separate conduits, tray sections, or in separate duct bank conduits.... There is one manhole between the pull boxes and the screen house. The cables are in cable trays and the routing is in conformance with the Cable and Conduit Schedule Notes (Figure 8.5-1). There is a 6-inch thick concrete wall separating cable trays with EA and EC cables from cable trays holding EB and ED cables."

On numerous occasions, between 1998 and 2011, the licensee discovered significant water intrusion in manholes MH-5 and MH-31. In response to the 1998 event, the licensee established a 5-year inspection schedule for MH-31, as documented in condition report CR 199801719. The 5-year inspection schedule did not include MH-5 in the corrective action extent of condition.

In 2002, the licensee addressed Information Notice 2002-12, "Submerged Safety-Related Electrical Cables," documented in condition report CR 200200707, which justified the acceptability of lifetime submergence of the safety-related raw water 4160 V cables based on the cable manufacturer's design-basis accident qualification report. As a corrective action to address Information Notice 2002-12, the licensee established a 5-year inspection schedule for MH-5.

In 2005, the licensee discovered that the water level in MH-5 completely submerged all but the top two cable trays, as documented in condition report CR 200503247. Following the discovery of water in 2005, the licensee established an 18-month inspection schedule for MH-5. As a corrective action at that time, engineering suggested adding either a level alarm or a sump pump to MH-5.

During August 2009, MH-5 was opened on three separate occasions and water was pumped from the vault each time. Based on the rate of water intrusion discovered during these successive inspections, the team determined that the accumulated volume of water would submerge the 4160 V cable trays within the 18-month inspection schedule. At the time of that inspection neither an alarm nor a sump pump had been approved for installation to ensure the safety-related cables in MH-5 would not be submerged.

During the 2009 inspection, the team identified that the environmental qualification report used to justify the submergence of safety-related cables, was not conservative. Specifically, the team determined that the cable ratings in the environmental qualification report were incorrectly based on the equivalent accumulation of 30 days of water from containment spray, not an uncontrolled and protracted submergence period. Additionally, the team identified that the licensee had initially failed to include manhole MH-5 in the corrective action for the flooding found in MH-31 in 1998 and had subsequently failed to determine if the 5-year inspection cycle was appropriate for MH-5 in 2002. Since 2005, the licensee postponed installation of proposed level alarm or sump pump in MH-5 multiple times. The deferral of these corrective and preventive actions was based on fire protection requirements and budget constraints.

Based on the Component Design Basis Inspection team's finding in 2009, the licensee entered the issue into the corrective action program as condition report CR 2009-4216. The associated corrective action for this issue revised the cable vault manhole inspection schedule from an 18-month periodicity to a quarterly schedule. However, during the current inspection, the team determined that the licensee had not been effective in establishing an adequate manhole inspection frequency in that cable vault pumping had to be performed at various frequencies ranging from daily to quarterly intervals depending on river level and seasonal conditions.

Analysis: The team determined that failure to take effective corrective action to ensure the reliability and capability of the safety-related cables powering the raw water pump motors was a performance deficiency. Furthermore, the finding was within the licensee's ability to foresee and correct because the licensee had multiple opportunities to correct the continuing challenge to the safety-related cables and raceways for the raw water system over an extended period. The finding was more than minor because it adversely affected the Mitigating Systems Cornerstone attribute of design control for ensuring the availability, reliability, and capability of systems that respond to Initiating Events to prevent undesirable consequences. Using Inspection Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the team determined the finding to be of very low safety significance (Green) because it was a design deficiency that did not result in loss of operability or functionality.

This finding has a crosscutting aspect in the decision-making program component of the human performance area because the licensee failed to use conservative assumptions in decision-making and adopt a requirement to demonstrate that the proposed action was safe in order to proceed rather than a requirement to demonstrate that it was unsafe in order to disapprove the action. Specifically, from 2005 until 2011, the licensee chose to postpone installation of proposed water level control corrective actions and failed to appropriately monitor water intrusion into underground ducts and manholes MH-5 and MH-31 for raw water 4160 V motor cables multiple times [H.1(b)].

Enforcement: Title 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requires, in part, that measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected. Contrary to the above, from 1998 to October 28, 2011, the licensee failed to establish measures to assure that conditions adverse to quality were promptly identified and corrected. Specifically, the licensee failed to establish an appropriate monitoring frequency which

took into account variable environmental conditions to correct or mitigate water intrusion in cable vaults containing safety related cables. This performance deficiency was previously identified by the NRC on September 11, 2009, and documented as a non-cited violation (05000285/2009006-04). The current inspection team determined that the licensee had failed to restore compliance within a reasonable time following issuance of this non-cited violation. Therefore, this violation is being cited, consistent with the NRC Enforcement Policy, Section 2.3.2, which states, in part, that the licensee must restore compliance within a reasonable period of time (i.e., in a timeframe commensurate with the significance of the violation) after a violation is identified: VIO 05000285/2011006-02, "Inadequate Corrective Actions to Ensure the Reliability of the Raw Water Pump Power Cables."

(3) Failure to Promptly Correct Degraded Electrical Insulation on the Component Cooling Water System Motors Cables

Introduction: The team identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to promptly correct conditions adverse to quality. Specifically, the licensee failed to correct degraded conditions associated with the electrical supply cable insulation for the component cooling water motors originally identified in 2003. In addition, the licensee did not have justification for the temporary repairs made to the cables nor for continued operability.

Description: The team reviewed corrective action reports related to deficiencies with component cooling water system motor electrical supply cables. The safety function of the component cooling water system is to remove residual heat from the reactor. Damaged electrical supply cables could cause loss of qualification life and the potential for cable-to-cable interaction from degradation of the cable insulation.

In 2003, the licensee documented in a condition report that cracked electrical supply cable jacket for component cooling water motor AC-3C-M occurred and the cable was "repaired" with electrical insulation tape. The team questioned the licensee whether this was a qualified IEEE type of repair for electrical supply cables. At the time of this inspection, the licensee had not evaluated if the repair was a qualified IEEE repair and subsequently documented the question in condition report CR 2011-9738.

On February 23, 2010, during component cooling water AC-3B-M motor replacement, the licensee identified degraded conditions in the electrical supply cables. The first one to two feet of cable had hairline cracks in the insulation. The licensee documented in condition report CR 2010-0914 that the bend radius inside the connection box for component cooling water motor AC-3B-M was tight. The team questioned whether the minimum bend radius for the electrical cables inside the motor connection box for component cooling water motors AC-3A, AC-3B and AC-3C had been exceeded. As a result, the licensee initiated actions to perform inspections inside the connection boxes for the component cooling water motors electrical supply cables. The licensee documented this question in condition report CR 2011-9738.

On June 5, 2010, the licensee documented the discovery of small cracks on the electrical supply cable jacket for component cooling water motor AC-3A-M due to overheating in condition report CR 2010-2769. Repairs were made on the cable with

electrical insulation tape. Once again, the licensee had not evaluated whether this was a qualified IEEE repair as documented in condition report CR 2011-9738.

The team reviewed a self-assessment of the licensee's cable and connections program conducted on January 24, 2011. The licensee's self-assessment concluded that cables identified as degraded, primarily with degraded jackets, have historically been assessed as functional or operational based on the apparent damage being limited to the outer jacket. This was based on no credit being given for the protective value of the outer jacket. In specific cases, tape was applied as an overwrap to restore the barrier of the jacket. The inspection team identified that while this practice may address the damaged cable jacket, no effective means of determining the potential degradation and current condition of the underlying insulation material exists. The licensee documented the inspection team's observation in condition report CR 2011-0491. This condition report further stated that the "Initial operability basis stated that cable repairs with electrical tape were completed to maintain operability. However, for long term operability, the cables need to be replaced."

Included in condition report CR 2011-0491 was an evaluation on component cooling water motor AC-3C supply cable temperature aging. The data indicated that the existing operating environment would significantly harden the cable jacket due to temperature aging. As a result, the cable life would be very short – estimated at less than two years. The maintenance history for all three component cooling water motors indicate that no electrical supply cable has ever been replaced, and any repairs completed have been made with electrical insulation tape.

The team discovered that the electrical cables supplying component cooling water motors AC-3A, AC-3B and AC-3C, were not evaluated for degraded insulation as required per licensee procedure NOD-QP-31. Specifically, attachment 3, paragraph 3.11 states that, "Degraded insulation has been evaluated and determined to be acceptable for the next two refueling cycles (the component was originally designed for plant life)." The licensee initiated actions to perform an evaluation for degraded electrical insulation for the component cooling water motor electrical supply cables. This was also documented in condition report CR 2011-9738. The team noted that based upon plant conditions (shutdown in Mode 5), the component cooling water system was not required to be operable.

Analysis: The failure of the licensee to properly correct conditions adverse to quality associated with the loss of full qualification of plant components due to degraded electrical supply cable insulation was a performance deficiency. This performance deficiency was more than minor because it was associated with the equipment performance attribute of the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Inspection Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the team determined the finding to be of very low safety significance (Green) because it did not represent a loss of system safety function, did not represent the actual loss of safety function of a single train for greater than its technical specification allowed outage time, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event.

This finding has a crosscutting aspect in the resources component of the human performance area because the licensee failed to minimize long-standing equipment issues by correcting these deficiencies [H.2(a)].

Enforcement: Title 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requires, in part, that measures be established to assure that conditions adverse to quality such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected. Contrary to the above, from 2003 until present, the licensee failed to establish adequate measures to assure that a condition adverse to quality was promptly corrected. Specifically, the licensee identified the need to replace electrical supply cables for component cooling water motors because they have degraded repeatedly; however, the actions to replace the cables were never implemented. Because this violation is of very low safety significance and entered in the licensee's corrective action program as condition report CR 2011-9738, this violation is being treated as a non-cited violation, consistent with Section VI.A of the Enforcement Policy: NCV 05000285/2011006-03, "Failure to promptly correct degraded electrical insulation on the component cooling water system motors."

(4) Failure to Perform Extent of Condition Evaluation

Introduction: The NRC identified a finding for failure of the licensee to follow directions of an apparent cause evaluation to perform an extent of condition evaluation. Specifically, following the identification of an inadequate temporary design modification that rendered annunciator CB 20, Panel A18, Window C3 inoperable on July 5, 2011, engineering personnel failed to perform an extent of condition evaluation to identify other annunciator windows rendered inoperable by the design modification.

Description: On July 5, 2011, when opening the breaker for 480 V bus 1B4B, operations personnel noted that annunciator CB 20, Panel A18, Window C3 (480V BUS 1B4A, 1B4B, 1B4C LOW VOLTAGE) did not come in as expected, and generated condition report CR 2011-5969 to address the problem.

Following a fire that had previously occurred in bus 1B4A, DC control power was isolated to the 1B4A load center to support repairs via a temporary modification (EC 53288). When the isolation of control power took place, the alarm was defeated. Operations personnel were not aware that the temporary modification rendered the annunciator nonfunctional. The team noted that no extent of condition analysis had been performed to determine if other annunciators had been affected by the temporary modification. The licensee was unable to determine why an extent of condition analysis had not been performed even though one was mandated by the apparent cause evaluation that had been performed. The licensee initiated condition report CR 2011-9385 to generate an action item to perform an extent of condition review. The extent of condition that was subsequently performed did not identify any other annunciator affected by the temporary modification.

Analysis: The failure of engineering personnel to perform an extent of condition evaluation as directed by the apparent cause evaluation for a temporary modification following identification of an unexpected condition was a performance deficiency. The finding is more than minor because the failure to adequately implement the corrective

actions associated with the temporary modification's identified deficiencies affects the equipment performance attribute of the Mitigating Systems Cornerstone and affects the cornerstone objective of ensuring availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Inspection Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the team determined the finding to be of very low safety significance (Green) because it did not represent a loss of system safety function, did not represent the actual loss of safety function of a single train for greater than its technical specification allowed outage time, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event.

The finding has a crosscutting aspect in the corrective action program component of the human performance area associated with work practices because engineering personnel failed to follow direction and ensure that an extent of condition review mandated by an apparent cause evaluation was performed [H.4(b)].

Enforcement: This finding does not involve enforcement action because no violation of a regulatory requirement was identified. Because this finding does not involve a violation and has very low safety significance, it is identified as FIN 05000285/2011006-04, "Failure to Perform Extent of Condition Evaluation."

(5) Failure to Establish Adequate Measures to Maintain Vendor Manual Design Control Information

Introduction: The NRC identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the failure to establish adequate measures for the selection and review for suitability of application of parts equipment, and processes that are essential to the safety-related function of structures, systems, and components. Specifically, the team identified numerous condition reports involving inadequate implementation of vendor manual information that affected the suitability of application of parts equipment, and processes that are essential to the safety-related function of structures, systems, and component repair and refurbishment activities over an extended period.

Description: The team reviewed elements of the Vendor Manual Program including the governing procedures, associated condition reports and the results of a recent Self-Assessment (RA 2009-1242). As described in this Self-Assessment, a number of discrepancies were identified related to implementation of this program including the following:

- Difficulties in retrieving vendor information
- Engineering Changes did not consistently incorporate vendor manual information
- Engineering did not routinely verify that impacted components have vendor manuals or technical manuals
- Vendor Manual Program failed to use the Operating Experience process to conduct reviews of vendor and technical manual changes

- Vendor manual information from other than modifications was not consistently identified
- Inadequate staffing of key positions described in program procedures

The team reviewed condition reports related to the licensee's failure to implement operating experience and vendor information into appropriate design and maintenance documents. The condition reports included:

- Condition report CR 2009-2780 identified that the vendor manual for safety injection accumulators did not match configuration of installed equipment.
- Condition report CR 2011-0448 identified that radwaste processing building crane semi-annual inspection listed an old vendor manual number and does not match the electronic vendor manual numbers.
- Condition report CR 2009-2780 identified discrepancy between torque values for the cover plate of the safety injection accumulators between maintenance procedure for repair and design documentation.
- Condition report CR 2011-6851 identified that engineering change 43216 to replace the high pressure turbine was missing known industry operating experience.
- Condition report CR 2010-0162 identified the design, model, and number of power supplies for the nuclear instrumentation safety channel drawers in passport did not agree with the vendor manual.
- Condition report CR 2011-7131 documented that HCV-335 shutdown cooling heat exchangers AC-4A & B inlet header isolation valve failed in an intermediate position. Troubleshooting determined that the installed valve diaphragm was not procured safety-related, was installed upside down, and had a hole in it that allowed air to escape and partially close - contrary to the latest vendor information.
- Condition report CR 2009-2435 documents a concern regarding outdated or inaccurate information regarding the equipment database and vendor manual programs due to not having a dedicated coordinator to manage the programs since 2007.
- Condition reports CRs 2011-8110, CR 2011-8113, CR 2011-8114 describe vendor manual programmatic deficiencies.
- Condition reports CRs 2011-10540, CR 2011-10541, CR 2011-10542, CR 2011-10543, CR 2011-10545 describe vendor manual technical document changes for safety related equipment that the licensee was not previously aware of that have not been evaluated for impact to plant procedures as required.

Based upon the cumulative impact of the deficiencies associated with inadequate implementation of the quality affecting vendor manual program and operating experience information and the extent of condition of the findings identified by the NRC, the team

concluded that the licensee failed to adequately correct the programmatic deficiencies associated with this condition.

Analysis: The failure to promptly maintain design information associated with vendor manuals to ensure information, which affected the suitability of application of parts equipment, and processes, essential to the safety-related function of structures, systems, and component repair and refurbishment activities, was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the design control attribute of the Mitigating Systems Cornerstone, and affected the associated cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences, and was therefore a finding. Using Inspection Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the team determined the finding to be of very low safety significance (Green) because it did not represent a loss of system safety function, did not represent the actual loss of safety function of a single train for greater than its technical specification allowed outage time, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event.

This finding has a crosscutting aspect in the decision making component of the human performance area because the licensee failed to make safety-significant decision using a systemic process which included formally defining the authority and roles for decisions in that the licensee chose not to fill key positions responsible for the program for several years [H.1(a)].

Enforcement: Title 10 CFR Part 50, Appendix B, Criterion III, "Design Control," requires, in part, that measures shall be established for the selection and review for suitability of application of materials, parts, equipment, and processes that are essential to the safety-related function of structures, systems, and components. Contrary to the above, since July 14, 2009, the licensee failed to assure measures were established for the selection and review for suitability of application of materials, parts, equipment, and processes that were essential to the safety-related function of structures, systems, and components. Specifically, the licensee failed to implement vendor manual information that affected the suitability of application of parts, equipment, and processes that were essential to the safety-related function of structures, systems, and component repair and refurbishment activities on numerous occasions over an extended period of time. Because this violation is of very low safety significance and entered in the licensee's corrective action program as condition report CR 2011-9793, this violation is being treated as a non-cited violation, consistent with Section VI.A of the Enforcement Policy: NCV 05000285/2011006-05, "Failure to Establish Adequate Measures to Maintain Vendor Manual Design Control Information."

(6) Failure to Implement an Adequate Trending Program

Introduction: The NRC identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for inadequate procedures that are used to implement the licensee trending program. Specifically, the failure to implement adequate procedures to trend conditions adverse to quality is a performance deficiency.

Description: On December 1, 2011, the team identified a deficiency regarding the licensee's inability to implement adequate procedures for gathering, analyzing, and communicating information related to low-level performance vulnerabilities and repeat occurrences prior to the emergence of more significant events as required by QAP-10.4, "Condition Reporting and Corrective Action," Revision 9; FCSG-24, "Corrective Action Program Guideline," Revision 37; FCSG 50, "Station Trending Program," Revision 3; and SO-R-2, "Condition Reporting and Corrective Action," Revision 50. This concern was documented in the licensee's corrective action program as condition report CR 2011-9791. Recent examples of repetitive issues that were not adequately trended before they became more significant include:

- failures in the Radiation Monitoring System;
- failures in the control room HVAC equipment;
- failures of reactor protection system power supplies and trip contactor;
- inadequate control of the vendor manual program;
- adverse trends in equipment surveillance tests leading to inoperability;
- inadequate procedural guidance regarding manual operation of air operated valves;
- issues surrounding FW-10, Turbine Driven Auxiliary Feedwater pump Back Pressure Trip Reset Lever;
- voiding concerns that led to voiding a portion of piping to FW-54, Diesel Driven Auxiliary Feedwater pump;
- housekeeping concerns;
- configuration control procedural maintenance concerns regarding non-safety-related part numbers in safety-related systems; and
- design control procedure concerns regarding classification and maintaining of safety functions.

The licensee has written numerous condition reports regarding the station's inability to effectively trend information or take action when a trend (adverse or otherwise) is identified to prevent more significant events.

- Condition report CR 2010-2589 documented the 2010 Fort Calhoun Mid-Cycle Assessment that determined, "The Station Quarterly Trend report is narrowly focused on CAP information and not on identification of potential cross functional trends from all available data streams." The consequences, documented in the assessment, stated that, "If a site trend report is too narrowly focused, the site will be vulnerable to emerging and adverse trends in areas outside of the corrective action program codes."
- Condition reports CR 2010-3512, CR 2010-3513, and CR 2010-3514 documented concerns identified as part of the Station's 2010 trending program self-assessment. Specifically, CR 2010-3512 states, "The current practice for handling emerging trends is not providing the station an opportunity to address performance issues before an adverse trend would occur."
- Condition report CR 2011-6233 identified that a site wide trending report had not been issued since the second quarter of 2010 as required by QAP-10.4 and FCSG-50.

- Condition report CR 2011-6262 identified that the corrective action associated with condition report CR 2010-2589 were ineffective.

The team also identified the following specific discrepancies regarding the licensee's trending program:

- Based on interviews with station personnel and a review of procedures, trending reports are developed on a quarterly basis. Trend data is gathered and reviewed prior to preparation of the quarterly trend report. This leaves the licensee in a reactive state as emerging adverse trends and subsequent corrective actions would not be identified prior to the potential emergence of more significant events.
- Currently FCSG-50 only requires periodic trending of "...those systems/components with a high-risk worth based on information from the PRA Summary notebook...limited to those with a Functional Importance Determination (FID) Level of Consequence of Nuclear Criticality 1 (N1)." However, the inspection team concluded that by limiting the trending process to only high-risk worth systems/components the licensee is constrained from identifying conditions adverse to quality regarding adverse trends for the balance of the facilities safety-related systems/components. This is inconsistent with the requirements of QAP-10.4, which, states that, "The Manager-Performance Improvement shall develop a system to trend conditions adverse to quality." As noted by the team, QAP-10.4 appears to be the method the licensee uses to meet their commitment to maintain the trending program as described in LIC-89-1006, Safety Enhancement Program One Time Commitments, Attachment 1, Reference 10.
- Contrary to the requirements of QAP-10.4, condition reports CR 2009-0474, CR 2009-3569, CR 2010-0452, and CR 2011-6233 documented quarterly trend reports that were either issued late, or not at all.

Analysis: The failure to implement adequate procedures to trend conditions adverse to quality is a performance deficiency. The finding affected the Mitigating Systems Cornerstone and was more than minor because if left uncorrected, the deficiency could lead to a more significant safety concern. Using Inspection Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the team determined the finding to be of very low safety significance (Green) because it did not represent a loss of system safety function, did not represent the actual loss of safety function of a single train for greater than its technical specification allowed outage time, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event.

This finding has a crosscutting aspect in the corrective action program component of the problem identification and resolution area because the licensee failed to thoroughly evaluate problems associated with the trending program such that the resolutions address causes and extent of conditions, as necessary [P.1(c)].

Enforcement: Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that 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 the above, as of December 1, 2011, the licensee failed to prescribe activities affecting quality in documented procedures of a type appropriate to the circumstances that included appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished. Specifically, the licensee has not implemented adequate procedures for gathering, analyzing, and communicating information related to low-level performance vulnerabilities and repeat occurrences prior to the emergence of more significant events. Because this violation is of very low safety significance and entered in the licensee's corrective action program as condition report CR 2011-9791, this violation is being treated as an NCV, consistent with Section VI.A of the Enforcement Policy: NCV 05000285/2011006-06, "Failure to Implement an Adequate Trending Program."

(7) Failure to Control Transient Material in Accordance with Program Requirements

Introduction: The NRC identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure to properly implement procedural requirements to control transient equipment and materials. Specifically, on November 14, 2011, the team identified loose maintenance carts, improperly stored ladders, excessive transient combustible material, inadequately evaluated scaffolding being stored near safety-related equipment, and a procedure which failed to provide guidance for inspection and removal of foreign material in the spent fuel pool as a result of a non-functional skimmer.

Description: On November 14, 2011, the team inspected several plant areas in the Auxiliary Building, identifying violations of Fort Calhoun Station's procedural requirements. Specifically, the team identified loose maintenance carts, improperly stored ladders, excessive transient combustible material and inadequately evaluated scaffolding. The following were deficiencies identified:

Room 69:

- Two lifting rigs, a pallet jack and a wheeled cart tied off to safety-related reactor building ventilation duct VA-40C. The wheels were not secured so this equipment could move and contact the ventilation duct during a seismic event.
- Tools and equipment parts stored between safety-related VA-33A and VA-33B housings.
- Two fan rotors on the floor one near the component cooling water surge tank and the other near a fire water main header.
- Tool boxes, mops and buckets not located in a designated storage area near safety-related boric acid batch tanks.
- A fan rotor was stored on scaffolding near safety-related component cooling water pumps.
- Plastic pallets weighing greater than 100 pounds without a transient combustible permit.

Corridor 4:

- A wheeled cart with tools on top located near electrical junction box EE-86 and deluge valves. The wheels were not secured so this equipment could move and contact the equipment during a seismic event.
- Compressed gas bottles secured to plant equipment without proper evaluation.
- Plastic bucket located underneath safety injection valve SI-153.

- Three white fire hoses were found staged near a Safety Injection Tank weighing greater than the 100-pound administrative limit for transient combustibles in the Auxiliary Building.

Room 21:

- A wheeled cart located near a safety-related ventilation duct. The wheels were not secured so this equipment could move and contact the equipment during a seismic event.
- Ladder not stored in designated storage rack.

Room 22:

- Tools and miscellaneous equipment not stored in designated storage area.
- Tools stored near safety injection valve SI-1B.

Spent Fuel Pool

- Foreign material in the spent fuel pool.

As a result, the team determined the licensee failed to meet the following licensee standards:

- Procedure FCSG-54 "Station House Keeping Standards," Revision 2, which requires an engineering evaluation for transient equipment staged in close proximity to safety-related equipment. The licensee documented the examples noted above in condition reports CR 2011-9381 and CR 2011-9383.
- Procedure SO-G-91, "Control and Transport of Transient Combustible Material," Revision 27, requires a permit for relief from the requirements of this standard. The licensee documented the examples noted above in condition reports CR 2011-9424 and CR 2011-9422.
- Procedure SO-G-107, "Storage of Transient Equipment and Material to Prevent Seismic Interactions or Tornado Pressurization," Revision 9, requires transient equipment and material to be stored or placed in a Safe Shutdown Target Zone. In addition, deviations from the requirements of this procedure are to be submitted by way of Form PED-GEI-34.1. The licensee documented the examples noted above in condition reports CR 2011-9383, CR 2011-9395, CR 2011-9396 and CR 2011-9397.
- Procedure SO-M-10, "Foreign Material Exclusion [FME] Control," Revision 39. The licensee failed to provide guidance for inspection and removal of foreign material in the spent fuel pool as a result of a non-functional skimmer. Specifically, paragraph 1.1.5 requires in part that guidance be provided for inspection of work areas, establishing FME control requirements, and prevent introduction of foreign material (i.e., dirt, debris, and tools) into open systems or components. The licensee documented the examples noted above in condition report CR 2011-9399.

The licensee evaluated these conditions and found that although these items were in violation of the station procedural requirements, equipment operability had been maintained. The licensee either secured or removed the equipment and entered these issues into their corrective action program as describe above.

The team identified that there could be an adverse trend related to the control of transient materials. The team reviewed the licensee's corrective action program from March 31, 2011 through November 11, 2011. The team identified 11 condition reports identifying conditions adverse to quality related to housekeeping. Each condition report listed multiple examples where station personnel failed to properly store or restrain items near safety-related equipment. The team also identified that multiple failures of plant personnel to follow licensee requirements to properly secure or store equipment in close proximity to sensitive equipment were indicative of a potential programmatic deficiency. The team concluded that the licensee failed to consider these examples as repetitive events comprising an adverse trend as described in paragraph 4.5.3.A.3, procedure FCSG-24, "Corrective Action Program Guideline," Revision 37. The team's overall concerns relative to the licensee's failure to identify an adverse trend in this area was documented in condition report CR 2011-9762.

Analysis: The repeated failures of plant personnel to follow the procedural requirements for the control of transient materials were performance deficiencies. The finding was more than minor because if left uncorrected, the deficiencies could lead to a more significant safety concern. Using Inspection Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the team determined the finding to be of very low safety significance (Green) because it did not represent a loss of system safety function, did not represent the actual loss of safety function of a single train for greater than its technical specification allowed outage time, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event.

This finding has a crosscutting aspect in the corrective action program component of the problem identification and resolution area because the licensee failed to track and trend information from the corrective action program (recurring transient equipment issues) in the aggregate to identify programmatic and common cause problems [P.1(b)].

Enforcement: Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that 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 the above, on November 14, 2011, the license failed to accomplish prescribed activities affecting quality in accordance using documented instructions. Specifically, the licensee failed to follow instructions in contained in the following procedures:

- Procedure FCSG-54, "Station House Keeping Standards," Revision 2, requires an engineering evaluation for transient equipment staged in close proximity to safety-related equipment.

- Procedure SO-G-91, "Control and Transport of Transient Combustible Material," Revision 27, requires a permit for relief from the requirements of this standard if transient combustibles are in excess of established limits.
- Procedure SO-G-107, "Storage of Transient Equipment and Material to Prevent Seismic Interactions or Tornado Pressurization," Revision 9, require transient equipment and material to be stored or placed in a Safe Shutdown Target Zone and deviations from the requirements of this procedure are to be submitted by way of Form PED-GEI-34.1.
- Procedure SO-M-10, "Foreign Material Exclusion Control," Revision 39, requires that guidance be provided for inspection of work areas, establishing FME control requirements, and prevent introduction of foreign material (i.e., dirt, debris, and tools) into open systems or components.

Because this violation is of very low safety significance and entered in the licensee's corrective action program as condition report CR 2011-9762, this violation is being treated as a non-cited violation, consistent with Section VI.A of the Enforcement Policy: NCV 05000285/2011006-07, "Failure to Follow Housekeeping Program Requirements."

40A6 Meetings

Exit Meeting Summary

On February 2, 2012, the team presented the inspection results to you and other members of the licensee staff. The licensee acknowledged the issues presented. The team questioned the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

David Bannister, Vice President and Chief Nuclear Officer
Susan Baughn, Manager, Nuclear Licensing
Brad Blome, Manager, Quality
Corey Cameron, Supervisor, Regulatory Compliance
Al Clark, Manager, Security
Mike Cooper, Licensing
Michael Ferm, Manager, Station Performance Improvement Initiative
Fred Forck, Consultant, Corrective Action
Steve Gebers, Manager, Emergency Preparedness and Health Physics
Brian Obermeyer, Acting Manager, Performance Improvement
John Goodell, Division Manager, Nuclear Performance Improvement & Support Division
John Herman, Division Manager, Nuclear Engineering
Randy Hodges, Manager, Work Management
Ken Kingston, Manager, Chemistry
Erick Matzke, Compliance
Dave Merrick, Employee Concerns Program
Tim Nellenbach, Plant Manager
Ted Robison, Acting Manager, Corrective Action Program
Mike Smith, Operations Manager
Del Trausch, Assistant Plant Manager
Tim Uehling, Manager, Maintenance
Carol Waszak, Supervisor, Nuclear Engineering

NRC Personnel

John Kirkland, Senior Resident Inspector

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened

05000285/2011006-02	VIO	Inadequate Corrective Actions to Ensure the Reliability of the Raw Water Pump Power Cables (Section 4OA2e.(2))
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Opened and Closed

05000285/2011006-01	NCV	Failure to Correct Identified Corrective Action Program Deficiencies (Section 4OA2e.(1))
05000285/2011006-03	NCV	Failure to Correct Degraded Electrical Insulation on the Component Cooling Water System Motors (Section 4OA2e.(3))
05000285/2011006-04	FIN	Failure to Perform Extent of Condition Evaluation (Section 4OA2e.(4))
05000285/2011006-05	NCV	Failure to Establish Adequate Measures to Maintain Vendor Manual Design Control Information (Section 4OA2e.(5))
05000285/2011006-06	NCV	Failure to Implement an Adequate Trending Program (Section 4OA2e.(6))
05000285/2011006-07	NCV	Failure to Follow Housekeeping Program Requirements (Section 4OA2e.(7))

Closed

None

Discussed

None

LIST OF DOCUMENTS REVIEWED

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
FCSG-24	Corrective Action Program Guideline	37
FCSG-50	Station Trending Program	3
FCSG-54	Station House Keeping Standards	2
NOD-QP-19	Cause Analysis Program	42
NOD-QP-31	Operability Determinations Process (ODP)	48
NOD-QP-45	Performance Improvement Advocates	4

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
QAP-1.1	Quality Assurance Plan	12
SO-G-107	Storage of Transient Equipment and Material (TEM) to Prevent Seismic Interactions or Tornado Pressurization	9
SO-G-23	Surveillance Test Program	58
SO-G-62	Control of Vendor Manuals	14
SO-R-1	STANDING ORDER REPORTABILITY DETERMINATIONS	23
SO-R-2	Condition Reporting and Corrective Action	50

CONDITION REPORTS

2008-5399	200502715	2008-6521	2010-2589	2010-3512
2008-5704	2007-5155	2011-8383	2011-7099	2011-7886
2009-1770	2010-3634	2009-3792	2008-3562	2011-5110
2009-2780	2011-8780	2011-6851	2009-6307	2010-0162
2009-3790	2010-5741	2009-1001	2011-2227	2011-5065
2009-3967	2011-4652	2009-5690	2011-8959	2009-1112
2009-4305	2010-1577	2010-2438	2010-2620	2010-3246
2009-4529	2010-3365	2011-0044	2010-4586	2011-6994
2010-0640	2011-2438	2009-2261	2011-3972	2009-1559
2010-1740	2011-9788	2009-3957	2009-3786	2009-3707
2010-2378	2011-8111	2011-8110	2011-8114	2010-0162
2010-2693	2010-5406	2011-9473	2011-4347	2011-5832
2010-3357	2010-3521	2010-4706	2011-9459	2009-1597
2010-5406	2010-6872	2010-0293	2011-5957	2010-4756
2011-0330	2011-0560	2010-6839	2011-0820	2008-7060
2011-10429	2009-2435	2011-8110	2011-8113	2011-8114
2011-10543	2011-10545	2011-7131	2010-4058	2011-7423
2011-1787	2011-7249	2010-3847	2011-7333	2011-7164
2011-2455	2010-3392	2010-2019	2011-1075	2011-2380
2011-2510	2011-9091	2011-2470	2011-5414	2011-0801
2011-2840	2011-0053	2010-6845	2010-6697	2010-6872
2011-3342	2011-3712	2011-3848	2011-4320	2011-4389
2011-3767	2011-3907	2011-4025	2011-4121	2011-4212
2011-4449	2011-5269	2011-9481	2009-0016	2010-4423
2011-5016	2010-3796	2010-3795	2011-7682	2011-5619
2011-5215	2011-5801	2011-5924	2011-5970	2011-6030
2011-5307	2011-3414	2011-2229	2011-5114	2011-5012
2011-6050	2011-2769	2011-9381	2011-9383	2011-9422
2011-6233	2011-6262	2011-8887	2011-9791	2009-5997
2011-7094	2010-6467	2011-5969	2010-2387	2011-1965
2011-7368	2011-5716	2070-1174	2010-5281	2011-8544
2011-7478	2011-7701	2011-8262	2011-9344	2011-10228

2011-8119	2011-9296	2011-9793	2011-10540	2011-10541
2011-8258	2011-9460	2011-9195	2011-9397	2011-9412
2011-9395	2011-7120	2011-8001	2011-7977	2011-3025
2011-9412	200504723	200504203	200504208	2012-00356
2011-9424	2011-9399	2011-2455	2011-3088	2011-3608
2011-9763	2011-2379	2007-2613	2008-6899	2009-2950
2011-9793	2009-2435	2009-3125	2011-0448	2009-6709
2012-00358	2012-00356	2012-00373	2012-00401	

WORK ORDERS/WORK REQUESTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION/DATE</u>
CWO 322162-01		
WR 133183		
WR 134660		
WR 125791		
WO-349416-02	Perform Interior Inspection of Concrete Vault from MH-5	
WO-349416-01	Perform Interior Inspection of Concrete Vault from MH-5	
WO-349417-03	Perform Interior Inspection of Concrete Vault from MH-31	
169625	Component Cooling Category B Valve Exercise Test	September 23,2011
207836	HCV-335	May 27, 2005
124108	HCV-335	August 26, 2004
365734	Component Cooling Category B Valve Exercise Test	July 19, 2010
374892	Component Cooling Category B Valve Exercise Test	October 1, 2010
383637	Component Cooling Category B Valve Exercise Test	January 3, 2011
392333	Component Cooling Category B Valve Exercise Test	March 28, 2011
393381	Component Cooling Category B Valve Exercise Test	April 9, 2011
414290	Component Cooling Category B Valve Exercise Test	May 26, 2011
399923	Component Cooling Category B Valve Exercise Test	July 10, 2011
420867	Component Cooling Category B Valve Exercise Test	August 4, 2011

SELF-ASSESSMENT AND QUALITY ASSURANCE REPORTS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
EP-10-240	Drill Report for the September 28, 2010 EP Exercise	October 1, 2011
EP-11-110	Drill Report for the August 16, 2011 EP Training Drill	August 19, 2011
EP-11-030	Drill Report for the February 8, 2011 EP Training Drill	February 14, 2011
EP-11-049	Drill Report for the March 16, 2010 EP Training Drill	March 23, 2010
Report 24	SARC Audit Report No. 24 Control of Special Processes	August 21, 2009

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION/DATE</u>
	Corrective Action Process Benchmark Report	June 30, 2011
	Work Instruction- Pump Water from Manholes MH-3, 4,5, and MH-31	
	Fort Calhoun Station Maintenance Rule: Functional Scoping Data Sheet (Radiation Monitoring System)	April 4, 2006
	List of work orders for Radiation Monitors generated between 15 May, 2010 and 15 November, 2011	
	CQE List Part One Section I	25
	CQE List Part One Section II	39
	CQE List Part One Section IV	24
	Flooding Recovery System Health Assessment	August 12, 2011
	Quarterly Trend Report	3Q2011
FC00152	Radiation Dose Calculation for Room 15A	2
LIC-80-0080	Docket No. 50-285, Fort Calhoun Station	June 26, 1980
LIC-90-0248	Licensee Event Report 89-024, Revision 1 for the Fort Calhoun Station	March 30, 1990
LIC-90-0483	Supplement to OPPD Responses to Generic Letter 88-17 and Bulletin 80-12	June 8, 1990
OP-ST-AFW-0004	Auxiliary Feedwater Pump FW-10 Operability Test	30
OP-ST-RPS-0008	Reactor Manual Trip Test	14
PED-GEI-12	Design Engineering Review of Design Basis Document Revisions	3
PED-GEI-24	Safety Classification of Systems, Structures, Components and Sub-Components	4
PED-GEI-51.1	Design Document Correction Request (EC36173)	August 20, 2008

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION/DATE</u>
PED-QP-13	Design Basis Document Control	7
PED-SEI-19	System Health Report Preparation	20
PED-SEI-31	Vendor Manual Control	5
PED-SEI-39	Preventive Maintenance Improvement Process	2
PED-SEI-46	Functional Equipment Group and Functional Importance Determination Process	2
USAR Appendix N	Reclassification of Systems	10

Information Request
August 22, 2011
Biennial Problem Identification and Resolution Inspection – Fort Calhoun Station
Inspection Report 2011006

This inspection will cover the period from June 2009 through September 2011. All requested information should be limited to this period unless otherwise specified. To the extent possible, the requested information should be provided electronically in Adobe PDF or Microsoft Office format. Lists of documents should be provided in Microsoft Excel or a similar sortable format.

A supplemental information request will may be sent during the week of October 24, 2011.

Please provide the following no later than October 11, 2011:

1. Document Lists

Note: for these summary lists, please include the document/reference number, the document title or a description of the issue, initiation date, and current status. Please include long text descriptions of the issues.

- a. Summary list of all corrective action documents related to significant conditions adverse to quality that were opened, closed, or evaluated during the period
- b. Summary list of all corrective action documents related to conditions adverse to quality that were opened or closed during the period
- c. Summary lists of all corrective action documents which were upgraded or downgraded in priority/significance during the period
- d. Summary list of all corrective action documents that subsume or “roll up” one or more smaller issues for the period
- e. Summary lists of operator workarounds, engineering review requests and/or operability evaluations, temporary modifications, and control room and safety system deficiencies opened, closed, or evaluated during the period
- f. Summary list of plant safety issues raised or addressed by the Employee Concerns Program
- g. Summary list of all Apparent Cause Evaluations completed during the period
- h. Summary list of all Root Cause Evaluations planned or in progress but not complete at the end of the period

2. Full Documents, with Attachments

- a. Root Cause Evaluations completed during the period

- b. Quality assurance audits performed during the period
- c. All audits/surveillances performed during the period of the Corrective Action Program, of individual corrective actions, and of cause evaluations
- d. Corrective action activity reports, functional area self-assessments, and non-NRC third party assessments completed during the period (do not include INPO assessments)
- e. Corrective action documents generated during the period for the following:
 - i. NCV's and Violations issued to Fort Calhoun Station
 - ii. LER's issued by Fort Calhoun Station
- f. Corrective action documents generated for the following, if they were determined to be applicable to Fort Calhoun Station (for those that were evaluated but determined not to be applicable, provide a summary list):
 - i. NRC Information Notices, Bulletins, and Generic Letters issued or evaluated during the period
 - ii. Part 21 reports issued or evaluated during the period
 - iii. Vendor safety information letters (or equivalent) issued or evaluated during the period
 - iv. Other external events and/or Operating Experience evaluated for applicability during the period
- g. Corrective action documents generated for the following:
 - i. Emergency planning drills and tabletop exercises performed during the period
 - ii. Maintenance preventable functional failures which occurred or were evaluated during the period
 - iii. Adverse trends in equipment, processes, procedures, or programs which were evaluated during the period
 - iv. Action items generated or addressed by plant safety review committees during the period

3. Logs and Reports

- a. Corrective action performance trending/tracking information generated during the period and broken down by functional organization
- b. Corrective action effectiveness review reports generated during the period
- c. Current system health reports or similar information
- d. Radiation protection event logs during the period
- e. Security event logs and security incidents during the period (sensitive information can be provided by hard copy during first week on site)
- f. Employee Concern Program logs (sensitive information can be provided by hard copy during first week on site)
- g. List of Training deficiencies, requests for training improvements, and simulator deficiencies for the period

4. Procedures

- a. Corrective action program procedures, to include initiation and evaluation procedures, operability determination procedures, apparent and root cause evaluation/determination procedures, and any other procedures which implement the corrective action program at Fort Calhoun Station
- b. Quality Assurance program procedures
- c. Employee Concerns Program procedures
- d. Procedures which implement/maintain a Safety Conscious Work Environment

5. Other

- a. List of risk significant components and systems
- b. Organization charts for plant staff and long-term/permanent contractors

Note: "Corrective action documents" refers to condition reports, notifications, action requests, cause evaluations, and/or other similar documents, as applicable to Fort Calhoun Station.

As it becomes available, but no later than October 11, 2011, this information should be uploaded on the Certrec IMS website if you chose to employ that service. When these documents have been compiled (and by October 11, 2011), please download these documents onto a CD or DVD and sent it via overnight carrier to:

Harry Freeman – DRS/TSB
U.S. NRC Region IV
1600 East Lamar Blvd.
Arlington, TX 76011-4025

Please note that the NRC is not able to accept electronic documents on thumb drives or other similar digital media. However, CDs and DVDs are acceptable.